Differentiating Between Reproductions and Original Artworks:

The Influence of Style and Sequence

by

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ABSTRACT

In times of fast paced technology, the ability to differentiate quality differences between a reproduction and an original work of art has new urgency. The use of digital reproductions in the classroom is a useful and convenient teaching tool, but can convey visual distortions specifically in regards to texture, size, and color. Art educators often struggle to achieve a balance between incorporating the use of digital technology and fostering an appreciation for experiences with original artworks. The purpose of this study was to examine the ways in which Dewey's theory of experiential learning explains how thoroughly high school students differentiate between a reproduction and original artwork. This study also explored the influences of painting style (realistic or semi-abstract) and sequence on a student's ability to identify the differences and select a preference between the reproduction and original artwork. To obtain insight into how a student is able to differentiate between a reproduction and an original artwork, this study engaged 27 high school student participants in viewing a digital reproduction and the respective original artwork of one realistic and one semi-abstract painting at the ASU Art Museum. Analysis of qualitative and quantitative data suggests that sequence influences a student's ability to differentiate between a reproduction and original artwork. Students who saw reproductions before viewing the originals, demonstrated a more comprehensive understanding of the differences between the two presentation formats. Implications of this study include the recommendation that art educators address definitional issues surrounding the terms original and reproduction in their teaching, and consider collaborative ways to prepare students for meaningful experiences with original artworks.

TABLE OF CONTENTS

LIST OF FIGURES

Chapter 1

INTRODUCTION

I've always felt a certain calmness, security, and fascination viewing a work of art. In exploring one of the many three dimensional virtual worlds accessible on the internet, I was intrigued to come across a virtual museum. Within the confines of this electronic cultural institution I guided my digital visitor; an avatar, into a room of paintings by the well known abstract expressionist, Mark Rothko. As if I were standing in a *real* museum, I could see Rothko's awe inspiring, rectangular fields of color in what the pop-up electronic text panel identified as *Blue Orange, and Red (1961)*. I directed my avatar to move to view the digital painting up close, further back, and then from across the gallery space. Several months later I was fortunate enough to visit the Hirshhorn Museum and Sculpture Garden in Washington, D.C. and happened to view the original Rothko's *Blue, Orange, and Red* (1961) in person. The painting was surrounded by other Rothkos, each work's colors were more brilliant than the next. I quietly sat on the bench in the center of the space and stared at the colossal 90 1/4 x 81 1/16 inch oil on canvas artwork. The gallery's burly security officer watched intently as I walked up to the painting to observe it from up close, examining the artist's individual brushstrokes. I stood further back, admiring the scale of the work, and then gazed at the painting from across the gallery. The painting was strangely familiar to me. It became clear; my experience viewing the original work of art had undoubtedly been influenced by my previous virtual encounter with the digital form of the painting.

Research Problem

Throughout history the development of new technology has influenced the way communities share information. Famed European inventor, Johannas Gensfleich Guttenberg introduced the first moveable-type printing press to Germany during the mid fifteenth century, enabling the mass distribution of printed materials. Many attribute the Protestant Reformation and the subsequent establishment of copyright law to Guttenberg's invention (Cotter, 2003).

Centuries later, Alexander Graham Bell is credited with the invention of the first practical telephone. Although the technology was the result of a culmination of work by many innovators of the time, Bell filed a patent in 1876 for the technology that revolutionized the daily lives of ordinary people, making it the most popular and widely used form of instant communication (MacLeod, 1999).

Within the last two decades, technology has come to influence the manner in which we cultivate personal relationships. Since the rise of the dotcom industry during the 1990s, a dramatically increasing number of people turn to technology in their efforts to pursue romantic relationships. In 2008, over 12 million Americans subscribed to an internet dating service (Kim, Kwon, & Lee, 2009). Using the internet, individuals forgo in-person social interaction to communicate with one another through electronic messages and photographs. Match.com, a popular internet dating service, serves individuals in 24 countries. The site also reports that 17% of the couples married in the last three years met each other on an online dating site. This is more than twice the number of couples who met at a bar, club, or social event (Match.com & Chadwick Martin Bailey, 2010). Additional communication technologies include social networks

such as Twitter, Flickr, and Facebook provide instantaneous, transparent, online interaction to our efficiency-craving culture.

Just as we can shop for a mate, we can also purchase a variety of goods and services using virtual technology. Cyber Monday refers to the Monday immediately following Thanksgiving, kicking off the holiday shopping season. In 2010, more Americans than ever skipped the mall on cyber Monday and made purchases online instead (Fowler, 2010). Online shoppers relinquish the opportunity to see their desired product in person, in exchange for a shopping experience focused on ease and comfort.

Online learning refers to courses offered over the internet as opposed to face-to-face learning in a classroom setting. Over the last decade, this educational method has increased in popularity as a cost-effective way to provide highly accessible learning opportunities. With ongoing improvements to virtual technology, communication between student and instructor can be almost as immediate as sitting in a classroom. Nearly thirty percent of college students have taken at least one course online (Allen & Seaman, 2010). Public institutions provide a majority of online offerings and many view it as critical to their long term strategy.

Our daily use of technology has created a culture that demands instantaneous access to information, people, products, and services. The artworld is no stranger to utilizing technology. Digital technologies are changing what it means to create (Tillander, 2011). Digital art is a form of artistic expression that uses electronic technology (Mayo, 2006). Computer imaging was initially used in military research, but digital based artworks began in the late 1960s with computer-assisted design programs (CAD) that were used in the

engineering of buildings. During this period, society's interest in the Sputnik space race (1957) and a fascination with *Star Wars* encouraged people to believe that technology could provide a solution to a wide range of problems (Mayo, 2006). Digital art, new media, and net-art quickly became new tools for artistic expression. Movie companies such as Industrial Light and Magic, Digital Domain, and Pixar created programs like Adobe Photoshop for image manipulation and image synthesis technologies to develop 3D animation (Mayo, 2006).

Robert Silvers (b. 1968) and Jennifer Steinkamp (b. 1958) are examples of contemporary artists who use new media in their art-making. Robert Silvers invented the semi-realistic photomosaic technique in the 1990s while he was a graduate student at the Massachusetts Institute of Technology. Often compared to American painter and photographer, Chuck Close's fragmented painted portraits, Silvers' work pushes the boundaries of digital art. Silvers first selects a theme that is distinctive to his subject matter, such as *Flowers for Diana (1997)* and Holocaust images for *Ann Frank (2002)*. Then he chooses the specific photographs to be used in the piece. Before any digital manipulation occurs, Silvers considers color and pattern and groups the images according to the values of the composition and overall theme. Selected photos are scanned into a digital software program that employs the photographs into a matrix, similar to the way a piece of tile might function in a mosaic. Each photomosaic is produced in a small worldwide edition and the artist reserves the right to make three proofs (Silvers, 2009). Silvers' photomosaics are functional in nature as they are used for various forms of propaganda such as movie posters and magazine covers,

but his work also contains an expressive quality because it conveys symbols, meaning, and moods related to his subject matter.

Los Angeles based artist Jennifer Steinkamp has been a pioneer of computer animation since the early 1990s. She uses computer graphics to create strongly experiential, abstract animations that "take full advantage of the computer's ability to create motion and points of view that are not available by any other means" (Steinkamp, 2001, p. 109). Steinkamp employs multiple projectors and 3D animation technology to create a complex relationship between the viewer and the object on view.

In addition to its use as a new media, technology has also changed how the viewer can access artwork, particularly over the last century with the development of American modernism. The French post impressionist artist, Paul Cézanne (1839-1906) was a great innovator and is often referred to as the father of American modernism. The exhibition *Cézanne and American Modernism,* organized by the Montclair Museum of Art and The Baltimore Museum of Art, was one of the first shows to examine the artist's lasting legacy on American modernists artists between 1900 and 1930. The show toured to the two organizing venues from 2009 to early 2010 and stopped at Phoenix Art Museum in the summer of 2010. Surprisingly, not a single one the 33 artists featured in the exhibition met Cézanne, nor did most see an original painting by the French post-impressionist.

Prior to 1910, there were few opportunities for American artists to access original European artworks, unless they traveled abroad. Many had no choice but to rely on reproductions in books such as Julius Meier-Graefe's *Modern Art: Being a Contribution to a New System of Aesthetics* from 1908 (Stavitsky, 2009).

It was especially difficult to see an original Cézanne because exhibitions of work by new artists were infrequently organized, especially in the United States.

Max Weber (1881-1961), one of the most influential American artists of the early twentieth century, was one of the many young artists who visited Paris. While in Europe, Weber collected books, paintings, and reproductions to serve as visual aids and inspiration for his own work. After almost four years abroad, Weber returned to the United States singing the praises of Cézanne's innovative painting. To support his claims, Weber brought back with him 18, high quality, black and white, photographic reproductions of Cézanne's work taken by Eugene Druet, a Parisian gallery owner. In 1910 Weber lent these reproductions to famed photographer and promoter of modern art, Alfred Stieglitz (1864-1946) to include in a groundbreaking exhibition at his New York City gallery, 291 Fifth Avenue. A space dedicated to progressive artwork, the 291 gallery was the first to publicly display Cézanne's work (Stavitsky, 2009). These photographs contained varying gray tones barely hinting at Cézanne's use of vibrant color planes and complex forms and were devoid of accurate information regarding the original's texture and size. Several months after the showcase of the photographic reproductions, the 291 gallery exhibited several original Cézanne watercolors. Nonetheless, the photographs were first and of noteworthy importance. Despite the lack of color and rich surface texture, these secondary sources served as accessible illustrations to inspire artists to bring Cézanne's legacy to the United States. Without these reproductions, American modernism might have taken a very different direction.

Among the hundred works in the *Cézanne and American Modernism* exhibition, museum visitors were able to view more than 80 works from public

and private collections from throughout the United States by American artists, including Marsden Hartley, Maurice Prendergast, Arshile Gorky, Alfred Stieglitz, and Man Ray, who employed several of Cézanne's innovative techniques in their own work. An equally fascinating portion of the exhibition is the inclusion of several of the 291 gallery photographs. These secondary sources bring attention to the exhibition's emphasis on the role of reproductions in the acceptance of Cézanne's work in the United States and are early evidence of the complexities of teaching and learning with reproductions and original artworks.

As with the early exhibition of Cézanne's work, today artists, galleries, and museums engage technology in a variety of ways to make artwork accessible. Museums can create online galleries featuring digital photographs of their collection. These online galleries are accessible through the institution's website and can be downloaded by artists, educators, and visitors. Images from special exhibitions are often presented as micro-sites, allowing an art enthusiast to experience a changing exhibition from thousands of miles away. Art galleries can send e-mail announcements with photographs of new work to entice collectors to purchase, and virtual technology enables emerging artists to post digital photographs of their newest creations seeking feedback from online communities.

In the twenty-first century, technology permits information to be shared instantaneously. With the click of a mouse, one can arrange a first date, take a midterm exam, and purchase an antique bedroom set. In a few seconds you can examine a photograph of your favorite artwork on view at a museum on the other side of the world, commission a custom sculpture, and critique a colleague's new piece. These opportunities present obvious advantages in

terms of accessibility and cost effectiveness, but they also suggest some dangers. In a culture that is constantly speeding up it is easy to miss the complexities and contradictions of our surroundings.

Appreciating the richness and transformative power of a work of art requires close observation and thoughtful interpretation. The immediacy of technology can often put this experience in jeopardy. To protect against this problem, art educators must explore how to most effectively teach students to develop a critical understanding of what they see, whether it be in a museum gallery, classroom, or downloaded from a website. An individual's ability to differentiate between a reproduction and original artwork is essential to achieving a balance between utilizing digital technology and fostering an appreciation for experiences with original artworks

Summary of Previous Studies

Historically, philosophers and art educators have examined notions of teaching and learning with reproductions and original artworks. One of the first individuals to consider the ways visual reproductions shape an art experience was German philosopher Walter Benjamin (1892-1940). Benjamin cautioned against the danger of detaching an image from its aura; the time and place where it exists, and its "domain of tradition" (1935, p. 1). He argued that reproductions take an art object out of their distinctive existence. However, Benjamin also writes on the notion that reproductions take art closer to the people.

Through the years several art educators; Marantz (1966), Schwarcz (1982), Zeller (1983), and Stankiewicz (1984) have argued that original artworks are more effective teaching tools than reproductions. In the 1960s, 1970s, and

1980s, researchers Farley and Weinstock (1980), Dreher (1968, as cited in Hubard, 2007), Hardiman and Zernich (1984), and Kiechel (1984) conducted experimental studies, many of which utilized ranking and preference scales to compare an individual's responses to original artworks and reproductions. More recently, Olga Hubard (2007) conducted one of the few qualitative studies dealing with reproductions and originals. The findings of these studies are reviewed in more detail in chapter two.

Additional research is needed to understand how students can most effectively learn from and have meaningful art experiences with both reproductions and original artworks. Previous studies have employed ranking scales, assessed preference, and used qualitative methods to determine how individuals respond differently to reproductions and original artworks. However, there is a deficiency in the literature testing an individual's ability to identify the differences between digital reproductions and original artworks.

