Virtual Media: A Participant Observation Study of Art Education in Second Life

by

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ABSTRACT

We live in a world of rapidly changing technologies that bathe us in visual images and information, not only challenging us to find connections and make sense of what we are learning, but also allowing us to learn and to collaborate with others in new ways. Art educators are beginning to use one of these new technologies, virtual worlds, to create educational environments and curricula. This study looks at how post-secondary art educators are using Second Life in their undergraduate and graduate level curricula and what perceived benefits, challenges, and unique learning experiences they feel this new educational venue offers.

This study uses qualitative methodology, including participant observation techniques and qualitative interviews, observations, and collection of generated works, to look at the practices of six art educators teaching university level undergraduate and graduate courses. Data are compared internally between the participants and externally by correlating to current research.

Art education in Second Life includes many curricular activities and strategies often seen in face-to-face classes, including writing reflections, essays, and papers, creating presentations and PowerPoints, conducting research, and creating art. Challenges include expense, student frustration and anxiety issues, and the transience of Second Life sites. Among the unique learning experiences are increased opportunities for field trips, student collaboration, access to guest speakers, and the ability to set up experiences not practical or possible in the real world.

The experiences of these six art educators can be used as a guide for art educators just beginning exploration of virtual world education and encouragement when looking

for new ways to teach that may increase our students' understanding and knowledge and their access and connections to others.

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CHAPTER 1

INTRODUCTION

My first action after transporting into a new area is to stand very still. I watch as my environment begins materializing and listen as sound gradually returns. This time, I saw familiar university campus type buildings behind rapidly appearing orientation billboards. To my left, a suddenly shimmering area alerted me to another avatar's impending appearance. This is not always a good thing. I quickly moved a short distance away and faced the new arrival.

"I'm here to answer any questions you might have," a male avatar going by the name of Cheesy Romano said through the chat function.

"Thanks," I replied in the same way. "I'm pretty much just looking around at different educational sites, but I'll let you know if I need anything." I began walking away toward what looked like a sandbox – an area where avatars practice constructing and manipulating objects. I saw there were several avatars at work. Cheesy followed.

"I see by your profile you're a grad student in art education," he offered. "How do you teach art on Second Life?"

"Well …" I began. "That's what I'm researching. What's your field?"

"I'm working on a Master's in math education. That seems to have more applications."

I would've rolled my avatar's eyes, if I'd known how. Cheesy continued to follow me. "Yeah, well, you do know this whole grid is art, right?" I replied. Sometimes I get testy in these places.

"Oh – I guess so. LOL"

We live in a world of rapidly changing technology. These new technologies bathe us in visual images and information, not only challenging us to find connections and make sense of what we are learning, but also allowing us to learn and to collaborate with others on scales unknown before. No longer is "place" as important physically. Information is accessed through Internet connections and social ties are formed and strengthened via digital networks. Those students college-aged and younger are well versed in the tools of this digital visual culture - computers, tablets, the Internet, smart phones, digital cameras, and social media sites. They live their lives immersed in it.

In comparison to this fast paced environment, traditional school settings and pedagogies are slow, visual-stimulation poor, and disconnecting. Marc Prensky (2008) views this traditional classroom as a somber place, noting that "for most of history, kids grew up in the dark intellectually" (p. 40) until they got to school, were taught to read, and had the world open up to them through classes and books. Now, he points out, "Today's kids grow up in the light … are connected to the entire world around the clock, in real time, through their media" (p. 41). When they walk through the school doors, they leave this light. Deuze (2006) notes that these new technologies allow us to do what we're wired to do - create content, communicate, remix, look at information, and reform it depending on how it affects us. And that is what students today do when they're outside the majority of classrooms.

I personally saw the difference between students' lives both in and out of class while teaching middle school. I asked students to draw from what was important in their lives when planning artwork and this was more often than not an aspect of visual or digital culture, such as movies, music (accessed digitally), friends (kept in constant touch

with digitally), and maintaining social media sites through photo taking, editing and design. When allowed to stay immersed in their normal world, I found the students to be very connected to their education. Unfortunately, the technologies needed to keep these connections were not often allowed in other classrooms. The teachers of core subjects viewed these same students as being very disconnected. Perhaps it is this disconnection from their world that is contributing to the rapid disengagement of our students.

As high school graduation rates remain low in most parts of the country and dropout rates remain high for many subsets of students (Stillwell & Sable, 2013), university six year graduation rates are at 59 percent nationwide (National Center for Education Statistics, 2013) and community college four year graduation/transfer rates dip below 50 percent nationwide (Koebler, 2012) and even lower in some areas. The Maricopa Community College District currently has only a 20% graduation/transfer rate (Fuller, 2013). Educational researchers are beginning to use new visual technologies that can be used to build motivating curricula (Gee & Levine, 2009; Davis, 2010). Perhaps it is the re-establishment of students' connections to their lives and digital worlds that makes these new curricula motivating.

In Master's program courses at Arizona State University, I was introduced to virtual worlds as one of the new visual technologies being used in education. As I researched this field, I became intrigued with the possibility of using virtual worlds to help keep students connected not only to general education subjects, but also to art education specifically.

CHAPTER 2

VIRTUAL WORLDS

Virtual worlds are computer simulated environments and can exist in many forms, for instance Internet based ("in the cloud") or contained on a USB drive (so called sims-on-a-stick), DVD's, or discs. These simulated environments can be replications of the real world and familiar places or can be fabrications of entirely new environments that look nothing like our world.

Virtual World Characteristics

Virtual worlds have several common characteristics. They are interactive, usually three-dimensional worlds. Users interact with the environment and with each other through the use of an avatar, a virtual graphic representation of oneself. Depending on the virtual world, avatars can take any form from human to animal, alien, or even inanimate objects. Users control their avatars through computer interfaces such as keyboards, joysticks, or a mouse. In this way, the user communicates with other avatars in the virtual world and interacts with the virtual environment. The form and degree of interaction that is possible varies depending on the virtual world.

Types of Virtual Worlds

There are over 700 virtual worlds accessible through the Internet (Reinhard, 2010). Some are role playing worlds used mainly for gaming and known as MMOG's (Massively Multiplayer Online Games) or MMORPG's (Massively Multiplayer Online Role Playing Games). Examples of these are *World of Warcraft* and *The Clone Wars Adventures*. In these worlds, there are fixed roles and users follow already set rules to reach pre-defined goals and rewards.

Many virtual worlds are designed for social purposes. In worlds such as There and Onverse, users meet friends in much the same way as in real life. Communities of users with similar interests can be formed and entertainment activities such as parties and dancing are popular. Through their avatar, users are free to be themselves or to take on new personas. An increasing number of these social worlds are designed for children. In Club Penguin, children take control of a penguin avatar they can accessorize, have homes to decorate, maintain lists of friends, and play games in an interactive environment.

Other virtual worlds are designed with business or training goals. Worlds such as Project Wonderland provide virtual facilities for meetings, conferencing, sales, networking, and training. OLIVE provides private worlds for training that are used by emergency personnel, the military, and government agencies (Kushner, 2008).

In addition to these specialized virtual worlds, there are many that have multiple or overlapping purposes. Worlds such as Second Life and Active Worlds are used for social purposes, business, education, training, and entertainment. The list goes on and includes almost any activity that also exists in real life. These worlds are often referred to as "metaverses," a term coined by Neal Stephenson in his novel *Snow Crash* (1992) to refer to a virtual world that overlaps with the real world. In a metaverse, users conduct portions of their lives in the virtual world. One might enter the virtual world for a university class and while there, ask several people to a party that evening being held in the real world. At the party, plans might be made to meet in the virtual world the next day to work on a group project, explore a new area, or listen to a live band. Karl Kapp (2007, Kapp Notes website), professor of Instructional Design and Technology at Bloomsburg University in Bloomsburg, Pennsylvania, defines a metaverse as "an online

world in which there are no specific goals or objectives" as a way of distinguishing these worlds from online, multiple player virtual reality games, such as *World of Warcraft*. In a metaverse, as in the real world, opportunities exist to have homes or living spaces and jobs, participate in recreational activities, receive an education, and have a social life.

Second Life

I chose to focus on Second Life for this study as it is the virtual world with which I am most familiar. It is easily accessible and already has a large educational presence, with over 700 educational institutions (Linden Lab, 2011), over 200 of which are institutions of higher education (Burgess, Slate, Rojas-LeBouef, & LaPrairie, 2010). Its environments can be interacted with, acted upon, and modified, making it the most likely current model for future educational virtual worlds. It is presently the largest metaverse in terms of both memberships, with over 36 million avatars, and activity, with over 700,000 unique avatar visits monthly (gridsurvey.com database, January 25, 2014).

Organization. The world of Second Life is organized into over 1700 square kilometers of islands (gridsurvey.com database, January 25, 2014). All content is created by the users, who are referred to as "residents". Basic membership is free and includes an avatar, clothing, and the materials and tools with which to create or build. Because these building skills take time to develop, there is also a robust market for ready-made clothing, avatar customizations, buildings, furniture, and other goods. If residents wish to create their own space from the ground up, real money is needed to "purchase" and maintain land. An avatar does not need to have a residence, but if one is desired, apartments and homes built by other residents on their land are available for rent.

Economy. Second Life has a free market economy, with goods and services bought and sold via a currency called the Linden Dollar. Linden Dollars (LD) can be traded with real life currency at the rate of approximately 250 LD to one US dollar (gridsurvey.com database, January 25, 2014). Musicians and artists were among the first to earn real world income in Second Life. Virtual music and art can be purchased for use in the Second Life world and real world musicians also perform live in Second Life via their avatars, with other avatars paying tips or cover charges to listen. Some artists are beginning to use Second Life as a venue for selling their real world work, maintaining a gallery with uploaded photographs that potential customers can view while speaking with the artist's avatar (M. Linville, personal communication, 4/22/2011).

Attributes. Avatars move around Second Life by walking, flying, or riding in vehicles. To get to another region or island, teleporting is available. Each site has a specific web address, or SLURL, used to make transporting easier. The SLURL's for Second Life sites discussed in this paper are listed in Appendix A, *Website Addresses for Second Life Sites*. Along with these, I have also included the SLURL's for additional sites not discussed, but having potential use in art education activities.

Communication with other avatars is through a chat function or, in regions that enable its availability, voice chat. The chat function requires typing what the avatar wishes to say. These words then hang in a chat bubble over the avatar for approximately 30 seconds. The conversation is recorded in a chat log that is stored on the resident's real life computer.

Second Life is created entirely by its residents, a feature that is not the case with most other virtual worlds. Each resident has the three dimensional modeling tools to

Figure 1. Building in Second Life. This screen shot shows the beginning building tools panel and the basic shapes used.

Figure 2. Adding textures. The photograph of tie dye was uploaded to Second Life and applied to the surface of the t-shirt. This is called “adding texture.”

build any item and also has access to a marketplace that sells already built items as well as item components. For example, if a resident wishes to build a school he/she can build it for free from the ground up, although courses in learning how to do this would most likely be necessary first. The resident could also choose to buy already built buildings and furnishings or to build the general shapes and buy the textures (the images that cover the surface of the shape, such as a photograph of wood or cloth) and any animations (such as the ability to have avatars sit in chairs) already made. The screen shots in Figures 1 and 2 illustrate some of the control panels used while building in Second Life.

Second Life presences. While socializing and entertainment are large components of Second Life (Eisenbeiss, Blechschmidt, Backhaus, & Freund, 2012), the business world also has a sizeable presence. In the years from 2006 to 2009, many businesses opened Second Life stores to market their goods. Some of these were publicity ventures that distributed free virtual goods to avatars and some were designed as virtual showrooms to sell real world goods. Nearly all of these are now shut down. Businesses are currently using Second Life mainly for meetings, conferences, training and collaboration. Companies such as IBM and Cisco have private islands and buildings that are not accessible by most Second Life avatars.

In addition to businesses, many nonprofits have Second Life presences. The American Cancer Society offers events and information on its island, the Mayo Clinic provides public information along with medical community training and research conferences, and the Institute of Electrical and Electronic Engineers maintains an island for educational displays, member services, and meetings.

While most governmental agencies have either left Second Life for more secure, closed virtual sites or have shut down their virtual world presences, several still exist. Among these are the UK's National Physics Laboratory and NASA's Jet Propulsion Laboratory, both of which maintain educational islands.

The educational community of higher and secondary education, libraries, and museums continues to maintain a large Second Life presence, conducting and publishing considerable research. In the next chapter, I give an overview of the research into both education in general and art education in particular conducted on virtual worlds, including Second Life.

CHAPTER 3

REVIEW OF LITERATURE

Many educators and educational researchers are turning to virtual worlds, such as Second Life, to create educational environments and curricula. Researchers in areas other than art education were the first to work with virtual worlds and publish their results. It is this general educational research I review first, before turning my attention to the more recent research published by art educators.

Virtual World Research in Education

At the university level, Mayrath, Sanchez, Traphagan, Heikes, and Trivedi (2007) created and implemented a two semester freshman world literature and rhetoric course at the University of Texas using Second Life, Semrau and Boyer (2008) conducted a course for K-12 teachers pursuing Master's degrees through California State University at Los Angeles, and Herold (2009) researched the feasibility of using Second Life as a platform for teaching media studies at Hong Kong Polytechnic University. Calongne and Hiles (2007) reported on several university courses incorporating Second Life into the curriculum, including an architecture course at Montana State University.

At the secondary education level, Ye, Fang, Liu, Change, and Dinh (2007) looked at a Second Life based environmental education game designed for high school students and Mallan, Foth, Greenaway, and Young (2010) described using Second Life to engage high school students in urban planning.

Less research is available on using virtual worlds with elementary students, however, Merchant (2009) and Warren, Dondlinger, and Barab (2008) each looked at different programs using Active Worlds designed to improve literacy and writing with

grade school aged children. Cooper, Carroll, Lui, Franklin, and Chelberg (2009) used a Second Life based science curriculum with middle school classes.

Virtual World Research and Learning Theories

The main body of research, however, continues to center around the possibilities virtual worlds offer via their potential to support various pedagogies, learning theories, and forms of education, and the potential solutions to current issues facing the field of education. A large portion of this research involves social learning theories, such as social constructivism.

Social constructivism as a theory was formed through the research and writings of several people, including French developmental psychologist Jean Piaget and Russian psychologist Lev Vygotsky. Both viewed learning as taking place through experience as the learner acts on his or her environment. Piaget (1962, 1969) focused on how experiences are put together with similar experiences into structures he called "schemas." Experiences are continually added to these schemas until there is a deeper understanding and this becomes the learner's knowledge of the subject. Thus from a constructivist point of view, what we experience is important to the learning process.

Vygotsky (1930-1934/1978) viewed the learning that takes place during these experiences as happening in a social context and felt it is enhanced by social tools such as language, symbols, and customs. By learning with others, two things happen. As we watch others, we are able to see different perspectives on the experience and incorporate them into our schema. We are also able to achieve more when learning with someone who has a slightly greater understanding of the experience than we have, what Vygotsky

referred to as a "Zone of Proximal Development," or ZPD. From a social constructivist point of view, learning can be enhanced by learning with others.

