PROACTIVE RETROSPECTIVE INSTALLATION IN SECOND LIFE:

USING *CURRERE* TO EXPLORE EDUCATIONAL PERCEPTION, REFLECTION,

UNDERSTANDING AND DEVELOPMENT OF GRADUATE STUDENTS

ENGAGED IN VIRTUAL EXHIBITIONS

A Dissertation

by

CHIH-FENG CHIEN

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

May 2012

Major Subject: Curriculum and Instruction

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ABSTRACT

Proactive Retrospective Installation in Second Life:

Using *Currere* to Explore Educational Perception, Reflection, Understanding and

Development of Graduate Students Engaged in Virtual Exhibitions. (May 2012)

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This is an unprecedented study integrating of Second Life (SL) and the *currere* approach to develop a virtual curriculum demonstration. The overarching purposes of this study were to understand the perceptions, self-reflection, self-understanding, educational growth of graduate students in education toward teaching and learning in a virtual interdisciplinary curriculum. The three-dimensional virtual world of Second Life is a distance learning platform and multimedia combination of animations, dynamic images, embedded videos, websites, simulative worlds, slide shows and media players. The theoretical framework is based on the *currere* approach—a curriculum technique used to reconstruct social, intellectual, and physical systems.

Data was collected in two education graduate courses in 2011 at a public university located in central Texas. After participating with SL skill trainings, the participants engaged in two virtual SL exhibitions—war and ecology—which were designed in the framework of the four *currere* steps—regression, progression, analysis,

and synthesis. Data was collected via observations, SL reflective writings, individual *currere* writings, and voluntary interviews.

The results revealed how SL exhibitions, based on the four-step *currere* approach, benefit the participants. In the regressive step, the virtual installations stimulated participants' emotions and vivid memories toward the presented topics. In the progressive step, the SL exhibitions awakened participants' awareness to educate the public on the global issues and integrate them into school subjects. In the analytic step, the exhibitions allowed participants to ruminate and re-exam the past, present and future, as well as to reflect on their own consciousness. In the synthetical stage, participants reflected and inflected their own perspectives toward the learning materials. Using the exhibitions' target knowledge, individuals were able to develop a self-understanding, which propelled them toward self-mobilization and educational reconstruction.

Regarding SL curriculum development, the participants indicated SL innovative installation assisted them in extrapolating ideas for subject integration and interdisciplinary curriculum. In terms of technological utilization, SL changed the participants' perception about how integrating virtual technology into a classroom makes teaching and learning accommodating for distant students. In addition, this further motivates students to understand content more concretely and effectively. With regard to autobiographic emotional involvement, SL delivered the powerful images and videos to participants, which allowed them to understand why they possessed certain kinds of emotions toward specific events.

DEDICATION

I dedicate this dissertation to:

My wife, Yueh-Yun, Cheng

My parents, Jung-Kuei Chien and Mei-Hsiu Wu

My brother, Chih-En Chien

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It is a pleasure to express my thanks and appreciation to all of my committee members who have advised me in a variety of profound ways for making this work possible. Dr. Patrick Slattery, an extraordinary intellectual and knowledgeable scholar, always encouraged me to read broadly, to think holistically, to challenge boldly, and to act creatively. His support, enthusiasm, and inspirations empowered me to be a conscientious scholar and compassionate educator. Dr. Trina Davis, a remarkable female educator and incredible academic, provided me funding to sustain my doctoral studies, and taught me to be thoughtful and discreet on multimedia teaching and learning. Her patient mentoring, financial support, and constructive supervision assisted successfully to accomplish my doctorate. Dr. Wendy Keeney-Kennicutt, a gracious and innovative chemist, patiently assisted me with various technical supports. Without her professional advice regarding technological construction and work review, this research would not be accomplished. Dr. Janet Hammer, an affectionate and gifted professor, mentored me from my Master's to doctoral studies with warmhearted assistance. Without her generous nurturance, my graduate studies would not be successful and joyful. All of your efforts contribute an important part of my life and studies. I will forever remember gratefully all of your devotion.

NOMENCLATURE

IPA   Interpretive Phenomenological Analysis

SL   Second Life

VW   Virtual World

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CHAPTER I

INTRODUCTION

According to John Dewey (1938), people tend to think in the way of extreme

opposites. This has no exception in educational philosophy. He pointed out two

contrasting extremes in education – traditional education and progressive education. This

dichotomy is the distinction of subject-matter, routine, disciplined, ordered, and

structured traditional education as opposed to free, democratic, student-centered and

unstructured progressive education. Traditional education lacks holistic understanding,

limits the freedom of a body and focuses excessively on content. On the contrary,

progressive education challenges organization patterns, and emphasizes students'

interests, needs, and personal growth.

With the benefits of advanced technologies, the virtual world is emerging as a huge

potential platform for teaching and learning (Chodos, Naeimi & Stroulia, 2009; Esteves,

Fonseca, Morgado, & Martins, 2009; Coombs, 2010; Wankel, 2010). Technological

advancements in the virtual worlds such as visual and audio tools, and animations make

the practice of progressive education more heuristic and effective. Instead of traditional

asynchronous online learning, virtual worlds advance a revolutionary change to make

both distance learning and face-to-face learning come true. With the virtual worlds

integrated into education, curricula are delivered in a creative and inspiring way,

students are engaged simultaneously in distant discussion, and target content is

emphasized in the sensory immersive environments.

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This dissertation follows the style of *American Educational Research Journal*.

In the following sections, I will start by looking at the educational issues surrounding in the society regarding test-preparation curriculum. The idea of teaching students critical thinking inspired a curriculum exhibition developed by a doctoral-level curriculum studies course. This curriculum exhibition inspired me to develop a virtual-world curriculum exemplar. This research is interested in: 1) how this virtual-world curriculum experience affects graduate students in regard to their understanding, reflection, perceptions and educational development about teaching and learning; 2) how this virtual-world experience is expected to inspire graduate students to develop better ideas in terms of curricular materials or curriculum topics to encourage students to think critically. I will give an overview of *currere* theory, the theoretical frame I used to design the virtual exhibitions and detect graduate students' self- and curricular understanding, my philosophical conception, and the development of virtual-world environments.

Current Curriculum in the US

In the American society, school teachers/school administrators and parents place a great deal of emphasis on students' academic achievements. These academic achievements include high test scores, admission into prestigious universities, and being at the top of their class. These distorted measures of high academic achievements are caused by two reasons accepted by society: (1) the test score is the most immediate way to measure students' academic knowledge (McNeil & Valenzuela, 2001), and (2)

students' performance in college can be adequately predicated by students' class rank in high schools (Niu & Tienda, 2009).

Increasingly, for the "high-stakes" decisions such as tracking students' progress, promotion, and graduation, test scores are usually considered a main determinant (Heubert & Hauser, 1999). These aforementioned emphases result in distorted teaching instructions and inappropriate course content. For example, the standardized test used in Texas between 1991 and 2002— the Texas Assessment of Academic Skills (TAAS)— was criticized as a system of testing damaging to students' learning. McNeil and Valenzuela (2001) denounced that the generic curriculum of TAAS system of testing is totally separated from children's experiences, language, and cultures. The TAAS focuses on passing exit exams which results in children not following appropriate curricula but only studying with test-preparation materials (McNeil & Valenzuela, 2001). Another example involves teachers who teach students reading techniques. In preparing for reading tests, students are taught to read the answer options first and then search the reading passages to match with answer options. As a result, students are able to answer the reading questions but unable to explain what they have read (Neill, 2003).

The above-mentioned examples result in the outcomes that the following statistic shows about college education. In a Collegiate Learning Assessment (CLA) Longitudinal Project, test scores of 2,322 students across 24 universities from the fall of 2005 to the spring of 2009 were studied. According to Arum (2011), 45 percent of the students in the study showed no improvement in critical thinking, writing skills, and complex reasoning after a four-year college education. In addition, 36 percent of the

students examined showed no gains in higher order thinking skills after a four-year college study.

In the book "*Toward a Poor Curriculum*" Pinar and Grumet published in 1976, they describe that:

> A poor curriculum is one stripped of its distractions. Stripped of video tape, audio tape, fancy books and buildings, values clarification and individualized instruction. Stripped of all the clothing we drape around ourselves to keep us from seeing (p. vii).

They first put forward *currere* to disclose and apply autobiographic experience and reflection to run a collective curriculum. This concept began the non-traditional curriculum that comprehends the nature and essence of interdisciplinary curriculum, involved in reflexive teaching and learning. *Currere* will be explained in detail in the literature section.

Bestor (1953) advocated that the school's function is to teach the power to think. Bonney and Sternberg (2010) stated that a school's main responsibility is not just to deliver information to the students, but to teach them to think critically. This power to think, or critical thinking, is to contemplate and analyze holistically (Conger & Mezza, 1996; Colucciello, 1999), creatively (Runco & Chand, 1994), unconventionally (Conger & Mezza, 1996), constructively (Thayer-Bacon, 2000), differently (Johnson & Johnson, 1993) and outside the box (Kray, Galinsky, & Wong, 2006; Baril, Cunningham, Fordham, Gardner, & Wolcott, 1998; Hattery, 2003). The power to think reflects self-experience (Holman, Pavlica, & Thorpe, 1997) and autobiography (Pinar, 2004; Church,

1995; Florio-Ruane & de Tar, 1995), and promotes self-understanding (Nodding, 2004) and self-awareness (Gold, Holman, & Thorpe, 2002).

The Origin of the Research

In developing in students the power to think, a pilot project was started in 2008 from a doctoral-program curriculum theory course. Dr. Patrick Slattery, a well-known educator in curriculum theory, educational philosophy and postmodernism, and nine doctoral students originated the idea of a retrospective in the theme of the Vietnam War. The exhibition was presented in two media: 1) a collage of war pictures and 2) a continuous-playing documentary and videos about wars. The collage was posted on the wall of a classroom. The continuous-playing film/video was also projected through an electronic white board where participants could view the screen in the classroom or from the computer screen. A message board was posted on the other side of the classroom for audiences to write down their reflections. The participants were immersed in the distressed reminiscent climate of the Vietnam War displayed through powerful images and continuous-playing videos. There were about 30 people in the audience, including faculty, graduate students and undergraduate students, visiting the exhibition. During the three-hour exhibition, audiences and/or project members engaged participants in complicated conversation – this communication "requires interdisciplinary intellectuality, erudition, and self-reflectivity" (Pinar, 2004, p. 8). At the end of the exhibition, participants left a large number of thought-provoking and reflective comments either relating to their personal experiences or impressions they had of the Vietnam War.

Again in 2009, one of the nine project members and I presented a similar but modified exhibition at the 2009 Curriculum and Pedagogy Conference. The collage was pasted on the auditorium wall. The continuously-playing video was projected on a screen placed at the center of the room, and another projector showed picture slides from the first exhibition. The second exhibition extended the Vietnam War topic to include recent and ongoing global wars and conflicts. Because of time constraints, the exhibition only lasted two hours. As expected, the audience, which consisted of professors and graduate students, responded with fervent reflections.

After the experiences with these two exhibitions, I kept pondering how Dr. Slattery encouraged us, as Ph.D. students and educators, to contemplate synthetically and converse intelligently. Meanwhile, we realized that we needed to integrate our philosophical thinking and *currere* approach with multi-media materials to deliver a meaningful and substantial curriculum. In addition, for effective interdisciplinary understanding and provocative reflection, we needed to apply the complicated conversation and autobiography to everyday classroom practices.

I have had an opportunity to be involved in Second Life (SL)—a multimedia 3D virtual world and distance learning platform with animations, dynamic images, embedded videos, website, simulative worlds, slide shows and media players. With this virtual environment, I visualized that I should be able to install thought-provoking and reflective materials to encourage complicated conversation and critical thinking to elicit participants' inward self-understanding (e.g., reflective thinking, autobiographic experiences, self-realization, etc.) to achieve social reconstruction (e.g., social

interaction, intellectual freedom, interdisciplinary curriculum, public democratization, etc.). Both self-understanding and social reconstruction are two important ways to attain true curricular meaning, in which persisting problems, such as race, gender, wars, social and worldwide issues, are extensively discussed (Pinar, 2004).

In the following sections, I will give an overview of my personal philosophical conception, the *currere* approach, and Second Life. I will also explain how these overviews relate to my research.

Philosophical Conception

John Dewey used environment and interaction to explain how experience arises. He stated that life is a series of situations with inseparable interactions. An experience takes place when an individual constitutes his/her environment with interactions. What has been constituted becomes an experience (Dewey, 1934). A new experience is usually acquired when past experiences interact with the present situations filled with educational meanings and educational materials. Dewey (1938) said "it includes equipment, books, apparatus, toys, games played," and this is the "total social set-up of the situations in which a person is engaged" (p. 44). Thus, it is very important that an instructor understands students' background knowledge in order to design and facilitate a lesson interlinking past experience with new knowledge.

In pragmatic educational practice, Dewey advocated that democratic and moral education needs to be taught in public school for students to understand social reform, societal duties, political life, and personal behavior (Gutek, 2009). This way, students are

capable of understanding fairness, taking responsibilities, and being conscious about social virtues. In addition, students can correctly reflect their personal ideas, actions and experiences for solving the problems in daily life.

Dewey distinguished progressive education from traditional education. He rejected regular school subject-matter content, teacher-centered learning, lecture-oriented instruction, and memorization techniques. The main strengths of the traditional education system are transmitting knowledge to new generation and preparing youths for future responsibilities (Dewey, 1938). However, students taught via traditional education are passive learners who only absorb content and regurgitate content. In Dewey's (1916) *Democracy and Education*, he suggested education as formation, recapitulation, retrospection, and reconstruction. In Dewey's words, progressive education is treated "as process of accommodating the future to the past, or as an utilization of the past for a resource in a developing future" (Dewey, 1916, pp. 92-93). Dewey's idea about education is the essence of progressive education. Through the interaction between activities and environments, students connect their own experiences to cultures, societies, literary products, history, geography, and science. Thus, they can recapitulate the past, reformat the present, and advance to social reconstruction.

Dewey (1934) articulated esthetic experience as a part of the civilization in which we live with experiences, human relationships, institutions, and traditions. Civilization began through imagination and emotions which constitute works of art. Art is saturated with religions, stories, social customs, imaginations, and all continuities of human civilization which are meaningful and aesthetic.

Dewey argued that school curriculum should integrate three concepts: "critical reflective thinking, the scientific method, and the educative role of the group in constructing children's social intelligence" (Gutek, 2009, p. 78). In Dewey's notions, school curriculum should not be restricted to conventional curricular skills (e.g., reading, writing, arithmetic, etc.) and traditional curricular subjects (e.g., history, mathematics, physics, chemistry, etc.). On the contrary, students need to learn by doing. In a pragmatic education system, instructors create a curriculum connecting with students' experiences, including family education, personal interests, and prior knowledge. In addition, this education system also engages students in game-playing so they are motivated by these activities and hands-on experience. With this continuous practical and multi-faceted learning experience, teachers are able to keep a student's attention; the students are also able to carry on the educational habit to the societal and occupational environments where they are benefited by it.

I have been a faithful believer of Dewey's progressive education in which inquiry-based curriculum, student-centered learning, freedom, democracy, connected experiences, and interaction are the bedrock of the learning process. I also believe meaningful learning is best achieved through playing, interaction and reflection. Based on the influence of Dewey's educational notions, both art and experience have inspired my research into developing students' thinking, understanding and knowledge about ongoing global issues. Virtual-world platforms can achieve Dewey's notion to develop students' thinking, understanding and knowledge through multimedia utilizations, digitalized effects, and student-directed learning. My study design using Second Life is

composed of different kinds of media—text, images, videos, audios, web pages, animations, and virtual environments—for delivering targeted contents. Second Life requires each student to register individual avatars (virtual surrogates). This method of education facilitates individualized student learning through interactions with text, visual, and auditory contents, so as to fully comprehend the concept of targeted knowledge. The digital materials (e.g., movie clips, animations and exhibition layouts) that students are exposed to play the role of art and its interaction with human nature, civilization, and social concept.

The *Currere* Approach

According to Pinar (2004), *currere* is the Latin infinitive form which means *to run the curriculum*, or in gerund form meaning *the running of the curriculum*. Sameshima and Irwin (2008) especially address that "curriculum is static, while *currere* is dynamic" (p. 7). Irwin (2006) states "*currere* is the active form of curriculum; a currere emphasizes acts of inquiry over a course of action" (p. 75). C*urrere* is the method used to investigate the relationship between academic knowledge, life history, self-understanding, and social reconstruction (Pinar, 2004).

Pinar (2004) suggests four essential stages of the *currere* approach: (1) the regressive stage: to return to the past, enlarge one's memories, and transform them to present; (2) the progressive stage: to look toward what is not yet the case and what is not yet present; (3) the analytical stage: to examine "one's distantiation from past and future functions in order to create a subjective space of freedom in the present," and (4) the

synthetical stage: to listen carefully to "one's own inner voice in the historical and natural world" to achieve the state of ultimate self-understanding, self-reflection, and self-transformation (pp. 35-37).