Significance to Art Education

In times of fast paced technology, the ability to differentiate quality differences between a reproduction and an original work of art has new urgency. The use of digital reproductions in the classroom is a useful and convenient teaching tool, but can convey visual distortions. Reproductions often fail to accurately display powerful visual elements, such as texture, size, and color, thereby diminishing the effectiveness of instruction. Viewing an original artwork allows students to have a different art experience, empowering them to construct their own interpretation. Art educators can protect against an overreliance on technology by teaching students to recognize the potential differences in texture,

size, and color between an original artwork and a reproduction.

The ability to differentiate quality differences between a reproduction and an original work of art is also essential to inspiring life-long learning in the visual arts. Arizona's Department of Education acknowledges the importance of this ability by incorporating the skill in the 2006 Visual Arts Standards. "Students are able to understand how differences in quality between a reproduction and original may affect their interpretation of an artwork" (Arizona Department of Education, 2006). This performance objective is drawn from the intermediate and advanced levels of *Stand 3: Evaluate, Concept 5 Quality* where, "the student will apply criteria for judging the quality of specific artwork" (Arizona Department of Education, 2006).

I reviewed the visual arts standards of five other states; California, New York, Ohio, Pennsylvania, and Virginia. Out of this group, New York was the only state with standards that articulate the importance of a student's ability to differentiate between a reproduction and original artwork. The New York Learning Standards for the Arts (1996, p. 19) expresses that "students will know about resources and opportunities for participation in the visual arts community and use appropriate materials." The standard goes on to describe one example of successful implementation as, "a visit to a museum to look at an original work of art and discuss the differences between the original and reproduction," (Learning Standards for the Arts, 1996, p. 19). Although New York was the only other state of the five reviewed that referenced being able to differentiate between a reproduction and original artwork, all five states address arts learning related to technology. For example, Pennsylvania's Arts and Humanities Standards articulate that students should be able to "analyze and evaluate the

use of traditional and contemporary technologies for producing, performing and exhibiting works in the arts or the works of others" (Pennsylvania Department of Education, 2011). Ohio's Fine Art Academic Content Standards list several performance objects aimed at student understanding of art and technology, "describe the use of technology as a visual art medium using computer-generated examples" (Ohio Department of Education, 2009). As digital art and electronic media become an increasingly popular form of teaching, learning, and art-making, a student's ability to discuss the differences between a reproduction and original work of art becomes essential to having a wide range of meaningful art experiences.

High school students could benefit from both acknowledgment and improvement in the ability to differentiate quality differences between a reproduction and an original work of art. High school students are aware of societal standards, are beginning to make informed personal judgments, and are receptive to new ideas and processes. Additionally, at the high school level, many students are able to make the choice to enroll in a studio or art history course. High school students have the maturity level and vocabulary to articulate their own observations of an artwork's texture, size, and color. This skill is essential for a student to be able to thoroughly identify differences between a reproduction and original artwork.

The ability to differentiate between reproductions and original works of art is especially important under current economic conditions. Funding for field trips to museums and other cultural institutions where students can view original art and artifacts is scarce. The results of the 2009 Arizona Arts Education Census reported that of the schools that have not participated in an arts related field trip

in the last year, the number one barrier (47%) to participation was budget constraints (Arizona Commission on the Arts, 2010). Additionally, teachers are under severe pressure to utilize every minute of classroom instruction to teach to local standards, often avoiding field trips for fear of losing valuable instruction time.

Observing an original work of art is part of the process of developing a lasting appreciation for art that also goes beyond the classroom. "The most important outcomes of school art programs are not achieved while students are still in school. Rather, they are achieved when, having left school, individuals continue to enrich their lives and their society through meaningful and satisfying encounters with art" (Wilson, 1997, p. 18). Understanding the educational benefits of incorporating original artworks in high school art instruction could be of great value to educators, specifically art teachers, as well as school administrators, who are invested in long term learning goals.

Additionally, notions about how to most effectively engage students in meaningful art experiences are constantly evolving. In museum education, constructivist approaches to learning encourage an art-based inquiry process of generating and answering questions through a collaborative dialogue (Villeneuve & Love, 2008). Villeneuve and Love assert that the inquiry method calls for active participation in the interpretive process while enabling individuals to develop into independent and highly motivated learners (2008). As students take part in the art-based inquiry process, they also learn "to slow down, to look longer, and to trust their own responses" (Hubard, 2007, p. 252). This notion of slowing down long enough to make thorough observations and create personalized meaning

runs in sharp contrast to virtual technology's near instantaneous results with universal accessibility.

Purpose of Study

The purpose of this study was to examine the ways in which Dewey's theory of experiential learning explains how thoroughly high school students differentiate between a reproduction and original artwork. This study also explored the influences of painting style (realistic or semi-abstract) and sequence on a student's ability to identify the differences and select a preference between the reproduction and original artwork. To obtain insight into how a student is able to differentiate between a reproduction and an original artwork, this study engaged 27 high school student participants in viewing a digital reproduction and the respective original artwork of one realistic and one semi-abstract painting at the ASU Art Museum. This study also sought to better understand how art educators can achieve a balance between incorporating the use of digital technology and fostering an appreciation for experiences with original artworks.

Research Questions

This mixed methods study addressed whether Dewey's theory of experiential learning explains how thoroughly high school students differentiate quality differences between a reproduction and an original work of art. Additionally, this study explored two operational research questions. (1) How does the viewing sequence of a digital reproduction and original artwork influence a high school student's ability to describe differences between a reproduction and an original artwork? (2) How does painting style (realistic or

semi-abstract) influence a high school student's ability to describe differences between a reproduction and an original artwork?

Chapter 2

LITERATURE REVIEW

Historically, philosophers and art educators have sought to better understand notions of teaching and learning with reproductions and original artworks. This body of literature includes advocacy articles, numerous quantitative studies, and a recent qualitative study. These works reflect a wide range of insights into how individuals respond differently to reproductions and original artworks.

One of the first researchers to consider the ways visual reproductions shape one's art experience was German philosopher Walter Benjamin (1892-1940). "Even the most perfect reproduction of a work of art is lacking one element: its presence in time and space; its unique existence at the place where it happens to be" (1935, p. 1). Benjamin goes on to describe the danger of detaching an image from its aura; the time and place where it exists, and its "domain of tradition" (1935, p. 1). While he argues that reproductions take an art object out of their distinctive existence, Benjamin also alludes to the notion that reproductions take art closer to the people.

Through the years several art educators; Marantz (1966), Schwarcz (1982), Zeller (1983), and Stankiewicz (1984) have argued that original artworks are more effective teaching tools than reproductions. Marantz (1966) addresses originals and reproductions with a concern that educators often fail to convey to students a deep understanding of the terms. He writes, "the highest value has been placed on original works of art without a thorough analysis of what appreciating originality means. Printed reproductions and transparencies are listed as alternatives without a clear understanding of the wide range of

variation." (1966, p. 149-150). Marantz goes on to present the limitations of various forms of reproductions including photographs: printed and projected, castings, graphics, colloype, lithography, photogravure, letterpress, and silk screen.

Zeller (1983) acknowledges the role of museum experiences in teaching students to differentiate between a reproduction and an original work of art. "While reproductions are a necessary teaching tool in schools that are not within a reasonable distance from a museum, their use is much less acceptable in metropolitan or suburban districts that have easy access to visual arts facilities" (1983, p. 43). Zeller challenges fellow art educators to convince school administrators that students deserve to be taught with original artworks.

Stankiewicz (1982) describes the development of the picture study movement in art education. This practice took place from 1895 through the 1920s to assist in teaching art appreciation to school children. During the latter half of the 19th century, the development of printing processes facilitated the practice of reproducing works of art. Historical accounts reveal that larger reproductions were displayed in school halls, while teachers distributed smaller prints to their students. During the picture study movement, *School Arts* published articles to assist teachers with picture study. "Suggested methods included telling the story of the painting and the artist, asking the children questions about the subject matter or story, setting up tableaux, writing stories, or making booklets of reproductions with essays" (1984, p. 86). Some educators acknowledged that the reproductions used in picture study had obvious visual inconsistencies as compared to their respective originals. Despite this acknowledgement of visual distortions, Stankiewicz explains that educators

"expected students to respond to the reproductions as if they shared the aesthetic identity with the original works" (1984, p. 87).

Schwarcz (1982) continues to examine the role of the reproduction in art education. He suggests that "the art educator has to be sensitive to the fact that the wide range of machine-made reproductions, which bring art closer to students, can also prevent them from becoming aware of the humanistic function of the original" (1982, p. 11). Schwarcz suggests that both the original work and a reproduction can encourage different kinds of meaningful aesthetic experiences. He asserts that it is the art teacher's responsibility to "maintain the balance between the illusion offered by art and one offered by technical conventions" (1982, p. 13).

In the 1960s, 1970s, and 1980s, researchers conducted several experimental studies, many of which utilized ranking and preference scales to compare an individual's responses to original artworks and reproductions. Farley and Weinstock (1980) examined the relationship of artwork complexity and preference in the responses of 40 elementary school children. Half of the participants viewed 25 abstract, original black and white woodcuts, while the other half looked at 25 printed photographic reproductions of the same works. The researchers asked participants to rank images from most complex to least complex, and then rank the works which they liked best to the ones they liked the least. Study findings suggested that "no significant relationship was shown between complexity rankings of the original art and its reproduction or between the preference ratings of the two sets of stimuli" (1980, p. 195).

Dreher (1968, as cited in Hubard, 2007) examined the responses of three groups of adult participants after viewing the same set of images, but in different

presentation formats: original paintings, color photographic prints, and black and white photographic prints. Based on a five point preference scale and a series of open-ended questions, Dreher determined that the majority of participants preferred original works over color photographic prints. Data also indicated that participants preferred color photographic prints to black and white prints. Dreher did not report findings from the study's open-ended component.

Kiechel's (1984) study compared two groups of fifth grade students. One group viewed six original paintings, while the other group looked at six slide reproductions of the same paintings projected as the size of the original works. Following a 30 second viewing period, participants ranked their preference of each image on a six point scale; "like very much, like much, like some, dislike some, dislike much, dislike very much" (1984, p. 34). Results revealed that participants ranked their preference for original paintings higher than those of slide reproductions.

Hardiman and Zernich (1984) presented original paintings, colored slides, and colored photographic prints to three groups of college students. The researchers assigned each participant group to respond to a different presentation format. All participants had 30 seconds to respond to each of the eight paintings. The researcher classified the style of half of the paintings as realistic and the other half as semi-abstract. Participants recorded their responses on a semantic differential instrument consisting of an 18 adjective scale that "represented evaluative, emotive, dynamism, and structural-organizational factors" (1984, p. 105) of each artwork. Hardiman and Zernich's overall findings revealed no significant response differences due to presentation format. However, semi-abstract style paintings elicited varied responses across

various modes of presentation.

More recently, Olga Hubard (2007) conducted one of the few qualitative studies dealing with reproductions and originals. The study had a small sample size of 24 adolescent participants that were divided into four groups. In order to collect richly descriptive, in-depth data, Hubard focused on a single artwork, *A Goldsmith in his Shop* (1449), a Renaissance painting by Flemish artist Petrus Christus on view at the Metropolitan Museum of Art. The first three participant groups viewed the painting in a different presentation format: the original work, a postcard reproduction, and a digital reproduction. The fourth group looked at the painting three separate times; once in each of the presentation formats. The researcher asked all participants to engage in a conversation about the painting following their viewing. Hubard used an interview guide to ask participants a series of questions encouraging them to describe the work and suggest ideas as to the narrative the image implied (2007). Additionally, participants who viewed the image in three different formats stated their preference and explained the reason for their selection. Hubard's findings revealed overall consistency in responses across the various presentation modes and suggested that both originals and reproductions can provide meaningful learning experiences. Participants who viewed the original work, more often offered reflections regarding the artist's use of materials and process. "Seeing the image embodied in paint appeared to awaken the sense of touch in the students, and it invited them to reflect about the media and process involved in the creation of the painting" (2007, p. 259). However, the qualitative design of the study doesn't allow for results to be generalized. Although Hubard's findings could relate to other research, they are most relevant to her study's testing scenario.

Ruby (2008) discusses the advantages, disadvantages, differences, and similarities of viewing Rembrandt's *Self Portrait* (1660). The researcher views the work in three different presentation formats: a web-based image, a photograph of the painting, and the original painting. Ruby advocates for viewing the original work "despite the educational benefits of all the reproductions now available to us, the value of a visit to the original can never be underestimated" (2008, p. 56). Above all, Ruby suggests that the artist intends for individuals to view a work of art in its entirety as close to the original as possible.

The advocacy writings, numerous quantitative studies, and Hubard's 2007 qualitative findings reflect a wide range of insights into how individuals respond differently to reproductions and original artworks. However, there is a deficiency in this body of literature testing one's ability to identify the differences between digital reproductions and original artworks. Hardiman and Zernich's (1984) findings regarding how semi-abstract paintings elicited different responses across various modes of presentation prompted me to design my study to further investigate the influence of style (realistic or semi-abstract) on a student's ability to differentiate between a reproduction and an original artwork. Additionally, the methodology of Hubard's (2007) study, specifically the design of her participant groups, encouraged me to potential influence of sequence on teaching and learning with reproductions and original artworks. Hubard's fourth group of participants viewed a Renaissance painting on three separate occasions. Each time participants saw the painting in a different presentation format: the original work, a postcard reproduction, and a digital reproduction. I found it curious that Hubard did not specify the order in which participants viewed each of the formats. This triggered my interest in obtaining an understanding on the role of

sequence when teaching and learning with reproductions and original artworks. Hubard's (2007) study also demonstrated the importance of employing qualitative methods into captured the complexity of this area of research. Hubard's methodology encouraged me incorporate interviews, observations, and other forms of qualitative analysis in the design of my mixed methods study which is discussed further in chapter 3.