Researchers in art education consider constructivism to be a good fit in such areas of the field as art criticism, art history, and aesthetics. Prater (2001) looked at how using computer technology could help facilitate teaching these subjects for the art room teacher. Fielding (1989) wrote on translating Vygotsky's social constructivist theory into the art classroom.

Social constructivist learning researchers have been quick to see the potential virtual worlds offer. For optimum learning to occur, opportunities need to exist for exploration, structured experiences, active participation, and the opportunity to try, fail, and try again. For many educational subjects, these types of experiences can be achieved in more traditional classroom settings. Kluge and Riley (2006) discussed how virtual worlds provide opportunities for learners to have authentic real world experiences that might otherwise be "... too costly, complex, or even dangerous to perform in the classroom; some are not possible at all" (p. 130). They also suggested that learners might be more engaged in these experiences as they could not passively sit back.

Jarmon, Traphagan, Mayrath, and Trivedi (2009) found that learning experiences in a university level communications course could be constructed more easily in Second Life as problems relating to "...cost, time factor to build actual buildings, insurance factors, physical distance between collaborators, and general public audience" (p. 180) were lessened. The ability to repeat experiences and learn from the feedback of the first experience was found to be helpful by Kalyuga (2007).

Dass, Dabbagh, and Clark (2011) looked at current educational research on virtual worlds and found the possibilities for collaborative learning could provide students with the opportunities to learn from peers and to see the multiple perspectives of an experience on which social constructivism places value. Bruckman (1997) also found that virtual worlds supported constructivist learning through knowledge building communities and through the opportunities for peer role models. As did Dass et al. and Bruckman, Dickey (2005) theorized that virtual worlds could provide social constructivist learning environments for distance learners by allowing them to collaborate directly with others in the class in a way that more usual online educational methods do not. Distance learning is defined as "… the delivery of instruction of geographically separated people via electronic means" (Stokrocki, 2004, p. 459).

Virtual World Research and Art Education

Researchers in art education also see possibilities for the field in virtual worlds. The International Art Education Association even has a room in Second Life where monthly meetings are held (Han, 2011). Lu (2008, 2010a) states that art educators have the opportunity to engage and motivate students using these new technologies and have new ways to encourage collaboration. Han points out the potential of virtual worlds as alternative distant learning environments, something that can be difficult to achieve in online art education. Stokrocki (2007) reminds us that historically, art education methods and content have expanded with the introduction of new mass media technology, from television and video to computers, the Internet, and virtual reality. Han also sees the possibility of many typical art education activities being available in virtual worlds, such as 3-D art, installation, art, interactive art, animation, student art shows with a worldwide

audience, field trips, and both visiting and creating/curating virtual museums and galleries. Keifer-Boyd (2005) and jagodzinski (2005) see virtual realities as a means to expand the traditional arenas and tools of art education into new ways of understanding our world and experiences.

Art education researchers also note the social constructivist possibilities available in virtual worlds. Parks (2008) reminds us of the social aspects of how we "come to know the arts" (p. 236) and notes the decision-making that enters into a student participating in simulated activities which allow for the experiencing of consequences may increase learning, strategy building, and critical thinking skills. Lu (2010a) created a social constructivist learning environment in Second Life, Art Cafe, to use in the exploration of art based social constructivist theory in virtual worlds.

As in other educational disciplines, art educators are using virtual worlds as classrooms and alternative learning environments. Lu (2008, 2010a) uses her non-traditional learning environment in Second Life, Art Cafe, as a component in her undergraduate and graduate level art education courses. Keifer-Boyd (2009, 1997) uses virtual worlds as components of her courses, including creating virtual exhibits and museums and studying Cybernet activist art. Students in Carpenter's (2009) university level contemporary visual arts courses do coursework in Second Life and Taylor (2008) uses an art education environment she co-created on Second Life, where students "meet, exhibit, collaborate, create, conduct various research …." (p. 4). Stokrocki (2011, 2014) includes Second Life components in her undergraduate and graduate visual culture courses and conducts her entire digital ethnography course in that virtual world.

While art educators at the secondary level are beginning to use virtual worlds in their curricula, the literature does not yet reflect this to a great degree. Sakatani (2005) wrote of his explorations into using virtual reality in the art classroom while leading middle school students in designing and creating virtual environments. Crooks (2011a) created an exhibition of high school students' anime work at the Ed Media Center (EMC) on Second Life. Crooks also created a machinima (a movie filmed in a virtual world) from an interview with the high school teacher's avatar that discussed the process, problems, and significance of the show (Crooks, 2011b).

In the field of art education, not all research is conducted in the classroom, as reflected in additional art education research in virtual worlds. Stokrocki and Andrews (2010) looked at how working with homeless youths building and sculpting in Second Life affected their self-efficacy. Taylor (2012, 2014) described using 3-D virtual worlds in developing a visualization of the thinking processes in art planning, learning, and assessment. Lu (2009, 2011) looked at how a group of art teachers responded to art education activities in Second Life and developed a guideline for using virtual learning environments and virtual pedagogies.

Several researchers looked at virtual art and artists. Stokrocki (2010) conducted a participant observation study of spiritual art and artists in Second Life, McCaw (2008) studied a real life digital artist who began creating his works in Second Life, and Liao (2008, 2013) studied avatar and identity creation and avatars an art medium. Krecker, Stokrocki, and Wexler (2012) looked at Second Life artists with disabilities. All these researchers saw the great potential of using virtual worlds for educational purposes.

CHAPTER 4

RESEARCH QUESTIONS AND STATEMENT OF PURPOSE

Rationale for the Study

As discussed in the introduction, I am increasingly interested in the subject of how to keep students connected to their education and I see the new arenas of virtual worlds as holding great possibilities in helping to do this. In addition to finding ways to keep the currently served student populations interested in continuing to explore art, I have a keen interest in expanding art education to new groups of potential students who may be underserved. Virtual worlds may help us reach those who are not currently offered instruction in art, such as students who depend on online educational sites, adult students, and students with differing abilities who, for various reasons, have difficulties in currently envisioned, traditional classrooms.

Need for Research

At this time, there is little research on how art educators are actually using virtual worlds to enhance and expand their teaching. What educational learning theories are they using and how are they translating these theories to virtual world education? What instructional theories or pedagogies are they employing in planning their curricula? Are they including art making in their curricula? There also does not appear to be literature focusing on specifics of what in virtual worlds makes teaching art easier or more productive, what makes it more challenging, and what adjustments help lessen these challenges. More information on these areas would be helpful to those just beginning to think of virtual worlds as an option in art educational settings, helping them avoid the necessity of "reinventing the wheel," so to speak, and lessening the number of those who

become discouraged or disappointed and prematurely discount virtual worlds as a viable option.

Purpose

This study begins to look at these questions. Its purpose is to discover how art educational professionals at the postsecondary level are using virtual worlds in their curricula and how their experiences might benefit others. While there are many different virtual worlds that are possible as educational settings, this study looks at those educators using Second Life, for several reasons. First, it is among the oldest of the virtual worlds and was one of the first used educationally. Therefore, there are art educators with more experience in that virtual world. Second, it is one of the few virtual worlds that allow the user to have complete creative control over his or her environment. This means educators can set up unique learning environments and students have the artistic control needed to study and create art. Finally, Second Life is the virtual world with which I am most familiar. This allowed me to focus more on educational issues, versus figuring out how to function in a new virtual world, as I observed and interviewed the participants and also gave me insight into issues that arose.

Research Questions

This study focuses on two main research questions each of which includes several sub questions. First, how are post-secondary art educators using Second Life in their undergraduate and graduate level curricula? What pedagogies and/or learning theories are they using, what do their curricula look like, what do their virtual classrooms look like? And second, what are the educators' perceived benefits and challenges of virtual

classrooms over real life classrooms? What unique learning experiences are available in Second Life?

In answering these questions, emerging themes from the interviews and observations led to further questions I also addressed. These emerging themes provide insights into how best to introduce students to virtual world experiences.

Significance

The significance of this study is in its contribution to the understanding of how art educators can use virtual worlds in their teaching. As with any new technology, beginning to use virtual worlds can be daunting when one does not have a mentor or information from those who have gone before. I hope the information from this study will encourage others to use virtual worlds with their art classes.

Study Limitations

While this study presents a picture of six educators' experiences, it does not present all information on art education in virtual worlds in general or Second Life in particular. Its limitation is in its size. While we can learn much from the experiences of even one person, more perspectives will lead to better understandings. The number of post-secondary art educators using virtual worlds is still small and as more enter these new worlds with their students, there will be a more complete understanding of virtual worlds' best uses in the field of art education.

CHAPTER 5

METHODOLOGY

Qualitative Definitions

Qualitative methodology. In this study, I used qualitative methodology. Qualitative methodology is a way of thinking about and studying social reality (Strauss, 1998). Eisner (1991) views qualitative research as the search for the qualities and characteristics of our experiences. Qualitative research seeks to add to the body of understanding, rather than generalizing about the studied phenomenon. As with quantitative research, it begins with observations. Where quantitative research uses data from these observations to form strict numerical comparisons and classifications, qualitative research analyzes and compares these observations to form new insights and classifications (Willis, 1978). Qualitative research has three stages: data collection, content analysis, and comparative analysis (Strauss, 1998), which I discuss below.

Participant observation. In this study, I also used participant observation techniques, such as note taking and interviewing, in collecting data. Participant observation immerses the researcher in the phenomenon being studied to better understand what is happening. One can be a complete observer, collecting data on and observing the phenomenon without taking part in it, a full participant, collecting data on and observing the phenomenon while taking a full part in it, or a half participant and half observer, collecting data on and observing the phenomenon by alternately taking full part and then withdrawing to solely observe. I took on the differing roles of participant, observer, and observer/ participant at different times during the study in order to view multiple perspectives. I was enrolled in the university course of one of the educators and

fully participated for credit. While collecting information from several of the other educators I was able to be involved directly in some of their Second Life classes, keeping to the background while observing at times and participating in activities and conversations at others. In some cases, I collected my data by being an observer only and did not enter into what I was observing.

Data Collection

Data collection is a process of recording an event and gathering pertinent information (Stokrocki, 1997). In this study, I collected data through three means: conducting qualitative interviews, recording my observations through note taking, and gathering written examples of educational activities, generated work, and photographic records by taking screen shots of the educational environments and class activities. A screen shot is an image that records what is on the computer screen. Since it records what is happening at that time, it is analogous to a photograph that documents activities and appearances.

Qualitative interviews. Qualitative interviews are designed to find out what the participants think and how they feel (Rubin & Rubin, 1995) and to find out from them those things that cannot be observed directly, such as thoughts and intentions (Strauss, 1998). Qualitative interviews are usually conducted over several meetings, continuing until the researcher has a deeper understanding of the meanings participants attach to the events being studied. Strauss tells us that there is no set number of interviews, but that they continue until no new data are uncovered, within the constraints of time, energy, and the availability of participants. I used informal, or conversational, interview techniques

to allow for flexibility in pursuing information that emerged from observing the settings and from talking with the participants (Patton, 2002).

My initial interviews with the educators began with an interview guide of questions and subjects I wanted to cover. The questions provided information on the participants' teaching backgrounds in Second Life, the experiences they have had, and their general views of using Second Life in teaching the visual arts (Appendix B, *Interview Guide*). As themes emerged from these interviews, I added additional interview questions and returned to the participants for additional answers. Including the final interviews, which clarified both some of the answers the participants gave and my own interpretations of those answers, participants were interviewed between three and seven times.

I conducted the interviews in several different ways. Initial interviews with most of the participants were held in Second Life, avatar to avatar. I used Second Life's chat transcript to record these interviews (Appendix C, *Sample of Second Life interview from chat archive*). This function automatically records the typed conversations of each participant and includes a time stamp at the beginning of each response.

Most of the follow up interviews occurred via e-mail with the archived e-mail serving as a record, although a few follow-ups took place on Second Life, avatar to avatar. I interviewed one participant in the traditional face-to-face manner in real life and used a digital recorder, which I then transcribed.

Observations. My observations were the written descriptions of activities, actions, environments, and events I participated in or observed. I recorded my

observations in note form during the interviews and exploration of the educators' educational sites and also during the classes I participated in and/or observed.

In addition to notes, screen shots provided a photographic record of the activities and classes I observed and participated in and the educational settings and class activities.

Activities and generated work. I collected data on activities by direct observation and/or participation and through written syllabi from the educators' classes. Activities I observed included some of the educators' university classes, Second Life field trips, and a gallery opening of student generated work. Generated work included Second Life artwork recorded with screen shots, articles, and published research on teaching visual art education in virtual worlds written by the educators, and their class syllabi. The inclusion of the participants' generated work provided a multi-dimensional method of collecting qualitative data (Mason, 2002) and followed Bagnoli's (2009) suggestion that including forms of data "which rely on other expressive possibilities, may allow us to access and represent different levels of experience" (p. 547).

Content or Data Analysis

Content analysis is a search for conceptual themes or patterns of meaning and is the clustering and condensing of information to form relationships and significant meanings (Huberman & Miles, 1994). Using the collected data, I looked for emerging themes on what visual art education looked like in Second Life environments and possibilities for future directions. To do this, I color coded my interview transcripts and notes to look for patterns and themes in the experiences of the participants (Stokrocki, 1997). Coding is the process through which data is fractured, conceptualized, and integrated to form theory (Strauss, 1998). I used different colors to mark different

themes, developing a key to explain them. I then transferred the data into tables, putting each participant's conversations on a given subject next to the other participants' conversations on that subject (Appendix D, *Data tables*). This allowed me to view connections and make an internal comparative analysis as well, comparing the views, feelings, and intentions of each participant with the others.

Comparative Analysis

Comparative analysis is a process of seeking relationships in order to form insights. I made internal comparisons using the data collected from the educator interviews, the observations, and the recorded generated works. I then compared the views, feelings, and intentions of each educator with the other educators.

For external observations, I compared my insights and the participants' views, feelings, and intentions with the observations and research of others, focusing on virtual world pedagogy and constructivist/social learning theory.

Validity and Triangulation

Triangulation is using multiple methods, data sources, or perspectives to give a more detailed or balanced understanding of the phenomenon being studied and to establish "themes based on converging several sources of data or perspectives from participants" (Creswell, 2009, p. 191). Triangulating techniques are helpful "for cross-checking or for ferreting out varying perspectives on complex issues and events" (Wolcott, 1988, p. 192). By having data from different sources, techniques and perspectives, validity is increased and the findings and interpretations are more useful.

I collected my data from three main sources: in depth qualitative interviews with the participants, my observations, and examples of activities the participants engaged in

and their generated work. Stokrocki (1997) described how viewing a sociological process through these three stances is a form of triangulation that increases validity.

In addition, I collected data from multiple perspectives, that of a full participant, a full observer, and a participant/observer. Sevigny (1978) calls a combination of all three stances a form of triangulation and a sociological process of viewing a situation from all three perspectives.

Setting

The setting for this study was the environs of the online, virtual world, or metaverse, Second Life. In this world, avatars interact and act much as they do in real life, having jobs, living in homes, pursuing recreation and hobbies. I chose Second Life because of its easy accessibility, the large presence of educational institutions, my familiarity with it, and because art educators have used it in their teaching.