According to Pinar (2004), the *currere* approach highlights the complicated conversation which is a private and public intellectual communication in order to achieve both self-understanding and mutual-understanding. Pinar (2004) argues that complicated conversation is neither solipsistic soliloquies nor cryptic monosyllable (p. 207). It is the social and self-reflective understanding which transforms the target curricula and does not follow politicians' rigid curriculum agendas. The notion of complicated conversation can be a "vigorous public debate" (p. 256) and self-criticism (p. 9). The purpose of complicated conversation is to engage students into intellectual communication and opinion exchanges with academic subjects and their own experiences.

Pinar (2004) encourages conducting self-reflection and self-understanding during the analytical stage. Thus, we can "mobilize ourselves, both as individuals and as a profession," in the synthetic stage (p. 10). Self-understanding here means the cognitive basis for self-conception (Damon & Hart, 1982). Pinar believes self-understanding is a concept to help us "understand our situation as a group" (p. 5). With self-understanding, educators are capable of understanding the importance of school curriculum which cannot be taught with rigid agenda and cannot be regulated only by government or school boards. Self-reflection here refers to the cognitive process to represent conscious thoughts and imaginary perspectives. Fehlman (1987) used Jacques Lacan's idea to

define self-reflection as a mirror reflection functioning with symmetrical reflexivity. With self-reflection, educators are capable of reflecting on their own experiences. By empathizing with students' emotions and situations, the most meaningful and effective way of instruction is developed for students.

Through the *currere* approach, my research will demonstrate to pre-service and in-service teachers the ways to develop a meaningful curriculum. Developing a meaningful curriculum is threefold: (1) to lead students from past recollection and present experience in order to envision the future; (2) to engage students in complicated conversation, and (3) to stimulate self-understanding and self-reflection in students.

Second Life

Second Life (SL), a 3D virtual world launched in 2003 and developed by Linden Lab, is an online, visual-based platform where multi-users interact and collaborate through mobile avatars. Instead of traditional internet webpage-based instruction, SL is full of visualization, imagination, and innovation; users can freely shape their looks, create objects, teleport from one site to another, own land for personal or group uses, and own virtual money—Linden Dollar (Mohammed, 2009). SL has been used for distance synchronous lectures or online asynchronous instruction in higher education in numerous perspectives (de Lucia, Francese, Passero, & Tortora, 2009).

Different from most massive multiplayer online games (MMOGs), SL does not have goal-directed missions, purposes, or targets to fulfill (Bonsu & Darmody, 2008). On the contrary, it is open for players to freely build, explore and experience in this

unstructured but free-designed world. The users have the freedom to choose when and where they want to log in, what they want to do or to build, and how they want to experience this world.

Instead of teaching with traditional instructional methods, SL is believed to engage students in educational and simulative games where interpretation, analysis, discovery, evaluation, acting, and problem solving occurs (Antonacci & Modaress, 2005). SL also promotes constructive learning and creative scaffolding, where knowledge and information is constructed and transferred via the authentic context of social interaction (Luo & Kemp, 2008). It includes multifaceted prospect, interdisciplinary subjects, and inquiry-based learning. Luo and Kemp (2008) explain that the fields of computer science, media studies, and foreign language have begun to explore the benefits of SL in higher education by engaging their classes or laboratory sessions in SL environments.

Using the SL virtual environment, I installed two exhibitions of ongoing global issues—war and ecology. I also incorporated two ideas from the previous exhibitions—collage and continuous-playing videos. Furthermore, I installed two other additional media – extended web links and related islands. In the SL world (in-world), webpages can be embedded on any object surface, so avatars can view webpages displayed on in-world objects. Similar to clicking hyperlinks on webpages, the web links can also be inserted into any object so avatars can acquire the links and open stand-alone windows in-world. SL consists of hundreds of thousands of islands. Each island is like a website standing alone in the online networking but in 3D forms. There are some islands related

to wars and ecological themes where I directed the research participants to visit for better insights on the target contents.

Statement of Problems

Presently, unattractive curriculum (such as text-based approaches, lectures, teacher-centered instruction, and one-way knowledge delivery) in schools will eventually fail to produce the innovative workforce needed today (Cohen, 2002). On the contrary, creative curriculum (for example, student-centered instruction, multifaceted knowledge delivery, inquiry-based learning, critical thinking, multimedia material, etc.) must be implemented to match current trends. Teaching with technology is one of the most common ways to avoid teaching an unattractive curriculum (Grasha & Yangarber-Hick, 2000). Integrating technology into a curriculum is a modern trend to enliven teaching and learning.

One of the main issues hindering integration of technology into curriculum is the generation gap between digital natives and digital immigrants. Prensky (2001) defines digital natives as today's students who are familiar with the use of computers, video games, and digital gadgets. In contrast, digital immigrants are those older generation who were born in the pre-digital age and are currently trying to adapt to the new era of modern technology. Prensky (2001) explains further that the biggest problem caused by this generation gap is that digital immigrant instructors are finding it difficult to keep up with the demands of instructing the digital native students who speak an entirely new digital language.

Second Life (SL) is a multi-player online virtual world which has the potential to bridge the digital native/digital immigrant divide. There are a variety of media teachers can practice and apply in SL. For example, for in-world presentation skills, teachers can develop slides in the PowerPoint, save files as images, and upload onto a virtual slide viewer. For embedding website links, teachers can build virtual objects first and follow specific instructions to either display webpages or insert hyperlink on the objects. For displaying videos, teachers can develop videos or find available videos first, upload them to a website, and connect video links to virtual media player. Advanced skills like scripting also allow teachers to design different animations which can be used as teaching aids. SL provides a large number of technological possibilities which teachers are able to practice and apply to teaching. Students, who have been familiar with multi-user online gaming and instant message, will be pleased to use this technology for cooperative learning and creativity development (de Lucia et al., 2009). SL is different from other multiuser online games which have their main objectives to be entertainment. When digital natives use SL, they will most likely see it as an online game because of the similar features SL shares with online games, such as "rich graphic, realistic simulations, and imaginative alternative realities" (Martinez, 2007, p. 67). This way, SL grabs students' attention which should increase their participation.

Another issue impeding the integration of technology into the curriculum is the "growing disparities in the utilization, expenditure and availability of technology" (Pick & Azari, 2008, p. 91). The unbalanced distributions are referred to as the digital divide which results in technology inequities, leading to educational inequities. Swain and

Pearson (2001) pointed out that the "significant difference in the access to and equity of technology experience [is] based on categories such as income, race, gender, location, or education" (p. 11). Fulton and Sibley (2003) addressed a similar issue explaining that the barriers for the digital equity are the difficulty of accessing (1) up-to-date hardware, software, and connectivity, (2) meaningful, high-quality, and culturally responsive online contents, (3) educators experienced with using digital tools and resources, and (4) a good system maintained by leaders with vision and support for technology.

There are relatively few researchers addressing how 3D virtual environments solve the issue of the digital divide. From my perspective, virtual environments have three main strong points. First, 3D virtual worlds provide visual-based materials such as animations, images, video streaming, and interactive games. With the combination of these multimedia, the instructor can design a virtual simulation, and where necessary, eliminate the possible distracting web content and focus students on target content. This way, students are not distracted and are only immersed in the targeted environments. By providing a rich multimedia experience, the digital divide is narrowed because all students have equal opportunities to develop the habit of critical thinking, collaborate with colleagues on team projects, and be immersed only in the specific environments created by the instructor.

Secondly, virtual worlds enable students to participate in problem-based and experiential learning, simulative learning, and social and peer learning (Ball & Pearce, 2009). With this attribute, students in rural areas can work together with counterparts in urban area even under any geographic restriction. Students also can visit world

attractions, art museums, historical monuments and even universal spaces as long as their school has adequate computer equipment and fast internet access. Virtual worlds simulate all possible types of environments so the students would not be limited in their learning because of the difference in incomes or locations.

Thirdly and most importantly, virtual worlds offer the real power of accessibility and pedagogical benefits in teaching and learning with its nature of "once-removed participation" (Ball & Pearce, 2009, p. 51). In virtual worlds, real-life issues, such as self-confidence, physical disability, facial disfigurements, racial and gender difference are non-existent. Students can freely determine a convenient stage to start their learning based on their capabilities. With the benefit of removing "baggage," significant differences of digital divide based on income, race, gender, location, etc. (Swain & Pearson, 2001) can be minimized and digital equity is achieved.

Integrating virtual worlds into the curriculum is a highly plausible potential approach for reaching digital equality and bridging the digital native/digital immigrant divide. This study uses SL as a simulated and imaginative environment. There are three main reasons to demonstrate a virtual-world curriculum to education major graduate students. The first one is to enhance participants' technological skills by practicing multiple media in the virtual worlds. The second is to take advantage of virtual worlds for narrowing down the digital gap and digital divide. The last is to demonstrate a curriculum in the *currere* approach so participants understand how curriculum could be developed in more comprehensive reflective, analytic, synthetic, and dialogic ways.

Significance of the Study

The study is significant in three ways:

(1) Contribution to research into SL and its application to the *currere* approach to develop curriculum.

(2) Demonstration of virtual-world curriculum development.

(3) Contribution to the understanding of education major graduate students' perceptions of various perspectives.

The virtual-world environment has been massively used in a variety of general curricula, such as science (Bainbridge, 2007; Rodger, 2002), mathematics (Roussou, 2009; Vogel, Cannon-Bowers, & Bowers, 2006), marketing (Ward, 2010), foreign language study (Wang, Song, Stone, & Yan, 2010), and architecture (Clark & Maher, 2001). However, there are still very little virtual-world research conducted in curriculum theory, the kind Pinar describes as "the interdisciplinary study of educational experience" (Pinar, 2004, p. 2). Little to no research has been done regarding virtual-world research design using the *currere* approach. This approach, if examined regressively, progressively, analytically and synthetically, can engage students in complicated conversation and autobiographic narratives. It also has the potential to elicit self-understanding and self-reflection thereby helping teachers and students to comprehend the true meaning of a curriculum. Research on virtual curriculum development in the *currere* approach has never been done. Hence, my research, which used the *currere* approach to explore education major graduate students' perceptions, understanding,

reflection, and professional development in virtual exhibitions, contributes to the research of virtual curriculum development.

Secondly, one of the purposes for studying virtual curriculum development is to demonstrate both the theoretical and practical aspects of curriculum development. The participants in my research were education major graduate students. Some of them have had experiences teaching in primary and secondary schools. By using multimedia technology in virtual worlds to deliver a curriculum, the participants not only learned to enlarge their knowledge of implementing curriculum in a creative way, but also understood how a progressive education, as Dewey advocated, can be done in synthetic, analytic, and dialogic ways. The demonstration for the participants will eventually benefit them in their future or current teaching endeavors.

Finally, the participants experienced two past-to-future exhibitions, in which they were expected to extract their inner voice. The inner voice here reflects from "historical and natural world" (Pinar, 2004, p. 37). A part of my study's contribution is to identify several perspectives for understanding how to use virtual worlds to teach appropriately. For example, are persisting issues installed as various formats in virtual worlds powerful enough to impact students with interactive and reflective surroundings? What kind of multimedia technology is capable of stimulating complicated conversation and critical thinking? By using Second Life as a visual-based and auditory-based simulated environment, this study adopted William Pinar's *currere* approach to examine students' self-understanding and self-reflection in order to achieve true meaning of curriculum.

Research Questions

The study specifically seeks to answer the following research questions:

1. What are participants' perceptions and attitudes about teaching and learning in an interdisciplinary curriculum in Second Life?

2. What are participants' self-reflections and self-understanding in the virtual curricular demonstration?

3. How do participants describe their educational growth and development at the end of the SL experiences?

Definitions of Terminology

Some terms used need more explanation to clarify what I intend to study.

(1) Interdisciplinary curriculum: Pinar (2004) articulates interdisciplinary curriculum as the essential part of curriculum theory. It is not only inclusive of the school curriculum but also symbolic as educational experiences. Slattery (2006) further explains that this kind of curriculum is an "interdisciplinary understanding of cognition and learning" (p. 278).

(2) Self-reflection: Fehlman (1987) used Jacques Lacan's idea to define self-reflection as a mirror reflection functioning as a symmetrical reflexivity. Self-reflection is a cognitive process to represent conscious thoughts and imaginary perspectives.

(3) Self-understanding: Damon and Hart (1982) explained that self-understanding is the cognitive basis for self-conception. Pinar (2004) believes self-understanding is a concept to help us "understand our situation as a group" (p. 5).

(4) Virtual curricular demonstration: The installations in Second Life are war and

ecological exhibitions. Both war and ecology are the demonstrative themes for

interdisciplinary curricula. The virtual curricular demonstration includes the

researcher's presentations, group discussions, virtual activities, and the exhibitions.

CHAPTER II

REVIEW OF LITERATURE

This chapter consists of three sections. The first section is the theoretical technique describing the main framework used for the study—*currere*. The historical background, main ideas, central approaches, and conducted researches about *currere* will be covered. The second section will discuss the recent emerging technology—virtual worlds. The reason I reviewed literature on virtual worlds is because the technological media (Second Life) I am using to design my study is a type of virtual world. Besides the historical background, information, and relevant researches, one of the main purposes of this research is to introduce the popular program—Second Life. Second Life is one of the recent burgeoning and booming virtual-world programs widely integrated with education in a variety of disciplines. In my third section, Second Life's background information, impacts on teaching and learning, and relative researches will be covered.

Theoretical Framework — *Currere*

The theoretical framework for developing this study is based mainly on William Pinar's *currere* approach. *Currere* is a curriculum technique used to reconstruct social, intellectual, and physical structures (Grumet, 1976). *Currere* is an autobiographic process used to develop a curriculum sufficient enough to engage students in self and mutual conversation, what Pinar (2004) and Grumet (1976) called complicated

conversation and autobiographic narrative. Students generate meaningful conceptions by manifesting their individual understandings and reflections in order to acquire a better idea of interdisciplinary subjects and debatable topics. In doing so, they are proceeding to the social reconstruction.

Historical Background

In 1967, Dwayne Huebner first introduced phenomenology to curriculum studies at the Curriculum Theory Conference (Pinar, Reynolds, Slattery, & Taubman, 1995, p. 417). The field of Curriculum studies started to consider the phenomenological way to explore aesthetics and ethics (Pinar et al., 1995). Dorre (2004) pointed out that phenomenology is a living process to understand individual's and group's reactions, attitudes, and behaviors. Those individual's or group's reactions, attitudes, and behaviors are a product of the interactions between interior structures and external environments. The living process, which is what Pinar et al. (1995), Huebner (1975), and Dorre (2004) called phenomenological process, results in meaningful learning.

In the mid-1970s, Pinar (1975) categorized school curriculum theory into three types—the traditionalist, the conceptual-empiricist, and the reconceptualist. The traditionalists treat curricula as "the tasks of the practitioner" (Pinar, 1975, p. xii). The goal of designing a traditional curriculum is to achieve educational objectives and to meet government requirements. The conceptual-empiricist considers education "as a part of social science research" (Doerr, 2004, p. 12). They select applicable parts from traditional curricula and modify them to fit their objectives. The reconceptualists on the

other hand "tend to concern themselves with the internal and existential experience of the public world" (Pinar, 1975, p. xiii). The reconceptualist studies the curriculum related to "temporality, transcendence, consciousness, and politics" (Pinar, 1975, p. xiii). Pinar (1975) concluded that the reconceptualist seeks to understand the true essence of educational experience. At this time, curriculum has undergone a paradigm shift and has transformed from traditionalist or conceptual empiricist, to reconceptualist.

By recognizing this paradigm shift, Pinar brought reconceptualization into curriculum theory (Pinar, 1975). Pinar characterized reconceptualization as an attentive autobiography and phenomenological experience (Pinar & Grumet, 1976). Slattery (2006) points out that Pinar and Grumet's idea of reconceptualization were influenced by "James Joyce, Marcel Proust, Virginia Woolf, and William Faulkner, and artists like Jackson Pollock, Lee Krasner, and Franz Klein" (Slattery, 2006, p. 62). Moreover, reconceptualized curriculum theory was also informed by the fields of philosophy, psychology, literature and art (Slattery, 2006).

To reconceptualize curriculum as a knowledge-producing and environment-changing discipline, Pinar put forward *currere* (Pinar, 1975b). *Currere*, as it is informed by many artists, philosophers, and academic fields, is "the study of education experience" (Pinar, 1975b, p. 400). Developed from the curriculum of existentialism, phenomenology, and psychoanalysis, *currere* is an experiential autobiography focusing on self-reflection, self-understanding and self-analysis. This reconceptualized curriculum method was not widely accepted in education when it was first introduced in the 1970s. It took about 20 years for curriculum practitioners to recognize this approach (Pinar et al.,

1995, p. 517) and this happened after Pinar, Reynolds, Slattery, and Taubman produced *Understanding Curriculum*, an influential curriculum book covering *currere* from historical and contemporary perspectives.