Conceptual Framework

In 1934, American philosopher, psychologist, and education reformer, John Dewey (1859-1952) wrote *Art as Experience* to share his philosophy of art and break down the barriers that separate art from everyday life. As a culmination of his world view, Dewey integrated aesthetics into the essence of an experience (Costantino, 2004). Four years later he wrote *Experience and Education*. In this book, Dewey summarized his educational philosophy of experiential learning, an approach built on the idea that all genuine education comes about through experience.

Although Dewey did not comment directly on the use of reproductions and original artworks in education, one can apply many of his notions regarding experiential learning to this area of study within art education. Dewey's emphasis on the power of experience, the belief that authentic learning was a result of living and doing, and that art had a commanding role in everyday life implies that educators must seek to have a more comprehensive understanding of the nature of individuals' art experiences.

Formal education bombards students with a variety of images, both in printed and digital formats. The image offers an efficient means to convey an

idea, but, according to Dewey, we must question the type of experience that the image provides. Experiential learning reminds art educators to consider how a student learns from various forms of visuals. Whether digital reproduction, or original artwork, the format of the image should not be taken for granted. How might viewing a printed reproduction provide students with a different experience from viewing the actual work of art? Does a digital reproduction or original artwork provide a more genuine art experience?

Both original works and reproductions can lead to an aesthetic experience, but of different kinds. Dewey writes, "for to perceive, a beholder must create his own experience. And his creation must include relations comparable to those which the original producer underwent" (Dewey, 1934, p. 54). Dewey's concept of experiential learning advocates for interaction close to if not directly with original artworks in some form or another. To partake in a rich and comprehensive experience an individual must visually come in contact with what the artist initially encountered. This doesn't necessarily mean that students must view original artworks in world class art museums. Dewey had ambivalent views about museums; although he recognized their educational potential he simultaneously accused them of being "cathedrals of the wealthy" (Costantino, 2004, p. 399).

Dewey's relationship as the friend, teacher, and sometimes pupil of Albert C. Barnes (1871-1951), an American inventor, passionate art collector, student of art, philosophy and psychology, and founder of the Barnes Foundation, contributed to his beliefs on the need for widespread accessibility to art and education (Meyers, 2004). In 1918, Barnes attended John Dewey's seminars at Columbia University to study the scientific method in education. The two quickly

became close collaborators. Many of Dewey's teachings influenced Barnes to establish the Barnes Foundation in 1922 "to promote the advancement of education and the appreciation of the fine arts," and he named Dewey the Foundation's first director of education in 1923 (Meyers, 2004). At the dedication of the Barnes Foundation in 1925, Dewey said, "art is not something apart, not something for the few, but something which should give meaning to all the activities of life" (Dewey, p. 5). His collaborations with Barnes helped Dewey to refine his theory of aesthetics so much so that he dedicated *Art as Experience* to "Albert C. Barnes in Gratitude" (Dewey, 1934).

Museums provide opportunities and optimal contexts for experiences with original artworks, but in tough economic times, field trips present educators with a variety of logistical challenges. Dewey's notions on experiential learning also support the idea that visits to see what Schwarcz (1982) described as original "here-and-now" work. In many communities there are a number of works of art located on the site for which they were made, and where they serve a specific purpose: a mural, a sculpture in a public garden, or a memorial on a hill. The root of Dewey's philosophy of experience lies in its treatment of art as a normal mode of experience, one that can take place in a variety of environments that allow for the direct appreciation of an original work of art.

Dewey's ideas on experiential learning helped to inform the design of this study. The foundation of experiential learning illustrates the central role of experience, the result of the interaction between a human being and his or her environment in the learning process. In keeping with the notion that authentic learning takes place when the learner has a direct encounter with the phenomena being studied, I determined that the most effective way to access

how thoroughly students were able to differentiate quality differences between a reproduction and original artwork was for participants to experience both presentation formats. This gave participants a chance to make direct observations and create a personalized learning experience.

Definition of Terms

This study requires an understanding of several operational definitions. Historically, there are various ways to describe an original artwork and a reproduction. In 1966 Marantz set forth "anything manually made in art is original, as opposed to mechanical reproduction" (p. 175). Today, as artists utilize computer generated tools and techniques in their art-making, Marantz's 1960s reference to the term "manually" requires additional interpretation. As digital art and new media have quickly become new tools for artistic expression, efforts to define an original artwork require more emphasis on the role of the artist as the initial creator, while a reproducer is an imitator. Other art educators view an original artwork as an object in its authentic form created by the artist as a unique phenomenon that is one of a kind (Schwarcz, 1982). An authentic form can take on a variety of outward appearances (painting, sculpture, installation). However, identifying an artwork as an original alludes to the existence of other works that are similar, but not authentic. While a reproduction can be created with any medium and rendered in any size (Marantz, 1966) and in most instances reproductions are less valuable than originals (Hubard, 2007). In most simple terms, a reproduction is considered a copy of an artwork (Ragans, 2005).

In this study, I classified paintings on view at the Arizona State University Art Museum produced by the artist as original artworks. The digital reproductions were projected electronic photographs of the originals as displayed

on a PowerPoint slide. Sequence describes the order in which participants viewed the digital reproduction and original artworks. Participants responded to the digital reproductions and original artworks by describing the painting's texture, size, and color. Texture is "the element of art that refers to how things feel, or look as if they might feel if touched" (Ragans, 2005, p. 472). Size can be defined as scale "measured against a standard reference" (Ragans, 2005, p. 472). Color is an element of art that is derived from reflected light. The sensation of color is aroused in the brain by response of the eyes to different wavelengths of light. Color has three properties: hue, value, and intensity (Ragans, 2005). In this study, these three areas of observation (texture, size, and color) helped to access a participant's ability to differentiate quality differences between a reproduction and an original artwork. Texture and color are two of the elements of art, the basic building blocks an artist's utilizes to create a work of art. Texture and color are also the most obvious areas of observation that are often visually inaccurate in a reproduction. Although size (or scale) is not an element of art, it is an important area of observation. Size can refer to an entire work of art or certain components of a piece. Identifying differences in size between a reproduction and original artwork encourages the viewer to consider prior knowledge, make visual comparisons, and formulate observations about the context in which the artwork is presented.

For purposes of this study, I identified the two paintings as either realistic or semi-abstract. A painting in a realistic style was one in which "the proportions and colors of the subject matter corresponded to nature" (Hardiman & Zernich, 1984, p. 105). A semi-abstract painting refers to a work that "shows variation and distortion of subject matter" (Hardiman & Zernich, 1984, p. 105).

Previous studies on teaching and learning with reproductions and Dewey's ideas on experiential learning provide the foundation for this study. Art educators such as Marantz (1966), Zeller (1983), Stankiewicz (1984), and Schwarcz (1982) have argued that original artworks are more effective teaching tools than reproductions. In the 1960s, 1970s, and 1980s, researchers Farley and Weinstock (1980), Dreher (1968, as cited in Hubard, 2007), Hardiman and Zernich (1984), and Kiechel (1984) conducted experimental studies, many of which utilized ranking and preference scales to compare an individual's responses to original artworks and reproductions. A more recent study by Olga Hubard (2007) offers qualitative insights into how the presentation format: the original work, a postcard reproduction, and a digital reproduction, influenced participants' critical responses to a Renaissance painting. Despite the efforts of many researchers to rank, access preference, and describe experiences, there remains a deficiency in the literature that explores an individual's ability to identify the differences between digital reproductions and original artworks.

Dewey's implied advocacy for teaching with original artworks and his ideas on experiential learning influenced the design of this study. Consistent with the notion that authentic learning takes place when the learner has a direct encounter with the phenomena being studied, I determined that the most effective way to access how thoroughly students were able to differentiate quality differences between a reproduction and original artwork was for participants to experience both presentation formats. A more detailed explanation of this study's methodology is discussed in the next chapter.

Chapter 3

METHODOLOGY

A methodology is a procedure for research that sets forth specific plans for data collection, analysis, and interpretation (Creswell, 2009). A researcher develops a methodology based on the nature of the research problem, their personal experiences, and the audience of the study. The purpose of this study was to examine the influences of style (realistic or semi-abstract), sequence, and also to explore the ways in which Dewey's theory of experiential learning explains how thoroughly high school students differentiate between a reproduction and an original work of art. This study also sought to understand how art educators, the intended audience for this research, can achieve a balance between incorporating the use of digital technology and fostering an appreciation for experiences with original artworks.

Research Design

This study combined both quantitative and qualitative research methods. There are several different terms used for this approach, including "integrating, synthesis, quantitative and qualitative methods, multimethod, and mixed methodology" (Creswell, 2009, p. 204). A simultaneous mixed methods approach increases the overall strength of a study (Creswell, 2009). Researchers often utilize mixed methods in order to have a more comprehensive understanding and explanation of the research problem, and to build on the results from the other approach. In this study, I sought to acquire a multilayered understanding of how high school students differentiate between a reproduction and original work of art. I began with classroom visits and teacher interviews. Then, I collected quantitative data from participants in a survey format. I made

field notes and observations that in many instances supported the suggested findings of the quantitative data, specifically in regards to the influence of sequence on a student's ability to differentiate between a reproduction and original artwork. Next, I analyzed the participants' quantitative data and the initial teacher interviews using several emerging themes such as definitional issues, personal meaning making, accessibility, style, color, and size. These steps are explained in more detail at a later point in this chapter.

There are several different ways to approach mixed methods research. I utilized a sequential exploratory strategy which involves a first phase of qualitative data collection and analysis followed by a second phase of quantitative data and analysis (Creswell, 2009). I modified this mixed methods approach to include two phases of qualitative analysis, one in the beginning of my research and one at the end. I selected this strategy so that I could use quantitative data to assist with the interpretation of qualitative data, thereby ensuring a way to triangulate findings. My sequential exploratory strategy involved a first phase of qualitative data collection and analysis in the form of teacher interviews and classroom visits. It was followed by a second phase of quantitative data collection and analysis through a survey format to access a student's ability to differentiate between a reproduction and original artwork. The second phase confirmed and expanded on several of the themes and initial findings mentioned in teacher interviews. My third phase involved a qualitative analysis of the quantitative data collected from participants. Again, I was able to reconfirm and expand on several themes and initial findings from the earlier teacher interviews and the results of the participants' quantitative responses. In this final phase, my observation and field notes become very helpful in

interpreting the previous sets of data gathered in the first and second phases of my study.

Context and Participants

I recruited study participants by contacting several local visual arts teachers that were recommended by colleagues and professors. I selected a photography teacher from a public high school in Tempe, Arizona, and an upper school visual arts educator from an independent private school in Phoenix, Arizona. Both of these teachers would help me to better understand my research problem and agreed to bring their students to the Arizona State University (ASU) Art Museum for the quantitative portion of my study.

The independent private school in Phoenix, Arizona provides education for early childhood through high school. The school is fully accredited by the North Central Association of Colleges and Schools and the National Association for the Education of Young Children. It is a member of the National Association of Independent Schools and the Arizona Association of Independent Schools. The school has a total enrollment of 350 students with an overall student-teacher ratio of 8:1 and charges tuition per academic year (Tesseract School, 2009).

The independent private school's arts program consists of one visual arts educator for the lower school (early childhood through fourth grade) and one visual arts educator for the upper school (sixth grade through twelfth grade). I interviewed and visited the classroom of the upper school's visual arts educator. This teacher taught a total of ten students. She agreed to bring her upper school, advanced art students: three females and two males, to the ASU Art Museum to participate in the second phase of my research. Several of these students were international students whose families recently relocated to

Arizona.

A public high school photography teacher also participated in my study. As part of the Tempe Union High School district, this school has a total enrollment of 1,272 and provides education for students in grades nine through twelve. There are two visual arts teachers at the school. The photography teacher taught art and design, photography, and an advanced photography class. She is also the sponsor of the school's photo club. Twenty-two of the teachers' advanced photography students; fourteen females and eight males, participated in the second phase of my study. Several of these students were enrolled in the school's International Baccalaureate (IB) program.

As the site for the quantitative phase of my study, I arranged for students from the independent private school and the public high school to visit the ASU Art Museum on a separate occasion in the fall of 2010. This museum is located on the west edge of the campus of Arizona State University. The institution was founded in 1950 with a significant gift of American and Mexican art works. With more than 10,000 objects in its collection, the museum emphasizes contemporary art, new media, ceramics and other crafts, prints, art from Arizona and the Southwest and Latino art. The museum serves scholars, artists, collectors, University staff, and students in all disciplines.

Data Collection

Data collection is a process of gathering relevant information (Stokrocki, 1997). I received IRB approval to begin collecting data on September 27, 2010. A copy of my IRB approval is included in Appendix A. I collected data through three different methods: teacher interviews, a survey instrument, field notes, and observation.