In Second Life, I interviewed the participants both at my own Second Life home and at their Second Life homes or educational facilities. I observed and/or participated in several classes conducted in Second Life, both in dedicated educational facilities and in other Second Life locations – museums, galleries, art sites, and non-art sites.

Participants

The participants in my study were six educators/facilitators using visual art/art making activities on Second Life in an educational setting. Four were art education professors, one was a media technology professor, and one was a studio art professor, all teaching at major universities in the United States. Four were female and two male. Five of these educators were previously known to me only through their research in or use of

Second Life in their classes and the sixth was a professor in my art education Master's program. She was also the professor of the class in which I was a full participant.

Figure 3. Interviewing. In this photo, I interviewed one of the participants at her Second Life "home." Inside the white structure is a re-creation of a Turkish rug she uses in art criticism exercises, both in real life and Second Life classes.

CHAPTER 6

REPORT OF FINDINGS

My research revealed several findings including learning theories and pedagogies used by the participants, numerous curricula activities, and challenges, benefits, and unique opportunities the participants identified from teaching in virtual worlds and Second Life.

Virtual World Teaching Backgrounds

The educators in this study had each used virtual worlds in their teaching for at least three years. All used Second Life as their virtual world teaching venue at the time of my interviews, although several are now exploring the emerging virtual world technology of open sims and "sims on a stick." Open source sims (short for "simulation") are platforms for virtual worlds that can be private and less expensive. They can still be accessed on the Internet, but require passwords. This helps avoid many of the distractions experienced in current public virtual worlds such as Second Life. There are none of the added monthly or yearly fees that public virtual worlds charge. However there is also no support so users either need knowledge of how to create virtual world environments or the funds to hire someone who does. "Sims on a stick" are open simulation software on a USB flash drive. They function in the same way as open sims do.

One educator had experience using virtual worlds and environments in teaching for over ten years, using early pre-Second Life programs and intentionally created digital environments. Four used Second Life with both their undergraduate and graduate students, one with only graduate students, and one with only undergraduate classes. Five participants taught classes both wholly in Second Life and hybrid classes that were held

the majority of time in real life classrooms with a Second Life component, while one educator used the hybrid class format exclusively. Information gathered from interviews with the participants, my observations, and the participants' generated work is summarized in Table 1, *Summary of How Participants Used Virtual Worlds in Teaching*.

Learning Theories/Pedagogies

Each of the educators interviewed employed social learning theories in planning their curricula. Constructivist and transformative learning theories were cited most often. Constructivist learning theory involves providing experiences that allow students to construct their own knowledge and understandings (Chapter 3, Review of Literature). In transformative learning theory, there is an underlying belief that if students encounter alternative perspectives and points of view and are encouraged to critically question their assumptions, beliefs, and values held on these views, they may undergo a change in the way they see and understand the world and themselves. This theory encourages autonomous critical thinking and working for change. As pedagogy, it involves setting up activities and assignments that expose students to viewpoints and

Table 1
Summary of How Participants Used Virtual Worlds in Teaching

Learning theories/pedagogies	Virtual World Classrooms	Curriculum Activities
- constructivist theory	- traditional settings	- field trips within the virtual world
- transformative learning theory	- non-traditional meeting places	- research conducted in the virtual world
- feminist pedagogy	- various virtual world sites	- quests/explorations
- Socratic approach		- art making – sculpture, videos, photography, machinima, performance art, anime, costume design
		- interviewing virtual world artists
		- collaboration with other students
		- curating galleries/exhibits
		- critiques
		- assignments via Blackboard, Sakai, Google Docs, blogs, Flickr
		- guest speakers
		- blog reflections
		- studying avatars as art
		- essays, papers, presentations, PowerPoints

experiences that are different from their own and providing opportunities for students to discuss and reflect on what they are seeing and learning. Strategies include role play, field experiences, simulations, readings, videos, and discussions (Cranton, 2002).

One educator reported also using a Socratic approach. Named for the Greek philosopher Socrates (470-399BC), this pedagogical method emphasizes dialogue between the teacher and students. Questions are asked in ways that encourage students to examine their beliefs and understandings. The aim is to foster critical thinking and deeper insight. Students also ask questions of the teacher who "… must always be open to learning something about him- or herself," (Stanford University Center for Teaching and Learning, 2003).

Another of the educators used feminist pedagogy as an approach to teaching. Feminist pedagogy shares several points in common with transformative pedagogy, including a commitment to social change, a desire to challenge dominant views, and valuation of personal experience. It is also concerned with power structures and how they affect views and experiences (Weiler, 1991).

Curricula

The educators' curricula reflected their learn-by-doing, constructivist approaches. Each included field trips to various Second Life sites, including locations that reproduced famous works of art, such as Michelangelo's Sistine Chapel. Another site was Art Box, where one can view reproductions and also place oneself in those artworks. Virtual museum visits included explorations of a virtual Louvre and one site that reproduced pieces of Frank Lloyd Wright architecture. One participant included visits to sites developed and used by other art educators, including the Art Media Center, used in

classes at the University of the Arts in Philadelphia, and Dr. Lilly Lu's Art Cafe, used in courses at Northern Illinois University. Most of the educators included visits to virtual art exhibitions and Second Life artists' galleries. Not all field trips were specifically art related destinations. There were also visits to the National Oceanic and Atmospheric Administration's site to experience a virtual tsunami and to sites that recreated specific eras such as Harlem during the 1920s and Arles, France in the time of Vincent Van Gogh. One educator also included visits to non-profit organizations with a presence in Second Life to learn how these groups used virtual worlds.

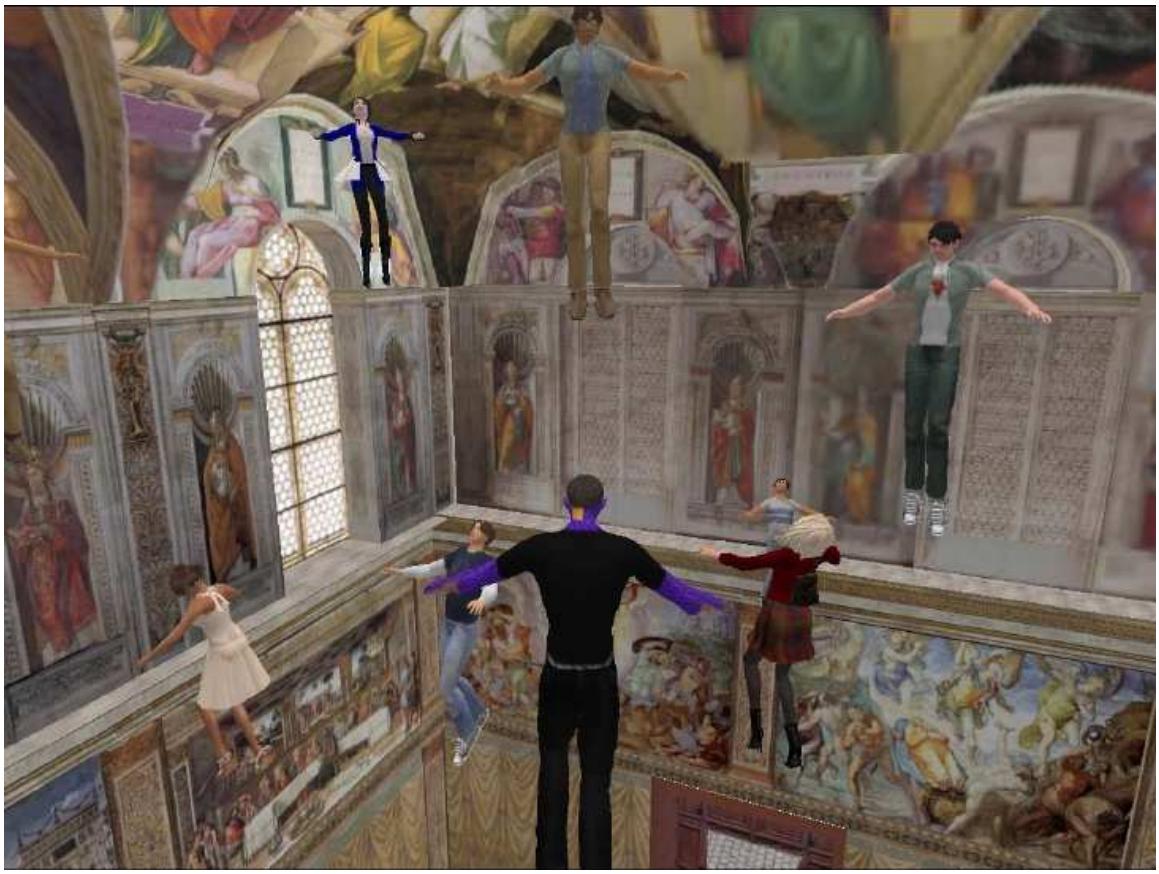

Figure 4. Sistine Chapel. Students on a field trip visit Vassar College's re-creation of the Sistine Chapel.

All of the educators included art making in their Second Life curricula. For many this involved using the building programs incorporated into Second Life that allow users to assemble and modify objects. Students created sculptures, costume/clothing design, and architectural pieces in this way. The curriculum of one educator included photography, using screen shots, while that of three others included video, machinima, and anime production. Students in one educator's class studied performance art in Second Life and then created pieces of their own. Four participants included assignments in which the students created artwork in real life, photographed or scanned it into computers, and uploaded it to Second Life. Students then critiqued and/or exhibited these works.

Five of the educators included guest speakers from physical locations ranging from across the country to across the world. This was handled in several ways. In some cases, the guest appeared in the Second Life class with his or her own avatar and spoke and answered questions much as a guest speaker in a real life classroom does, using voice or typed chat. One participant included a guest who spoke via a video stream that appeared on a virtual whiteboard in the Second Life classroom. Another had a class meeting at the gallery/studio of a Second Life artist. The artist spoke to the class, gave demonstrations on how she created art in Second Life, and answered questions.

Two educators included exploration in their curricula. One educator encouraged students to search out and explore art related Second Life sites and had a minimum time requirement to meet, however did not have specific assignments attached to this exploration. Students in the other educator's classes went on explorations or "quests," also to art related sites, and completed assignments based on their journeys.

Four participants included assignments requiring students to conduct research in Second Life. These assignments included interviewing virtual world artists, conducting ethnographic observations, and researching Second Life sites and critiquing them for their pedagogical opportunities while planning art education curricula around them.

The class projects of three educators included curating art galleries and exhibits. Students in these classes worked with assigned themes and then either created the artworks themselves (created in Second Life or created in real life, copied and uploaded to Second Life) or used the art of others to design and construct the exhibit. Each of these exhibitions included openings, with guests from outside the class attending.

One educator included assignments in which the students studied avatars as art, both their own and the avatars of others. The avatars were looked at from several perspectives: physically, aesthetically, and sociologically. Students also developed ideas for art education lessons involving the creation of avatars.

Each of the educators also included types of assignments usually seen in face-to-face classes. Students wrote reflections, essays, and papers and created presentations and PowerPoints. In the hybrid classes, these were usually turned in or presented during the portion of the class that met in real life. In the Second Life only classes, the educators had several different ways for students to turn in assignments. Some used university provided class software, such as Blackboard and Sakai, and students posted their assignments. In other classes, students wrote their assignments on Google Docs and shared them with the professor. Three educators used blogs. In two different classes, students had their own blogs to which they posted assignments and reflections, while in

the other class students posted to a class blog. Photography assignments in one class were posted on the photo sharing website Flickr.

Just as in real life curricula, each of the educators often had students collaborate on some of the assignments. Students worked in Second Life with other students in the class, other students taking a similar course at another university, and artists from other physical locations. In one class, students collaborated with students at a university in another state to create machinima based on the Surrealist Exquisite Corpse activity. In another class, students curated a Second Life artwork exhibit with artists in Scotland, each student contributing works relating to where he or she lived.

Students in five of the educators' classes also conducted critiques in Second Life. In one class, Second Life artworks were critiqued with the piece of art present in the virtual classroom or meeting place. The students critiqued the artwork in the same way students do in a real life classroom, with the educator leading the discussion. In the other classes, critiques were held of artwork that was scanned into a computer, uploaded to Second Life, and shown on a virtual whiteboard. Sometimes this was art of known artists and other times it was student created art.

Settings

The educators' class settings varied. Four participants taught at universities maintaining a Second Life campus. Of these, one participant used a traditional type classroom with tables and chairs for the meeting portion of class. Another had a dedicated building for art education classes with a lounge area, informal seminar room with bean bag chairs, and a large gallery. A third participant held class meetings at

Figure 5. Virtual Harlem. Re-creations of old advertisements in Virtual Harlem.

Figure 6. Fallingwater. Frank Lloyd Wright's Fallingwater in a museum park.

various university provided informal venues, including an outdoor amphitheater and rooftop lounge. The fourth participant held class in art galleries and exhibition areas dedicated to that course, after first gathering at an outdoor meeting spot.

Of the remaining two educators, one used a different site for class meetings each week. Sometimes these were informal meeting areas such as outdoor amphitheaters or the professor's Second Life home. At other times, a short class meeting was held at a Second Life museum or field trip site before the explorations and activities began. The other professor had a dedicated site for classes that included a building with a gallery, meeting room, library, informal meeting areas, and a beach. Participants often held classes in spaces that would seem unusual in real life classrooms. In one class, students

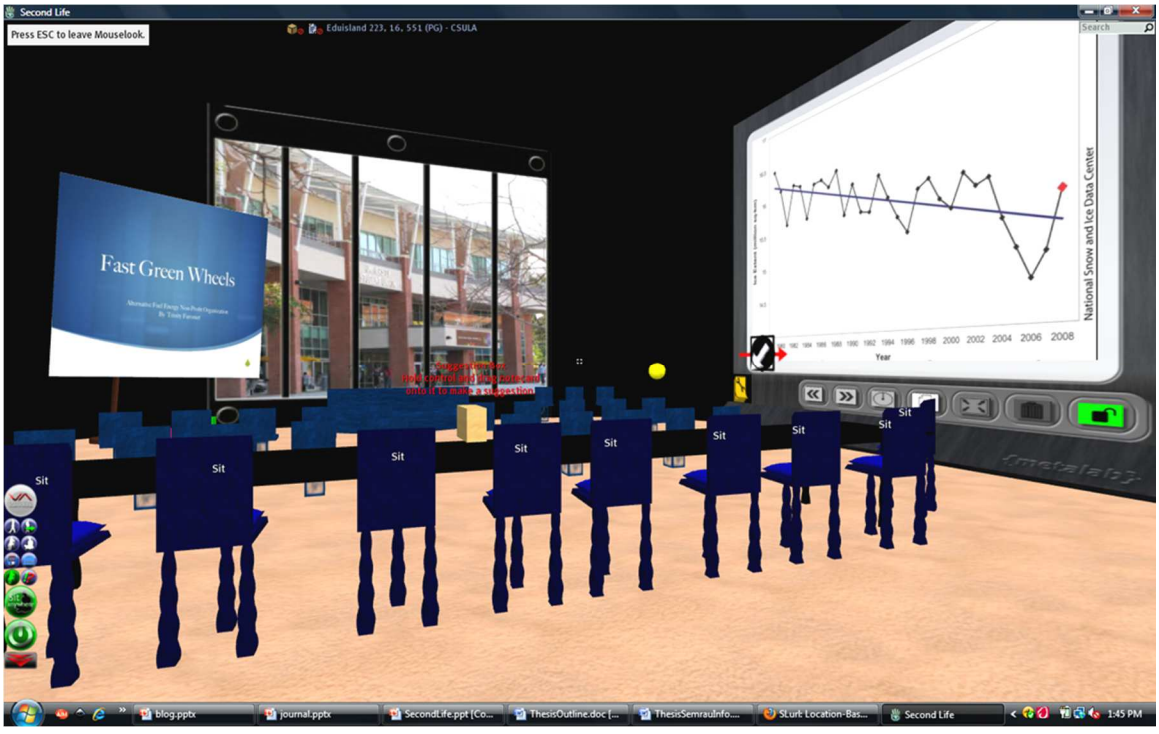

Figure 7. Traditional classroom setting. This is an example of a more traditional classroom setting. Note the view of the actual university campus outside of the window.