The *Currere* Approach

In the preface of the book "Toward a Poor Curriculum", Pinar and Grumet (1976) indicated that currere is the personal "existential experience of external structures" (p. vii). They further explained that the currere strategy is designed to disclose individual experience (Pinar & Grumet, 1976).

Curriculum, according to *currere*, constitutes overall educational experiences and interdisciplinary themes as a whole. Pinar (2004) argues that *currere* is the educational experience to scrutinize "manifest and latent meanings, conscious and unconscious content of language, as well as political subtext of such reflection and interpretation" (p. 58). It is not the subject-matter disciplines, formatted content, teacher-centered learning, teacher-to-student lecturing, one-way knowledge delivery, or copying and memorization techniques. On the contrary, it is a multidisciplinary content, dialogic discussion, subjective reconstruction, analytic evaluation, self-reflection, self-consciousness and self-understanding in order to synthesize past, present and future moments. *Currere* is running a curriculum to extract human's consciousness, reflection, and contemplation in order to achieve the objectives—"self-transcendence" (Greene, 1975, p. 305) and "social reconstruction" (Pinar, 2004, p. 37). In addition, *Currere* focuses on educational experience of individuals in which "autobiography and theatre are forms of self-

revelation" (Pinar & Grumet, 1976, pp. 68-69). This self, "an amorphous and slippery construct" (p. 69), transform personal scrutiny to autobiography. *Currere* differentiates from curriculum; curriculum represents "a methodical system for the management of education," (Seller, 2003, pp. 8-9) while *currere* signifies "experiential learning and teaching process within, through, and beyond education" (p. 9).

Currere is a curriculum theory focusing on interdisciplinary studies which especially influences the humanities and the arts (Pinar, 2004). He further explained that *currere* is an interdisciplinary knowledge which is a hybrid for teachers to "understand the nature of the public project" (Pinar, 2004, p. 232). Interdisciplinary themes in *currere* conception cross traditional boundaries of academic subjects, and reach multiple implicative curricula, such as the social issues relating to discrimination, inequality and resistance, and global warming issues relating to climate change, environmental protection, and natural disasters.

Currere focuses heavily on the engagement of complicated conversation and autobiographic narrative. Pinar (2004) thinks complicated conversation is not an instructional idea but an curricular one in which students are engaged in it with academic subjects and their own experience. Curriculum as part of a pedagogy to support knowledge is a complicated conversation. An intellectually-engaging conversation, a social-reflective understanding, and intelligent social communication are all considered to be complicated conversation. As for autobiographic narrative, Pinar (2004) defined it as the first-person version of cultural and historical embodiment existing in individual society and history. "Autobiography is a process of reflection that reveals self-as-object

through reflective self-representations" (Pinar & Grumet, 1976, p. 69). Autobiography also plays an important part in curriculum development, as Slattery (2006) states, regarding autobiographic reflection and narrative inquiry.

Kanu and Glor (2006) explained that Pinar's *currere* presents four advantages for educators. Firstly, *currere* promotes the development of collaborative autobiographies (Kanu, 2006). The idea is that educators can enhance their teaching and learning by not only writing autobiographic narratives, but also sharing those reflective narratives with others. Secondly, *currere* provides a channel for educators to speak for themselves and to be heard by others (Kanu, 2006). To be able to speak and be heard is the main purpose of the *currere* process. Thirdly, *currere* allows educators to use theoretical and practical knowledge to direct their daily work (Kanu, 2006). As such, following the *currere* approach, educators gain understanding from the critical analysis and synthesis of knowledge as well as lived experience. Lastly, *currere* helps educators to interconnect dichotomies such as public and private, institution and individual, and abstract and concrete (Kanu, 2006). With this understanding, educators gain holistic understanding about themselves and education.

The essence of the *currere* approach is in its four-stage process—regression, progression, analysis, and synthesis. William Pinar designed these four stages in order to understand how academic studies and formal schooling make students understand their life surrounded by societal, political, and cultural structures (Pinar, 2004). By following the past meaningful experiences and anticipating the future, students clarify the contradiction of past and future in order to examine the present.

The first stage is a regressive moment when a person recalls the past. The reason for doing so is because the present is disguised. The past impinges on the present because "the past is manifested in who we are and what we do in the existential now" (Slattery, 2006, p.63). Thus, we return to the past to observe and record past experiences. There is no analysis in this stage (Doerr, 2004). This stage is only for recalling experiences and gathering memories. Pinar and Grumet (1976) articulated that this stage is the "free associative remembrance of the past" (p. ix). Moreover, the regressive stage excavates everyday experience by concentrating on the past for interpreting the present (Pinar & Grumet, 1976). Slattery (2006) emphasized that much attention should be paid to the life of teachers, books and all relevant educational experiences.

The second stage is a progressive moment in which we are imagining and foreseeing the future as Pinar (2004) encouraged meditative imagination and envisioning. "We imagine a future, envision possibilities, and discern where our meditative images may appear to be leading us" (Slattery, 2006, p. 63). Pinar and Grumet (1976) noted that this stage asks us to "ponder meditatively the future, in order to uncover my aspiration, in order to ascertain where I am moving" (p. ix). However, we have to keep the present in mind as we envisage the future. As Pinar (2004) emphasized, "the future inhabits the present" (p. 36). The future influences and forms the present in complicated ways. "The future is present in the same sense that the past is present" (p. 24), as Pinar (2004) stated. Wang (2009) addressed that the flow of time (the past, present, and future) is nonlinear but blends in memories and visions. *Currere* is a method to support us "clearing the ground, cracking opening, and connecting fragmentation" (p. 3).

The third stage is an analytic moment in which we examine the past, present, and future. This stage is an analysis "devoted to intuitive comprehension as well as cognitive codification" (Pinar & Grumet, 1976, p. ix). Pinar et al. (1995) explained this process is similar to bracketing in phenomenological approach; "one distances oneself from past and future so as to be more free of the present" (p. 520). This procedure helps us to bracket ourselves from prejudice, subjectivity, stereotype, and judgment. Slattery (2006) described this moment, as biographic present, a time to exclude the past and future but include the responses of both. Researchers encourage looking at the complex moment from multidimensional and interconnective perspectives.

The last stage is a synthetical moment which "put the three steps together to help inform the present" (Slattery, 2006, p. 63). This is a stage for antithesis, introspection, aspiration, social commitments, educational formalization, and social reconstruction (Pinar & Grumet, 1976). Pinar (2004) highlighted that the moment of synthesis is an intensive interiority. This interiority is where intellect, reflection, understanding, perception, and attitude reside. In order to interconnect the self and the world, this interiority empowers a person to reconceptualize. By stimulating inner thinking and reflection through the last three stages and the moments of past, present, and future, curriculum as *currere* is generating.

The synthetical moment of *currere* is similar with Maxine Greene's ultimate consequence of wide-awakeness. Greene (1978) addressed that a person needs self-awareness and consciousness in order to be self-understanding and self-reflecting on one's personal life. People have to choose a set of norms, create values for themselves,

and be "moving toward more significant and more understandable lives" (Greene, 1978, p. 49). Greene (1995) pointed out that dreams, thoughts and fantasy are the modes to release human imagination which is the essence of experiential education. People's understanding about self and the world are stimulated by their experiential education. When humans' consciousness and awareness are wakened and freed, the *currrere* approach is transformed and integrated with a variety of perspectives. At the same time, the achievement of social reconstruction is not far away.

Currere Research

The initial *currere* research was executed by Pinar and Grumet in 1975. Working along with two assistants and eleven student teachers at the University of Rochester, they first utilized *currere* to design a teachers' training seminar. In the three-week series of the teacher-training seminar, Pinar and Grumet used *currere* to examine student teachers' responses and educational experience. The entire course was structured as a metaphor of everyone's own experience—sharing mutual educational experiences in order to awake individual experience. The purpose was to make student teachers discover their own experience so they could bring it into the high school curriculum (Pinar & Grumet, 1976).

After Pinar et al. published the book *Understanding Curriculum* in 1995, the *currere* method in curriculum study and research has been widely recognized and popularized. More and more dissertations in the curriculum field, such as exploring

teacher perceptions and reflections in a variety of perspectives, had started applying

currere as a qualitative research method.

A study conducted by Diane Brown in 2007 used the *currere* approach to develop

teachers' autobiographic narratives and self-reflection in terms of their teaching careers.

The participants for the study were six elementary teachers with ages ranging from 42 to

58 and with at least eight years teaching experience. All the participants reported they

were dissatisfied with various aspects of their teaching career. Brown, the principal

investigator, held 14 group meetings from 2006 to 2007. During the period, participants

were requested to do quick writings during group meetings, and *currere* writings on their

own time. The quick writings focused on personal reflection and professional lives of

participants' teaching careers. The *currere* writings were the responses of participants'

regressive moments (past teaching experiences). Brown (2007) concluded that the

currere method of reflective writings and meetings really benefited the participant

teachers, especially at the regressive stage. Participants also benefited in terms of

understanding their current pedagogy and life choice of teaching career. Brown (2007)

particularly emphasized that *currere* was an effective approach and a successful strategy

for helping teachers to develop their own autobiographic experience and share reflective

narratives with others.

Jennifer Milam also carried out a study using the *currere* method to evaluate white

teachers' perceptions of African American students' classrooms. The aim of this study

was to understand white teachers' perceptions, attitudes, and practices in classrooms

predominated by African American students (Milam, 2008). By using *currere*, this study

excavated and deconstructed elementary white teachers' perceptions and their

relationship with African American students they taught and their teaching practices. Six

elementary teachers with teaching experiences ranging from 5 to 29 years were selected

as the participants. Their racially diverse classrooms ranged from 40% to 80% of

African American students. The data collection included active participation,

observations, formal and informal interviews, teachers' documents (e.g., lesson plans,

assessment, etc.), and teachers' reflective narratives. Milam (2008) suggested that the

currere approach for understanding personal perceptions about white teachers with

African American students needs to be further processed for pre-service teachers. By

exploring their attitudes and perceptions about African American classroom and teacher-

and-student interactions through *currere*, Milam's study benefitted the pre-service

teachers' future teaching.

Virtual Worlds

A virtual world (VW) is an online computer simulation program in which users

are represented by virtual surrogates. Real-world objects and virtual imaginative content

are graphically represented in virtual worlds. Users can freely build, shape, and modify

their own surrogates, objects, and contents in VWs. VWs have the immediacy feature

which is instantly accessible through a network. A virtual world also has the interactivity

feature allowing users to interact with virtual objects, contents, materials, and other users.

Literature presents a number of descriptions and definitions about VWs.

Castronova (2004) described VWs as synthetic worlds: "crafted places inside computers

that are designed to accommodate large numbers of people" (p. 4). This metaphor only includes partial features of the VWs. Bartle (2007) defined that "VWs are the places where the imaginary meets the real" (p. 1). He further explained that VWs are shared and contain multi-user spaces. Moreover, VWs continue to exist as long as the Internet is accessed (Bartle, 2007). Bell (2008) tried to combine all the elements of VWs and came up with the comprehensive definition of a VW as "a synchronous persistent network of people represented as avatars, and facilitated by a network of computers" (p. 2). He (2008) further annotated that synchrony, in the definition, refers to virtual group activities happening to all the users simultaneously. Persistence, he said, means VW is an environment continuing to process and cannot be paused or stopped. The network of people refers to interpersonal communication and interaction, and the network of computer means the accessibility with Internet connection (Bell, 2008).

Historical Background

Computer-generated virtual worlds (VWs) made their first appearance in the mid-1970's (Slator, Beckwith, & Chaput, 2006). During the text-based computer era, Dungeon and Dragons was one of the first computer role-playing games (Pearce, 2004). However, Ball and Bainbridge (2008) argued that Dungeon and Dragons was not a VW game, but it was a computer game in pre-Internet era that inspired the potential VW multi-user games.

When Multi-User Dungeons (MUDs) was invented in 1978, it was the first time that players could use their computers to interact with other players. With the application

of VW to computer gaming and the advent of the Internet, VWs were later applied to education in the late 1980s (Slator, Beckwith, & Chaput, 2006; Ball & Pearce, 2009). Although the quality of the images was poor and the internet speed was slow, this was the foundation of today's VW games in education.

Habitat is generally recognized as the first VW to integrate 2-dimensional high-quality graphic resolution and online role-playing into a game (Ball & Bainbridge, 2008). It was originally developed and created by Randy Farmer and Chip Morningstar in 1985. By 1990, the number of Habitat users exceeded 50,000. Habitat was considered a forerunner of VW multi-user online role-playing games (Davis, 2009).

Neal Stephenson's science fiction book *Snow Crash* initiated the ideas of *metaverse* and *cybertown* which ignited the idea of 3D VW environments (see SL historical background in the following section). Massive multiplayer online games (MMOGs) and massive multiplayer online role-playing games (MMORPGs) burgeoned in the mid-1990s. By the 2000s, numerous other games such as Ultimate Online, EverQuest, and World of Warcraft emerged. Other examples of VWs integrated into education in the 2005 are Second Life, The Sim Online, Cybertown, etc.

Virtual Worlds in Teaching and Learning

VWs comprise several features for teaching and learning in education: (1) accommodation of web-based and face-to-face classes, (2) visual learning, (3) multimedia teaching and learning, (4) benefits for disabled learners, and (5) real-world and imaginative environmental immersions.

Thompson (2008) attributes a number of factors to the trend of more distance education: (1) the increased number of non-traditional students, (2) the increased mobility of population, and (3) the increased expectation for schools constructed to fit students' needs. The need for distance education increases the popularity of web-based online classes. However, the browser-based online class is criticized as "depersonalization and lowered bandwidth for communication" (Thompson, 2008, p. 166). Compared with traditional face-to-face classes, interaction and human communication are significant advantages. Nevertheless, the downsides of face-to-face classes are students' anxiety and lack of convenience with course materials and content depth (Wang & Woo, 2007). VWs, on the other hand, not only make online asynchronous discussions and assignments possible (Dickey, 2005; Kluge & Riley, 2008), but they also provide a platform for simultaneous meetings and interactions via VW users (Dickey, 2005; Dillenbourg, Schneider, & Synteta, 2002), such as avatars in Second Life. Thus, teaching and learning through a virtual world provides the combined benefits of face-to-face and web-based learning, with the feature of synchronous and asynchronous participation.

VWs provide visual materials, contents, and objects (Dickey, 2005). These features broaden learning opportunities, particularly for visual learners (Annetta & Park, 2006). McComas, Pivik, and Laflamme (1998) point out that VWs can be freely customized for visual learners to understand visual information. Barab, Thomas, Dodge, Carteaux, and Tuzun (2005) indicate that VWs provide "rapid visual prototyping" for educators to understand and respond to children's preferences. Minocha and Reeves (2010)

discovered that the visual realism of a learning space impacts on learners' motivation through visual learning experience and activities.

The multiple media content of VWs include visual and audio aids, video players, handouts, and outside resources connections (e.g., website, forum and blog) (Thompson, 2008). With the large-scale technologies embedded in VWs, teachers and students have the opportunities to learn and practice technologies. For example, through the use of multimedia educational materials in VWs, teachers also get to practice the skills of graphic design, audio playing, video applications, and word processing. Moreover, students are attracted by multimedia technologies.

VWs provide functional contents and materials for disabled learners. McComas, Pivik, and Laflamme (1998) put forward the tactics of providing auditory information to hearing-impaired learners. In addition, learning materials can be broken down to easily understandable steps for children with learning difficulties (McComas, Pivik, & Laflamme, 1998). Furthermore, VWs also provide a barrier-free space for people with physical disability to participate in classroom activities like any other student (Ball & Pearce, 2009).

One of the unique advantages of teaching with VWs is their ability to represent real life scenarios, which are similar to immersive learning environments (de Freitas & Martin, 2006; Thompson, 2008). The immersive spaces simulate real-world objects, environments, and people, thus ensuring a more effective learning. Kanade (1997) said that virtual reality transcribes visual events, recovers 3D structure, and generates synthetic viewpoints. Learners can see a real-world event or object from different

viewing angles at different viewing time. de Freitas, Rebolledo-Mendez and Liarokapis (2010) also advocated that the immersive learning experience works better than traditional face-to-face learning. Virtual worlds' virtual reality and imaginative immersion ensure effective teaching and learning.

Virtual World Research

Research relating to virtual worlds is increasing because of the rapidly soaring number of virtual-world users. It is estimated that 80% of active Internet users will have at least one virtual agent by the end of 2011 (Gartner, Inc., 2007). The virtual world is a general term including a variety of different programs, such as Second Life, The Sims Online, Dreamville, and Active Worlds. Virtual-world research and application has been expanding to a wide range of disciplines, but there are still very few empirical studies focusing on curriculum theory in virtual worlds. The following describes two virtual-world research efforts involving scientific and mathematic curriculum.