I began my study collecting qualitative data by visiting the classrooms of two visual arts teachers. I visited each classroom one time. A small portion of my visit took place while class was still in session, but the majority of my time was spent talking with each teacher after school was dismissed for the day. During my classroom visit, I conducted a standardized open-ended interview with each of the two teachers. This approach ensured that each of the teachers were asked the same questions in order to provide comparability to make data analysis easier (Patton, 2002). I posed open ended questions from a discussion guide to inquire how the participating teachers used original art objects and reproductions in their respective classrooms. These questions appear in Appendix B. While visiting the two classrooms, I was an observer and recorded field notes regarding teacher and student interactions, available resources, as well as classroom set-up. I continued my conversations with each teacher through e-mail correspondence.

Next, I gathered data using a survey instrument. This quantitative strategy allows the researcher to provide a numeric description of a trend or understanding by studying a sample of the population (Creswell, 2009). The survey enabled me to gather a quantitative description of a population of high school students' abilities. Participants were from a non probability or convenience sample, because I requested that each teacher bring the students who were available and had permission to participate in a class field trip. I developed a survey instrument specifically for my study. This instrument was in the form of a response sheet. The response sheet appears in Appendix C. It contained a total of four open-ended questions and three multiple choice questions. I selected a survey as my method of data collection during this phase of my research

because it was inexpensive, was relatively easy to obtain, and the instrument provided standardized opportunities for fast data collection.

Given the small sample size of the independent private school class and the teacher's time constraints, I conducted a preliminary quantitative research phase with five students from the independent high school at the ASU Art Museum. I pre-selected two paintings to share with the students in two formats: digital reproduction and original artwork. I categorized the style of one painting as realistic: David Alfaro Siqueiros, *The Sleep,* 1939, duco on masonite, 22 x 40 inches (see Figure 3.1), and the other as semi-abstract; Fritz Scholder's *Indian With Orange Face,* 1969, oil on canvas, 22 ¼ x 20 ¼ inches (see Figure 3.2). Both of these artworks are a part of the ASU Art Museum's permanent collection and were on view on the second floor in the Americas Gallery.

Figure 3.1. David Alfaro Siqueiros, *The Sleep*, 1939, duco on masonite

Figure 3.2. Fritz Scholder, *Indian With Orange Face*, 1969, oil on canvas

I followed a set of administrative procedures to ensure consistent protocol during the quantitative phase of data collection. These procedures are included in Appendix D. I showed participants a digital reproduction using a PowerPoint slide of the two paintings (see Figure 3.3). These paintings were on view for three minutes each in the museum's multipurpose room. Next, I brought participants to the ASU Art Museum's Americas Gallery to view both of the same two original paintings for three minutes each (see Figure 3.4).

While viewing the digital reproductions and the original artworks, participants were given the option to complete an observation guide. Appendix E includes a copy of the observation guide. This document provided participants an opportunity to organize their observations according to the visual elements of line, texture, size, color and shape. The observation guide was intended to eliminate a participant's potential struggle to remember what they saw in the gallery when they are asked to complete a response sheet when the artwork is no longer in view.

After viewing the original paintings in the gallery, I asked participants to return to the museum's multipurpose room to complete the front and back response sheet for the two artworks. I provided pencils and offered participants additional paper if needed. Participants had twenty minutes to complete the response sheet. Prior to the participants' arrival I placed a unique identifying code on the top right hand corner of each response to keep responses anonymous. Before participants turned in their response sheets, I asked that they record their gender at the top of the page. After participants left the museum, I scored their response sheets using a scoring guide. The scoring guide is included in Appendix F.

Figure 3.3. Participant views reproduction of *Indian With Orange Face*.

Figure 3.4. Participants view original of *Indian With Orange Face*.

I conducted a more thorough quantitative research phase with the 22 students from the public high school. I was able to do this because the teacher had fewer time constraints and the school is located in close proximity to the ASU Art Museum. Upon arrival at the museum, I divided the students from the public high school into two groups of eleven. I identified one group as A and the second group as B. Both groups A and B viewed the same two pre-selected paintings as students from the independent private school in two presentation formats: digital reproduction and original artwork. I kept the same artwork categorizations as well. I identified one painting as realistic: David Alfaro Siqueiros, *The Sleep,*1939, duco on masonite, 22 x 40 inches, and the other as semiabstract; Fritz Scholder's *Indian With Orange Face,* 1969, oil on canvas, 22 ¼ x 20 ¼ inches. Both of these artworks were still viewed on the second floor of the ASU Art Museum's Americas Gallery. The Scholder painting is hung below eye level within a grouping of portraits in a section of the gallery commonly referred to as the Faces wall. The Siquerios painting is displayed in a more traditional manner – hanging at approximately eye level, on its own in the far corner of the gallery. Each group of participants from the public school viewed the presentation formats in a different sequence. Group A saw the digital reproduction, and then the original artwork. Group B viewed the original artwork then the digital reproduction.

Following a similar set of administrative procedures as with the independent private school students, I guided participants to view each painting separately in the two presentation formats; each digital for three minutes each, then each original for three minutes each. The total viewing period for both paintings was 12 minutes. Previous research studies on originals and

reproductions reported shorter viewing periods. Both Kiechel (1984) and Hardiman & Zernich (1984) used a 30-second viewing interval. I elected to use a longer viewing interval based on the recent findings from Lachapelle, Dousenard, Keenlyside (2009). They found that extended viewing periods have a significant and positive effect on the art appreciation performances of non-expert participants.

As with the independent private school, during the viewing period participants were given the option to complete an observation guide. This document provided participants with an opportunity to organize their observations and eliminate a participant's potential struggle to remember what they saw in the gallery when they are asked to complete a response sheet when the artwork is no longer in view. I collected each participant's observation guide once s/he had completed his/her response sheet. After viewing both the digital reproduction and original artwork for three minutes each, I asked participants in both groups to complete the front and back response sheet for the two artworks. I provided additional paper available if needed. Participants had up to 20 minutes to complete the response sheet.

In order to address potential logistical challenges associated with the public school participants' visit to the museum, I enlisted the help of the ASU Art Museum's curator of education. While I conducted the viewing period and distributed the response sheets for group A, the curator of education toured group B through the other exhibitions on view in the museum. While I conducted data collection with group B, the curator of education toured group A. As with the independent private school participants, prior to the students' arrival I placed a unique identifying code on the top right hand corner of each response sheet.

This code indicated the participant's randomly assigned number followed by his or her group letter. Before turning in their response sheets to me, I also asked participants to record their gender. After participants left the museum, I scored their response sheets using a scoring guide.

Data Analysis

I first analyzed my qualitative data by looking at the interviews conducted with the two participating teachers. Content analysis seeks to capture patterns of behavior recorded in qualitative interview (Stokrocki, 1997). This research tool evaluates the richness of the data using coding concepts. The researcher may employ color coding concepts, use of marginal or open coding by hand, or make notes throughout the qualitative process that serves as a reminder of the emerging themes. I coded my data using several emerging themes: personal meaning making, size, color, definitional issues, style, and accessibility. A sample of my coding for these initial interviews is included in Appendix G.

Next, I reviewed my quantitative data. I accessed the 27 participants' response sheets using a scoring guide to determine how thoroughly they were able to differentiate between a digital reproduction and an original artwork. Non responses on the response sheet were assigned a score of "0." I made several comparisons using the quantitative data from both schools. First, I compared participants' total scores according the style of artwork: realistic or semi-abstract. Next, I compared participants' statement of preference for reproduction or original artwork. Finally, I compared participants' total score according to gender. From these internal comparisons, I was able to make suggestions regarding the potential influences style (realistic or semi-abstract), sequence, and gender on a

participants' ability to differentiate quality differences between a reproduction and an original work of art.

I analyzed the data I collected from the public high school in an additional way. I looked at participants' scores according to the sequence they viewed the original artwork. Group A saw the original artwork last. Group B saw the original artwork first. From this comparison, I was able to suggest the degree of influence viewing sequence might have on a participants' ability to differentiate quality differences between a reproduction and an original work of art.

In order to more comprehensively explain my quantitative results, I elected to conduct a content analysis of the response sheets completed by both groups of participants. I was able to identify important patterns of thinking, common terminology, and misperceptions to add to my exploration of a student's ability to differentiate between a reproduction and original work of art. I made notes on the margin of each participant's response sheet. I marked a "C" if they referenced color, a "T" is they discussed texture, and an "S" if they made observations regarding size. A sample of this content analysis is included in Appendix H. The process of conducting this analysis prompted me to also make comparisons regarding the sequence in which the participant viewed the reproduction and whether they discussed the size differences between the reproduction and original artwork. The findings of these comparisons are discussed in chapter four.

Chapter 4

FINDINGS

The findings of this modified version of a sequential exploratory study (Creswell, 2009) are the result of three phases of data collection. The first phase was qualitative interviews with a visual arts educator from an independent private school in Phoenix, Arizona and a photography teacher from a public high school in Tempe, Arizona. Second, I collected quantitative data from high school student participants in a survey format. While collecting this data, I made field notes and observations that in many instances supported the suggested findings of the initial quantitative data, specifically in regards to the influence of sequence on a student's ability to differentiate between a reproduction and original artwork. Finally, I analyzed the participants' quantitative data and the initial teacher interviews using several emerging themes such as definitional misunderstandings, personal meaning making, and areas of observation (texture, size and color).

Participant Observation

Participant observation is a process of describing, analyzing, and interpreting a setting or situation to understand it more completely (Stokrocki, 1997). I conducted both of these interviews in each teacher's respective classroom. I arrived early in hopes of observing each teacher's interactions with students. I also planned to record field notes regarding classroom set-up and available resources.

On October 8, 2010 I visited the classroom of the visual arts educator from an independent private school. When I arrived, students were finishing a Chagall inspired glass painting project. There were six students in the room.

Each had their own large, wooden drafting table with a stool to sit on. Students continued working while the teacher read the rules about an upcoming art exhibition. The classroom walls were covered with posters of various sizes. There were reproductions of paintings from museums, art history timelines, and illustrations of the elements of art. I did not notice any reproductions of three dimensional artworks. I was surprised to see a stack of ten or so IPads in the corner of the room. Later, I learned that students use this technology to view applications from the Louvre and the National Gallery in London. The teacher's desk was located behind a series of drying racks. The teacher introduced me to her students and encouraged them to begin cleaning up their painting supplies for the day.

On November 4, 2010 I visited the classroom of the photography and design teacher from the public high school. During my visit, students were completing a digital photography project. The classroom had approximately 30 desktop computers stationed in four rows. A student sat at each computer. Most students worked individually. A couple students talked with the individuals seated at the computer next to them. The photography and design teacher had a desk at the front of the room. Toward the right of her desk was a bulletin board that contained administrative announcements. Several feet down from that bulletin board was a collection of student produced photographs. Later, I learned that these photographs were a part of a class critique in a photography I class that met earlier in the day. I did not notice any reproductions posted in the classroom. I immediately noticed that there were five additional computers positioned closer to the teacher's desk. When I arrived I observed the teacher pointing to the computer screen and talking with the students seated at these

computers. Each of the students at these computers also had thick, black sketchbooks out of the table. Later, I learned that these were IB Photography students who had elected to come into the classroom during their break time to continue work on a project. After greeting me the teacher introduced me to the five students and requested that they show me their work while she prepared the rest of her students for dismissal. I spoke with a male student regarding his interest in photographing plants. He shared images of a recent trip to the Desert Botanical Garden. Once the rest of class was dismissed for the day, the teacher invited me into her back office to begin the interview. This office space contained piles of textbooks, museum catalogues, papers, and folders. Several poster reproductions were posted on the wall. Throughout our interview, students walked into this back office to turn in papers and permission slips for their upcoming field trip to the ASU Art Museum. Other students stayed in the classroom beyond the bell to continue working.

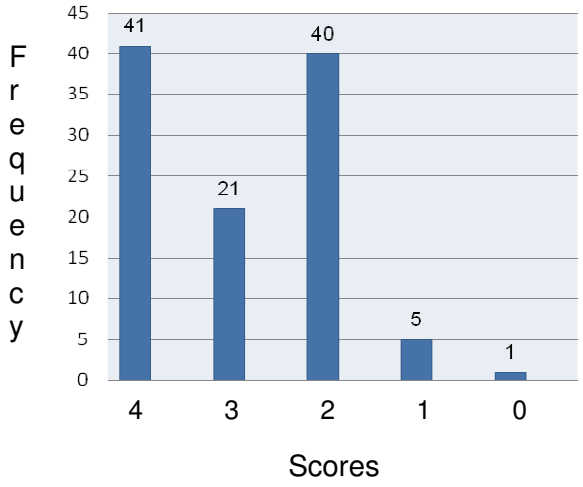
Sample transcripts of both initial teacher interviews can be reviewed in Appendix G. I coded these interviews according to six emerging categories. Two of these categories were areas of observation: size and color. I also selected a coding category of style to help determine the role of a teacher's perception on the potential influence on a student's ability to differentiate between a reproduction and original artwork. Lastly, I coded for emerging themes of accessibility, definitional issues, and personal meaning making. I've defined several of the most important categories in further detail in the subsequent chapter of this study.