Figure 8. Non-traditional classroom setting. The virtual whiteboard and video viewer function as presentation boards for viewing PowerPoints, student work, videos, live streaming of guests, and Internet sites.

Figure 9. Meeting area. One participant used a "meeting area" for class gatherings. The whiteboard at the front of the area was used to view student work.

critiqued a Turkish rug that was hung within a parabolic form, allowing students to move around the rug three dimensionally, while in another class students performed a play on a beach, flying among the sand dunes and rocks.

Perceived Benefits and Challenges

As a group, the educators were enthusiastic about conducting classes in virtual worlds. Several believed that education in general will move increasingly into virtual worlds in the future and that high quality art education programs need to prepare art educators for these new teaching environments. As one participant said, "Those in U.S. kindergartens today will experience cyber and fiber material as integrated medium for creating art. As they grow into adults, they will live in the transitional space of augmented reality." See Table 2, *Summary of Participants' Virtual World Perceptions* for an overview of what the educators saw as benefits, challenges, and unique learning opportunities to teaching in a virtual world.

Table 2
Summary of Participants' Virtual World Perceptions

Benefits	Challenges	Unique Learning Experiences
- non-physical presence	- technology issues	- new ways to access/interact with information
- increased access to real world	- expensive	- liberation from convention/physics
- more engaging, immersive	- steep learning curve	- collaborating with students from around the world
- equalizing on basis of appearance, personality, confidence level	- distractions	- ability to set up learning experiences not possible or practical in real world
- equalizing on basis of language facility and physical ability	- student anxiety	- easier to meet with experts
- can set up specific learning environments	- not always available in classrooms	- use of class chat logs to teach skills
- use of chat logs in teaching	- foul language, harassment	
- freedom to play with identities		
- transcends normal limitations of physics, safety, practicality, conventions		
- increased student participation		
- students have better access to each other		
- exposing pre-service and current teachers to new technologies		

All saw the ability to set up learning environments, to plan activities that would be difficult to impossible in real life, and to expand their students' learning opportunities as among the greatest benefits of teaching in a virtual world. The participants talked about "transcending the normal boundaries of space" and being "liberated from the conventions of the real world." They spoke of being able to "immerse" their students in learning activities that allowed students to construct their own meanings and not have to rely wholly on reading about the experiences of others. Examples given included the number of field trips and types of experiences on those trips that would be impossible to recreate in a typical university setting, the ability of students to create art such as sculpture, architecture, and costuming with no additional costs no matter how many times they had to start over, and having multiple opportunities to curate museum and gallery exhibitions.

Another benefit to virtual world classrooms talked about by all the educators was the ability to access the class from any physical location. Several commented that while there are online classes conducted on the Internet already, they liked the sense of physical presence that virtual worlds allow and felt it enabled them to offer a better class experience. Being able to attend class and also to teach from anywhere with an Internet connection was seen as opening up more opportunities for expanding art education. One participant teaches in a state that requires teachers to earn 24 graduate credits, just six credits short of a Master's degree, within six years. If an art teacher does not live near a university that offers art education graduate programs, his or her opportunities for high quality art education graduate classes are slim. This ability to offer university level art education classes was touched on by several of the educators. One participant noted that

access to graduate education for those in museum based art education is an area that has great promise in virtual worlds.

This increased access was also mentioned as being beneficial to students even if the entire class was enrolled in a traditional residential university program. All the educators included assignments that required the students to collaborate with other students and four commented on how virtual worlds made it easier for students to have access to each other. One participant noted that all of her students were graduate students with work schedules and family commitments and that they commented on how the ability to meet with other students in the class at any time and from any place made collaborative work easier.

The ability to teach students new ways of accessing information was seen as a benefit of virtual world teaching by three of the educators. One viewed this as students gathering information while in the environments the educator created. As they gathered information, they acted on it and created their own understandings. Another participant described this immersive quality as "the person being the environment." A third educator felt virtual world teaching allowed opportunities to teach "new literacy" concepts, new ways of communicating that don't necessarily include traditional written text, and to help students learn how to use this effectively.

Three of the participants viewed increased student participation as a benefit. Two saw increased participation in class discussions and the third stated that while conducting critiques, "participation is much greater than in face-to-face with freshmen art classes." Two of the educators used the Second Life chat log records in their teaching and felt this was probably a major reason for increased participation on two levels. First,

the chat logs served as a transcription of what was said during critiques and discussions, making students more aware of the need to contribute. It was a written record of who contributed and who did not. The other reason for increased contributions may stem from using the chat logs from previous classes to teach such topics as how art educators can aid critiques with their students and how to lead class discussions on assignments and readings. One educator felt that as students became more aware of how to facilitate this, they became "more aware of their own participation and contributions to class discussions." They learned how to be better class participants.

The other two educators felt that some of the increased participation might be due to other factors. First, there is a sense of pseudo-anonymity about interacting through an avatar. For less outgoing students, this may be somewhat freeing and may allow them to speak out more than they are used to doing in a real life classroom. It also may be

Figure 10. Class discussion using chat function. Students of one participant discussed an assigned reading. The participant reported the chat log record was later used at a real life class meeting as part of a discussion on facilitating classroom discussions.

"leveling the field," as one participant put it. The class dynamics changed when the class format changed and they saw less of certain students dominating discussions and more of everyone getting an opportunity to share their views.

Many of the educators felt that education in virtual worlds also had the ability to "equalize" in other ways. They gave examples of students who were not native English speakers or who were deaf or hard of hearing and were able to participate more fully in their virtual world classes by using the chat log record of class discussions. One spoke of working with people of differing physical and mobility abilities and how these students were able to participate in virtual world classes in ways they could not in real life classes.

Some of the challenges the participants talked about related to education in virtual worlds in general and some were specific to Second Life. All felt these were more in the nature of problems to be solved and not difficulties that made teaching in virtual worlds too problematic.

All participants saw technology issues as a challenge. Virtual worlds require both fast computers and fast Internet speeds in order to avoid what are called "lags." When a lag occurs, what is happening on the computer screen slows down or stops. The student doesn't see what is happening in the classroom and has problems participating and communicating. The educators seemed to agree that most computers students have today are fast enough to run virtual world software, however students often do not have a fast enough Internet connection at home or from wherever they are trying to access the class. One participant felt this was a temporary problem that will lessen as Internet technology and access continues to improve.

The virtual worlds themselves cause some of the technological problems. One educator pointed out that there have been great advances in virtual worlds since the beginning, with great advances still needed. Four participants cited Second Life's technology as a problem. They described Second Life as having a "steep learning curve," that is was not easy to learn and took time on the students' part. They felt very beginning skills such as moving around, dressing, interacting with objects, and finding ones stored objects were difficult for students at first. They also described the interface as "not very user-friendly" and two participants noted that the tools used to interface with the Second Life world kept changing, necessitating re-learning of basic skills. One educator commented that more support and better learning tools from Linden Labs would be helpful and did not like that the company was hard to contact.

Two educators cited distractions as a challenge. The newness of virtual world technology for most of their students often made it hard for the students to filter out what was not important. This resulted in students suddenly flying off to investigate something new or changing their avatar's appearance in the middle of class. Two participants talked of the harassment that can occur in Second Life when using areas that are open to all Second Life residents. Several participants commented that a good sense of humor is necessary when teaching in virtual worlds, one professor describing a class in which her guest speaker's hair suddenly disappeared while speaking to the class.

While not a problem at the university level, one challenge two participants experienced while working with high school students was schools or school districts blocking virtual world websites. One educator found ways to work around this by using off-school sites for working and displaying the students' art. In another case, high school

teachers in a graduate program expressed concern they were learning to teach in virtual worlds but would not be able to use this knowledge with their students because the worlds' Internet sites were blocked by their districts.

Another challenge mentioned by three of the educators was expense. They talked about the need to write grants in order to get space to build their class areas and about lobbying their universities to continue funding the university presence on Second Life. For one educator, this funding stopped and the virtual classrooms no longer exist. One of the participants avoided this by using Second Life sites created and maintained by others and felt there was not a need to have a dedicated "classroom." Another participant spoke of the expense of funding a position for an assistant to work in the virtual world, creating and maintaining the environments the participant used in classes. Others enlisted the skills of graduate students to do this work.

All participants said that while most students enjoyed the virtual world classes, they did see some student anxiety that needed to be addressed. Several felt this stemmed mainly from students being placed in a new environment and having to learn a new technology that was not always intuitive or easy. As one participant said, "All this is visible to everyone else and makes some uncomfortable." Another felt part of this anxiety came from virtual worlds looking like a game. Despite the perception of the current generation of students as liking video games, many students do not and come to virtual worlds with "pre-conceived ideas". One educator felt students became anxious because the learning environment into which they were placed required them to explore and take chances, and stated that students today may have less experience in free exploration and discovery play. Another participant talked of students being comfortable

with the way university classes are normally conducted and becoming anxious when this environment changes and "they don't always have the right answer." One participant saw this anxiety as being "like the old computer performance anxiety we used to see" and a normal part of encountering new environments and technology.

Each of the educators included strategies and activities in their curriculum to address student anxiety. Most had beginning assignments that included play, discovery, or success as their main goals. Four included assignments requiring students to use self-tutorials in Second Life, either at the site of the virtual classroom or at another Second Life venue. These tutorials covered such areas as how to customize an avatar, how to move around in Second Life, how to interact with objects, and how to communicate with other avatars. Some participants required students to complete these tutorials prior to class beginning and others spent time on it, ranging from one class to one week, at the beginning of the course.

Two educators met one on one with students in the Second Life world at the beginning of the course and helped with any remaining difficulties or questions. Two other educators used students with Second Life experience as mentors to inexperienced students. One professor paired students new to Second Life with experienced students at the beginning of the course. These pairs completed several assignments together during the first week of class.

One educator taught strategies for overcoming frustration, not just for virtual world classes, but for all classes. These strategies focused on leaving the frustration for at least five minutes and doing a distracting activity, such as "a run, do 50 jumping jacks,

or something physical if possible." After the break, students were able to find help and solutions from the professor or another student.

Unique Learning Experiences

When asked to talk about the unique learning experiences in virtual worlds, the educators spoke in greater depth on areas that were for the most part also seen as benefits. Unique possibilities for collaboration were often mentioned. Virtual worlds made working on actual artwork and exhibitions together possible for people anywhere with an Internet connection. One educator also talked of seeing a greater collaboration between students and professor, with the educator learning from the students as well as the students learning from the educator. Three of the participants spoke of the greater opportunities for collaboration with their colleagues through the monthly meetings in Second Life of the International Art Education Association.

This greater potential for collaboration was also linked to an opportunity for students to begin forming communities with others. These were spoken of as being learning communities that benefited the students while they were working on their degrees as well as artistic communities that could continue to benefit the students as they moved into their professional careers. More than one of the participants commented on how much easier virtual worlds made community building.

The other unique learning experiences talked about were experiences that would be difficult or impossible to recreate in the real world. One educator created environments for specific lessons. All educators created lessons around visits to such sites as the Sistine Chapel. Most of the participants included guest speakers from off-campus locations, including an artist from Japan and an educator from Great Britain. In

one virtual world class, students participated in a short play, designing costumes that added artistically to their characters. In this same class, students were assigned to explore the entire virtual world on art quests, bringing back screen shots of what they found. While these experiences may not all be impossible to re-create in real life curricula, they would most likely be prohibitively expensive or time consuming. Other experiences would not be possible in the world as we know it today. The class of one educator experienced a virtual tsunami firsthand. Several participants included sculpture making in their curricula. Many of the students created pieces that defied the laws of physics, such as works with pieces that hung in mid-air. In the class that participated in the play, several costumes involved changing the avatars' skin.

Figure 11. A play. Students in one participant's class with their designed costumes.

CHAPTER 7

DISCUSSION AND COMPARATIVE ANALYSIS

In this chapter I discuss the findings my research data revealed by comparing them with related literature in virtual world education, art education, and digital culture.

Learning Theories/Pedagogies

Based on the work of constructivist researchers who looked at Second Life (Chapter 3, Review of Literature), I was not surprised to find the participants reporting that they used constructivist learning theory in planning their curricula. Constructivist and transformative learning theory intersect in the perceived need to provide activities that require students to take on and explore multiple perspectives. An assignment of one participant asked students to attend an event in Second Life and produce a visual reflection, using still images or machinima, on the experience of that event through the eyes of the students' avatars. Since a majority of avatars I observed in the participants' classes did not look like every day human beings, this required interpreting an experienced event through the eyes of a green alien, a dog, a winged giant, or some other such being. This assignment also had the possibility of forcing students to contemplate another's experience. If the students were encouraged to complete this assignment with an avatar whose gender, race, ethnic group, or socio-economic class differed from their own, they might gain a better understanding of their real life culture and themselves.

As reviewed in Chapter 3, researchers also see virtual world education as offering opportunities for the creation of educational activities that would be difficult, dangerous, or too costly to create in the real world. The field trips of the participants were a good example of these opportunities. One participant's students experienced a tsunami on a

Second Life field trip, something not recommended in real life, and were then able to discuss that experience in their follow up class. In another participant's class, during a field trip to a Sistine Chapel recreation, students flew up to the ceiling, investigating every section of the painted panels and then pulling back to view it as a whole. The professor challenged students to find specific scenes, to comment on sections that were new to them, and to think about how they might have felt walking into the chapel as real life 16th century inhabitants and what the motivations for its creation might have been, based on the experiences the students were having. This was a richer experience than most likely is possible in a classroom with students looking at slides or book reproductions of the chapel. The conversation between the students and the professor was animated, lively, and personal in a way I do not often observe in university classrooms. All involved appeared to be reacting as if they were actually there and excited at the discoveries they were making.

A feminist pedagogy was visible in several of the activities of one participant, including one in which students looked at their self-created avatars. Among the questions they considered were whether their avatars reflected power relationships seen in our society, whether the avatar empowered the student, if stereotypes or diversity were reflected in the avatar, and what authority determined the avatar's actions. Students answered these questions in a reflection assignment in their blogs, discussed them as a class, and then brainstormed on how the insights they gained could be used as part of an art lesson.