Murfin (2001) conducted research on math and science teachers who teach in the Collaborative Virtual Learning Environment (CVLE). CVLE is an online shared space allowing multi-user communication, interaction, and knowledge building. A class of microcomputers and computer animation in math and science was taught in Science Multi-User Dimension Object Oriented (ScienceMOO). A majority of students expressed positive attitudes toward the place-independent nature of ScienceMOO, with an increase seen in their communication and interaction. Some students also expressed negative attitudes toward technical problems, text overload, and the lack of familiarity.

Murfin (2001) concluded that the MOO is a potential tool that can be used in science and education fields but it still needs more improvement.

Ketelhut and Nelson, in 2009, designed a science curriculum in a multi-user virtual environment (MUVE) to research the use of virtual experimentation methods and tools in assessing real-world inquiries. The MUVE program they used was River City—an educational MUVE program which was specifically funded by the National Science Foundation (NSF). River City is an experimental design for teaching middle school students about scientific inquiry skills. Inside River City, students and teachers were represented as avatars (residents of the city). They could interact with digital objects, such as images and videos, and communicate with other avatars. There were also some visual and auditory stimuli, such as sounds of coughing, muddy dirt streets, etc. A group of 500 seventh-grade students and five teachers in a U.S. suburban school district were involved with this project. Pre- and post- surveys were conducted and collected as a quantitative analysis for comparing the effectiveness of the treatments. Ketelhut and Nelson (2010) observed that teachers were satisfied with their students' improvement after this virtual-world scientific inquiry. "Initial evidence indicates that virtual experimentation can engage students and help them learn as well as or better than physical experimentation" (Ketelhut & Nelson, 2010, p. 151).

Second Life

The general information about Second Life (SL) has been introduced in the introduction section. In the literature section, I will discuss SL from the perspectives of history, teaching and learning, and relevant research.

Historical Background

Neal Stephenson's science fiction novel, Snow Crash, is one of the most groundbreaking books to inspire VW and SL. An imaginative online VW generated by a computer – the *metaverse* – first appeared in the book. *Metaverse* is originally a term used to describe the fictional VW, but today, it is used to describe a 3D web-based virtual environment (Bell & Trueman, 2008).

Stephenson's (1992) *metaverse* is full of real-life and imaginative scenes. For example, two of the most prosperous streets—Broadway and the Champs-Elysees—all appear in the *metaverse*. Imaginative VW creations include avatars (virtual agents), *hypercard* (virtual business cards), half-transparent human figures, public terminals to the *metaverse*, self-programmed vehicles, computer viruses, and elite hackers (Stephenson, 1992).

Philip Rosedale, the original founder of SL, organized Linden Lab in 1999, a San Francisco-based corporation for creating the virtual 3D environment (Bell & Trueman, 2008). Because of his own notions about the VW and the inspiration from Stephenson's *metaverse*, Philip Linden (Rosedale's avatar in-world) and his colleagues built a self-governing, self-run, user-created and user-controlled, socializing and collaborative world

for people to gather, communicate and interact (Moody, 2006; Bonsu & Darmody, 2008; White, 2007; Annette & Johnson, 2009).

In 2007, Philip Linden, Rosedale's avatar, mentioned that the SL community had reached one million signed-up residents (White, 2007). In October 2007, there were already 9.7 million avatars registered (Luo & Kemp, 2008). In 2008, the game boasted there were more than 14.3 million residents during the peak time, and about 50,000 residents were online at any time (Bonsu & Darmody, 2008). Statistics showed, Michels (2008) indicated, more than 300 universities had a SL presence; campus or classroom for the purposes of teaching, learning, and research (Bennett & Beith, 2007; Joly, 2007; Michels, 2008; Diehl & Prins, 2008).

Second Life in Teaching and Learning

The following is to demonstrate how SL's features and functions are beneficial in teaching and learning. In SL, an avatar is representative of the user in the virtual world. An avatar is like the mouse of a computer, surfing in VWs, creating objects, interacting with other users and virtual content and materials in-world. The avatar can be dressed, given different appearances, moved and allowed to fly. Instructors can use their avatars to interact with students using media in several ways, such as text or voice chatting with students (Boulos, Hetherington, & Wheeler, 2007), dancing with students (Gollub, 2007), and conducting presentations using a virtual slide viewer (Greenhill, 2008). An avatar, representing a teacher or professional, needs to dress formally and gesticulate appropriately. Anderson (2009) pointed out that an instructor's mannerism in a virtual

world is much more powerful than instructional content. He examined 203 undergraduate students in various disciplines and found out that an instructor's nonverbal actions and activities in SL positively influenced students' motivation, their perception of the instructor's credibility (competence, characters, and caring) and enhanced effective learning (Anderson, 2009).

SL supports synchronous communication (de Lucia, Francese, Passero, & Tortora 2008, 2009; Erra & Scanniello, 2009), where an instructor can hold office hours in-world (in SL) (Graves, 2008), the class can meet virtually, students can have field trips to any world attractions and museums (Mckay, Van Schie, & Headley, 2008), and a conference can take place online (Aydogan, Aras, & Karakas, 2010). SL also supports asynchronous activities, where students engage in learning materials designed by instructors, work on virtual assignments (notecard writings, virtual presentations, creating objects, etc.), and interact with animated objects in-world. Any interactions happening in real world can be carried out in SL. Not only can real world simulation be done in SL, meaningful interaction between avatars, virtual objects, and *metaverse* 3D environments are also possible.

SL supports numerous media, including images, videos, web pages, and animations (de Lucia et al., 2009; Antonescu, Guttenbrunner, & Rauber, 2009; Cheal, 2007). An instructor can intentionally design virtual materials to integrate with all these media so students can be fully immersed in the learning. Through synchronous or asynchronous interactions with technological media, students are engaged in inquiry-based (Vrellis,

Papachristos, Bellou, Avouris, & Mikropoulos, 2010) and student-centered learning (Inman, Wright, & Hartman, 2010).

SL combines all kinds of computer-mediated communication (CMC) (Ditcharoen, Naruedomkul, & Cercone, 2010). CMC is any communicative transaction taking place between two or more connected or networked computers (e.g., instant messages, emails, chat rooms, Skype, Google voice, etc.). In SL, avatars can send synchronous instant messages and also do immediate voice chat with other avatars (Boulos, Hetherington, & Wheeler, 2007). By connecting a media player, it is also possible to do video chat, though it takes a bit of technical know-how. Avatars can also send asynchronous emails attached to objects, SL money (Linden dollars), website links, and landmarks to other avatars while they are offline. Sherblom, Withers, and Leonard (2009) examined 43 undergraduate students and found that students like SL's features of multi-tasking and immediate feedback. Students also found SL as a versatile and useful communication medium through which to engage in group discussion, collaborative tasks, and brainstorming activities (Sherblom, et al., 2009). SL makes all kinds of interactions possible, including real-life communication, and social networking connection.

SL released a new feature—web-on-a-prim (a primitive, or a single-part object), an external web-application embedded on any object surface in-world (Bloomfield, 2009). For example, a cube can display six web pages because it has six surfaces. Links, videos, and animations on a web page are live on any object surface in SL. With this new feature, any interaction occurring on a web page is immediately transplanted to SL

world. Instructors can create blogs, wikis, discussion forums, flash games, videos, etc. on the web first and then embed them onto any surface in SL.

SL provides interactions between personalized avatars, synchronous and asynchronous communications, multimedia combination, multitasking CMC, and web-on-a-prim to make all kinds of communication possible. If an instructor can take advantage of these features with the addition of meaningful instruction, higher-order thinking, experiential education, student-centered engagement, constructive pedagogy, and inquiry-based learning, meaningful interactions between students, student-instructor, and student-virtual environments can be generated. In the same vein, these features can also encourage a democratic curricula and instructions. Hence, progressive education is achieved.

Second Life Research

Exponentially increasing numbers of educational institutions have begun to take advantage of the many features of SL, and similarly, research related to teaching and learning is on the increase. A large number of SL-related research projects involves cross-curricular activities. Below are some SL empirical studies relating to virtual teaching and learning.

Jarmon, Traphagan, Mayrath, and Trivedi (2009) used four different methods of data collection techniques to confirm that SL is suitable for project-based experiential learning: 1) content analysis of student world view journals, 2) student surveys, 3) a focus group discussion, and 4) analyses of students' final presentations in SL, snapshots from SL, and SL videos. These data answer the research questions on how learning is

occurring in SL, general awareness of self and others in SL experience, and learning through transferring real life situations to SL in many sensory ways. The study perceived SL as a positive learning instrument (Jarmon et al., 2009).

Minocha and Reeves (2010) designed a research project to investigate how virtual learning spaces influence student engagement. The findings show that issuing students spaces to create their own learning environments, or making the best use of public SL spaces such as outdoor theatres, auditoriums, sandbox areas, etc., will foster students' socialization, informal learning, collaboration and creativity. The study also finds that there is a positive relationship between the level of visual realism and students' interest on learning. For example, immersing students in the environment of Mayan architecture increases students' motivation for learning Mexican history.

Wang et al. (2010) evaluated two pilot English as a foreign language (EFL) programs that were implemented in SL: The first pilot program was with five Georgia State University (GSU) graduate students and 31 English-major sophomores from Yantai University in China in the spring of 2008, and a second program with 20 GSU sophomores and 61 of their Chinese counterparts in the spring of 2009. The program evaluation suggests that the EFL programs in SL were beneficial for the affordances of SL. The affordance of SL refers to social interaction, data visualization, blogging, virtual conferences and meetings, building tools and multimedia in-world. This affordance provides the opportunities to share cultures and languages, as well as the opportunity for collaborative research across international borders.

In evaluating SL synchronous and collaborative learning at the Mathematics and Information Department of the University of Salerno (DMI), de Lucia, Francese, and Tortora (2009) found that in a 3D multi-user virtual environment such as SL, learning is strongly connected to user perceptions of learning communities, personal awareness and presence, and interactive communication. Moreover, SL successfully supports synchronous communication and social interactions as opposed to personal distance in real life. de Lucia et al. (2009) concluded that the experimental results justify further studies on SL's long term effects in different disciplines.

CHAPTER III

METHODOLOGY

This research intended to demonstrate the effect on education major graduate students of a model curriculum which integrates with one of the most popular virtual world environments—Second Life (SL). Using two virtual installations—war and ecology exhibitions, participants were expected to generate their own reflections, understanding, perceptions, and opinions regarding the interdisciplinary curricula. This virtual participation included the engagement of complicated conversation and autobiographic reflection, as well as the experience of multimedia installations. The detailed process was explained in the study design and data collection sections. This qualitative investigation sought to discover and explore how a SL curriculum reflected the participants' perceptions and practices on teaching a curriculum "across the school subjects and academic disciplines" (Pinar, 2004, p. 21).

One of the overarching purposes of this study was to explore a clear understanding of how a virtual interdisciplinary curriculum impacted participants' learning, development, and growth in their future/current teaching careers. The demonstration of the virtual curriculum attempted to enhance participants' knowledge of curriculum development with a hope to improve their current and/or future teaching. In recent years, an increasing number of research projects proves that virtual world (VW) environments improve teaching and learning effectiveness (Coffman & Klinger, 2008; Mennecke,

Hassall, & Triplett, 2008; Connolly & Stansfield, 2006; Omale, Hung, Luekehans, & Cooke-Plagwitz (2009). A big part of this VW research in education involves the recent burgeoning program—SL.

In contrast, there are extremely few investigations studying how to use VWs to teach an interdisciplinary curriculum. For example, Bani et al. (2009) conducted a multidisciplinary international project at the University of Pisa in 2007 using Second Life for students to learn about history and digital humanities. Of these few investigations, none is studying the use of the *currere* approach in designing curriculum. SL is a fairly new VW environment for use in education (Warburton, 2009). I do hope my research will ignite future studies on using SL to teach interdisciplinary curricula and using the *currere* approach to design SL curricula. My ultimate goal is that the findings of this research will increase the usage of SL in teaching interdisciplinary curricula and help teachers to teach students to think critically, creatively, and outside-the-box.

Phenomenological Frame

A phenomenological approach is often used to explore a human's lived experience, to disclose human consciousness, and to embody the insight of human thought (Sadala & Adorno, 2002). Merriam (2002) and Merleau-Pony (1962) explained that phenomenological study focuses on neither the human subject nor human world but on the essence and the meaning of the interactions. The intrinsic meanings existing in individuals and in the inner structure of a phenomenon are often interrelated to each other. Merleau-Pony (1962) articulated phenomenology as returning to things

themselves where knowledge is preceded and science is schematized. Grounded in education and *currere*, the qualitative phenomenological approach is used to support and guide the *currere* study.

Developed by Edmund Husserl, a late 19th century German mathematician and philosopher, phenomenology is a philosophy, a methodology and a psychology (Ganeson & Ehrich, 2009). The six essays of Logical Investigations are generally regarded as the foundational masterpiece for the phenomenological science during the first half of the 20th century. Moran (2005) points out that the investigation of phenomenology is a "wide-ranging, many-layered, and ultimately unfinished work" so it is difficult to give a brief summary of it (p. 8). In Moran's (2005) essay, he addressed that Husserl wanted us to consider the investigation of phenomenology as an in-progress philosophical discovery which needs more in-depth exploration and elaboration through the cooperation among researchers.

Husserl (1913/1931) first conceived phenomenology as the life of "natural human beings, imaging, judging, feeling, [and] willing, from the natural standpoint" (p. 91). He also asserted that any essential forms of consciousness and reflection can be phenomenology, such as intentionality, perception, cognition and so on. In Husserl's *The shorter logical investigations* in the German version, he developed a new definition of phenomenology. The following is Findlay's translation.

Phenomenology is accordingly the theory of experiences in general, inclusive of all matters, whether real or intentional, given in experiences, and evidently discoverable in them. Pure phenomenology is accordingly the theory of the essences

of 'pure phenomena', the phenomena of 'pure consciousness' or of a 'pure ego': it does not build on the ground, given by transcendent apperception, of physical and animal, and so of psycho-physical nature, it makes no empirical assertions, it propounds no judgments which relate to objects transcending consciousness: it establishes no truths concerning natural realities, whether physical or psychic – no psychological truths, therefore, in the historical sense – and borrows no such truths as assumed premises. It rather takes all apperceptions and judgmental assertions which point beyond what is given in adequate, purely immanent intuition, which point beyond the pure stream of consciousness, and treats them purely as the experiences they are in themselves: it subjects them to a purely immanent, purely descriptive examination into essence (Husserl, 1900/1970, p. 399).

In *Life-world Experience*, Eckartsberg (1986) elaborated Husserl's notion about the phenomenological approach:

The phenomenological approach centers on the experienced fact that the world appears to us through our stream of consciousness as a configuration of meaning. Acts of consciousness, i.e. perceiving, willing, thinking, remembering, anticipating, etc. are our modalities of self-world relationship. They give us access to our world and that of others, by reflecting on the content (i.e. its meaning or the what) which we thus encounter and also by reflecting on the process, (i.e. the how). Phenomenology became the study of human meanings as constituted by the stream of consciousness. Consciousness itself is understood as being intentional. It is as always directed toward something. As phenomenologist are fond of saying:

Consciousness is always consciousness of something. Consciousness recognizes and creates meanings which subsequently inhere in the world as experienced (p. 8).

Husserl's former student Heidegger (1962) commented that his preliminary conception of phenomenology is that "what is essential in it does not lie in its actuality as a philosophical movement" (pp.62-63). Phenomenology lies by seizing the essentiality as a possibility. Heidegger (1962) pointed out that phenomenology expresses the meaning of "to do things themselves" (p. 50). Heidegger (1962) stated the opposite meaning of phenomenology as:

> It is opposed to all free-floating constructions and accidental findings; it is opposed to taking over any conceptions which only seem to have been demonstrated; it is opposed to those pseudo-questions which parade themselves as problems, often for generation at a time (p. 50).

Husserl's ideas about phenomenology began with phenomenological reduction, or epoché, which means to bracket the assumptions and presuppositions about phenomena in order to describe how one experiences them (Eckartsberg, 1986; Giorgi, 1981). Bracketing means to disconnect a thing which "remains there like the bracketed in the bracket, like the disconnected outside the connexional system" (Husserl, 1913/1931, p. 98). The indicator of bracketing is not privation, but rather, it is a "unique form of consciousness" (p. 98). Through the bracketing method, we generate a thesis that belongs to the essential standpoint s and the nature of being. As we continue to be conscious to the world and put things in brackets, the entire natural world presented within a nature-setting and taken in a free form is a "fact-world" (Husserl, 1913/1931, p.