The second phase of data collection took place at the ASU Art Museum and was initially quantitative. Participants viewed two original artworks and two

digital reproductions. The participants from the public high school were split into two groups and viewed the reproductions in different pre-determined sequences. Due to time constraints, all of the participants from the independent private school viewed the artworks in the same sequence: digital reproduction first, then original artwork. After the participants viewed the artworks, I asked them to complete a response sheet with four free response questions and three multiple choice questions. I evaluated the free response portion of the response sheets using a four point scoring guide. This scoring guide is included in Appendix F.

Figure 4.1 illustrates the frequency of individual scores earned by the study's 27 participants. Out of 108 possible scores (4 free response questions x 27 participants), a score of "4" was earned 41 times, a score of "3" was earned 21 times, a score of "2" was earned 40 times, a score of "1" was earned 5 times, and a score of "0" was earned only once.

Figure 4.1. Frequency of individual scores



Participants who addressed all three areas of observation (texture, size, and color) using detail in their free response answer earned a score of "4."

Participant 10 earned a “4” by writing the following answer about the realistic painting: “Due to the original roughness in the painting, the digital reproduction becomes seemingly more blurred and pixilated. The size of the photograph misleads the viewer to believe the painting is small. The tones of the work are altered to seem more frigid, dull, and somber in the photograph, even though the painting contains warm skin and hair tones.” Participants who addressed all three areas of observation (texture, size, and color) in their free response answer earned a “3.” Participant 5 earned a “3” by recording “the size in the digital reproduction seems bigger than the original. The original work was blurrier with more brushstrokes and brighter colors.” Participants who addressed two areas of observation (texture, size, or color) in their free response answer earned a “2.” Participant 1 earned a score of “2” by writing that the realistic painting “had colors that were richer in the original piece and the textures were apparent in original artwork as well.” Participants who address only one area of observation (texture, size, or color) earned a “1” for their free response answer. Participant 9 earned a “1” by writing “the digital looked really bright.” Participants who offered no written response earned a “0.”

Each participant received a total score based on their four free response questions. Appendix I illustrates these scores. The total possible score was 16. The lowest score was 5. The highest score was 16. The range of the scores was 11 points. The average of the 27 total scores was 11.5. Both the median and mode score was 12.

The final phase of this study was qualitative. It involved a content analysis of the participants’ response sheets in order to identify emerging themes related to personal meaning-making, definitional misunderstandings, and two

areas of observation (texture, size, and color). A sample of a participant's coded response sheet is included in Appendix H. Additionally, I also reviewed field notes I recorded during the participants' onsite visit to the ASU Art Museum. The results of this phase are discussed further in the study's findings regarding the influence of sequence.

Schools

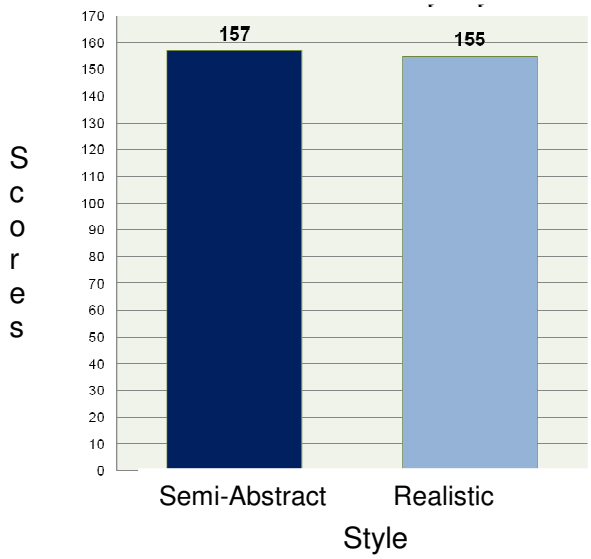
I elected not to compare the cumulative scores of participants from the independent private school to the scores of participants from the public high school. My decision is primarily a result of the small sample size (five students) from the independent private school. In addition to the sample size, the visual arts educator expressed time constraints regarding her students' onsite visit to the ASU Art Museum. These time constraints did not allow for the opportunity to divide students into two separate groups in order to test the influence of sequence. Therefore, the data I gathered from students from the independent private school is not included in this study's findings regarding the influence of sequence. Since participants from the independent private school completed their response sheets using the same realistic and semi-abstract paintings and under the same viewing period (three minutes per artwork) as the public school participants, I included quantitative and qualitative data gathered from their response sheets in my findings that address style, preference, size, and gender.

Style and Sequence

The purpose of this study was to explore the potential influence of style and sequence on a high school student's ability to differentiate quality differences

between a reproduction and an original work of art. The quantitative data I collected suggested no statistically significant findings regarding the influence of style. Figure 4.2 illustrates the cumulative scores of participants from both schools. Out of a total cumulative score of 216 (8 points x 27 participants), participants earned a total of 155 points in response to the realistic painting. Participants earned a total of 157 points in response to the semi-abstract painting. This two point difference suggests that style does not influence a student's ability to differentiate between a reproduction and original artwork.

Figure 4.2. Cumulative scores by style

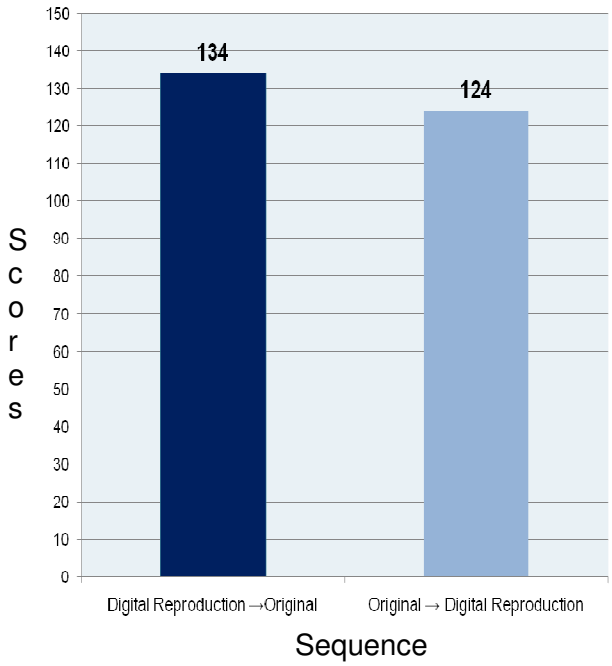


Additionally, style was only briefly mentioned during the interviews I conducted with the two participating teachers. When asked about the role of reproductions in her teachings, the visual arts educators from the private independent school explained, "I think of reproductions as examples of an artist's journey of development. They can also serve as examples of styles or color theory or some other aesthetic view." .However, in my follow-up correspondence

this same teacher commented on her students' ability to discuss composition. I've interpreted these comments and their potential relationship to style in the subsequent conclusions chapter of this study.

Figure 4.3 illustrates participants' cumulative scores by sequence. Out of a total cumulative score of 352 (16 points x 22 participants), Group A, participants who viewed the digital reproduction then the original artwork, earned 134 points. Group B, the participants who viewed the original artwork first and the digital reproduction second, earned 124 points. These findings reflect the data I gathered from the 22 participants from the public high school. The ten point difference between the two sequences is not statistically significant.

Figure 4.3. Cumulative scores by sequence



However, this finding suggests that sequence could potentially influence a student's ability to differentiate between a reproduction and original artwork.

Figure 4.4 and 4.5 illustrates the distribution of participants' cumulative scores by sequence. Scores have been divided into three tiers by increments of three points: scores of 5 to 8, scores of 9 to 12, and scores of 13 to 16. One participant who saw the digital reproduction first and then original artwork second (group A), earned a score of 5 to 8. Five participants in Group A earned a score of 9 to 12. Another five participants earned a score of 13 to 16. As with Group A, in Group B, only one participant earned a score of 5 to 8. Seven participants in Group B earned a 9 to 12 and three participants earned a 13 to 16. This finding revealed that participants who saw the digital reproduction second where twice as likely to earn a middle tier score (of 9 to 12) than a top tier score of 13 to 16. Although not statistically significant, this finding also speaks to the potential influence of sequence on a student's ability to differentiate between a reproduction and original artwork.

Figure 4.4. Frequency of scores for Group A: Reproduction → Original

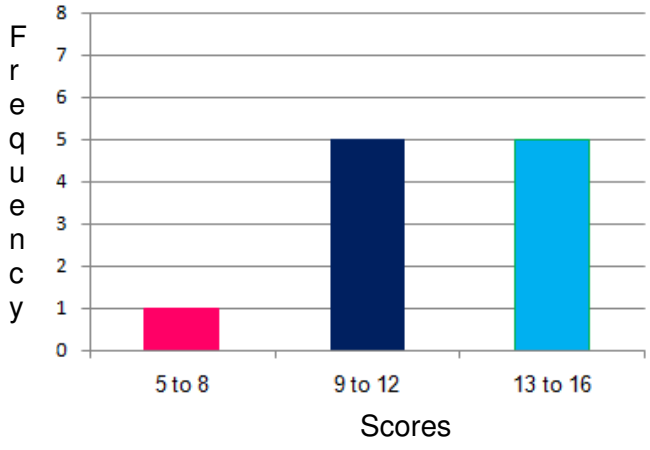
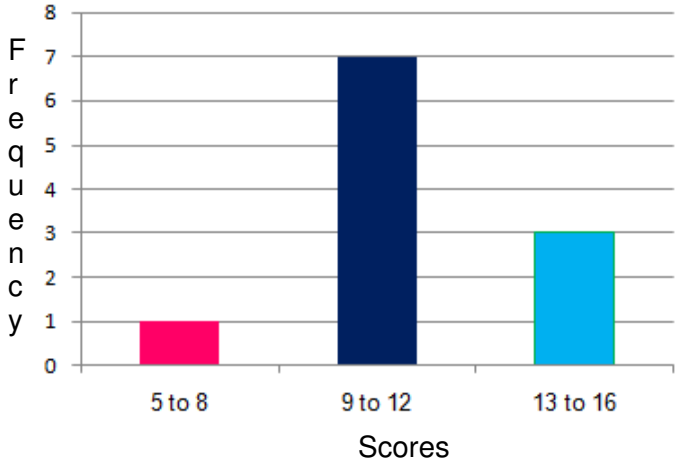


Figure 4.5. Frequency of scores for Group B: Original → Reproduction



Given these suggestions of influence, I conducted a content analysis of participants' free responses in reference to the three areas of observation addressed in this study: texture, size, and color. I found that participants most frequently excluded observations regarding size while many participants made thorough observations regarding texture and color. In the initial teacher interviews, For example, one participant wrote, "I feel like with the reproduction you lose detail and texture. With this painting the shading in the arms build up to the skin tone, and it's blended very well in the original. You don't get a sense of line. The biggest difference to me was the loss of texture in the recreation." Another participant explained, "The Indian seems to jump out more in the original because the colors are more vibrant. The texture in the original seems to be more thought out rather than just scribbled on." The prevalent absence of observations regarding size is further addressed in this study's conclusions.

Figure 4.6. Frequency of size observations by sequence

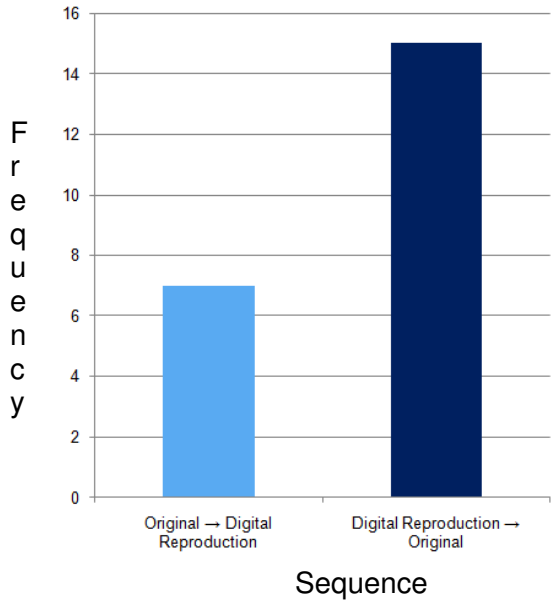


Figure 4.6 illustrates how sequence and size observations might be related. Participants in Group A viewed the digital reproduction first and made observations about the size of the artwork on 15 occasions. Participants who saw the digital reproduction second (Group B) referenced size in only 7 instances. Therefore, participants who viewed the digital reproduction first referenced size more than twice as often as those who viewed the original artwork first. This finding suggests that sequence may have an influence on a student's ability to describe size differences between a reproduction and original artwork.

These findings encouraged me to closely examine my observations and field notes from the participants' visit to the ASU Art Museum. I observed that participants who saw the original artwork second (Group A) had different behavior in the ASU Art Museum's Americas gallery than Group B. Upon

arriving in the gallery, a male participant commented, “this is way better,” thereby suggesting preference for the original and recognition between the two presentation formats. Additionally, Group A viewed each artwork from a single viewpoint of observation. Participants stood in a semi-circular grouping around each painting. They did not adjust their point of view by stepping closer or further away from the artwork at any occasion during each three minute viewing period. It is important to note that Group A participants did make an effort to explore other works in the Americas gallery. In between viewing the two paintings, participants in Group A made a visible effort to look at other artworks in the gallery. They pointed to various paintings, laughed, smiled and talked with one another.