Curricula

The participants' curricula were rich in hands-on, direct experiences. Dass, Dabbagh, and Clark (2011) determined that certain types of learning activities work especially well in virtual worlds, including problem-based learning, action learning, experiential learning, active learning, and collaborative learning. The main body of curricula observed did fall into these categories. Very little "direct instructional" or lecture activities were observed. There were many assignments across the board presented as problems for the students to solve. In one class in which I participated, students were told to explore different areas of Second Life and look for sites that might be used in an art class. Students needed to determine how to search for categories of sites, how to transport there, how to record where the sites were so others could find them, and then evaluate opportunities to which the sites lent themselves. I felt there was more active participation than during similar assignments I have observed that require students to do the same thing using print materials. The sense of presence I felt when navigating through the Second Life grid via an avatar gave a real sense of actively working and exploring.

Several other activities I observed or participated in gave a fuller experience when undertaken in Second Life, among them curating an exhibit. This activity is one often seen in art making and art education classes, however the students do not usually create an actual, walk through exhibit. Instead, students are asked to gather materials or artworks that might fit a theme and present how an exhibit could be curated with them. In a Second Life activity I observed, students worked in small groups collaboratively on the same type of assignment, using the Second Life building tools to curate and set up a

virtual exhibition in one of their university's Second Life galleries. It looked very much like a real world exhibit with display materials created for the artworks, traffic patterns considered and adjusted, and an opening night with professors and students from several universities attending. The virtual exhibit was much less expensive than a real life one and was put together in a shorter amount of time – it is quicker to create with Second Life tools than to build real life structures. The students worked together to create boxes and stands instantly, change the gallery's wall color without the long process of painting, and rearrange the exhibit several times when they determined that traffic patterns were less than optimal. While it would still be beneficial to experience the work of curating a real life exhibit, the experience of creating several Second Life exhibits first might make a real life exhibit more successful when finally tackled.

Chen, Siau, and Nah (2013) found that student-perceived learning and satisfaction was significantly lower in Second Life than in face-to-face classes when direct instruction and direct lecture teaching techniques were used. I observed very little "sage on a stage" type curriculum activities. This may have been due partly to the participants' constructivist learning approaches. I was able to participate in real life, face-to-face classes of only one of the educators and did observe that this participant used mainly constructivist teaching strategies with very little direct lecture, but I do not know if this was true for the face-to-face classes of the other educators.

Another reason may be that the participants were all experienced in teaching in virtual worlds. One educator did comment that a key to planning virtual world activities was to keep students always actively working on something. In one class in which I participated, I observed that when the professor directly addressed the class for any

Figure 12. Setting up an exhibition. Students build structures and attach artwork while curating an exhibition.

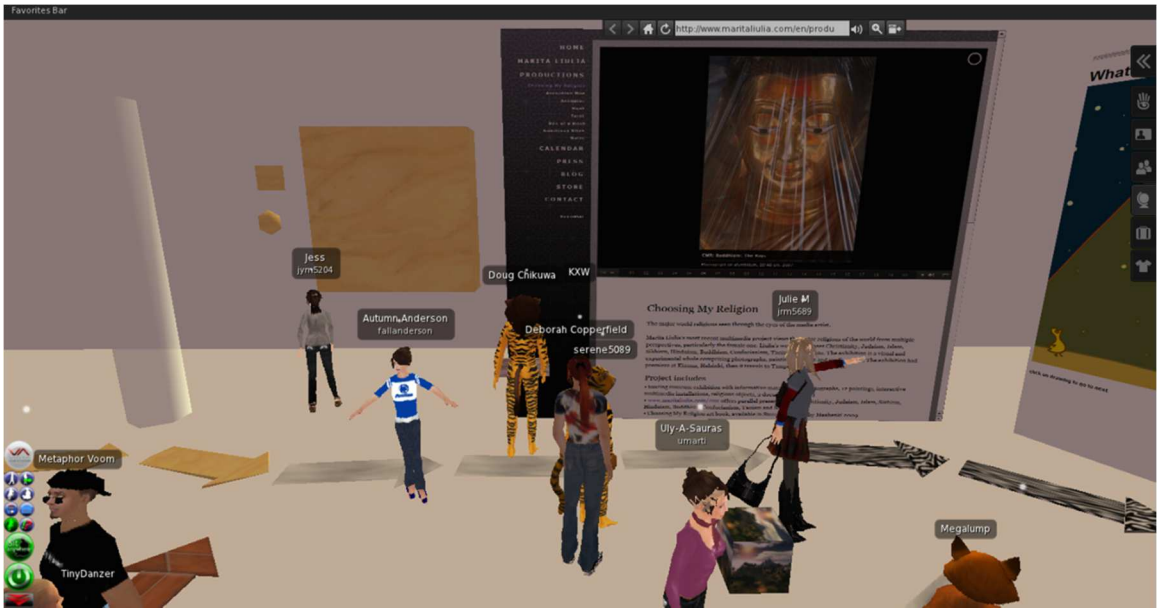

Figure 13. Opening night. Opening night for the students' exhibition was attended by students and professors from several universities.

length of time, students often began roaming around the virtual site, playing with their avatar's appearance, or building objects. It may also be that direct instruction in Second Life means the students need to read a long series of chats in bubbles above the instructor's head, along with seeing no change in the instructor avatar's facial expression. Keeping student attention during such a virtual lecture could be difficult.

Guest speakers were an integral part of several of the participants' curricula. Julian (2004) spoke to the desirability guest lecturers, adding that "the predominant voice and teaching style of a typical university course is the on-campus professor. Guest lecturers are costly" (p. 153). The use of guest lecturers seemed to be more frequent and may be due to the lack of travel expenses and easier scheduling of virtual guests. In addition, there appeared to be more frequent visits to Second Life studios in the virtual classes than visits to artists' studios in real life art or art education classes with which I have experience. This may be due to the greater ease of "traveling" with a group of students in a virtual world and not needing to coordinate such items as emergency forms and transportation.

The art making curriculum activities were especially interesting to me as I was unable to find research addressing teaching art making in Second Life. I participated in several of these activities, including sculpture, clothing design, and photography. The ability to work on a piece without giving thought to cost was freeing. I started over and changed my work far more frequently than I do in real life and felt that this ability to try something and adjust it based on what I learned led to a more satisfying piece and a better understanding of the objectives. (Appendix E, *My Second Life Art Generated During Study*)

Perceived Challenges

The participants faced the same challenges in Second Life education as research often cited. Herold (2009); Sanchez (2007); McKay, van Shie, and Headley (2008); Jarmon, Traphagan, Mayrath, and Trivedi (2009); and Lu (2010) all reported student problems with Second Life's steep learning curve. Each found that extra time was needed at the beginning of a course to overcome this. Marc Prensky (2001) coined the term "digital natives" to "describe individuals who have known nothing but a digital environment since birth, surrounded by and using cell phones, computers, video games, digital music players, and all the necessities of the digital age" (Chao, Parker & Fontana, 2011, p. 324). Herold (2009) found his expectation that students would have few problems with Second Life because they were digital natives was not true. Lu (2010) determined that all participants in her study needed time to learn basic navigation skills and how to function in Second Life, regardless of their computer skills or previous video game experience. I observed this need while in one participant's real life class during the students' first Second Life assignment. A previous assignment asked students to sign up on Second Life, create an avatar, and become familiar with how to get around in the online world and provided suggested tutorials. It was obvious that many students did not complete this assignment. They were frustrated and verbally expressed their dislike for Second Life. One student commented that she did not like video games and "…this is just a video game." Such comments are consistent with one of the participant's theories that students sometimes dislike Second Life or have anxiety about working in it because they equate it with video games and dislike them.

Another participant theorized that perhaps students had anxiety over virtual world course work because it was something new to them. Students understand how to work in a university classroom and what is expected of them in a university setting but are unsure of the different context of virtual worlds and their technology. Several first time students in the introduction class I observed had comments such as "I don't understand what I'm supposed to be doing," and "I hope we're not being graded on this."

Petrakou (2009) theorized that a virtual world may be a new environment for students and they need to be introduced to the new ways of interacting in and navigating around it and also to the new social norms it may have. Lu (2013) referred to the frustrations students in her study felt and cited insufficient virtual world experience as one of the contributing factors. She suggested practice and troubleshooting as solutions.

The educators in my study did find that early practice and tutorials, often before the course began, helped with the anxiety and frustrations, and all participants worked to minimize these through specific strategies such as mentoring and assignments designed to ensure early successes. Landers and Callan (2012) suggest these early strategies are important to the success of virtual world education. They found virtual world educational and training experiences are often frustrating due to a lack of experience or training in virtual world navigation, leading to less student learning during an activity, no matter how well-designed the activity was. Jarmon, Traphagan, Mayrath, and Trivedi (2009) observed students who set up their accounts, created avatars, and completed Second Life orientation tutorials prior to the beginning of a course and then had two one-hour training sessions during the first week of class covering other basic skills such as managing

inventory, communicating, and exploring the virtual world site. These students rarely needed the offered weekly help sessions after the first two weeks of class.

Dass, Dabbagh, and Clark (2011) and Sanchez (2007) found that students became frustrated with Second Life activities and perceived less value in virtual world educational activities when they were unclear about how the virtual world activities lined up with the course learning objectives. In Sanchez' literature course, students had a hard time seeing how the Second Life activities related to the subject of the course until clear objectives directly tied to the course goals were provided. While the assignment lists and course syllabi with which the participants provided me did contain objectives for each activity, these objectives did not usually include how completing the activity in Second Life helped students meet the objectives. Understanding how and why Second Life activities are included in the course goals and linking them directly to objectives may help students place more value on the time it takes to learn how to function in virtual worlds.

Perceived Benefits and Unique Learning Experiences

All educators in the study cited the ability to access the class from any physical location as one of the benefits of virtual world education. Art education researchers also recognize this, seeing increased access as possibly making art courses more viable as a distance education subject (Han, 2011). Several researchers identified other qualities of virtual world education that contribute to this viability. Delacruz (2009) talked of observing a sense of community, a group identity, and the formation of relationships through shared experiences with students in a virtual world class. Wang and Lockee (2010) found that one of the most notable pitfalls of online education, the limited amount

of interaction between students, was decreased in virtual world courses. Han observed that virtual worlds help resolve the problem of class community building in distance education. Dalgarno and Lee (2010) concurred and suggested the ability of virtual worlds to give a sense of immersion, or psychological sense of being in the environment, and presence, or subjective sense of being in a place, may contribute to better class community building experiences. In Second Life, students and instructors are able to interact in a manner similar to the way people interact face-to-face in real life. Through an avatar, one can immediately respond to conversation and make gestures, such as clapping, waving, and pointing to objects being talked about. Petrakou (2009) felt this synchronous communication in virtual world environments allowed for the type of informal interactions seen on real life university campuses that foster a sense of community.

The students' ability to access class and each other from anywhere with an Internet connection meant there were unique opportunities for collaboration. Some educators in this study included collaboration solely with fellow students in the class, but most expanded the opportunities to include collaborating with students in other physical places. The activities varied from students in one United States university class coordinating an exhibit with students in a university class in Scotland to students at universities in two different states creating a machinima in teams of four, two students from each university. In distance education courses, collaboration between students often consists of emails sent back and forth, sometimes with a time lag between. Petrakou (2009) found the challenge of providing student-to-student interaction in online courses was easier when students collaborated in a virtual world and that the immediate feedback

they received when interacting led to students feeling more like class participants versus isolated individuals.

Another benefit identified by some of the participants was increased student class participation. Several researchers also discuss this. Herold (2009) observed that students in a virtual world class expressed themselves more freely than usual and that more were willing to express alternate opinions and even disagree with the instructor. Berger (2008) noted many students in the virtual world class had an easier time contributing to conversation and suggested this may be due to the higher degree of informality in the virtual class. Lu (2011) theorized that the anonymous identity of avatars lets students communicate in a more open, direct, and engaged fashion and found in one study that students reported it was easier to show their work and talk about it in Second Life than it was in real life (Lu, 2013).

Several participants spoke of virtual world classes' equalizing ability for students for whom English was not a first language and for students of differing abilities. Zielke, Roome, and Krueger (2009) looked at Virtual Ability Island on Second Life, where Second Life residents of any ability can learn how to use virtual world technology through action tutorials and support communities. They found that virtual worlds offer opportunities for many to participate in events that would not be possible in real life. They also noted that while many people with certain disabilities may already being using assistive technology that interfaces with computers and websites, it can still be difficult to master navigating through a virtual world and that Virtual Ability Island tutorials and community groups successfully provided support.

Figure 14. Virtual Ability Island. This tutorial on Virtual Ability Island teaches Second Life users how to make avatars sit down on objects.

CHAPTER 8

CONCLUSIONS AND IMPLICATIONS

I began this study with two main questions: How are post-secondary art educators using Second Life in their undergraduate and graduate level curricula? What do these educators perceive as benefits and challenges of education in virtual classrooms over education in real life classrooms? In this chapter I present conclusions from this research, emerging issues, and implications.

How Participants Used Second Life

Learning theories and pedagogies. The participants in this study cited using constructivist and transformative learning theories most often. Second Life and other virtual worlds allow for the environmental control important to both of these theories' curriculum frameworks. Virtual worlds also support student learning by allowing students to repeat learning activities in safe surroundings at minimal cost. The ability to repeat a lesson until successful is important to the students' knowledge constructions. This study found the participants used this environmental control in planning their activities, some setting up particular environments for certain activities and all using environments set up by others for art education activities. They also encouraged students to experiment and to repeat experiences that did not have a desired outcome the first time around.

There are several characteristics virtual worlds need in order to benefit art educators using constructivist and transformative learning theories, the most important being the ability for students and instructors to manipulate and act upon the environment, making real modifications based on the user's imagination. Virtual worlds that allow

users to make changes only from a predetermined number of choices may have value as educational venues for some fields, but lack the flexibility needed for art curricula. Second Life permits residents to create from prefabricated items or to build from the ground up, so to speak, making it possible to create anything the mind can imagine. During this study, observed creations included architectural structures, sculptures in several media including wood, glass, and stone, fiber creations, and the installation of environments required for performance art pieces. This ability to create the environment makes it possible to teach such areas as art making and art foundations.

Transformative learning theory encourages educators to create situations which force or allow students to take another's perspective. In Second Life, users can take on different appearances and forms, making role play more realistic. By interacting with others in the virtual world in different forms and in different situations, students had the chance to begin experiencing perspectives that were different from their own.

One participant used a feminist pedagogy approach. Being able to transform into another appearance and interact with others as that different being made role playing and perspective activities more powerful. This emerging conclusion pushes art education into new "cyborg" ways of thinking (Haraway, 1991).

One educator in this study used Socratic questioning to take student thinking and discussions to a deeper level. Although I was not able to observe classes of this participant, there are several features of Second Life and virtual world education that aid in using this type of questioning. The chat log of all typed conversations is automatically recorded on each Second Life user's computer. Going over class questions and discussions may help students develop the critical thinking and deeper insights the

method tries to encourage. Students can also re-experience an assignment after probing questions are asked in class, thus gaining better insight by focusing on the experience with a new perspective. These questions also lead to further transformative inquiry.