100). Bracketing means that one reflects his/her personal experience without being biased by preconceptions, motivation and desires; a personal free his/her mind in order to precisely describe the true experience (Eckartsberg, 1986; Giorgi, 1981). After bracketing knowledge, the method of epoché is applied to show one is experienced knowledge with consciousness rather than knowing knowledge as a simple existence (Eckartsberg, 1986). Epoché is to direct one towards a meaningful consciousness which allows the world as a context of meaning to be bracketed so the major features and sources are showing themselves (McGuirk, 2008). Applying the phenomenological process of bracketing into *currere*, Pinar (1975) pointed out that the perception and judgment are to be set aside, truth and falsity are to be excluded, and the essential features and meaningful experience are to be revealed through the bracketing process. These phenomenological experiences are repeated in people's autobiographical writings and narratives as a self-observing instrument (Grumet, 1976).

The study encompasses the application of *currere* into VW. This application is meant to elicit participants' self-reflection, self-understanding, and personal attitudes through engagement of complicated conversation (intellectual communication) and autobiographic narratives (recalling and sharing experiences). The VW refers to SL—a multimedia simulation, with visualized and auditory immersion. This study installed two exhibitions in SL and observed how the participants' experience of the virtual curricular contents affects their current and/or future teaching. The phenomenological approach is beneficial in this case because this study explored the experiences and interactions

between participants and the virtual curricular materials, as well as participants' growth and development regarding their teaching careers.

Since Dewayne Huebner (1975) first introduced phenomenology to curriculum studies, phenomenology has supported the *currere* approach particularly in exploring lived experience, phenomenological reflection and personal consciousness (Pinar et al.*,* 1995). Pinar et al. (1995) related that lived experience is the means to generate theoretical and practical knowledge. Lived experience is a series of present points which expresses "horizons of past and imminent nows" (Pinar et al, 1995, p. 415). The phenomenological reflection is understood as subjective interpretation generated from personal experience and biographical narrative. Both personal experience and biographical narrative are the reflectivity of self-consciousness (Pinar et al.*,* 1995). The communication between self, experience, and knowledge is what this study is searching for—the truly meaningful curriculum. Figure 1 shows the research design for this study.

Figure 1. **The sequential steps of the study design.**

Participants

Subjects

There were two groups of participants in this study. Data from the first group were collected in the spring of 2011 and that of the second group were collected in the summer of 2011. The first group consisted of 16 graduate students who enrolled in a 3-credit hour required course "Curriculum Development in Foundations of Education" at a large public university located in central Texas, United States. The second group

consisted of 15 graduate students who enrolled in a 3-credit hour elective course "Issues in Curriculum and Instruction" at the same university.

Both courses were online courses taught by the same instructor. The study was designed as an optional project for students as a substitute for a final paper. The instructor announced the details of this study on e-learning (Blackboard, an online learning system) so the students were aware they have the freedom to choose either the traditional writing project—the final paper—or this technology-based project—the SL activities. Students had a week to decide on which of the two projects they would want to participate.

Compensation

Because this study was designed as a part of the course, students who participated in the SL activities and finished the surveys would not be monetarily rewarded. However, the volunteer interviewees were rewarded with a 10-dollar gift card. The major benefits for participating with SL project were: (1) to experience how to deliver a meaningful curriculum in a virtual world, (2) to learn virtually using the *currere* approach, (3) to obtain self-reflection and self-understanding by going through the four steps of *currere*, and (4) to enhance their future teaching abilities.

Confidentiality

The data, including *currere* writings, interview recordings, interview transcripts, and SL video recordings were saved on the researcher's hard drive with a security

protection. To further ensure confidentiality, only the researcher and two advisory professors had access to the data. Participants' identities were replaced with pseudonyms. Video and audio recordings of interview sessions will be erased after the study is completed and published.

Process

Overview

Data for this study— both the spring and summer semester course— were collected between February 2011 and June 2011. Students from both spring and summer courses expressed their interests and willingness to participate in this study through emails. Through e-learning, the researcher uploaded a number of handouts for the training in basic SL skills. During the training, the researcher tried to help all participants with any technological troubleshooting, such as compatibility, hardware, Internet speed, and other technical issues. At any time during the research, participants had the freedom to switch back to the traditional paper project if they were unwilling or unable to change unsuitable hardware conditions.

While participants were being trained in basic SL skills, the researcher held a SL help session for each group (spring and summer class) before the actual research presentations. The help session were held using SL and lasted for one hour, the main purpose of which was to discuss technical issues related to computer hardware or SL skills. Next, the researcher presented a war and an ecology exhibition on different days.

Each of the presentations lasted for an hour and half. The presentations were recorded using Camtasia, the screen capture software.

After their experiences interacting with two exhibitions, participants answered a four-page open-ended survey as a reflection of their participation (see Appendix A). The survey questions focused on the four steps of the *currere* experience. Part of the survey questions were modified from the study by Brown (2007). At the end of each semester, the researcher recruited volunteer participants for interviews. This interview questions focused more on SL technological perspectives (See Appendix B). Part of the interview questions were modified from the study by Jarmon et al (2009).

SL Training

The researcher designed 12 instructional handouts about SL skills explained in a step by step manner. The 12 handouts included (1) getting started with SL; (2) completing SL orientation on the virtual Aggieland—the SL island of Texas A&M University; (3) changing your avatar appearance; (4) finding free clothes; (5) creating a notecard and sharing it with someone; (6) taking a snapshot; (7) building landmarks; (8) changing the camera view; (9) changing environment settings; (10) adjusting and testing sound level; (11) engaging in text chat; and (12) engaging in voice chat. All of the handouts were distributed via e-learning. Group 1 students (participants in the spring semester) had one month to complete the training. Group 2 (participants in the summer semester) students had 2 weeks to complete the training because their class occurred during the summer semester with a much shorter time span.

I would like to clarify and explain the general information about the above handouts. SL is a free registered program. The first handout was to walk participants through the process of registration, downloading, and installation. The second handout was to lead participants to the in-world orientation which is designed by the Instructional Technology Service (ITS) of the Texas A&M University. The orientations are displayed on its SL island—Aggieland. Participant were be able to learn about moving around, editing the appearance, using SL inventory, in-world communication, camera control, notecard, and SL etiquette. Several of following handouts to some degree overlap with Aggieland's orientation, but the researcher had added some extra and more advanced skills to the standard skill sets. Some handout contents not covered in the orientation were supplemental for participants to learn. For example, handout #10 is the troubleshooting handout for participants to solve their sound problems on their own.

Some of the SL terminologies that were explained are the following.

(1) Notecard: a text-based document that every avatar can create in SL and share with others. Notecards can be embedded with textures, scripts, objects, and landmarks.

(2) Snapshot: a virtual photograph which can be taken from different angles.

(3) Landmark: a link that contains precise location coordinates in SL. It makes it possible for an avatar to teleport immediately to the desired location.

(4) Teleport: a verb meaning to move an avatar from one place to another immediately.

After orientation was completed, the students were asked to take snapshots of their avatars' front views and upload them with their avatar's names to the e-learning

system. The researcher then held a help session for each group to solve any technical problems and SL basic skills.

Virtual Exhibition Installations

The two exhibitions the research used—war and ecology—are located on the Glasscock Island. Glasscock Island (see Figure 2) is a virtual educational and research space to support teaching and digital humanities at Texas A&M University (TAMU). Glasscock Island was originally funded by the Glasscock Center for Humanities Research at the TAMU in 2008, but then continued being supported by NSF-funded Knowledge for Teaching Algebra for Equity (KATE) Project.

Figure 2. **Glasscock Island.**

The installation of the virtual war exhibition was begun in the spring of 2010. The installation was roughly accomplished by the end of 2010. At the early stages of the installation, the real-life model of previous public events was transferred to the virtual exhibited space. Without using any text, the exhibition contained the collage and links to relevant websites for the warfare events of the Palestine-Israel Conflict, the Iraq war, the Iran Riot, the Afghanistan war, the China Riot, wars in Africa, the Vietnam War and World War II. The display boards for the collage were vertical rectangles with both sides showing the images. Due to the technical limitation at that time, the same image would be displayed on both sides of one rectangle board. For each war, the research used one rectangle board to show the cruel pictures of war conflicts and the other board to display civilian protests. Three website links were embedded onto three spinning squares in the front of two display boards for each war. In addition, a media player screen was placed at the west end of the exhibition site to show relevant films and news. At the east end, a slide viewer was placed to showcase information about this exhibition and related information.

During the early exhibiting period, the researcher accepted some SL experts' suggestions and also adopted the new SL feature—web-on-a-prim. SL experts suggested that text information should also be included so that participants can be fully immersed in multiple media. Using the feature of web-on-a-prim was a breakthrough. Web-on-a-prim is an interactive feature used to embed web pages on any prim surfaces. It also has a text box function which allows data to be entered and stored on it. The researcher stretched the display boards to cuboids. For each of the war events, two opposite sides

(front and back) of a cuboid displayed collages. Another two opposite sides (left and right) of the cuboid displayed embedded web pages which were clickable, scrollable, and navigable. Nothing was displayed on top and bottom sides of the cuboid display board. The spinning squares were moved to the top of each war event for displaying relevant videos by using the web-on-a-prim feature instead of earlier web link attachments. A bulletin board was also created and placed on the site for participants to click to obtain the landmarks for the experience of out-of-Glasscock islands. There were six other islands related to wars. This design of the bulletin board is to give participants an opportunity to experience other virtual war-related installations. The layout of the War Exhibition is shown in Figure 3.

Figure 3. **War Exhibition.**

Dr. Slattery encouraged us during the early public events to identify other possible *currere* themes, which are debatable, contemplative, challengeable, and discussible. The purpose of identifying other possible *currere* themes is to give participants multiple ideas on how *currere* as an interdisciplinary subject is delivered. Thus, the researcher came up with an idea to install another exhibition using ecology as the theme.

With the experience of designing a war exhibition, the researcher continued using easel boards for text information, as well as images, videos, and web links for other ecological content. The ecological exhibition site was located 800 meters midair above the Glasscock Island. The site was designed as a tree house, where a showroom and an outdoor open space were available for the researcher to install the ecological-theme materials.

The idea of installing a tree house in midair was inspired by the drama-documentary film, *The Age of Stupid*. The film begins with an unnamed archivist living alone in the devastated year of 2055. At that time, London is flooded, Las Vegas is a desert, Sydney is burned down, Amazon forest is deforested, and the ice in the Arctic and Antarctica has vanished. The archivist is living in the vast repository tower with all kinds of technology. He is watching archival footage and asking "why didn't we stop climate change when we had the chance" (Armstrong, Gillett, Postlethwaite, & Spanner

Film, 2010). The midair tree house represented the image of high tech and approaching climate catastrophes.

Inside the showroom, there were seven ecology-related events/themes—air pollution, drought, wildfire, Hurricane Katrina, Typhoon Morakot, receding glaciers, and water pollution. The air pollution theme showed the images of damage caused by exhaust emission. The drought theme expressed failed harvests and a shortage of food supply, but also was associated with famine and wars. The wildfire theme illustrated the effects of carbon emission, damage of valuable plants, and global warming. Hurricane Katrina represented the deadliest and costliest natural disaster in American history. Typhoon Morakot showed the deadliest typhoon in the history of Taiwan. Two boards of glacier images in different time periods showed how fast the glaciers are receding. The water pollution theme showed contamination damage to water systems. Each ecological theme was accompanied by an easel displaying text information, and a screen showing the relevant videos. In addition, a number of squares embedded with web links were spinning at the center of the show room. In the outdoor open space, three screens were showing the videos about climate change, environmental protection, and global warming. In addition, on the surfaces of three cylinder-shaped objects, a number of selected videos of the 2009 United Nations Climate Change Conference (COP15) were displayed. Similar to the war exhibition, a bulletin board was installed and six landmarks out-of-Glasscock Islands were embedded on the board for participants to experience other virtual ecological installations. The layout of the Ecology Exhibition is shown in Figure 4.

Figure 4. **Ecological Exhibition.**

SL Presentations

The researcher used Doodle—an online appointment-scheduling poll system— to decide majority of the participants' preferred date and time for the two presentations. Each of the presentations took 90 minutes. In the beginning of the war presentation, the researcher introduced the origin, purposes, and agenda of the exhibition. Then, the researcher showed the participants a warfare video. Participants then took 20 minutes to

view the collages, web pages, and relevant video clips. After seeing all the information

provided through the different media, participants wrote their reflections on notecards

in-world and dropped them into drop boxes next to every displaying cuboid. Next, they

were divided into groups of three or four. By getting the landmarks from the bulletin

board, they teleported to other war-related islands as groups. After a 20-minute

exploration of other war related islands, they teleported back to the Glasscock Island to

engage in group discussions, where they shared their reflections with other group

members and the researcher. The discussion and shared reflections were meant to be

developed as the complicated conversation (Pinar, 2004). The presentations wrapped up

with a question and answer session.

The ecological presentation was similar to the war presentation. Two

presentations were video recorded using Camtasia. These recordings were used as

observation data.

Reflective Writings

During the two presentations, one of the activities was asking the participants to

write their reflection towards the exhibitions on the notecards so the researcher had a

better idea about their attitudes and thoughts about the exhibitions. The reflective writing

was also considered as another piece of data for a quality research. In the war exhibition,

the researcher placed an orange dropbox next to each war exhibit. After participants read

the information, viewed the images and watched the videos about a number of war

events, they picked one or two war events they were most interested in and put their

thoughts and reflections towards the specific wars on notecards and dropped them into the appropriate box. In the ecology exhibition, the researcher only placed one dropbox in the site. After the participants interacting with the exhibit materials, they each wrote a general reflection toward the ecological events or the exhibition. In order to write the reflection, the participants needed to have basic Second Life skills about generating and sharing notecards. They were directed to interact with the dropbox. By clicking on the dropbox, the instruction about how to create a notecard and drop it back to the dropbox appeared. The researcher also explained the steps of generating and sharing notecards. Through the interaction, the participants seemed excited about the kind of interaction. Not only did they include their thoughts and ideas about the war and ecology topics, they also put their exciting discover about the SL features into the writings.

Currere Reflective Writings

After the participants had seen two presentations, they were asked to take a four-page survey with 35 questions. All of the questions were open-ended questions and designed in the four steps of *currere*—regression, progression, analysis, and synthesis. A partial part of the questionnaire was modified from the survey questions developed by Diane Brown (2007) in her dissertation. In the regressive stage, they reminisced on what they learned about wars and ecology in their childhood or youth and how it reflected on their teaching. In the progressive stage, the questions led them to the imaginary future. The participants were asked what strategies or teaching skills they would come up with to cope with severe climate changes and war issues. In the analytic stage, they examined

their past, present and future by blending their emotions, reflections, and thoughts with their experiences with the two virtual exhibitions. In the synthetical stage, participants were listening to their own voices in order to gain self-reflection and self-understanding from visiting the exhibitions and engaging in presentations. In addition, the final stage also inquired about how those experiences—the visit of virtual exhibitions, the participation of virtual presentations, self-reflection, self-understanding, complicated conversation, autobiographic narratives, and *currere* writings—might/will impact their teaching in the future.

Interviews

At the end of the spring and summer semesters in 2011, the researcher recruited five volunteers for a short interview (three from the spring semester and two from the summer semester). The interviewees were one male and four females in terms of gender, three whites, one African American, and one Chinese in terms of ethnicity. Four interviews were conducted in the café space on the Glasscock Island in-world. One interview was conducted in a face-to-face format. Both virtual and face-to-face interviews were all recorded with the permissions of interviewees and signatures for IRB consent forms. The interview with the Chinese woman was conducted in the medium of mandarin and later translated into English transcription by the researcher. SL interviews were recorded using Camtasia Studio software, and the face-to-face interview was recorded using mp3 recorder. The interview focused more on SL's influence regarding participants' teaching, learning, and self-growth. There were six questions in the

interview protocol. The interview was designed as semi-structured interview, including a list of pre-designed questions and prompts to extend relative conversation during an interview (DeWalt & DeWalt, 2002). To prod participants to engage in deeper conversations during the interview, the researcher asked probing questions such as how teaching and learning occur in SL and how participants grew professionally from the virtual educational experience.

Trustworthiness

Merriam (2002) suggested a number of strategies for promoting a qualitative study's validity and reliability—triangulation, member checks, and peer review. Stake (2005) explained triangulation as a process of "using multiple perceptions to clarify meaning, verify the repeatability of an observation, and interpretation" (p. 454). Merriam (2002) described that triangulation uses "multiple investigator, sources of data, or data collection methods to confirm emerging findings" (p. 31). In this study, triangulation was done through the various data collection methods—observation, interview, virtual reflection, and *currere* writing. The observation data, which are the recordings of two virtual presentations, were written as the observation report for reference materials. Interviews along with *currere* writings were transcribed and coded *currere* for an interpretative phenomenological analysis (detailed description in data analysis section).

The second strategy was member checks, which affirmed interpretation data with participants. Merriam (2002) explained member checks as "taking data and tentative interpretation back to the people from whom they were derived and asking if they were

plausible" (p. 31). In this study, the researcher used emails to confirm some interpretations of data analysis and findings.