The behavior of the participants who saw the original artwork first (Group B) was nearly the opposite of Group A. Upon arrival in the gallery there was procedural confusion. Participants expressed uncertainty as to what they were supposed to do. On two separate occasions, a participant (one male and one female) asked, “is this the original?” However, Group B participants exercised several viewpoints of observation. They adjusted to various positions to view each of the two paintings. They did not make observable efforts to look at other artworks in the Americas gallery.

Preference

In this study, participants overwhelming expressed preference for original artworks over digital reproductions. Out of the 27 participants that viewed the realistic painting, 26 (96%) of them preferred the original and 1 (4%) preferred the digital reproduction. The participant who expressed preference for the digital

reproduction explained, “it lets you take it all in, while the original is too big.” Out of the 27 participants that viewed the semi-abstract painting, 25 preferred the original (93%) and 2 preferred the digital reproduction citing, “I liked the reproduction better because the lines weren’t so defined.” The other participant explained, “It is easier to see because the size is bigger.”

Participants that designated preference for the original artwork explained their selection using strongly personal language, imaginative associations, and sensory descriptions. One participant wrote, “The original has a magical sense to it.” Another participant justified their preference saying, “With the original it feels more personal. It made me want to know more about the artist, and why he made that particular image. The original doesn’t lie.” Other participants described their preference as, “You could look and feel it with your eyes.” These quantitative findings are further analyzed in the conclusions chapter of this study.

Gender

Although the original purpose of this study was not necessarily to explore the influence of gender, given this availability of this data, I elected to compare cumulative scores of male participants to the cumulative scores of female participants. Female participants earned a combined cumulative score of 200, while male participants earned a combined cumulative score of 112. Due to the disproportionate number of female participants in this study (17 females: 10 males), I divided each gender’s cumulative scores by the number of participants in order to calculate the average score by gender. The average male score (112 points /10 participants) was 11.2. The average female score (200 points/17 participants) was 11.7. The difference between these two figures is .5, indicating

that gender does not likely influence ability to differentiate a reproduction from an original artwork.

This study's findings regarding the potential influence of style and sequence, preference, and gender, proposes that there is more to learn in this area of art education research. The majority of participants preferred the original artwork and there weren't notable suggestions of gender or painting style influencing the degree in which a participant could identify differences between presentation formats. It is important to further investigate the role of sequence in teaching and learning about reproduction and original artworks. Sequence considerations are discussed further in chapters five and six of this study.

Chapter 5

INTERPRETATION AND CONCLUSIONS

Interpretation is a process of translation. It involves logical questioning to uncover multilayered meanings (Stokrocki, 1997). Conclusions are significant findings related to a study's important concepts. In this study, I've suggested interpretations and conclusions regarding experiential learning, and the influence of style and sequence on a student's ability to differentiate between a reproduction and original artwork.

Experiential Learning

This study explored whether Dewey's theory of experiential learning explained how thoroughly high school students differentiate quality differences between a reproduction and an original work of art. Experiential learning involves a direct encounter with the phenomena being studied, as opposed to thinking about a potential encounter. In this study, the direct encounter was with the original work of art. The foundation of Dewey's notions of experiential learning also illustrates the central role of experience, the result of the interaction between a human being and his or her environment in the learning process.

American education theorist, David A. Kolb interprets Dewey's theory as a four mode process: concrete experience, reflective observations, abstract conceptualization, and active experimentation (Kolb, 1984). The first mode is when the learner is fully involved in the "doing." The second mode is when the learner participates in thoughtful observation, reflecting upon his/her initial experience. The third mode is when the learner does the "thinking" by integrating his/her observations into a set of ideas. The fourth mode is when the learner

applies the ideas from the third mode to make decisions and solve problems (Kolb, 1984). In Kolb's model, the impact of the experience gives ideas their moving force. In this study, the notion of learning as a continuous, highly personalized process rooted in experience was evident in participants' responses to the four open questions on the response sheet. Study participants partook in an experiential learning process by viewing and later comparing a digital reproduction with its respective original artwork. Regardless of the style of artwork (realistic or semi-abstract) or viewing sequence, this exercise involved direct encounters that resulted in personal meaning making. In essence, viewing both the original artwork and digital reproduction of the two paintings promoted an experiential process similar to Kolb's four modes.

First, participants actively experienced and involved themselves in viewing both presentation formats: digital reproduction and original artwork. Second, participants reflected and observed the experience. Participants did this specifically in question one and three of the response sheet: "How is the original artwork different from the digital reproduction?" Consistent with Kolb's third mode, participants then had to apply observations to an idea. Participants did this by responding to question two and four of the response sheet: "Which format did you prefer and why did you select this format?" This question required participants to organize and apply their observations into an explanation of his/her preference. Finally, participants demonstrated evidence of Kolb's fourth mode of experiential learning: active experimentation. Participants explained their preferences with examples that would likely guide their future art experiences and their ability to differentiate between a reproduction and original work of art.

Throughout the experiential learning process, participants revealed evidence of personal meaning making. This was apparent most frequently during the third mode (abstract conceptualization) and fourth mode (active experimentation) of experiential learning when participants indentified and defended their decision regarding preference of the original artwork or digital reproduction. “In order to understand the esthetic in its ultimate and approved forms, one must begin with it in the raw” (Dewey, 1934, p. 4). Consistent with Dewey’s implied advocacy for teaching and learning from original artworks, the majority of participants preferred the original paintings. They designated preference for the original using strongly personal language, imaginative associations, and acutely sensory descriptions.

The use of highly personal language such as, “With the original it feels more personal. It made me want to know more about the artist, and why he made that particular image. The original doesn’t lie,” suggests a personification of the observed artwork. Particularly in the last sentence, the participant connects ideas about the honesty of an individual with the authenticity of the painting: two strongly personal qualities. One participant described the original painting as a complex person, “The original has distinction and personality mixed in it.” Another participant continues the idea of artwork personification, saying, “The original work gives you the answers to the questions you might have.” Another participant wrote that the original, “makes the viewer feel more privileged.” The use of the term "privileged" implies entitlement and exclusivity, perhaps revealing an assumption that the experience of viewing an original artwork is reserved for a very select group of people. Especially curious were participants’ imaginative associations with the original artwork. One participant explained, “The original

was very soft. It gave a dreamlike feeling when I looked at it." Another wrote, "The original has a magical sense to it." Other participants explained their preference for the original artwork using combinations of sensory language. Evoking a blending of sight and touch, one participant wrote about the original artwork as, "You could look and feel it with your eyes." The data gathered from this study did not conclusively demonstrate whether or not Dewey's theory of experiential learning explains how thoroughly high school students differentiate quality differences between a reproduction and an original work of art. Rather, the data suggests that the process of viewing a digital reproduction and its respective original is an example of experiential learning in itself.

Experience, observations, concepts, and actions (Kolb, 1984) are valuable modes to engage students in meaningful art experiences that help to develop a lasting appreciation for the visual arts that goes beyond the classroom. This study also addressed two operational research questions: (1) How does the viewing sequence of digital reproduction and original artwork influence a high school student's ability to describe differences between a reproduction and an original artwork? (2) How does painting style (realistic or semiabstract) influence a high school student's ability to describe differences between a reproduction and an original artwork?

Style

The quantitative data gathered in this study suggests that style does not influence a student's ability to differentiate between a reproduction and original artwork. Although style might not serve as an influence, it could still play a role in how educators use reproductions and original artworks for teaching and learning

purposes. Style was briefly mentioned in one of the teacher interviews. The independent private school visual arts educator explained that she utilizes reproductions in her classroom in order to show different artwork styles. This speaks to the accessibility of reproductions to expose students to a diverse collection of images in the classroom. Additionally, through e-mail correspondence, the same teacher commented that her students "discuss composition well." Composition refers to how artists use the principles of art are used to organize the elements of art (Ragans, 2005). The composition of a semi-abstract painting is very different from a realistic painting. The teacher's students have likely acquired the skill to discuss composition from learning the elements and principles of art, practicing observational abilities, and participating in class critiques. These students' previous abilities allude to the importance of taking into account prior knowledge and experience when considering the influences on a student's ability to differentiate between a reproduction and original artwork. Given that the participants from the private independent school had experience identifying how an artist controls the composition of a work of art, they were probably less likely to be impacted by the complexities of a semi-abstract composition.

Sequence

The findings of this study suggest that sequence could influence a student's ability to differentiate between a reproduction and original artwork. Although the quantitative data does not reveal conclusive findings, much of the qualitative data suggest that participants who viewed the digital reproduction first and the original artwork second demonstrated a more comprehensive ability to

differentiate between a reproduction and original artwork. Participants who saw the digital reproduction first (Group A) viewed the two original paintings in a manner of focused observation and made an effort to explore other works in the gallery. Participants who saw the original artwork first (Group B) exhibited procedural confusion, definitional misunderstandings, exercised a less focused mode of observation, and did not make visible efforts to look at other artworks in the gallery.

Falk and Balling (1982) investigated the effects of physical surroundings on learning. They found that children's conceptual learning was affected by physical context. In physical settings that students considered slightly novel, conceptual learning increased. In settings considered dramatically novel to the students, less conceptual learning occurred. Particularly in occasions of experiential learning, physical context plays an important role. In this study, participants who saw the digital reproduction first appeared more prepared and comfortable in the gallery environment. Initial exposure to the digital reproduction in a more traditional learning environment (the ASU Art Museum's multipurpose room) suggested a greater interest in object relationships as those participants examined other artworks in the surrounding space in the gallery. This ease was also apparent in the more thorough quality of the answers on participants' response sheets. As described in chapter 4, participants who viewed the digital reproduction first were twice as likely to make observations about the size of the artwork, the most commonly missed area of observation in the study.

"Museum environments arouse curiosity, but also anxiety" (Falk and Dierking, 1992, p. 87). Learning in a museum is different from learning in a

classroom. Both student and teacher are often confronted with an unfamiliar space, bystander security staff, temperature regulations, restrictions on viewing distance, limitations on photography, note-taking, and insufficient seating. Museums also require educators to relinquish a certain degree of control over their students. While a classroom is familiar, comfortable, has access to a variety of hands-on resources, and can be controlled by the educator, it cannot always provide direct encounters with original artworks. To create an opportunity for a student to experientially learn the differences between a reproduction and original artwork, art educators must take into account the possible effects of a change in learning environments.

Falk and Dierking's research suggest that cultural institutions of moderate novelty are more exciting, rather than intimidating. Participants who viewed the original painting first (Group B) experienced an extremely novel environment. This might explain evidence of procedural and definitional confusion as on two separate occasions a participant asked, "Is this the original?" Participants in Group A had a moderately novel experience. Although most had not visited the ASU Art Museum before, they had the opportunity to see digital reproductions first to prepare them for the gallery experience. This preparation, or lack thereof, appeared to influence the participants' ability to differentiate between a reproduction and original artwork. In order to provide students with a moderately novel learning environment, art educators must consider novelty reduction treatments. Suggestions for treatments are discussed in the final chapter of this study. A novelty reduction treatment could help students to remain focused on the four mode process of experiential learning: experience, observations,

concepts, and actions (Kolb, 1984).

Chapter 6

IMPLICATIONS FOR PRACTICE AND FURTHER RESEARCH

The purpose of this study was to examine the ways in which Dewey's theory of experiential learning explains how thoroughly high school students differentiate between a reproduction and original artwork. This study also explored the influences of painting style (realistic or semi-abstract) and sequence on a student's ability to identify the differences and select a preference between the reproduction and original artwork. Appreciating the transformative power of a work of art requires close observation and thoughtful interpretation. As discussed in chapter one of this study, the immediacy of technology can often put this experience in jeopardy. To protect against this problem, both art and museum educators must explore how to most effectively teach students to develop a critical understanding of what they see, whether it be in a museum gallery, classroom, or downloaded from a website. This study suggests several emerging issues and raises new questions, rather than conclusive answers as to how thoroughly high school students are able to differentiate between a reproduction and an original work of art. The following chapter discusses recommendations for art and museum educators to consider when teaching with reproductions and original artworks, and indentifies areas in need of further research.

Art and museum educators might consider incorporating activities and discussion questions that address a student's potential misunderstanding between the terms "reproduction" and "original." If a teacher plans to bring students to a museum, he/she might also take into account utilizing pre-visit learning materials in the form of reproductions to prepare students for the

experience of viewing an original artwork. The development of pre-visit learning materials requires that art and museum educators collaborate to address areas of a student's unfamiliarity with the museum environment. These implications for practice draw attention to the multitude of areas for additional research regarding a student's ability to differentiate between a reproduction and original artwork. Participant variables, artwork selection, presentation formats, and the duration of the study present new opportunities for collecting data to better understand this important area of art education research.

Implications for Art and Museum Education Practice

Data collected in this study suggests confusion among teachers and students on the meanings associated with the terms *"r*eproduction" and "original." Within the context of the visual arts, the term "original*"* can be used as both a noun and an adjective. A teacher might remind students to ensure that their painting is "original," a reference to a unique quality of the piece. On a separate occasion a teacher might apply the term to describe the authentic nature of a work. In this study, the term original was considered an adjective that specifically described an object in its authentic form created by the artist as a unique phenomenon that is one of a kind (Schwarcz, 1982). However, to a student without previous art-making or art looking experience, the difference between the two might be difficult to discern.