Curricula. The participants in this study used a wide variety of activities and assignments in their curricula that took advantage of Second Life's features. There were field trips to re-creations of sites that would be cost prohibitive or impossible to experience in real life, such as the Sistine Chapel or a tsunami. Students were encouraged to conduct research and interviews in the virtual world, opening up a new world of possible subjects. Assignments required students to go on quests, encouraging a level of exploration that is hard to duplicate in the real world. Technological art making assignments were common, with students working with videos created in real life and filmed in Second Life (machinima), and photographic screen shots. Second Life's building features allowed students to work on sculptures and fiber designs. Students curated exhibits and designed settings and costumes for plays. A large number of curriculum activities included collaboration with the wider pool of other students and artists that became available when distance was no longer a factor.

The participants' curricula also included components commonly seen in art classes, such as critiques, presentations, and guest speakers. In order to teach traditional art education subjects, a virtual world needs the ability to support these activities with such teaching tools as slide presentation and video viewers, as well as the ability to connect to and stream from the Internet. In this study, the participants used all these tools in Second Life. Guest speakers appeared on presentation boards or virtual whiteboards via Internet phone connections. Presentation boards displayed art created in real life and

critiqued or viewed in the virtual world. These presentation boards took several different forms, from virtual whiteboards to the sides of buildings or other created structures. Artwork was displayed on either viewers or as stand-alone pieces, by building forms and uploading a photograph of the art piece onto that form as what is referred to as a "texture". Artwork was even uploaded onto avatar bodies.

Settings. While it is possible to build replicas of real life classrooms complete with rooms filled with desks and chairs, few of the participants chose to do so. Virtual worlds are a completely new teaching venue and allow new ways of teaching. Most participants used settings with seating only while holding class discussions and some did not even use traditional seating. Avatars do not need to sit as they do not tire of standing. Seating was used more to "anchor" the students, keeping their attention on the discussion and cutting down on students wandering around the virtual area, building, or changing their avatars' appearance. With more experience, art educators will find additional new ways of teaching that are not replicas or versions of real life.

Perception of Challenges

While it is beyond the scope of this study to address challenges common to all virtual worlds, there are several challenges art educators face in Second Life. Some may be particular to that one world and some may be seen as challenges common to virtual worlds in general. More research is needed to generalize on the latter.

Perhaps the greatest challenge when using Second Life in a curriculum is what the participants referred to as its "steep learning curve." Even if students are familiar with video and digital games and computer technology, there is a whole new set of interactions to learn in Second Life. For the most part, these are easy to use once learned,

though a few seem counterintuitive and take longer to remember. Second Life does not help this by frequently updating the software needed to use it. Sometimes the changes made entail new ways of interacting with the virtual world. During this study, Second Life changed the viewer, or control panel, used by residents, causing quite a bit of anxiety and confusion with some of the participants and their students. While this did not put everyone back at the beginning, a lot of relearning had to take place.

Observations during this study appeared to link the difficulty students had in learning Second Life technology with the anxiety or frustrations the participants saw students as exhibiting. Specific attention should be given to teaching students the basics of interacting with any virtual world and it appears this teaching is vital if using Second Life. The most success came from dedicating several classes at the beginning of the course to this, along with continued mentoring and help sessions. Several participants had success directing students to sites within Second Life that offered detailed tutorials, such as Virtual Ability Island.

Art educators need to be clear on their learning activity objectives and to communicate the objectives, how they are related to the course goals, and why a virtual world is important to these objectives and goals. Virtual worlds are a new educational context for students and, especially at the university level, students may be unsure of what is expected of them in a virtual world. Research cited in this study and the experiences of the study's participants suggest that some degree of discomfort is to be expected as students learn to navigate this non-traditional class environment even with careful attention to curriculum adjustments.

The problem of Second Life's cost may be harder to solve. Near the beginning of this study, Second Life raised the fees it charged educational institutions, causing great concern among several of the participants. Some were using grants to pay for their Second Life venues and knew the grants could not continue forever. Some educators relied on the collective lobbying of themselves and colleagues in other departments to keep their university interested in paying for a university wide presence in Second Life and worried that the increased costs would make this interest wane. Unfortunately their worries had merit. One of the participant's grants ended and so did their educational venue on Second Life. Another participant's university no longer maintains a Second Life site. Whether costs were a determining factor in this decision is not known. Second Life recently reinstated the educational discount.

Tied to the problem of expense is the reality that there are no guarantees Second Life venues and sites will always be available. This presents a quandary. Does an educator put the time and effort needed into planning a Second Life curriculum when the sites used may not be available the following term? One participant in the study did not use a dedicated university site to conduct classes, instead opting for different meeting places around Second Life not affiliated with the participant's university. While this meant not being dependent on a continuing source of funding, it did not solve the problem completely. Several of the sites used by the participant lost their funding and are no longer available on Second Life, including Vassar College's re-creation of the Sistine Chapel and a museum dedicated to the recreation of Frank Lloyd Wright's architecture. As some sites are taken down and new sites become available, Second Life curriculum needs to be flexible and not dependent on specific sites.

Perception of Benefits and Unique Learning Opportunities

The art educators in this study were united in their enthusiasm for the benefits of having a virtual world such as Second Life available to use in their curricula. They frequently talked of the increased access to real world experts, the ability to set up specific learning environments, the ability to use chat logs as a part of their teaching, and a virtual world's characteristic of transcending the normal limitations of physics, safety, and practicality and the freedom in planning related curricula.

Besides the richer curricula that could be offered, the educators saw additional benefits for their students. Several educators spoke of how the immersive, engaging qualities of Second Life drew students into assignments in a way that does not always happen in real life. They saw increased student participation in discussions and critiques and observed students who were more reserved in real life classrooms taking a stronger, more outgoing role in the virtual classroom. Research supports this observation (Herold, 2009, Berger, 2008, Lu, 2013). Several mentioned the ability of Second Life to equalize the playing field for students with differing physical abilities or for whom English was a second language.

Two especially intriguing benefits of virtual world education identified by the participants were the greater types of collaboration that are possible and an easier access to working artists and others in various fields of art. Considerations of time and place need not be the determining factor in offering these opportunities. Virtual worlds provide access to other people that is not dependent on their location or the time it takes to travel to a meeting place. Working with someone who lives a thousand miles away or one block over is all the same. Students in the participants' classes collaborated on

assignments and activities with students across the country and in different parts of the world. Several of the participants collaborated monthly with art education colleagues from around the world through the Second Life meetings of the International Art Education Association (Han, 2014). Participants' curricula included guest lecturers, either in avatar form or via Internet phone, from Japan and Great Britain.

The experience of working with others outside the usual sphere of one's university, not just once but many times during a student's program, can be both rewarding and educationally important. These experiences allow for a perspective taking that leads to better understandings and deeper learning. Perhaps the ability to interact with working people in different fields of art will lead to greater mentoring opportunities, to the benefit of both student and mentor. Art can be a solitary profession, with many working alone in a classroom, studio, or museum office and having limited opportunities for contact with others in the field. Virtual worlds give better access to more colleagues and students and increased opportunities for collaboration and mentoring.

The non-physical presence and increased access for students also suggests Second Life and other virtual worlds may be a successful venue for art education online or in distance courses. The opportunity for students to interact with each other and with the professor in a visually physical way may lead to more success with critiques, discussions, and art making curricula. At the time of this study, two participants taught a distance class using Second Life and spoke at length on the opportunities such classes may open up to professionals in art education who seek further study or advanced degrees. Virtual worlds may also be an avenue for reaching students of any age who are currently

underserved in art education or not served at all because of distance from programs. More research is needed to determine whether the possibilities presented will indeed succeed.

Implications for Additional Research

In addition to the previously mentioned needs, there are also benefits to additional research in several areas. Virtual world education is a new field with the first generation of educators pioneering its possibilities for art education. Some in the field are using virtual worlds to create replications of both traditional real life classrooms and curricula. Some educators are beginning to move forward from that paradigm and find new ways to approach how and what they teach and what novel opportunities for student learning this new medium makes possible. In the field of art, it is often the artists who first tackle new technology and push it to the boundaries. In the case of virtual worlds this appears to also be true. Artists were one of the first large groups to use Second Life and continue to have a strong presence in that world. Research on how artists are using virtual worlds in their work may give insight into how those in art education can take advantage of the unique opportunities offered.

Since virtual world art education is very new, art educators would benefit from studies in several areas to help determine how best to use virtual worlds in their teaching. Studies on what constitutes best practices in virtual world art education are needed to give a framework for success and also to prevent each educator from having to resort to trial and error when deciding to add virtual worlds to his or her curriculum. Specific lesson plans geared to beginning virtual world educators would be helpful as a jumping off point. Including virtual world curriculum planning in pre-service art teacher education courses, including practice in planning and delivering lessons, would prepare

the next generation of art educators for including this new technology in their future classrooms.

With any new instructional method or tool, it is important to know if it is effective. Studies to determine whether skills practiced and knowledge learned in virtual worlds are transferred to real life situations should be a next step. Erickson (2005) defines transfer as "… what happens when learners are able to recall information and use it appropriately in new situations" (p. 170). Transfer is what educators hope happens as a result of the educational activities they plan. Comparing the knowledge students retain from such activities as class discussions in both virtual worlds and traditional real life classrooms and determining whether there are differences between instruction on art making in the two different venues would help art educators make decisions on how best to use Second Life in their curricula.

While Second Life has the possibility of providing students who have differing physical and sensory abilities an opportunity to experience what might not be possible in the real world, questions remain as to whether these opportunities will translate into a better educational experience. Research looking into using virtual worlds as an assistive technology in education in general, and in art education specifically, may help provide answers.

Virtual worlds hold a similar potential to answer concerns raised by multicultural education researchers. Young (2011) states, "One of the major aims of multiculturalism is to create equal educational opportunities for students from diverse racial, ethnic, gender, religious, social class and cultural groups" (p. 80). With virtual worlds diminishing the effect of physical presence, the possibility exists to provide more

opportunities for currently underserved students. Schools in remote Native American communities and lower funded districts in rural or inner-city areas may benefit from access to art education programs through virtual worlds.

Research is also necessary to inform art educators on the effectiveness of virtual world programs directed at diverse groups. As Young (2011) reminds us, equal access to programs does not mean equity. Different cultural groups have unique characteristics that may need to be taken into account and simply using virtual worlds to give equal opportunities may not be enough. Research on how art education can translate these considerations into a virtual world program is needed.

Conclusion

This study looked at how six art educators used Second Life with their university undergraduate and post-graduate classes. Their experiences can be used in several ways. First, as a guide for art educators just beginning their exploration of virtual world education, these experiences may help provide a place to start. Their work illustrates good examples of what curricula are possible, what types of settings can be used, and which learning theories and pedagogies can provide a framework. Their experiences remind us to remember good teaching practices in this new art education venue, to pay attention to training our students in using this new tool, to have our teaching tied firmly to learning objectives, and to clearly communicate these objectives to students.

Looking at the experiences of these six people can also do more. It can encourage us to look beyond using virtual worlds as a new place to hold business as usual in art education. In this new venue, we can copy art education as we know it in the real world. However, we can also use virtual worlds' attributes to create new, unique learning

opportunities and connections that go beyond what is possible in our physical world. We can use the opportunities virtual worlds offer to increase our students' access and connections to other people and other worlds, resulting, perhaps, in their increased engagement.

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APPENDIX A

WEBSITE ADDRESSES FOR SECOND LIFE SITES

Aries Art Gallery of Monica Linville:

http://maps.secondlife.com/secondlife/SouthernTier%20New%20York/171/227/33

Art Ark http://maps.secondlife.com/secondlife/Teaching%2010/67/225/33

Art Box: http://maps.secondlife.com/secondlife/Klaw/24/23/21/

Art Cafe: http://maps.secondlife.com/secondlife/Art%20Cafe/184/196/22

American Cancer Society:

http://maps.secondlife.com/secondlife/American%20Cancer%20Society/128/154/21

California State University Northridge Second Life tutorials

http://maps.secondlife.com/secondlife/Cal%20State%20Northridge/147/152/26

Degas Museum: http://maps.secondlife.com/secondlife/Linked%20Hearts/28/155/21

Ed Media Center and Cerulean Gallery:

http://maps.secondlife.com/secondlife/Emerald%20Caye/221/31/21

InAEA: http://maps.secondlife.com/secondlife/HITHOP/222/161/31

Institute of Electrical and Electronic Engineers:

http://maps.secondlife.com/secondlife/IEEE/124/124/22

Mayo Clinic: http://maps.secondlife.com/secondlife/Mayo%20Clinic/126/128/34

Museum Island: http://maps.secondlife.com/secondlife/Sunny%20Breezes/211/150/22

Museum of Sacred Art: http://maps.secondlife.com/secondlife/Bieup/170/46/107

NASA Jet Propulsion Laboratory:

http://maps.secondlife.com/secondlife/Explorer%20Island/183/151/23

National Oceans and Aeronautics Administration Island - no longer available

NonProfit Commons:

http://maps.secondlife.com/secondlife/Plush%20Nonprofit%20Commons/92/253/26

San Francisco Exploratorium Museum:

http://maps.secondlife.com/secondlife/Exploratorium/65/108/25

Spencer Museum of Art:

http://maps.secondlife.com/secondlife/Spencer%20Art%20Museum/57/36/21

Texas A&M Second Life Tutorials:

http://maps.secondlife.com/secondlife/Glasscock/199/207/29

United Kingdom National Physics Laboratory:

http://maps.secondlife.com/secondlife/Nanotechnology/212/214/23

United States Holocaust Memorial Museum:

http://maps.secondlife.com/secondlife/US%20Holocaust%20Museum1/28/40/26

University of Delaware Art Museum:

http://maps.secondlife.com/secondlife/University%20of%20Delaware/54/178/26

University of Western Australia Art and Design Challenge Exhibits:

http://maps.secondlife.com/secondlife/UWA/66/128/249

Van Gogh's Arles - no longer available

Vassar's Sistene Chapel - no longer available

Virtual Ability Island tutorials:

http://maps.secondlife.com/secondlife/Virtual%20Ability/128/127/23

Virtual Latino Museum

http://maps.secondlife.com/secondlife/UTEP%20Miners%201/169/128/26

APPENDIX B

INTERVIEW GUIDE

1. How many classes have you taught in a virtual world? Can you tell me a little bit about them?

2. What learning theories or pedagogy do you use in planning your classes?

3. What do you like best about teaching a class in a virtual world? Least?

4. What would make teaching a class in a virtual world better?

5. If you were defending your decision to conduct a college level class in a virtual world versus holding it in a tradition Real Life classroom, what would your main arguments be?

6. Have you ever taken a class as a student in a virtual world?

7. If so –
   - can you tell me a little bit about it/them?
   - what did you like and not like about learning in a virtual world?
   - what would do you wish had been different?
   - how does your anxiety level in classes held in Second Life compare to classes you took in Real Life?