Peer review was important at the final stage because an external audit can "render judgment about the quality of data collection and analysis" (Patton, 2002, p. 562). Patton (2002) referred to it as "expert audit review" (p. 562). Patton especially emphasized that doctoral committees play this important role of peer reviewers for junior scholars. My study was reviewed and evaluated carefully by a curriculum theorist, an educational technology expert, and a SL expert in light of *currere* framework and VW application.

Data Analysis

Four forms of data—virtual observation, virtual reflective writings, individual currere writings, and voluntary interviews—were analyzed using interpretative phenomenological analysis (IPA). Smith (1999) addressed that the goal of IPA is, instead of producing an objective statement, to explore individual personal perception, in-depth experience, and interpretation of a specific object or event.

The SL presentation recordings were written as observation reports and used as complementary resources. The interviews were transcribed verbatim from both SL and mp3 recordings. The data coding and data analyses were concurrent with data collection (Thorne, 2000; Merriam, 2002). Concurrent data collection and analysis gave me opportunities to adjust research instruments, such as interview questions, *currere* questionnaire, setups for virtual reflective writing, virtual presentation materials, and

interviewing approach. This simultaneity also gave me more time to analyze data because the data contains a huge number of transcripts, field notes, recording, and writings. The preliminary analysis also allowed me to conduct member checks in order to affirm the data from interviews, *currere* writings and virtual reflections.

In addition, I, as the researcher, served as the primary instrument for data collection and analysis (Merriam, 1998). I was the interviewer when conducting the interviews and the presenter for two virtual presentations. I was also an observer who viewed the presentation recordings a few times and wrote the observation reports. In order to guarantee the quality of data and reliability of interpretation, I had taken a qualitative research method course taught by Dr. Yvonna Lincoln, and trained myself with the experience of observations, interviews, data interpretation, and other qualitative related skills.

By adopting the interpretative phenomenological analysis (IPA) to explore participants' views of the virtual curriculum development and experiences, this analysis supported the study design of *currere* for understanding education major graduate students' perception, reflection, and growth engaged in virtual exhibitions. Smith, Jarman, and Osborn (1999) stated that the IPA is concerned with an individual's perception, cognition, thoughts, or believes about a specific topic, which, in my case, was a virtual curriculum development about war and ecology exhibitions.

Modified from the IPA of Smith et al. (1999), each participant's virtual reflective writing and *currere* writing were read through a number of times with initial thoughts and provisional codes noted on the left-hand side margin. Similar to what Eatough and

Smith (2006) stated, left-hand margin should be written with anything significant and of interest. Then the specific themes transformed from initial notes and generated from multiple readings were written in the right-hand margin (Eatough & Smith, 2006; Smith & Dunworth, 2003; Smith, Jarman, & Osborn, 1999). Interview recordings were transcribed, initially coded, and generated themes in the same way. The first step of coding the transcript was to divide up the individual extract. Each extract was a meaningful unit—one or two sentences long or a paragraph. Each extract was examined in order to generate a provisional code. Once a list of provisional codes was produced, the list was examined to see if these codes could be grouped together in meaningful ways. When the coding scheme had been produced, each extract was relabeled and given a numerical code. If a specific extract was associated with more than one category, it was given additional codes. The next step was to group the extracts based on the new coding categories. The collections of extracts were created based on the similar concepts. Then the cross-category coding was developed. When the separate clusters of themes and sub-themes were created, the next step was to search for patterns and connections. Within the conceptual groups, I conceived how different themes may come together in order to understand more in-depth experiences of participants. According to Smith et al. (1999), an investigation of the relationship between the different conceptual groupings "can assist the process of moving from the fragmented text to a more holistic perspective on the data" (p. 232).

Figure 5 is an example of virtual reflective writings analyzed using IPA.

Provisional codes	KE (Participant's name)	Themes
Notice the interlinking relations in the ecological issues.	Has anyone noticed that one of that some of the ecological problems presented here are actually interlinked to one another? For example, the receding glacier would inevitably lead to higher sea levels which	Ecological relationship
Giving two examples	would cause water levels to come further inland. As water levels move further inland, whatever is on the ground becomes a part of the water which overtime leads to	Examples
Point out other ecological issues she noticed	contaminated water - which is another ecological issue. Also, did anyone notice that the display on contaminated water only dealt with how it	
Contaminated water affects not only people but animals	affects humans? What about the animals and ecological systems that are affected? For example, the BP oil spill in the Gulf of Mexico destroyed entire species of animals and entire ecosystems because it contaminated	Ecological issues
Man-made pollution	the water. Also, think about how many species of animals are on the endangered list or have already become extinct because of contaminated water supplies. What's ironic is that contaminated water is more likely to be manmade problem than a natural one.	Feeling

Figure 5. **The example of Interpretative Phenomenological Analysis.**

The detailed results of all three forms of data analyses will be explained and displayed in the results section in CHAPTER IV.

Limitations

Brown (2007) in her dissertation stated that the *currere* approach to some extent is not well-known or well-documented. Thus, a researcher's skills about *currere* methodology are relatively essential. On the other hand, this issue can become a limitation for the study since *currere* is the main theoretical framework for this study. Thus, I used IPA as the data analysis approach and phenomenological approach as the methodology to compromise with this limitation.

Secondly, the qualitative research cannot evade the criticism of subjectivity, which negates objectivity—"personal interests and values" (Bloom, 2002, p. 290). Having an assumption toward a specific context is problematic, especially with a preconceived conception. In this study, the researcher has the preconceived notion that using virtual worlds in education is always beneficial. This preconceived notion, especially regarding data interpretation and research findings, might slant the results of the research. This is the second limitation to using qualitative research methods to explore how *currere* applies in the virtual worlds, which has never been done.

The second limitation is linked to the third limitation. As mentioned earlier, there is no research studying how to use the *currere* approach to design a study in the Second Life. The literature is apparently scarce which results in the difficulty of conducting literature comparison.

CHAPTER IV

FINDINGS

This chapter discusses the results obtained from analyzing four virtual presentation recordings, virtual reflective notecards, 31 *currere* writings, and five interviews. I will start with analyzing and summarizing the presentation recordings as well as the observation reports. Since the second round of the recordings (summer semester 2011) were similar to the first round (spring semester 2011), I will explain the war and ecology presentation recordings for the first round, and summarize the second round recordings. Then, I will use IPA (interpretative phenomenological analysis) to analyze the reflective notecard and *currere* writings. Interviews will be transcribed after which they will be coded and analyzed using IPA as well.

The Observations of Virtual Presentations

The Observation Report of the First Presentation

The first presentation took place at 6 PM, March 31, 2011, with 16 participants gathered at the war exhibition site on the Glasscock Island in Second Life (SL). The participants who arrived early were looking around the site or trying to move and fly around while waiting for others. I placed 15 bean bags with different colors in front of the slide viewer where I was going to give a 15-minute introductory lecture. The bean

bags could be walked through so the participants are not hindered from moving around the site.

Before the introductory lecture, I tested my microphone to see if it worked properly and checked to ensure all the participants could hear me well through their devices. Sometimes, because of participants' inappropriate SL settings, computer settings, or system problems, they had audio issues and I did have to help them fix these problems before the session. I also ensured that all the participants received the invitation requesting them to be my virtual friend and be in the group I created for them—the "exhibition visit" group. Many participants were confused about whether they had accepted my invitations or not because of their unfamiliarity with SL. Thus I had to show them where to confirm the invitations on the interface, and other features such as inventories and friend lists. Having the invitation was important because that gave them access to all the virtual media I installed. Some participants complained that SL was slow and I explained to them that many factors, such as Internet speed, and having an old computer or low-functioning graphic card, could have contributed to the slowness. At the beginning of the presentation, some participants used voice chat to communicate with me when they had technical issues, and some used text chat.

Helping participants with their technical issues and also confirming the invitations at the same time was somewhat difficult to keep up with. Some participants had to wait to be confirmed while I was solving technical issues for some other participants. It took me about 15 minutes to solve the different technical issues that arose

before the presentation, subsequently causing me to speed up so as to make up for the lost time.

I started the short lecture with a slide presentation. The first slide was about the purposes of virtual installation: 1) to demonstrate a theoretical-wide and practical-wide curriculum, 2) to learn to use multimedia technology to deliver a meaningful curriculum, 3) to encourage self-reflection and self-understanding, 4) to extrapolate to other interdisciplinary themes, and 5) to use the course approach in curriculum development. I introduced Willam Pinar's *currere* approach and explained the meaning of self-reflection, self-understanding, and interdisciplinary themes under this approach.

On the next slide, I explained the four steps of *currere*, which are regressive, progressive, analytical, and synthetical phases. In order to achieve the synthetical phase, complicated conversation is required to understand the meaning of the present moment.

War was a theme I used to prompt participants' inner thoughts and inner voices. The slides about war showed the images of deformed children affected by the nuclear damages, military graves, protests against war, and African youth military.

Then, I presented the initial inspiration for my dissertation, the public presentation about the Vietnam War held at the Texas A&M University in 2008 (see the section of The Origin of The Research on page 5) by showing the photos. Afterwards, I talked about the agenda for the night's session and sent each of them the guiding questions that they were going to discuss later as a group.

At the end of the lecture, I guided them to view the text information about each war displayed on the site, the images about wars on surfaces of every cuboid, and watch

the short clips embedded in spinning squares on the top of each cuboid. A few students had problems with viewing the short clips in-world. I tutored them how to refresh the videos and click play and pause buttons. One of the beauties of SL is that it allows avatars to view videos together or individually. The activity I asked them to do was to visit the exhibition individually so each of them could choose to view what he or she was most interested in.

Some students spent more time than others getting used to flying and using the camera zoom tool. Only a couple of students had problems with viewing the videos. Most of the problems were caused by computer error so I asked them to log out and log back in. Some students raised different questions such as how to stop one video and go to next one, or how to refresh videos; many of these questions were resolved after they followed my instructions and recommendations.

I instructed them to get notecards from the drop box I placed beside every war event and write their reflections about the exhibited war events. They raised the questions like what should be the content length, how many notecards they needed to write, and how to make sure they submit their notecards into the drop boxes. I encouraged them to write a complete reflection on a specific event rather than a one- or two-sentence reflection on multiple events. I also asked them to rename their notecards with their names so I knew who had submitted what notecard. Because of the time limit, I reminded students to wrap up the writing at the 8th minute of this activity, and then stop their writing at the 10th minute.

I gathered all students around the bulletin board I created for teleporting to spaces outside of Glasscock Island. I imbedded six images within the landmarks of the places on the bulletin board. These places are War Memorial Island, Holocaust Museum, Vietnam Memorial Wall, Palestine-Israel War site, WWI site, and Afghanistan War site. They were the outside resources designed by organizations, foundations, or funded groups. For example the Holocaust Museum was funded by the US Holocaust Memorial Museum. Inside the virtual building, a newsroom showing Kristallnacht (The Night of Broken Glass) throughout Nazi Germany and parts of Austria on November 9 to 10, 1938, was simulated. Inside the newsroom, participants could click a yellow book to make a newsroom wall invisible and enter the Germany street environment in 1938. When an avatar entered a building, he or she would see the dilapidated view of the building, hear accompanying Kristallnacht survivors' narratives, and read their stories showing in the text bar. This environment was full of visual and audio immersions for people to experience what happened during Kristallnacht.

I let students choose the islands they were interested in but also encouraged them to visit as many islands as they could. Therefore, I guided them to collect all six landmarks before teleporting to outside islands. Some students were still wandering around the exhibition site and did not know exactly what to do. They probably did not know how to click the images on the bulletin, receive the landmarks, find them in the inventory, and teleport to other islands. I gave those students a more detailed instruction and hurried them up so they could visit other islands before the time ran out.

During the 20-minute activity time, I encouraged them to try to visit all the islands. If they could not finish visiting all the islands, I asked them to make sure that they came back later to visit the remaining islands. I also encouraged all of them to come back to the site after the session to view and interact with all the materials at the site because they could not possibly visit all the materials during the short one and a half hours.

When they returned from the other islands, I assigned them to groups with three to four people in each group. I pulled out a teleport map for each group to teleport to a different area of Glasscock Island and discuss what they had experienced. The reason I wanted them to teleport to different areas of the island was to avoid any form of distraction or disturbance one group might cause another.

However, because this was the first time participants were getting together as a group and had no experience teleporting or getting landmarks, many of them were wandering around the site and did not know what to do. I instructed them one by one on how to get to their group's location, but that took a lot of time. Moreover, when some of them got to their discussion area, they did not know why they were sent to the places and what they were supposed to discuss.

When I gathered them back for a class discussion, I could not ask detailed thought-provoking questions about interdisciplinary curriculum development because of the poorly-conducted discussion and time limit. Hence, I asked a general question about what their thoughts, reactions, and feelings were about the exhibitions and installations. The names mentioned in the following text were all participants' avatar names.

Laurenj411 said she really liked the way she could look at topics at her own pace. SherIM thought the exhibition was informative and liked the activity that enabled her to tour different places, such as Holocaust museum and Memorial Wall. A number of the participants agreed that to be able to visit well-known places in the virtual world could be really useful in the classroom. Marmahan said she enjoyed the memorial for the Israeli-Palestinian conflicts because it gave a different perspective than the one she heard. Shirley said she liked how interactive the nature, exhibits and environments were. Many of them were amazed about SL and wondered at the extent of its capabilities. They also expressed their surprise when they realized that I installed all the exhibits.

Because this was the first presentation, the participants were probably not accustomed to voice chat or lacked a microphone, they all engaged in text chat. Moreover, I could not engage them in a better group discussion because of their unfamiliarity with SL and time constraints. I planned to do a better time arrangement for the 2nd presentation and hoped for a better outcome.

The Observation Report of the Second Presentation

The ecology site was built as a floating tree house, eight hundred feet midair above the Glasscock Island. It consisted of a first level, the entrance point to where the participants were first teleported and gathered for the beginning short lecture, and the second level, where main showroom with various exhibits media were located. Both levels were built around the tree trunk suspended in air.

The second presentation took place at 6 PM, April 14th 2011, with 16 participants gathered at the ecology exhibition site on the Glasscock Island, SL. Similar to the war presentation, I placed a slide viewer on the entrance level (1st level), and gathered the participants to seat on bean bags in front of the slide viewer. Prior to the start of the short lecture, I tested the participants' audio devices. With the experience of the first exhibition, they seemed more familiar with adjusting sounds and resolving audio issues. I confirmed with them if they received two landmarks, one was ecology exhibition site, and the other was a specific area on Glasscock Island for the participants to teleport to for group discussion. In addition, I informed the participants of a new feature in SL that enables avatars to drag landmarks from the inventory to the top black bar under the web address bar. This made the landmarks easily accessible.

To introduce the ecology exhibition, I first presented the purposes of the ecological installation. Slightly different from the purposes of the war exhibition, the purposes of ecology installation were to awaken environmental awareness, to extrapolate other interdisciplinary themes, to extend complicated conversation and to apply *currere* approach in the curriculum development. I explained that Dr. Slattery encouraged us to extend contentious topics with interdisciplinary themes. Similar to the war theme, ecology is another emerging theme to be aware of, such as global warming, drought, wildfire, overpopulation, and nuclear issues.

I started with giving the participants some facts on what humans are facing currently. For example, 2000 to 2009 is the hottest decade since temperature records began. 2009 was the hottest year in the decade, and 2010 broke the record and became

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I started with giving the participants some facts on what humans are facing currently. For example, 2000 to 2009 is the hottest decade since temperature records began. 2009 was the hottest year in the decade, and 2010 broke the record and became

the hottest climate year. Every increasing year breaks the previous year's record and becomes the hottest year. By showing images and using scientific evidences, I provided the scientific predictions for the year of 2030 and 2050. I ended my lecture with the agenda for the night's session which, to some extent, was similar to the war exhibition but with different content.

After the 15-minute short lecture, I took them to the teleport hub which was a pillar that an avatar could touch to teleport to the main exhibition room, the 2nd level. In the open space of the 2nd level, I placed a number of video screens showing online accessible videos or trailers. For example, *Home*, a documentary film, shows how it took a crew 18 months to travel over 50 countries in order to get the aerial shots on earth. The video talks about how human activities are threatening the ecological balance of the planet and numerous magnificent and spectacular sceneries that are vanishing. When the movie first was released, it was available across movie theaters, DVD, and Youtube for free watching. The purpose was to awaken people's environmental consciousness. Inside the showroom, a number of ecology-related events were displayed, including text information, images, and videos. I strongly encouraged them to come back to the site during their own free time and ensure they had experienced all the materials.

Similar to the first presentation, the participants spent about 15 minutes to interact with the exhibit materials, 10 minutes to write reflection notecards, 15 minutes to teleport to outside of Glasscock Island, and 15 minutes for group discussion. With the first presentation's experience, I managed time much better this time and participants had enough time to discuss the guiding questions given to them as a notecard at the

beginning of the presentation. The participants did much better on group discussion and with teleporting to different areas of Glasscock Island.