The term "reproduction" also comes with a degree of uncertainty. In this study, participants referred to the reproduction in their response sheets using a variety of terms such as, "photography," or "digital artwork." Another participant called the reproduction, "the electronics," or "the fake one." No participant

utilized the term copy when referring to the reproduction. Given the potential for definitional confusion, art and museum educators should consider addressing the terms “reproduction” and “original” more directly in their teaching. An art educator might consider developing a classroom lesson that explores common misunderstandings related to the two terms. For example, each student could be assigned a vocabulary word such as: limited edition, giclee, artist’s proof, photocopy, and replica. Students must first determine if their assigned word is associated with the category of a reproduction or original. Then they must define it and look online, in a book or magazine, or around the classroom to find an example that visually illustrates their term. Once completed, students could defend their association and illustration choice to the class. This type of activity would encourage a thorough class discussion of the terms. It would also give students an opportunity to connect their understanding of the term to an image that is personal to them.

A museum educator might consider incorporating a more careful explanation of the term “reproduction” and “original” into gallery talks or tours. The most obvious example of this opportunity is when students first arrive at the museum. After introducing themselves, a museum educator usually presents the museum’s rules. They remind students not to touch the artwork, not to bring food or drink into the galleries, and other rules specific to their institution (photography, cell phone usage, etc.) This occasion is also a relevant time to share the reason why it is important to protect the museum’s artwork. A museum educator could remind students that the objects in the museum are original and then pose a series of questions for discussion. What does it mean if an artwork is an original? What happens if an original artwork is damaged? Why would a

museum want to collect original objects? Why should you care? At the conclusion of the tour, a museum educator might consider posing a new set of questions. How would your experience in the museum today be different if these works were copies or reproductions? What is the difference between a reproduction and an original artwork? Why is one considered more valuable than the other?

If a museum educator wanted to spend a more considerable amount of time examining these issues he or she might plan a tour grounded in experiential learning that utilizes both reproductions and originals. A series of poster reproduction could be temporarily placed on view (via an easel or small viewing table) in several pre-selected galleries near their respective original. Students could be asked to make observations from the reproduction and then the museum educator could facilitate the process of comparing their initial observations to the originals artworks. Discussions questions and tour concepts promote a more thorough understanding of the terms “reproduction” and “original” and provide students with the framework for being able to differentiate between the two formats.

Additionally, this study also suggests that there is misconception that the term “original” as an adjective can only refer to an artwork of great value and prestige that is likely found in a museum or gallery. Data collected from both teacher interviews confirms this association with original objects as those artworks found in museums. When asked how originals were used in her classroom, the teacher from the public high school commented, “When possible, I take my students to museums, but that can often present logistical challenges.” The teacher from the independent private school explained, “Typically these are

not available in a school setting, unless a visiting artist has come and given a work to the school, or they bring original work with them into the classroom. This is why museum visits are critical for observation."

Originals from museum collections provide both art and museum educators with highly esteemed, historically rich opportunities for teaching students to differentiate between a reproduction and original, but "here and now" (Schwarcz ,1982) artwork can also address this understanding to a certain degree. An art educator can ask students to make observations regarding texture from a student produced sculpture, examine the colors of the school's front office mural, or study the architecture of the new performing arts center across the street. Museum educators can make use of "here and now" (Schwarcz ,1982) objects by incorporating them into outreach presentations that take place in schools and community centers. For example, in an image based presentation on Yixing teapots, a museum educator could present a *regular,* household teapot to give students an opportunity to observe the structure of a Western example of the popular vessel. Common examples of original artworks that we come into contract with on a daily basis should not be discounted in the process of teaching students to differentiate between a reproduction and original artwork.

As discussed in this study's previous chapter, Falk and Balling's (1982) research on the effects of physical surroundings on learning found that children's conceptual learning was affected by the context of their surroundings. In physical settings that were considered slightly novel, conceptual learning increased. In settings considered dramatically novel, less conceptual learning occurred. Falk and Dierking's work (1992) built on Falk and Balling's findings by

acknowledging the museum as a novel setting that often produces anxiety for visitors. However, they also found that cultural institutions of moderate novelty are more exciting, rather than intimidating. Art and museum educators must work together to consider novelty reduction treatments to appropriately prepare students to experience original artworks in a museum environment.

The suggestions of this study regarding the influence of sequence of a student's ability to differentiate between a reproduction and original artwork imply that perhaps reproductions should be utilized as museum pre-visit learning materials. The development of these materials requires that art and museum educators collaborate with one another in order to address areas of a student's unfamiliarity with the museum environment. An art educator might invite a museum educator into his or her classroom for a discussion based presentation that includes images of the museum's architecture, including interior and exterior photographs, a review of related vocabulary (painting, sculpture, installation, gallery, exhibition, docent), and examples of artwork that students might view in person. This presentation might also include a class conversation regarding the museum's rules and an explanation of why such rules are necessary. Consistent with the earlier discussion of implications for practice regarding definitional issues, a museum educator might also facilitate a dialogue on the implied meaning behind the terms "original" and "reproduction." Students might be surprised to learn that their museum experience will be based on observation of original artworks.

There is not one right or wrong way to utilize museum pre-visit learning materials in the classroom. Rather, it is important for art and museum educators to identity which aspects of the museum experience might be most novel for a

particular group of students. Educators must quickly assess students' responses to modify and adjust content as they lead discussion. In this way, a novelty reduction treatment is an organic process where effectiveness depends heavily on student engagement in the concepts and images being presented.

Implications for Further Research

There are several limitations that may have affected the findings of this study. Issues related to artwork selection, participant variables, presentation formats, and study duration suggest opportunities for further research.

I elected to include only two dimensional artworks in this study. There are dramatic limitations to viewing a three dimensional artwork as a reproduction rather than viewing the original sculpture or installation. The inability to view all sides of the piece and experience the artist's use of depth are the most obvious disadvantages. This study sought to explore how high school students could differentiate the more subtle differences: texture, size, and color, between a two dimensional reproduction and original artwork. Also, in order examine the influence of style: realistic and semi-abstract, it was important that this study used two paintings. However, this does not mean that art and museum educators couldn't learn valuable information from conducting this study with three dimensional artworks. The use of three dimensional pieces could provide a more comprehensive understanding of student misunderstandings about the more obvious differences as well as those that educators might mistakenly overlook.

There were several logistical considerations that influenced the decision to use David Alfaro Siqueiros, *The Sleep*, and Fritz Scholder's *Indian With*

Orange Face. Both of these artworks are a part of the ASU Art Museum's permanent collection and were on view in the Americas Gallery on opposite ends of the space. This enabled participants to view each painting one at a time in a controlled manner (without speaking to one another) within their relatively short visit to the museum. There were pieces in other galleries that could have been used in the study, but that would have added additional walking time to the exercise and given participants an opportunity to discuss their observations with others.

Additionally, there were other considerations that prompted my selection of David Alfaro Siqueiros, *The Sleep*, and Fritz Scholder's *Indian With Orange Face.* Both works belonged to the ASU Art Museum's permanent collection. Therefore there were not as many photography restrictions and it was likely that both paintings would be on view for an extended period of time. Also, neither painting was incased with glass or stantioned off so it would not hinder participant observations.

Both paintings used in this study have rich applications of color and examples of texture variations. As articulated in the participants' responses, these areas of observation were much less apparent in the digital reproduction than in the original painting. However, neither piece had a dramatic difference in size. Both paintings appeared significantly larger as a digital reproduction, but none of the pieces were rendered as a miniature canvases or as a mural encompassing an entire gallery wall. This lack of dramatic difference in size may explain the absence of size observations in many participants' responses. It would be helpful to further investigate a high school student's ability to

differentiate between a reproduction and original artwork using pieces with dramatic size differences.

Modifications to this study regarding participants might provide very different findings. Recruiting student participants was a challenge. The small number of participants is a limitation of my research. It would be ideal to have much more than 27 participants in order to collect a larger set of data that might suggest findings with statistical significance. Due to small or nonexistent transportation budgets, several teachers were not able to bring their students to the ASU Art Museum for the quantitative phase of this study. Other art teachers declined participation due to rigorous testing schedules that did not allow for an offsite field trip. One teacher expressed interest in the study, but articulated through email correspondence that he could not afford to give up class time outside of his existing curriculum. He recommended that data be collected via an online link. The teacher went on to propose that students could view paintings online, and then respond by an electronic post to a class website. It is apparent that this teacher assumed that the experience of comparing a reproduction with an original artwork was one that didn't require the experience of viewing the original artwork *in person*. This ironic request suggests a pervasive reliance on technology as well as an inconsistency between required areas of study addressed in the Arizona Department of Education's 2006 Visual Arts Standards and what is actually being taught and valued by art educators. Another art educator responded to my request for student participants by explaining that she couldn't make a special field trip without matching requirements for study.

Although this study sought to explore a high school student's ability to differentiate between a reproduction and an original artwork, it might be valuable to conduct the study with art educators instead of students. Given that the Visual Arts Standards directly specify, "Students are able to understand how differences in quality between a reproduction and original may affect their interpretation of an artwork" (Arizona Department of Education, 2006), it is curious that a teacher wouldn't recognize the purpose of this study as one that fulfilled a required area of student learning. Therefore, it might be helpful to access how thoroughly art educators are able to differentiate between a reproduction and original artwork themselves. The experience of considering the differences between the two formats might influence how a teacher values and utilizes reproductions and originals in their own practice. Also, identifying deficiencies in this ability might help to modify pre-service teacher programs.

There are also opportunities for additional research by modifying the student participant groups. In this study, sequence was adjusted. Group A saw the digital reproduction, then the original. Group B viewed the original first, then the digital reproduction. Instead of manipulating sequence, a novelty reduction treatment could be given to one group, while the other set of participants don't receive the treatment and serve as a control group. As discussed earlier in this chapter, a novelty reduction treatment could take the form of a museum orientation classroom presentation, student-directed exploration of the museum's website and printed materials, or another activity directed by the teacher that utilizes reproductions.

My decision to use a digital reproduction in the form of a PowerPoint slide instead of a slide projection could have also affected the findings of this study.

Educators continue to debate the color quality of digital images versus traditional slide projections. Although there might never be a conclusive answer to the dispute over presentation formats as digital or slides, it is likely that a high school aged participant would be more familiar with the format of the digital image. Given the widespread use of electronic technology across the curriculum, students have become accustomed to viewing images digitally. This does not mean that conducting a similar study with slide projections could not potentially produce valuable findings. However, it might be equally important to utilize the newest technologies, such as iPhones and iPads to view digital reproductions.

Additional research is also needed to explore the role of "prints" in a student's ability to differentiate between a reproduction and original artwork. The term "print" can be interpreted as a copy of a reproduction that is duplicated onto paper or mounted onto a poster board. One could conduct a very similar study by replacing the digital reproductions with printed reproductions. A researcher could also examine a print as "an impression created by an artist made on paper or fabric from a printing plate, stone, or block and repeated many times to produce identical images" (Ragans, 2005, p. 48).

As discussed earlier in this chapter, there are several definitional misunderstandings associated with the terms "reproduction" and "original." The concept of a print is an area of confusion that would probably have especially practical application to high school students. A student is likely to encounter a copy of a reproduction in his or her school art room, in a local gallery or museum, or even in his or her own home. They might misunderstand a "print" as a copy of the original artwork, rather than an impression created on a surface by a printing plate through a process such as relief, intaglio, lithography, or screen printing.

It would be interesting to design a study that examined how students respond to reproductions (a copy of an original artwork) versus prints (an impression created by the artist. This study could be conducted using an experimental design in order to test the impact of a treatment or intervention. Perhaps the first group of participants could receive two hours of instruction on printmaking techniques. Instruction might begin with general art historical information on printmaking. The next part of the instruction could include a demonstration of serigraphy (silkscreen or screen printing) and woodcut printmaking. The second group of participants would not receive any instruction. Both groups could be asked to examine a series of reproductions (copies of original artworks) and prints (impressions created by an artist). Participants might complete a survey form where they indicate whether the piece is a print or reproduction and then describe how they think each artwork was created. This type of study would likely contribute to the body of knowledge on ways in which art educators can most effectively teach a variety of "print" related concepts in the classroom.

Lastly, the short duration of this research was a significant study limitation. I only conducted one interview and followed up via e-mail correspondence with each of the participating teachers. Multiple interviews would have provided more in-depth information on the use of reproductions and original artworks in the teachers' respective classrooms. Additionally, due to various school field trip rules regarding bus arrival and departure, students were onsite at the ASU Art Museum for less than two hours. This constraint limited the viewing period for each painting so that participants could still have enough time to complete their response sheet. Additional viewing time might have allowed for

more thorough observations. Also, the data collected in this study might have provided additional findings if participants were able to visit the ASU Art Museum multiple times. It would be interesting to examine how a student's ability to differentiate between a reproduction and original artwork is affected by time and/or consecutive viewings. Given the rich qualitative data that participant response sheets provided, it would have been helpful to conduct follow up conversations with participants. In future research, it would be very valuable to conduct interviews with at least half of the participants following their museum visit to further explore the experiential nature of viewing reproductions and original artworks.