8. Do you create art in Real Life? Second Life? What type?

9. What type of visual art making do you see as being possible/most beneficial to teach in Second Life?

10. What other visual art experiences have you had in Second Life?

11. What do feel would be the best way for the field of Art Education to use Second Life in future teaching?

APPENDIX C

SAMPLE OF SECOND LIFE INTERVIEW FROM CHAT ARCHIVE

Key:
background info
curriculum
anxiety
collaboration
challenges
benefits

April 21, 2011 – second interview
10 MST at Ed Media Center
[2011/04/21 9:52] Junie Mirabella is Online
[2011/04/21 9:54] Deborah Copperfield: Hi! I'm Deborah.
[2011/04/21 9:54] Junie Mirabella: Hi Deborah
[2011/04/21 9:54] Deborah Copperfield: I've been looking at the exhibit.
[2011/04/21 9:54] Junie Mirabella: Thanks - it's the collaboration w Scotland
[2011/04/21 9:54] Deborah Copperfield: I love the collaborative possibilities of second life.
[2011/04/21 9:55] Junie Mirabella: Let's sit down on the grey couches
[2011/04/21 9:55] Deborah Copperfield: okay
[2011/04/21 9:55] Junie Mirabella: This one eats my legs!
[2011/04/21 9:56] Deborah Copperfield: lol! Intervewing n SL is very different!!
[2011/04/21 9:56] Junie Mirabella: Let's see we could sit by the pool or beach cushions
[2011/04/21 9:56] Deborah Copperfield: okay
[2011/04/21 9:56] Deborah Copperfield: I'll follow you
[2011/04/21 9:57] Junie Mirabella: I need to remember where the pool door is....hmm..
[2011/04/21 9:57] Junie Mirabella: it's upstairs!
[2011/04/21 9:57] Junie Mirabella: after you
[2011/04/21 9:59] Junie Mirabella: let's try these sofas
[2011/04/21 9:59] Trill Zapatero is Offline
[2011/04/21 9:59] Deborah Copperfield: This looks relaxed!
[2011/04/21 10:00] Junie Mirabella: Much better
[2011/04/21 10:00] Deborah Copperfield: Yes!
[2011/04/21 10:00] Junie Mirabella: Well so nice to meet you! Your research seems so interesting
[2011/04/21 10:00] Deborah Copperfield: Thank you! It's been fun to do, also.
[2011/04/21 10:01] Junie Mirabella: (these pose balls are a riot!
[2011/04/21 10:01] Junie Mirabella: Anway, I'd like you to read my student's MA thesis - she passed her defense yesterday
[2011/04/21 10:02] Junie Mirabella: Did you meet Jules McWhinnie? She created this space
[2011/04/21 10:02] Deborah Copperfield: Yes - we met last summer. I'd love to read it!
[2011/04/21 10:02] Deborah Copperfield: And I need all the resources I can get - research is just picking up on SL
[2011/04/21 10:02] Junie Mirabella: Please email her at crooksj@uarts.edu & ask her to send you a copy - she'd be thrilled

[2011/04/21 10:03] Deborah Copperfield: Okay - thanks!
[2011/04/21 10:03] Junie Mirabella: She will probably put a copy in our library over there
[2011/04/21 10:03] Junie Mirabella: across the room
[2011/04/21 10:03] Deborah Copperfield: That's a good idea. I wanted to ask you a couple of questions about the classes you teach.
[2011/04/21 10:04] Junie Mirabella: sure
[2011/04/21 10:04] Deborah Copperfield: These are totally online classes?
[2011/04/21 10:04] Junie Mirabella: I teach several courses in the graduate art ed program at UArts
[2011/04/21 10:05] Junie Mirabella: The ones that explore SL or completely online courses: Educational Media A: Teaching & Learning, & Educational Media B: Plannin & Management
[2011/04/21 10:05] Deborah Copperfield: how do you communicate on them during the non-SL portion - blackboard?
[2011/04/21 10:06] Junie Mirabella: At UArts our course management system in Sakai
[2011/04/21 10:06] Deborah Copperfield: Is that a type of system where the students communicate by message board?
[2011/04/21 10:07] Junie Mirabella: It's fully loaded like BlackBoard - only it is open source
[2011/04/21 10:08] Deborah Copperfield: okay. I've taken a few totally online courses using BlackBoard and have felt like there wasn't very good class cohesion. You just feel like you're communicating with the ether! I was wondering if using a SL component to these would build that class cohesion more.
[2011/04/21 10:09] Junie Mirabella: That's interesting! My online students are very much engaged - most say as much as they are F2F
[2011/04/21 10:09] Junie Mirabella: From time to time our classes meet here in the Ed Media Center in Second Life
[2011/04/21 10:10] Deborah Copperfield: Do you teach any online courses that don't use SL?
[2011/04/21 10:10] Junie Mirabella: I try to integrate a SL experience of some sort in the other courses I teach:
[2011/04/21 10:12] Junie Mirabella: Research Methods, History of Ideas and last year I taught Intro to Visual Arts Education: The first methods course in our program. I introduce SL in all of them
[2011/04/21 10:12] Deborah Copperfield: How many students can you have here at one time?
[2011/04/21 10:13] Junie Mirabella: Our classes generally have between 10 & 20 students in them
[2011/04/21 10:14] Junie Mirabella: You ask about students feeling more connected in SL -I never felt that they were experiencing any issues with that.
[2011/04/21 10:15] Junie Mirabella: We are a small university (not like ASU!! :) and dept. Everyone knows each other and sees each other daily around the dept. & in other classes

[2011/04/21 10:15] Deborah Copperfield: That probably makes a difference! The classes I taught had students from a wide geographic area!
[2011/04/21 10:16] Deborah Copperfield: The one I had, not taught.
[2011/04/21 10:16] Junie Mirabella: Everyone definitely knows each other on a first name basis and jokes around a lot
[2011/04/21 10:16] Deborah Copperfield: Okay, so they already had connections.
[2011/04/21 10:17] Junie Mirabella: That's definitely true! Because of the size of our dept. everyone knows each other quite well already
[2011/04/21 10:17] Deborah Copperfield: There are lots of benefits to that. ASU is big!
[2011/04/21 10:17] Junie Mirabella: I went to Penn State so I do understand
[2011/04/21 10:17] Deborah Copperfield: Are any of your students first time SL users?
[2011/04/21 10:18] Junie Mirabella: I'd say most students are first time users - altho we do have some very experienced and impassioned users like Jules McWhinnie and a few others
[2011/04/21 10:19] Deborah Copperfield: How do you introduce them to SL/support them in getting up to speed?
[2011/04/21 10:20] Junie Mirabella: Well, I guess we've developed a little technique: first Jules comes to the classes and gives a little presentation on SL to introduce them to it and show some features
[2011/04/21 10:21] Junie Mirabella: and answer their questions. Then we schedule a SL tutorial open to the whole dept
[2011/04/21 10:21] Junie Mirabella: That's when they create their avatars and learn the basics.
[2011/04/21 10:22] Junie Mirabella: Then we schedule an event here at the Ed Media Center, maybe a class meeting or informal seminar on the beach where they can come and practice navigating around
[2011/04/21 10:23] Junie Mirabella: There are SL tutorials on the roof of the Ed Media Center. Sometime during the semester we have a big event like an art show or opening here. My favorite are our end of semester beach parties!
[2011/04/21 10:24] Deborah Copperfield: They sound fun!
[2011/04/21 10:24] Junie Mirabella: By that time, students are comfortable finding and changing outfits (swimsuits and shorts) and we have a dance ball and music and refreshments and party!
[2011/04/21 10:24] Deborah Copperfield: Do you see much student anxiety at first?
[2011/04/21 10:25] Junie Mirabella: Isn't it strange, but with some there is some SL anxiety - is it because of negative SL propaganda
[2011/04/21 10:26] Deborah Copperfield: I've been interviewing a few students so far to try and find out what it is.
[2011/04/21 10:26] Deborah Copperfield: I don't have enough info to make more than a generalization yet, but some seem very concerned about not appearing competent to their professors.
[2011/04/21 10:26] Deborah Copperfield: These are grad students.
[2011/04/21 10:27] Junie Mirabella: It would be interesting to find out - but back in the day, there was computer performance anxiety, but everyone seems ok now

[2011/04/21 10:27] Deborah Copperfield: I guess this just changes things up a bit and make everyone a newbie!
[2011/04/21 10:28] Junie Mirabella: In the education literature you may find some info on computer anxiety maybe 15 yrs. ago
[2011/04/21 10:28] Deborah Copperfield: Thanks! That's a good idea to look that up and see if I can find connections.
[2011/04/21 10:29] Junie Mirabella: What is your research question?
[2011/04/21 10:29] Deborah Copperfield: No one I've interviewed has said this, but I've had high school teachers tell me they don't use SL because of student anxiety problems.
[2011/04/21 10:30] Deborah Copperfield: I'm looking at how SL is being used in Art Ed and what directions I can find for Art Ed's using it for the future.
[2011/04/21 10:30] Junie Mirabella: Did you get my questionnaire that I filled out for you?
[2011/04/21 10:31] Deborah Copperfield: Yes - thank you! it was very helpful!
[2011/04/21 10:32] Junie Mirabella: Well I wanted to be sure because the research that Jules McWhinnie (Julian Crooks) did was centered on Teaching Art to the Net Generation using SL as a professional Development Resource
[2011/04/21 10:32] Junie Mirabella: Did you see the machinima she made on the Kensington Anime Club
[2011/04/21 10:33] Deborah Copperfield: I think that has great possibilities. I'm looking more at university level classes.
[2011/04/21 10:33] Deborah Copperfield: No, I didn't see that.
[2011/04/21 10:33] Junie Mirabella: You are the Net Generation
[2011/04/21 10:33] Junie Mirabella: Oh, at least your avatar is!!
[2011/04/21 10:33] Deborah Copperfield: Actually, I'm probably older than you think! I went back to get my masters after teaching for quite awhile!
[2011/04/21 10:34] Deborah Copperfield: My kids are the net generation!
[2011/04/21 10:34] Junie Mirabella: Love it!!
[2011/04/21 10:34] Junie Mirabella: anyway Net genners go up to 2005 birthdate
[2011/04/21 10:34] Deborah Copperfield: I could either make my avatar this age or really, really old.
[2011/04/21 10:34] Deborah Copperfield: This is me about 20 years ago!
[2011/04/21 10:34] Junie Mirabella: Net Genners start at 1984
[2011/04/21 10:34] Junie Mirabella: so many are in university now
[2011/04/21 10:35] Deborah Copperfield: Mine sons are a little older than that but come from a computer research background (my husband and father), so have been using the early net versions since they were very young.
[2011/04/21 10:36] Junie Mirabella: We've also been very involved with curating shows here in our SL gallery downstairs
[2011/04/21 10:37] Deborah Copperfield: I saw one last summer and another last fall. In the the SL portion of your classes when you meet here, what type of activities/learning experiences do you do?
[2011/04/21 10:38] Junie Mirabella: At the round table there are usually blue chairs all around and we have class meetings there to discuss the assigned readings and to do student presentations

[2011/04/21 10:38] Junie Mirabella: The students show their powerpoint presentations on the screen where the image of the young man is now
[2011/04/21 10:39] Junie Mirabella: They can also show web based material on the flat screen TV next to it
[2011/04/21 10:39] Deborah Copperfield: Nice!
[2011/04/21 10:39] Deborah Copperfield: That must add a little different dimension to it!
[2011/04/21 10:39] Junie Mirabella: Additionaly we use both screens to do art critiques of student work and exemplars
[2011/04/21 10:40] Deborah Copperfield: I've been wondering if anyone has had their students do critiques in SL. Does that work well?
[2011/04/21 10:40] Junie Mirabella: Students can post a Flickr image set on the big tv and we discuss
[2011/04/21 10:41] Deborah Copperfield: I'm interested in the art making possiblities in SL - especially for non-traditional or distance classes.
[2011/04/21 10:41] Junie Mirabella: As I mentioned, we have been doing critques on both screens rather consistently over the past 2 years
[2011/04/21 10:41] Deborah Copperfield: That's good to know!
[2011/04/21 10:41] Deborah Copperfield: Do the students do any collaborative work?
[2011/04/21 10:42] Junie Mirabella: As I mentioned in the questionairre, from our ongoing research we have very positive outcomes doing distance collaborations on art projects.
[2011/04/21 10:43] Deborah Copperfield: Do you work with other universities, or are the students dispersed?
[2011/04/21 10:43] Deborah Copperfield: Besides the ones in Scotland.
[2011/04/21 10:45] Junie Mirabella: For the collaborations, UArts Art Ed students have worked with students in the Phila. public schools and students and professors from InAEA, also remember the Lizard of Ars with ASU?
[2011/04/21 10:45] Deborah Copperfield: Yes! Our version last summer was hilarious.
[2011/04/21 10:45] Deborah Copperfield: Not necessarily on purpose!
[2011/04/21 10:46] Junie Mirabella: I saw it!! Very cute - i think we have it archived in our library across the room
[2011/04/21 10:46] Deborah Copperfield: Oh dear!
[2011/04/21 10:46] Deborah Copperfield: Do the public school students your students work with meet them in SL?
[2011/04/21 10:48] Junie Mirabella: Do In that particular Phila public school where we did the Anime project, because of its particular profile, SL was blocked. Students viewed, critiqued and experienced their SL exhibit on Flickr
[2011/04/21 10:48] Deborah Copperfield: That's a good way to work around that.
[2011/04/21 10:49] Junie Mirabella: These students were so empowered by the experience and so proud!
[2011/04/21 10:49] Junie Mirabella: They could also share the link on Facebook, Twitter, etc etc
[2011/04/21 10:49] Deborah Copperfield: I bet they did great!
[2011/04/21 10:49] Junie Mirabella: I will send you the YouTube link

[2011/04/21 10:50] Deborah Copperfield: It's so engaging! I worked with low income students and they didn't get excited about much, but did about SL and Club Penguin.
[2011/04/21 10:50] Deborah Copperfield: Thanks! I'd like to see those.
[2011/04/21 10:50] Junie Mirabella: That's exactly the case w the anime club SL experience
[2011/04/21 10:52] Deborah Copperfield: Well, I've probably taken up enough of you time! Thank you! This is very helpful.
[2011/04/21 10:52] Junie Mirabella: Hang on a second if you can
[2011/04/21 10:52] Deborah Copperfield: No problem.
[2011/04/21 10:53] Junie Mirabella: Here's the Anime Club Case Study Movie http://www.youtube.com/watch?v=mRUngKqdHiQ
[2011/04/21 10:53] Deborah Copperfield: Thanks!
[2011/04/21 10:54] Junie Mirabella: Well please feel free to take screen shots of this interview
[2011/04/21 10:54] Junie Mirabella: and to use the chat archive as you see appropriate. If there's anything else I can help you with please let me know
[2011/04/21 10:54] Deborah Copperfield: Thank you! I can ask now - do you mind if I use your avatar and/or RL names. I'm not sure if it will come up.
[2011/04/21 10:55] Junie Mirabella: OK
[2011/04/21 10:56] Deborah Copperfield: Thanks! I'm not sure yet how I'll use photos. I'll e-mail you any followup questions.
[2011/04/21 10:56] Junie Mirabella: No worries - please contact Jules for her thesis if you like
[2011/04/21 10:56] Deborah Copperfield: Definitely!
[2011/04/21 10:57] Deborah Copperfield: I always seem to stand on furniture when I get up!
[2011/04/21 10:57] Junie Mirabella: Me too!
[2011/04/21 10:57] Deborah Copperfield: Thank you again!
[2011/04/21 10:58] Junie Mirabella: My pleasure - please give my regards to Dr. Stokrocki
[2011/04/21 10:58] Deborah Copperfield: I will! Bye!
[2011/04/21 10:58] Teleport completed from http://slurl.com/secondlife/Emerald%20Caye/236/87/30
[2011/04/21 10:58] The region you have entered is running a different simulator version. Click this message for details.
[2011/04/21 10:58] Voice not available at your current location