For the class discussion, I talked about the guiding questions which I had earlier given to participants in the form of a notecard. For the first question "what are your feelings, emotions, thoughts, understanding, or reflections on the multimedia installation?" Some replied that they thought the exhibition was thought-provoking, and was a great way to get kids to understand the materials. Chemistry70 responded that the exhibitions were very unique, effective ways of presenting information. Lucytaylor also said she liked the ability to freely explore, and would love to see this wonderful tool used in high school. Wasson commented that SL would definitely enhance the curriculum and instruction in the classroom, especially the distance learning environment. Jenna said that she felt SL is more fun and interesting than a typical class lecture.

As for the second question, "are any of your visits a reminder of any events, people, or incident?" Wasson responded that many exhibits did a good job of reminding him of ideas and events that have taken place over the course of his life. Kathleen said it is really fun to be able to visit Memorial Student Center on virtual Texas A&M campus. I responded that virtual Aggieland imitated a lot of Texas A&M buildings, status, and structures. The Aggieland collection of islands was getting larger and is six times bigger than the Glasscock Island. The Instructional Technology Service dedicated to adding many installations so I encouraged the participants to visit there for the purpose of appreciating or/and utilizing more SL educational resources.

For the third question, "how would you like to design your target curriculum to discuss hidden curriculum or debatable issues?" Allison88 said she really likes the interactive history curriculum, such as the Kristallnacht exhibition. SheriIM said that an art museum or fine art fair in SL would be a good idea. Laurenj1411 commented that in agriculture, it is important to show both side of environmental issues, from the agriculturist's standpoint and the typical society members. I responded to Laurenj1411's comment and pointed out that the Agriculture Department has an island in Aggieland which installed a lot of interactive materials for students to manipulate the environments rather than just look at things. Cherita raised the question about if teaching math for the elementary school is possible. I responded that the Knowledge for Algebra Teaching for Equity (KATE) project, funded by National Science Foundation, is a research project focusing on enriching the education of teaching algebra and equity. SL is the main virtual technology used by the project to provide pre-service teachers with the ability to experience mathematics problem solving and classroom diversity issues.

For the fourth question, "what are your opinions on using virtual worlds, like SL, to deliver an interdisciplinary subject?" Shirley replied that it would be effective to install the topics in SL that cannot be experienced in a real class, such as museum visit or undersea trip. SherIM thought SL is a great avenue for learning because her students are really into video games and SL has these types of functions. Allison88 responded that it would be a great use for an ESL (English as a Second Language) classroom, such as visiting the certain time periods that books of historical fiction were set in. Chermistry70 thought her students would read about science using the SL media rather than a textbook.

Cherita thought it would be a good idea for teaching geometry, especially to learn build

shapes and figures. Chemistry70 also commented that it would be very effective to

install chemistry elements, structures, chemical reactions, and processes. I responded

that a professor at Texas A&M University Department of Chemistry built a chemistry

spot on Aggieland. She has built a lot of chemical elements, cubes, symbols, gadgets,

quizzes, and so forth, which include numerous chemical materials for students to interact

with. It also provides a space for her CHEM 101 students to meet on-line, and also an

entertainment and learning environment for students to engage.

The Observation Report of the Third Presentation

The third presentation took place on June 15th, 2011. The process of the third

observation was similar to previous ecology presentation (the first presentation) so I am

only reporting the class discussion part.

After the participants got back from the group discussion, I invited one person

from each group to present what they had discussed as a group. Russcular talked about

their group reflecting on the amazing tools and environment the SL provides, citing the

Vietnam Memorial Wall and Holocaust Museum as examples. Those were the places

you may not experience unless you live in or get to visit Washington DC. Some islands

provided more realistic environments to simulate the events or places without the

restriction of time and space.

Allykate18 talked about how SL could possibly deal with high school students'

hidden curriculum. She said SL forces people to talk or be friends with others who they

normally would not encounter in the real life. People's emotions, opinions, and attitudes in virtual world were different from those in real life. She thought a virtual world could be beneficial on this part of hidden curriculum. Her talk brought up discussions about teenagers being able to learn effectively in a virtual world than older people. I did not give my opinion as to whether their opinions were valid or not, but I wanted them to air their opinions regarding the digital native theory. No one in groups three and four could talk through their microphones so I let them type. They praised how well organized the installations were and how SL could be used with English and science curriculum, and a variety of other subjects. They brought up the examples of how historical landmarks could be explored in social studies and how natural landmarks, such as volcanoes, the Grand Canyon, etc. could be viewed in science. They also talked about how SL could be beneficial for showing kids places they would not be able to see otherwise. I weighed in on the discussion telling them that lots of research looking into the integration of SL and subjects like, architecture, agriculture, English as a Second Language, English literature, and geoscience are ongoing. Also, to save money and time spent travelling, some conferences are now held via SL. One person raised the question of using SL to tutor ESL kids. I answered the question referring to a study I had read about American pre-service ESL teachers meeting with Chinese English learners. The study shows the benefits American students gained by learning about Chinese cultures and Chinese students benefited by learning English.

In this session, we also discussed many positive perspectives SL provides through teaching and learning, but there was not much discussion about interdisciplinary

studies or debatable issues relating to installed topics. I looked forward to better time management and more active discussion in the next session.

The Observation Report of the Fourth Presentation

The fourth presentation took place on June 22nd, 2011. The process of the fourth observation was similar to the previous ecology presentation (the second presentation) so I am only reporting the class discussion part.

Right after students were back from the group discussions, I started with participants' thoughts about curriculum development and SL application. I encouraged those who had microphones to speak first. Connie309 commented that she and her group really liked the layouts of these exhibitions, especially the natural tree environment floating in the air. Her group agreed that this environment could be used for teaching in many ways and students can learn a lot from it. In her experience, she taught 3rd grade about recycling, and turning off lights and electronic devices when they are not used. She thought it would be a good idea to show students how saving power and doing recycling impacts our planet. Dpascoe commented through text chat that her group thought tonight's session was very entertaining, but could be frustrating when technical difficulties occurred. They thought tonight's exhibition could be used for activities like Earth Day at any age level. They also commented that children would be very receptive towards ecological ideas brought to the class using SL because most would view SL more like a game experience than a normal academic experience. They all agreed that SL could be an effective medium for provoking students' interests and learning

motivation but it requires designers' or teachers' hard work and time spent on the

installations. Mrean also commended designing the dropboxes for students to write their

essays rather than working on traditional paper-and-pencil homework is a great way to

hold students accountable and to grab their attention.

When asked about curriculum development, the participants agreed to bring

everyone together to discuss designing a new curriculum which can generate

complicated conversations and different ideas of classroom layout and material

installations. Russcular raised the question if I knew any islands designed especially for

language teaching, geoscience teaching, or math teaching. I responded that I was not

aware any islands out there for specific subjects. However, I had read some research

articles, such as a cooperative learning between a Chinese university and an American

university, describing two groups of students who met on SL and learned about the

English language and culture. A NSF funded project, Knowledge for Algebra Teaching

for Equity (KATE), is currently conducted in the Math Education Program, Department

of Teaching, Learning and Culture, Texas A&M University. It has included numerous

SL virtual environments, materials, and technological devices for teaching pre-service

teachers about problem-solving and diversity issues. The Glassocck Island where we

were located is the site of the KATE project. Hannah responded that for students in

different states to interact and teach each other using SL about their state history instead

of learning it out of textbook would essentially motivate students and produce better

learning results. I totally agreed with these ideas. SL makes statewide, nationwide, and

worldwide interflows possible and accessible especially in learning the diversity among

people, places, cultures, and countries.

Virtual Reflective Notecards

Table 1

Coding Scheme for Virtual Reflective Notecards

1.1 Self Disclosure	1.2 Actions	1.3 Mental Expression	1.4 Curriculum	1.5 Technology Application
1.1.1 Regressive memory 1.1.2 Regressive thinking 1.1.3 Self-reflection 1.1.4 Self-awareness 1.1.5 Prospection 1.1.6 Self-experience 1.1.7 Self-understanding	1.2.1 Importance of education 1.2.2 Taking action 1.2.3 Sense of crisis 1.2.4 Responsibilities	1.3.1Attitudes 1.3.2 Emotions 1.3.3 Feelings 1.3.4 Imagination 1.3.5 Belief	1.4.1 Curriculum demonstration 1.4.2 Subject integration 1.4.3 Spontaneous learning	1.5.1 SL materials 1.5.2 Virtual reality

Students' SL reflections were aggregated from the notecards written during the

exhibitions they participated in. The length of each student's reflective writing ranged

from four to eight sentences. Some people wrote more than one reflection for each

exhibition while others wrote only one. The data were processed through detailed

interpretative phenomenological analysis (IPA), initially coded with extracts of text, and

noted with summary description and provisional codes. After multiple readings, Table 1

was generated based on the repetitive codes or significant extracts. After a number of notecards were read, themes were derived. Then five categories (self disclosure, actions, mental experience, technology application, and curriculum) were identified by classifying connecting characters of themes. In the following paragraphs, each category and theme will be described in-depth and analyzed in order to discover participants' perceptions of and reflections on the virtual exhibition visits. For confidentiality, participants' avatars' names are used.

I classified regressive memory, regressive thinking, self-reflection, self-awareness, prospection, self-experience, and self-understanding into the category of self-disclosure. Regressive memories (1.1.1) were extracted from participants' retrospection during their visit to the exhibition. One example is from Akopp105, describing a segment of her military-related life:

> I went to a small college about 20 minutes from Fort Hood, Texas. My husband and some of my closest friends led the invasion into Iraq in 2003. Because of this, I think I am very sensitive to the Iraq War. I was most shocked/upset about the video clip of the protesters….War is a horrible thing. But I believe that there is and has been some good going on in Iraq (Akopp105, June 15, 2011).

Unlike many anti-war participants, Akopp105 believed her husband and friends who fought in Iraq fought for cogent reasons. She understood what the war protesters were fighting for, but she reflected that some good things happen in wars in the perspective of defending for soldiers. This regressive memory plays an important role in her life and also in relation to emotional belonging (Segell, 1999) on dwelling and spouse. The

uncommon experience made her different from the many participants who were against

wars and also fostered her more in-depth thoughts about specific events. Another

example is Bananabecker. She shared her experience living abroad. She reflected that:

> The Palestinian-Israeli conflict is quite close to my heart. I just moved back to
>
> the US from Tel Aviv, where I lived for two years. The American media has
>
> done a great job of painting Israel in a terrible light. The fact is, Israel is under
>
> constant threat from every surrounding Arab nation and must do whatever it
>
> takes to keep its statehood. Recently, Obama asked Israel's Prime Minister to
>
> consider "going back" to its borders from several years ago. This should never
>
> happen and quite frankly, I hold very little hope that there will ever be peace
>
> between Israel and its neighbors—not while every neighbor believes that
>
> Israelis and Jews have no right to exist (Bananabecker, April 4, 2011).

Bananabecker's unique experience of living in the second most populous city in Israel

for two years made her speak for Israel. Her regressive memory, like Akopp105's, was

quite different from majority of participants who only received the information from the

media. Both Akopp105 and Bananabecker's regressive memories inspired them to

become the representatives of American military and Israel nation when the majority of

participants thought war as an evil and Israel as an oppressor.

The regressive memory was usually revealed along with self-experience (1.1.6)

and personal emotions (1.3.2). Akopp105's reflection was based on the personal

emotions of being shocked and upset about the video clips of protesters. Obviously she

could understand why protesters were against the wars because of economic issues and

justice responsibilities, but at the same time she was frustrated about their ignorance of the purposes of wars and what American soldiers were fighting for, a depth of knowledge nonmilitary people would not understand. Akopp105 paralleled wars with her emotional output—horror, which is identical to majority of the participants. However, she possessed different views and insights towards wars and believed wars, sometimes, are a necessary approach to implement in order to avoid bigger human violence.

Bananabecker's regressive memory came along with attitudes (1.3.1), such as hopelessness and suspicion. She understood Israel's problems which are about religious and racial issues. Her direct experience impacted her view of the Palestinian-Israeli conflict, hence influencing her emotions, attitudes, understanding, reflection, and beliefs, in contrast to other participants whose only source of information about the war is from the news media. Taking personal reflection (1.1.3) as an example, she stated that "the American media has done a great job of painting Israel in a terrible light. The fact is, Israel is under constant threat from every surrounding Arab nation and must do whatever it takes to keep its statehood." The situation of Israel being under threat is not what majority of the people would imagine, but her self-experience allows her to understand this situation and reflect upon it the way she did.

Regressive thinking (1.1.2) was identified with the text reflected about the past, which, at the same time, involved a variety of emotions (1.3.2), feelings (1.3.3), attitudes (1.3.1) and reflection (1.1.3). One extract from Mathval1608 reflected her regressive speculation towards Iraq and Afghanistan wars:

>After eight years of fighting in Iraq, I'm still very unclear as to why we are
>
>fighting this war. We have so many problems here at home that we are
>
>neglecting; along with the legitimate war in Afghanistan I can't find the logic in
>
>fighting the Iraqi war (Mathval1608, June 15, 2011).

Mathval1608 is a new 7th grade math teacher finishing her first year of teaching
and M.Ed. studies. She feels overwhelmed teaching low performing students but still
believes with her compassionate help, she could successfully apply multimedia
technology and effective strategies to make her students perform better. As she
expressed confusion against the wars America has been involved in, she was
disappointed with the past and current issues (connoting ecological and economic issues)
in the US. This reflection represents both regressive and progressive thinking as the wars
are continuous. Her frustrations were widespread to both war and ecological issues in
her *currere* writing which will be explored in later sections.

Overall, the ecological reflective writings have more self-awareness (1.1.4) to be
extracted, compared to war reflective writing. Audreyyuan reflected her own awareness
making an insightful point:

>The situation will presumably get better only if the awareness of saving the
>
>planet is enhanced. But as long as people's avarice in grabbing wealth goes
>
>beyond their rationality, it is likely the vicious cycle of pollution will be
>
>perpetuated at the sacrifice of the nature's beauty and harmony. When disasters
>
>like Hurricane Katrina, Typhoon Morakot, earthquake, and tsunami attacked
>
>human beings, a series of statistical data about the economic loss and casualties

actually represent innumerable tragedies in the individual families. Ecological

issue is worthy of our attention and the nature deserves a much better treatment

(Audreyyuan, June 22, 2011).

I had confirmed with Audreyyuan, through an email message, that her inner awareness

was inspired by visiting the exhibition. Her reflection about how human beings consume

and exhaust the natural resources for economic purposes implied her prospection

(1.1.5)—keeping environment and economy balanced. At the same time her awareness

informed the idea that ecological tragedies cause economic loss and causalities. Her

ideas on how humans should pay more attention to and efforts on nature became her

self-understanding (1.1.7) on educating the next generation about recycling,

environmental protection, etc., which will be illustrated in her *currere* writing.

Some participants found themselves aware of the urgent ecological issues after

visiting the ecological exhibition spurring them to think about taking helpful actions.

Akopp105's reflection was one of many examples:

I can honestly say that protecting and preserving the environment are not things

that I have always given a lot of thought to. I remember "Go Green Week" and

recycle drives during high school. But I never lost sleep over air pollution or

waste reduction. I know now that my apathy about environmental preservation

was wrong…. I have never seen Al Gore's documentary, but I plan on finding

and watching it this week…. I cannot imagine the problems that would occur if

Florida, Manhattan, India, and part of China were under water. Where would

everyone go? How would we replace the crops and economies that were lost? I

        definitely think that we must address this issue before it is too late (Akopp105,

        June 22, 2011).

Akopp105 confessed that she had been unaware of environmental issues until the

exhibition. Her self-awareness foresaw the devastating situations which the next

generation will be facing in the near future. She started to imagine the issues, like the

lack of natural resources, unpreventable disasters, and natural refugees, which propelled

her to take actions (1.2).

        The ecological exhibition generated a lot of motivation about action taking.

Video clips were the powerful triggers that stimulated their awareness (1.1.4),

responsibilities (1.2.4), and sense of crisis (1.2.3). Crm696 reflected that:

        The videos calling for actions were all also very moving as they played well on

        emotions and really made you want to help in whatever way that you could. I

        am very interested to come back and watch the whole movie as the rest of the

        videos were quite well done. I feel that these are issues that cannot be put to the

        back burner and we need to deal with them now (Crm696, April 14, 2011).

The installation of media in the ecological exhibition was very rich and no one could

finish watching and interacting with the entire exhibition in one and half hours.

Crm696's idea about taking immediate action to deal with ecological issues was one of

the majority reflections in virtual reflective writing. Participants' motivation for taking

action and responsibilities transformed to education. Dpascoe wrote "I think that we

need to teach our students how to deal with these issues and become responsible

members of the community that will help to combat these issues and additional issues as

they arise." This kind of anticipation and incentives were elaborated through the *currere*

writing process and will be analyzed and discussed in later sections.