As digital art and electronic media become an increasingly popular form of teaching, learning, and art-making, a student's ability to discuss the differences between a reproduction and original work of art becomes essential to having a wide range of meaningful art experiences. Notions about how to most effectively engage students in visual arts learning are constantly evolving. However, observing an original work of art is part of the process of developing a lasting appreciation for art that goes beyond the classroom. The opportunities for further research described in this chapter suggest that there is still a lot to learn in order to achieve a thorough understanding of a student's ability to differentiate between a reproduction and original artwork. However, the process of this investigation can simultaneously help both art and museum educators to explore how to most effectively achieve a balance between incorporating the use of digital technology and fostering an appreciation for experiences with original artworks.

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APPENDIX A

IRB APPROVAL

ASU Knowledge Enterprise Development

Office of Research Integrity and Assurance

To:	Mary Erickson ART
From:	Mark Roosa, Chair Soc Beh IRB
Date:	09/27/2010
Committee Action:	**Exemption Granted**
IRB Action Date:	09/27/2010
IRB Protocol #:	1009005516
Study Title:	Reproductions and Original Work

The above-referenced protocol is considered exempt after review by the Institutional Review Board pursuant to Federal regulations, 45 CFR Part 46.101(b)(1) .

This part of the federal regulations requires that the information be recorded by investigators in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects. It is necessary that the information obtained not be such that if disclosed outside the research, it could reasonably place the subjects at risk of criminal or civil liability, or be damaging to the subjects' financial standing, employability, or reputation.

You should retain a copy of this letter for your records.

APPENDIX B

DISCUSSION GUIDE FOR INITIAL TEACHER INTERVIEWS

1. What does the phrase object oriented learning mean to you?

2. Do you use original artworks in your curriculum? How?

3. Do you use reproductions in your curriculum? How?

4. What are the advantages about teaching with original artworks?

5. What are the advantages of teaching with reproductions?

6. When using reproductions, do you prefer printed or digital? Why?

7. When learning about a specific artwork, what can a museum experience uniquely provide your students?

8. When learning about a specific artwork, what can a classroom experience uniquely provide your students?

APPENDIX C

PARTICIPANT RESPONSE SHEET

Indian With Orange Face

(1) How is the original artwork different from the digital reproduction? Please explain your answer in terms of **texture, size, and color.** Use the space below.

(2) a. Which format do you prefer? Please select one response.

☐ Digital Reproduction ☐ Original Artwork

b. Why did you select this format? Please explain your answer with examples. Use the space below.

The Sleep

(3) How is the original artwork different from the digital reproduction? Please explain your answer in terms of **texture, size, and color**. Use the space below.

(4) a. Which format do you prefer? Please select one response.

☐ Digital Reproduction ☐ Original Artwork

b. Why did you select this format? Please explain your answer with examples. Use the space below.

(5) Have you visited an art museum before today? Please select one response.

☐ Yes ☐ No

APPENDIX D

ADMINISTRATIVE PROCEDURES

[Independent Private School/Group A]: Today we will look at two paintings at the ASU Art Museum. We will look at them in two different formats: the digital reproduction and then the original artwork.

[Group B]: Today we will look at two paintings at the ASU Art Museum. We will look at them in two different formats: the original artwork and then the digital reproduction.

You will have 3 minutes to view each artwork. I will tell you the artist's name, nationality, and title of each of the artwork each time I show them to you. You may find it helpful to view the paintings up close and further away.

I will distribute an observation guide to each of you. Please use this document to make observations about the line, color, shape, texture and size of both artworks. You will find these notes helpful later today. I will provide you with a pencil and clipboard.

[Independent Private School/Group A]: First we will look at digital reproductions.
[Group B]: First we will look at original artworks.

David Alfaro Siqueiros, Mexican, *The Sleep*
[wait three minutes]

Fritz Scholder, Native American, *Indian With Orange Face*
[wait three minutes]

[Independent Private School/Group A]: Next we will visit the gallery to view the original artworks.
[Group B]: Next we will visit the multi-purpose room to view digital reproductions.

David Alfaro Siqueiros, Mexican, *The Sleep*
[wait three minutes]

Fritz Scholder, Native American, *Indian With Orange Face*
[wait three minutes]

Now we will return to the museum's multipurpose room to complete a response sheet. You may use your observation guide to help answer the questions. You will have up to 20 minutes to complete the response sheet.

APPENDIX E

OBSERVATION GUIDE

Observation Guide		
	The Sleep	*Indian With An Orange Face*
Line		
Color		
Shape		
Texture		
Size		

APPENDIX F

SCORING GUIDE FOR PARTICIPANT RESPONSE SHEET

Question 1 & 3

0 = Participant offers no response.

1 = Participant addresses one area of observation (texture, size, or color) to explain his/her response. For example, *the digital reproduction made me think the painting was smaller.*

2 = Participant addresses two areas of observation (texture, size, or color) to explain his/her response. For example*, the original artwork has several raised surfaces, but the reproduction looked flat. The colors of the digital reproduction were less vibrant than in the actual painting.*

3 = Participant addresses all three areas of observation (texture, size, or color). For example, *the figures in the painting looked larger in the reproduction. You can see little bumps of the brushstrokes in the original painting, while the reproduction looked smooth. When I saw the painting on the computer, I first thought the background was red, but it is orange in real life.*

4 = Participant addresses all three areas of observations (texture, size, and color) using detail. For example, *the painting is massive and almost mural-like, but the reproduction made me think it was very small. The original artwork has several areas of raised textures. It seems like they would feel smooth if I could touch them. This texture wasn't evident in the digital reproduction. I could see the most detail in the digital reproduction, but the colors of the original painting were the more bright and vibrant; especially the background.*

Question 2a & 4a

Circle the participant's selected format (digital reproduction or original artwork) on data sheet.

Question 2b & 4b

0 = Participant offers no response.

1 = Participant identifies selected format, but offers no explanation. For example*, the digital image was better.*

2 = Participant explains selected format using one reason. For example, *I like the digital picture best because I could view the painting close up to see details.*

3 = Participant explains selected format using two reasons. For example, *being able to see the little bumps in the background and view the painting from different angles made me appreciate the original artwork the most.*

4 = Participant explains selected format using three reasons. For example, *I prefer to look at the original because the colors were the most vibrant; especially the shades of blue in the background. The object in the painting seemed so much more real when I could see the exact colors the artist selected. The actual size also surprised me and gave me an understanding of perspective. I thought it was going to be much larger.*

Question 5

Record participant's response (yes or no) on data sheet.

APPENDIX G

INITIAL TEACHER INTERVIEWS WITH CODING

Coding Categories

Definitional Issues – ORIGINAL
Definitional Issues – REPRODUCTION
Accessibility
Size
Color
Personal Meaning Making
Style

Initial Interview with Visual Arts Educator from Independent Private School

DU: What does the phrase object oriented learning mean to you?

T1: It means that I am focusing on something specific. The object could be a collection, it could be one thing, it could be a painting or a sculpture, but the focus of what I want students engaged in is very specific and toward a goal.

DU: Do you use original artworks in your curriculum? How?

Definitional Issues – ORIGINAL

T1: When I can, but typically these are not available in a school setting.

DU: You don't have access to original objects?

T1: Not unless a visiting artist has come and given a work to the school, or they bring original work with them into the classroom. This is why museum visits are critical for observation.

Definitional Issues – REPRODUCTIONS

DU: What if a museum visit cannot be arranged? What are your alternatives?

T1: Poster reproductions.

DU: How do you use reproductions in your curriculum?

Accessibility

T1: I use them primarily because they are relatively easy to obtain and care for.

DU: How do you access them?

T1: Either in student textbooks or I can look for them online.

DU: What role do the reproductions play in your teaching?

Style

Color

T1: I think of reproductions as examples of an artist's journey of development. They can also serve as examples of styles or color theory

or some other aesthetic view. Sometimes I use them to compare and contrast themes.

DU: What are the advantages about teaching with original artworks?

Personal Meaning Making

T1: There is a sort of reverence for working with or viewing the original.

DU: What do you mean by reverence?

T1: It's about hearing the artist's words, either vocal or written, in the description of the work. Seeing the brush strokes, understanding that there is only one original.

Definitional Issues – ORIGINAL

DU: The original being a one of a kind?

TI: Yes. Absolutely!

Accessibility

DU: What are the advantages of teaching with reproductions?

T1: Kids can kill them and you can get another poster. Multiple copies can be made available. Also, they are cost effective. A one time purchase can be used for life-long learning if you care for them properly.

Initial Interview with Photography Teacher from High Public School

Definitional Issues – ORIGINAL

DU: What does the phrase object oriented learning mean to you?

T2: It is about teaching a concept with an object. An object is the real thing.

DU: What do you mean by the real thing?

Definitional Issues – REPRODUCTIONS

T2: The original. A reproduction is not equal to the object.

DU: Speaking of originals, how do you use them in your teaching?

T2: When possible, I take my students to museums, but that can often present logistical challenges.

Accessibility

DU: What kinds of challenges?

T2: Funding for transportation, pulling students out of other classes, you name it. There are many road blocks.

DU: What about reproductions? How do you use them in the classroom?

T2: In my photography I and II course, I used reproductions of master photos to introduce each unit.

DU: Master photos?

T2: Yes, examples of a particular photography technique from famous photographers.

DU: How do you show these reproductions? Is there a particular format that works best in your classroom?

Color

Size

T2: Primarily in two different ways. Sometimes I use books. On other occasions I'll use digital images. They are usually true in color. I have an LCD projector and a screen so they are not always the same size, probably bigger than the real thing. Students don't really think about that and I'm not really asking them to.

DU: Why is that?

T2: I'm asking them to describe the image as they see it, not think about how it might look in person.

DU: Are there any other reasons why you prefer digital reproductions?

Accessibility

T2: I want my students to be able to see the image. I need to avoid passing it around the room.

DU: You don't want posters or 8.5 x 11 images floating around your classroom?

T2: It's easier digitally and usually helps to spark good group discussions.

DU: What are the other advantages of teaching with reproductions?

T2: I have millions of images at my disposable. I can get examples from the MET or the Getty. I can't have the real thing in my classroom.

DU: You can't have the original objects?

T2: Right. My IB students are working on their portfolios. They have all selected a theme. When I ask them to research an artist an artist or culture related to their theme they look at reproductions.

DU: Sounds like accessibility is an important advantage to you.

T2: Absolutely.

DU: What do you think are the advantages of teaching with original artworks?

Color

T2: Color is influenced by a reproduction.

DU: The color in the reproduction is different than the original?

Size

T2: Yes. Also, also the size isn't usually accurate.

DU: If you are teaching about a specific artwork, what can a museum experience uniquely provide your students?

Personal Meaning Making

T2: It's a more personal interaction. Students are drawn like magnets to the pieces that speak to them. The museum also presents context.

DU: Tell me more about context?

Size

T2: It's an opportunity to find teachable moments. Like "Wow—I didn't know it was that size." My IB students must visit a museum three times during their two year program. It's a requirement. They will come to the museum for your project and will go again in February.

DU: What about in your classroom? What can a classroom experience uniquely provide a student when learning about a specific artwork?

Accessibility

T2: I know my specific curriculum and can quickly and conveniently find the information we need. It is easy for me to fine the perfect example that addresses my learning objective.

APPENDIX H

SAMPLE PARTICIPANT RESPONSE SHEET WITH CODING

Pub

P15-A1

Male

A1

R→O

Indian With Orange Face

(1) How is the original artwork different from the digital reproduction? Please explain your answer in terms of **texture, size, and color.** Use the space below. In the original work the art seems less grainy and has brighter colors. the colors have more contrast on the digital image.

2

C
T

(2) a. Which format do you prefer? Please select one response.

☐ Digital Reproduction ☑ Original Artwork

b. Why did you select this format? Please explain your answer with examples. Use the space below. I like the original Artwork better because the colors are more vivid and the picture looks better. in the digital format certain textures and small lines are left out because of the pixels but the original work includes every little detail that the artist made.

4

The Sleep

(3) How is the original artwork different from the digital reproduction? Please explain your answer in terms of **texture, size, and color**. Use the space below. The original is more smooth then the reproduction and you can see the colors and texture better. The digital one enhances the lighting more then the original though.

2
3

(4) a. Which format do you prefer? Please select one response.

☐ Digital Reproduction ☑ Original Artwork

b. Why did you select this format? Please explain your answer with examples. Use the space below. I selected this format because it looks better and the colors, textures, and shapes are seen more clearly then on digital format because the art was created on canvas and not digitally. Digital artwork can mostly be seen well either way but physical art work is best left as is.

4

(5) Have you visited an art museum before today? Please select one response.

☐ Yes ☑ No

APPENDIX I

PARTICIPANTS' TOTAL SCORES

Participant #	Total Score (out of 16)
P1	12
P2	10
P3	9
P4	16
P5	13
P6	16
P7	14
P8	12
P9	5
P10	15
P11	12
P12	12
P13	13
P14	10
P15	13
P16	12
P17	10
P18	7
P19	14
P20	9
P21	12
P22	12
P23	9
P24	8
P25	11
P26	16
P27	10