APPENDIX D

DATA TABLES

	Occurrence	1	2	3	4	5	6
Courses on SL							
Course taught fully on SL	5/6	Yes	Yes + Palace, Cyberhouse	Yes	Yes	No	Yes
RL course with SL portion	5/6	Yes	Yes	No	Yes	Yes	Yes
Took course as a student that was fully SL	1/6	Education department class, SL classes	No		No	No	No
Visual Art Experiences							
Curating exhibits in SL	6/6	Yes	Yes	Yes	Yes	Yes	Yes
Visiting exhibits in SL	6/6	Yes	Yes	Yes	Yes	Yes	Yes
Makes art in SL?	3/6	Photo collages, mash ups, building on SL (house)	Yes	No	No – planning on performance art	No – is planning to	Machinima animations, media work
Real Life Artist?	5/6	Acrylic paintings, children's book illustrations, uploads to SL.	Yes	No	Installations, assemblages, performance art	Printmakingfiber arts, painting	Multimedia, animation, graphic novels

	Occurrence	1	2	3	4	5	6
Virtual Art Making Possibilities							
Sculptural/Prims Building Skills	6/6	Yes	Yes	Yes	Yes	Yes	Yes
Video/Machinima Animation	5/6	Yes	Yes		Yes	Yes	Yes
Other	4/6	Costuming, art on your skin – then you're a living work of art		Create art with new tools using physical environment, air, wind, rain as tools	Any art technique via video demos and/or live video feeds streamed in SL	Socially networked art	No
Visual Art Experiences							
Teaching space – traditional classroom setting only	1/6	No	No	Yes	No	No	No
Teaching space – traditional classroom setting at times	3/6	No	Yes	No	Yes	Yes	No
Field Trips	6/6	Yes	Yes	Yes	Yes	Yes	Yes
Required quests or explorations	2/6	Yes	No	No	Yes	No	No
Required SL artmaking	6/6	Yes	Yes	Yes	Yes	Yes	Yes

	Occurrence	1	2	3	4	5	6
Instructional Methods							
Inworld student research	4/6	Yes	Yes		Yes	Yes	
Inworld student critiques	5/6	Yes	Yes		Yes	Yes	Yes
Use of additional net tools	5/6	Blackboard, blogs, Flickr	Blogs		Blackboard, Google Docs	Sakai, Flickr	Blackboard, blogs, web apps
Use of chat logs	2/6		Chat log for meta-analysis in teaching pre-service teachers to facilitate critical discussion.				Chat log during critiques reviewed
Use of SL artists	3/6	Student interviews	Contemporary SL artist study				Interviews with SL artists
Conceptual Framework							
		Constructi-vist theory	Transformative learning theory, feminist pedagogy	Constructivist theory	Constructivist theory	Constructi-vist, Socratic approach	Constructi-vist

	Occurrence	1	2	3	4	5	6
Collaboration							
Students with other students in class	6/6	Yes	Yes	Yes	Yes	Yes	Yes
Students with students in other locations	3/6		With students at Univ of Arizona – Dada Exquisite Corpse exercise, machinima, critiques of installations w/other students		Combined classes from different universities – students collaborate	Collaborative work with art students in Scotland (curated their work in a SL exhibit).	
With colleagues		INAEA	INAEA			INAEA	
Other		With students - I always learn something new from my students.					

	Occurrence	1	2	3	4	5	6
Benefits of VW teaching							
Non-physical presence	6/6	Don't have to be at a university	Able to provide graduate education for those not able to access residential university programs – art teachers, museum educators	Also for out of class meetings between students, grad students who are not on campus, easier for more students to attend classes	Can work with students in other universities	Working with students in other parts of the world.	Online classes
Engaging, immersive		More engaging		Immersive qualities where students can walk through and touch objects		Engaging	

	Occurrence	1	2	3	4	5	6
Benefits of VW teaching, cont.							
Equalizing	3/6	Easier to include those with differing abilities. ESL students use translators text, chat logs to go back over class	Inc. speaking, confident, comfortable in, physical appearance not so much an issue with students in SL as F2F				Pseudo anonymity of avatars – relaxed public speaking
Learn new ways to access information, Web 2.0 applications		Need to teach Web 2.0 applications for teachers	Art educators need to be trained in the new ways information will be accessed and art	Provides new ways to access information, interact with information versus being removed, external		Responsibility to expose graduate art ed students to diverse contexts for teaching and learning	
Liberation from conventions/ physics		Yes	Yes	Yes	Yes	Freedom to play with identity, can transcend normal boundaries of phys space	

	Occurrence	1	2	3	4	5	6
Benefits of VW teaching, cont.							
Increased access to Real World	5/6	SL recreations of RL art sites, artworks	Students can collaborate with students in other locations, field trips to discuss art in the SL environments, access to artists	World experts meet with classes, more access to other students for discussions/ collaboration		Collaboration with people in other locations, guest lecturers	Interviews with/access to world artists
Increased student participation	3/6		Students become more reflective and aware of their participation and contribution to class discussions			VW environment seems to liberate and energize even the most withdrawn student	Critique participa-tion much greater in SL.

	Occurrence	1	2	3	4	5	6
Benefits of VW teaching, cont.							
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	Occurrence	1	2	3	4	5	6
Limitations of VW teaching							
Technological issues	6/6	SL changes viewers – can't find inventory, maneuver, need new books. Hard to contact Linden people. Navigation is hard at first. Need more aids.	Requires high broadband availability, fast Internet connection, and newer computers with fast processing – those without this have barriers to using SL	Not all computers installed with SL – it's not a taken for granted web tool, initial registration into SL tends to be a stumbling block for students.	Computers not always as up to date as necessary to run the latest version of SL. Interface not as user friendly as it could be and can cause frustration for some users	Schools often block SL and you have to work around it with sharing links on Facebook, Twitter, Flickr.	SL software is buggy and crashes, unintuitive for first time user, not everyone has fast enough internet speeds.
Expensive		Can be expensive, but spaces are sometimes too big – can go smaller		Costs for SL are too expensive – depend on funds/grants to pay for	Price for educational institutions too high, many leaving SL looking for alternative VW		
Real time issues			Trying to find a shared time from time zones/ world areas				

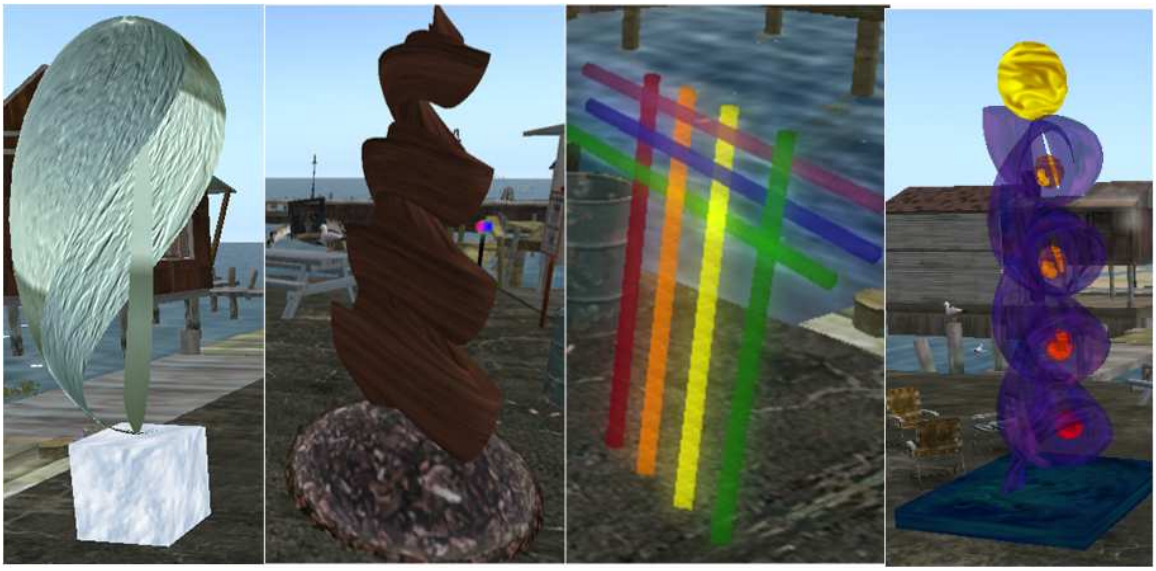
	Occurrence	1	2	3	4	5	6
Limitations of VW teaching, cont.							
Distractions			Humorous distractions – a guest's hair came off and flew around room once, sometimes avatar won't materialize and has to conduct class with no body, just a glow	Students sometimes have trouble with the foul language and rudeness/vulgarity of some avatars in SL			
Student anxiety	6/6	Yes	Yes	Yes	Yes	Yes	Yes
How Anxiety is Addressed							
Mentoring/support networks	6/6	Students assigned partner at first – pairs newbies with experienced. Weekly on campus help sessions.	Encourages classmates to help with problems.	Some students need additional training outside of class	Mentoring	Mentoring	Support during class

	Occurrence	1	2	3	4	5	6
How Anxiety is Addressed, cont.							
Structured play/exploration/ planned early successes	5/6	Beginning quests, assignments to find art treasures	Begins introducing big ideas then play before intentional work. Example – provides with materials and links to work through the machinima process for 2 hours – they teach themselves.		Making sure students have "success tasks" early in the experience to reduce anxiety and increase success. "Go somewhere and take a photo or meet me at X hour to chat." Asks students to spend 10 hours inworld before class.	Early meetings at Art Media Center beach	Spends first week of class just learning how to use SL and the net support sites.
Beginning tutorials		Tells students where tutorials can be found	Class space at Penn State Isle 2 has tutorials and free clothes		Yes	SL tutorials on the roof of the Ed Media Center	

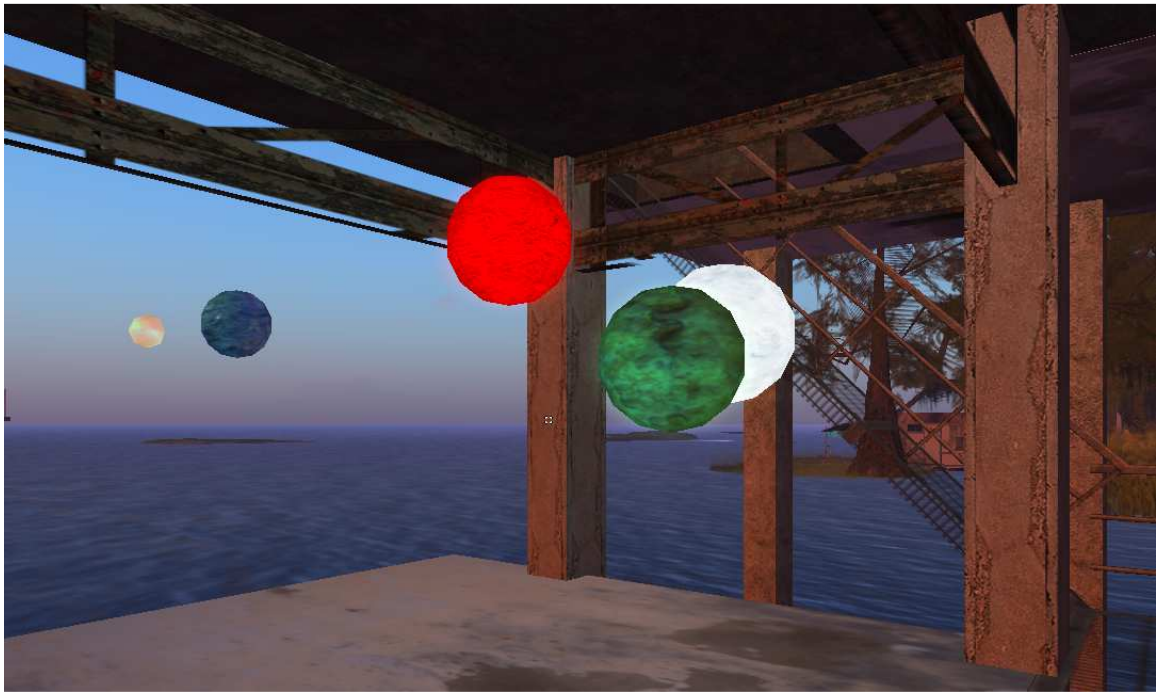
	Occurrence	1	2	3	4	5	6
How Anxiety is Addressed, cont.							
Modeling/ practice	4/6	Models, time for practice, encourages exploration, interacting with other SL residents			Asks them to spend 10 hours inworld during the first couple of weeks before class begins. By that time they know how to use mouse, navigate	Schedules event at Ed Media center, a class meeting or informal seminar on beach where students can practice	During first week of class
Other			Suggest breaks, walk away, be distracted for 5 minutes and then return.		Students assigned individual studio apartments in condominium – having apt. helps adjust		
Theories on Anxiety Causes		Navigation is sometimes hard for new students, technological difficulties.	Anxiety of learning something new, stress	Some students intimidated by the technical skills needed, are frustrated	Techno-anxiety, dislike of video games – don't see differences at first, fewer students with exploring/play experience	Negative SL perceptions, technology anxiety similar to early days computer	

APPENDIX E

SECOND LIFE ART GENERATED DURING STUDY



Experimentation with creating sculptures in several materials. From left to right: metal, wood, glass, and glass.



Deborah Schlegel, *Undiscovered Planets*, 2012. Computer generated sculpture created on Second Life.

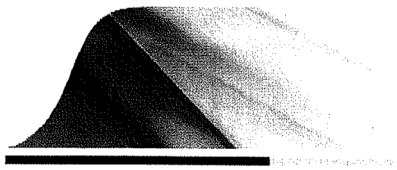
Natural Dye Arts Shack, created by Deborah Schlegel as an art education site. Current display is on cochineal dyeing.

The white board displays a PowerPoint presentation on cochineal dye. Below is a created example of nopal cacti with cochineal insects and webbing. Next to that is a poster advertising a cochineal silk shirt available and a table with a bowl containing cochineal.

APPENDIX F

IRB EXEMPTION

ASU Knowledge Enterprise Development



Office of Research Integrity and Assurance

To:	Mary Stokrocki ART
From:	Mark Roosa, Chair Soc Beh IRB
Date:	11/01/2010
Committee Action:	**Exemption Granted**
IRB Action Date:	11/01/2010
IRB Protocol #:	1010005666
Study Title:	Virtual Media: A Participant Observation Study of Visual Art in Second Life

The above-referenced protocol is considered exempt after review by the Institutional Review Board pursuant to Federal regulations, 45 CFR Part 46.101(b)(2) .

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.