Talking about the rich information in SL, many participants mentioned that the

installations not only informed them well but also promoted their awareness. Some of

them wrote about their appreciation of the video, website, and text materials which

enhancing their appreciation of global warming and climate change issues. Mrean wrote

that:

> The movies show very important environmental changes in the world. I liked
>
> that documentary by Al Gore "An incontinent truth." These movies can be
>
> used in the classroom to educate students on how to be productive citizens and
>
> feel a responsibility toward these critical issues (Mrean, June 22, 2011)

In addition to the value of installed materials (1.5.1), some participants pointed out the

value of virtual reality (1.5.2). The Holocaust exhibit (see page 66 for the detailed

description of Kristallnacht) was one many of the participants commented most about.

The simulation of a part of the streets on November 9 to 10, 1938, Nazi Germany,

showed the vivid circumstance that museums could not reproduce.

In the perspective of demonstrating a curriculum in SL (1.4.1), some participants

reflected on the benefits of subject integration (1.4.2) and spontaneous learning (1.4.3).

Demonstrating interdisciplinary curriculum was the initiative behind both the physical

public event and virtual exhibitions. Thus, the SL exhibition was extended from war

events to ecological issues in order to demonstrate and discuss persistent global issues.

The curriculum demonstration (1.4.1) was intended to inspire participants in new ways

of thinking to develop interdisciplinary curriculum with multimedia methods and topics.

Allykat18 reflected that:

> This Second Life session made me see how it could be used in a science
> classroom. Last week I was having issues with seeing how this [war topic]
> could be used, but now I see the various uses that one could use SL for in the
> science room (Allykat18, April 4, 2011).

Since participants were from different subject fields, war and ecological exhibitions

provided examples for them to extrapolate better integration (1.4.2) in terms of different

subjects and multimedia. Mrean commented that global warming is a great topic to

integrate into various subjects, so is SL environment.

Currere Writings

Table 2

Coding Scheme for *Currere* Writings

2.1 Regression	2.2 Progression	2.3 Analysis	2.4 Synthesis
2.1.1 Regression memory 2.1.2 Regressive thinking 2.1.3 Regressive emotions & attitudes 2.1.4 Impact of videos 2.1.5 Regressive reflection	2.2.1 Educating 2.2.2 changing curriculum 2.2.3 Progressive imagination 2.2.4 Bringing awareness 2.2.5 Holocaust memorial	2.3.1 Continuing to educate and learn 2.3.2 self-awareness 2.3.3 Mixed feeling 2.3.4 Big ideas 2.3.5 Analytic thinking	2.4.1 Synthetic thinking 2.4.2 Self-understanding 2.4.3 Self-reflection 2.4.4 Taking actions 2.4.5 Technology integration

Currere writings were collected from all participants at the end of the two courses, ranging from seven to fifteen single-spaced pages. The data were analyzed through the same analytic process for virtual reflective writings. The *currere* writings were only read twice because of the huge amount of writing. Table 2 was generated through the four *currere* phases following the theoretical framework and questionnaire development: regression, progression, analysis, and synthesis, are considered four categories. In the table, some themes were identical to ones in reflective writings. However, the themes in *currere* writings contained more detailed expression and explanation than those in the virtual reflective writings.

Regression (2.1)

This section contains the themes regressive memory, regressive thinking, regressive emotions and attitudes, impacts of videos, and regressive reflection. In the *currere* questionnaire, the first question in the regression phase was to arouse a student's regressive memory (2.1.1) in relation to wars and ecological issues. The majority of participants recalled the wars America had or has been involved in. Regarding wars, older participants reminisced about World War II, Vietnam War, and the Cold War between Russia and the United States, while younger participants remembered wars such as Gulf War, the September 11 attacks, the Iraq War, the Afghanistan War, etc. With regards to ecological issues, participants recollected the natural disasters the United States had encountered (e.g., Hurricane Andrew, Hurricane Katrina, etc.) or currently facing (e.g., frequent tornados, wildfire, flooding, oil spill in the Gulf of Mexico).

Sheri recalled many wars and ecological events that happened in the US.

I remember hearing something about Mount Saint Helen eruption when I was

really young. I remember seeing images on television where it looked like

nothing was left. I did not realize the extent of the disaster until many years

later when I saw before and after pictures. I remember things like the

Challenger explosion and when I heard President Reagan mention "Star Wars,"

I thought he referred to the movie. I remember watching the wall fall in Russia

and my parents talking about the end of the Cold War. In 1992, I remember

watching the television programming that covered Hurricane Andrew in

Florida. I remember the Oklahoma City bombing and the Branch Davidian

complex burning down. I remember when I was in high school hearing about

the mad cow disease and everybody in school swearing off beef for weeks

(Sheri, May 10, 2011, p. 1).

Sheri was a white teacher who has been teaching for eight years in elementary school

teaching art. Seventy-five percent of her students are from low socioeconomic families.

She is pursuing the M.Ed. in Curriculum and Instruction and hopes to be an arts

specialist or director. Sheri admitted that when she was young, she was shielded from

most of the global man-made and natural disasters. The Christian school she attended

considered any of the disasters as "acts of God." In her reflection, she remembered

feeling sad for people hurting each other, but her school and family prevented her from

any negativity and calamity. However, she confessed that as she grew up, she believed

students could gain knowledge of art by learning the past, especially those focusing on

global events and disasters. She considered enhancing students' awareness about the negative sides of war and ecology and hoped it would impact their wanting to maintain peace and encourage them to recycle.

Some reviewed the past wars and ecological events with a disdainful attitude. Glenner09 was an example. In his regressive recall, he described:

> Undoubtedly the wars freshest on my mind are the Iraq/Afghanistan Conflicts. I remember sitting in my living room in Moscow, Russia when major operations began. It has been evident that government reactions and handling of these wars have been terrible; citizens are tired of them as they are going nowhere and they are having intense impacts on the people in these countries, world economies, and the ecology of these places. The oil spill is also fresh on my mind. The impact of this travesty will be felt for generations and the sad thing was it could have been avoided, however we simply have chosen to be lenient with our regulations in favor of better ways to save a buck (Glenner09, May 10, 2011, p. 1).

He abhorred government's regulations and reactions on American-related wars and ecological disasters, especially facing the issues of the balance between environmental protection and wealth, as well as between peace and judgment. Gleener09 pointed out that teaching students to broadly discuss the importance of tolerance and understanding is important. Students need to not only understand what leads to global crises on various perspectives, but also discuss how to prevent them and what will be more beneficial to the world.

Mathval1680 narrated how American society treated veterans and how wars impacted veterans using her father, a Vietnam veteran, as an example.

My memories are still so vivid because the pain and heartache caused by the Vietnam War is still quite evident today in the lives of many of us touched by the war. This was the first war our country fought that did not have the support of most American citizens. This was the first foreign war fought by American soldiers who were treated like the enemy when they came home from the war. I remember getting into fights in elementary and junior high school because of students calling my dad "baby killer." Back in the 60s and early 70s, the media did a great job of showing the devastation of the Vietnam War on the innocent Vietnamese men, women, and children. Most of the foot-soldiers in this war were drafted, they did not volunteer to be shipped overseas to a foreign land to kill what the American government said was our enemy. The American public erroneously blamed the fighting soldiers for the horrible war images they saw on the news every night. The result was that when soldiers did come home, they were met with angry, name-calling, bottle-throwing war protesters who sometimes saw fit to even spit on them. As the daughter of a proud American paratrooper, there was no way in hell I was going to sit quietly while protestors or anyone else disrespected my dad who believed he was fighting to protect his country (Mathval1680, July 2, 2011, pp. 1-2).

Her father's dilemma of having to fight this foreign war made Mathval1680 one of the few American citizens who understood the realistic situations about the Vietnam War;

but that also left her with negative emotions toward the American government and the society. Her anger stemmed from the American government's poor arrangement for the veterans, media's inappropriate interpretation, and the American society's reactions toward Vietnam veterans, who had thought they would be treated as heroes on their return from the battle. Her emotional involvement strongly embedded in her memory also became her misunderstanding toward antiwar groups during her childhood.

Another example is Chemistry70's experience about her college classmate who was sent to Desert Storm to fight while she was allowed to stay in school and receive her degree. This experience made her honestly appreciate and always remember her classmate. She does not know if her classmate returned safely but she recalled that during the time she attended chapel three days a week to pray for the soldiers who deployed to Desert Storm, especially her classmate. The Second Life exhibitions not only reminded Chemistry70 of her friend in Iraq but it also aroused her concern about the high divorce rate during the time.

Many participants remembered some point in time when a specific war or an ecological event happened. Most common stories they recalled were the wars like September 11 attacks, and the eruption of Iraq and Afghanistan wars, and the ecological events like Hurricane Andrew, Hurricane Katrina, flooding, wildfire, and drought. The critical times for the participants having vivid memories were mostly based on personal experience. Russcular described his father taking the whole family to a hotel because of a long period of power outage Hurricane Andrew caused. A number of the participants expressed their astonishment at September 11 because that was the first war experience

in their lifetime, particularly since it happened inside the country and they received the information of the event directly. Participants accentuated the emotional tie with important events and the tie seemed to have a long term impact. This emotional tie is responsible for keeping their memories about domestic wars and natural disasters vivid.

To some extent, regressive thinking (2.1.2) impacts the participants with regards to perspectives of life connection, pedagogical methods, educational philosophy, historical recalling, and reflective thinking. The regressive phase of *currere* requires us to review the past in order to proceed to progressive dimension (Slattery, 2006). To promote this process, regressive thinking helps to generate various recalls and insights.

Glenner09 admitted that regressive thinking enhanced his awareness of teaching tolerance and understanding. He described that:

My memories make me understand the importance of teaching tolerance and understanding. Simply laying out facts would not be effective in getting my students to understand these issues, rather, an open discussion of what lead to these types of acts and how they can be prevented would be more beneficial (Glenner09, May 10, 2011, p. 2).

He reflected that regressive thinking helped him to change his pedagogical approach which is teaching through an open discussion for tolerance and understanding when facing global persistent issues. Instead of laying out the historical events in text, which do not strongly impact on students, Glenner09 would like to incorporate the regressive dimension of *currere* with a more interactive pedagogical form.

In addition, Wasson felt it was important to pass on how hardship was handled in the past.

> I think they provide a great example of how to handle a difficult and painful situation. What I remember from that day is the fear and confusion of the students, I do not remember anything abnormal from the teachers: they were calm, and their insistence on carrying on in the face of difficulty gave all of us the comfort we needed in a hard time. The administration recognized that a major historical event had occurred, and that each student should understand what was happening. They recognized that they were working with very limited resources, and utilized them to the fullest, so that every student could see what was happening in the world that day (Wasson, May 10, 2011, pp. 2-3).

His pedagogical ideas were to use historical events as examples for students to learn foregoers' spirits—handling difficulties, possessing composure, etc. By learning these historical examples, students could understand the historical events and come up with resolutions for current global difficulties. This kind of idea developed as an ideology affecting someone's pedagogical methods. Aratzlaff23's teaching philosophy is an example:

> I think that history repeats itself. Sadly, we saw hatred and the actions of it on a large scale, too large. As a teacher, I have the responsibility and influence whether I want it or not over my students and shaping them into the person they are going to be. My desire is [to] instill in them respect and [to] really

love and care for people just because we are all people no matter how they

look. I know that I can teach them in a way to look at conflict in life and

evaluate where it stems from. When you see where it stems from, you can

better know how to deal with and solve it in constructive peaceful ways rather

than with violence and war (Aratzlaff23, July 2, 2011, pp. 1-2).

Aratzlaff23 chose to engage students in history to envision the present and future on a

large scale. Regressive thinking contributed to her ideas of being a responsible teacher

and to shape students based on their background. She thought the spirits of respect, love,

and care is important regardless of race and gender. With these attitudes inspired and

embedded in their minds, Aratzlaff23 believed violence, wars, and hatred would

diminish.

AggieBurchett had different views towards wars because of his experience as an

active duty army officer. He articulated the importance of remembering history,

especially the wars. He said that:

People who forget history are doomed to repeat it. Wars, when fought, must

be fought with clearly defined objectives that, when met, can lead to the

cessation of hostilities. Wars fought without political will or the support of a

nation are doomed to fail. War may be inevitable at times, but cannot be

allowed to draw on and on without a clearly defined end state (AggieBurchett,

July 2, 2011, p. 3).

As a soldier, AggieBurchett supported using wars to terminate hostilities but national

support and politic will were important. Unlike other participants, AggieBurchett

possessed negative points of view towards the virtual war exhibition. He felt anger about the exhibition focusing more on enemy or civilian deaths rather than US deaths, as well as the protests against wars. He felt the exhibition disseminated distorted images for the participants and the discussion became unbalanced.

Sheri used personal connection and reflective thinking to review the past. She viewed tornadoes, mudslides, tsunamis, earthquakes, and floods as the acts of God which people must endure. Countless damages and lives lost happened in poorer countries or areas but the more affluent people who have the power to make policy to counter climate changes seem to forget about the disaster very quickly because they did not have a personal connection to the disaster like the underprivileged people did. She reflected that:

> What the lack of personal connection causes is the problem of complacency. We do not see natural disasters as a result of global warming that each person is directly contributing to. We do not see the wars as a result of foreign dependency on things like oil because we consume more than we produce. Everything is tied together in our lives but there are very few people connected enough to the problem to see the writing on the wall (Sheri, May 10, 2011, pp. 3-4).

Sheri brought up the rationale of personal connection that victims have more in-depth emotional involvement than those without. However, victims are usually underprivileged people who could not afford safer and higher-quality residences and so they become the group most hit by natural disasters. This reflection somewhat relates to environmental

justice that the environmental degradation is distributed inequitably by racial minorities, underprivileged groups, and communities of color (Norgaard, 2007; Lowry, 2009)

Participants' emotions and attitudes played an important role in regressive phase of *currere* when they visited virtual exhibitions and regurgitated thinking. The most presented regressive emotions and attitudes (2.1.3) in *currere* writings were upset, sad, struggled, scared, horrible, anxious, confused, angry, appalled, disgusted, and horrified experience. Many were sad about the lack of humanity, the loss of families and friends, people's futures, innocent lives lost, genocide, and war and ecological victims; at the same time, they were angry at the ignorance of global issues, politician reactions, repetitive history, injustice, killing, damage of earth, inhumane, fighting and forces. Sadness and anger were the specific terms being asked in the *currere* questionnaire. Participants sometimes used other terms—scared, struggled, frustrated, upset, horrified, etc. to express their negative attitudes toward global issues directly or indirectly.

Here are some examples of participants' *currere* writings. Glenner09 wrote that:

I am sad that even today we live in a society that seeks to benefit certain groups and leave others out to dry. We continue to look for new ways to kill one another rather than help each other. The lack of humanity is truly a saddening fact (Glenner09, May 10, 2011, p. 5).

Glenner09 was saddened by the acts of inhumanity and the killings caused by the wars. This resonated with many other participants as they all mentioned many heartbreaking and distressing situations caused by wars.

When Ktbeth09 recalled her memory about wars, she used a number of questions to reflect her dissatisfaction toward the current situation.

> When I was sitting in my IPC class I was shocked to see the plane fly right into the world trade center. I really did not keep up with national news before 9/11 so all I could feel at the time of the attack was shock and sadness for those who were involved…. I remember thinking "Why would anyone want to kill so many innocent people?" As the war on terrorism has progressed throughout the years, I find myself not understanding why we are still over in Afghanistan fighting. I feel like our country has overstayed its purpose there. We now have soldiers killing innocent Afghanistan people for sport (Ktbeth09, May 10, 2011, p. 2).

She admitted being confused and uncertain about the meaning of wars which seem to exceed the original purpose—bringing peace and integrity to the world. She was sad that humans used war to seek justice, revenge, and even civilization, but killing ended up being the only conspicuous result. She recalled a vivid memory in her high school years when the African American and white boys were fighting with each other. The conflict started with African American boys feeling that white boys depreciated them. At the time, Ktbeth09 was upset to see the fighting on campus due to the race difference. This event made her even more frustrated seeing that conflict would end up in killing and violence.

Some participants turned the emotion of sadness into anger. Cherita, for example, viewed segregation and erasing people's identity of their culture with the emotion of

anger. Wasson was angry about his self-conflict because he once held bigoted and oppressive views and thus wasted his time. Puppleball was angry at dictators' arrogance and superiority which led to wars; and humans' self-entitlement which led to the degradation of the Earth. Sheri was furious at government's reactions and inactions towards wars. She was angry at:

> The actions or inactions of government to take care of the business of their people first before their own agendas. The US was in such a hurry to avenge 9/11 that they sent our troops overseas without many of the safety precautions that could have saved many lives….Another part of [the] war that makes me angry is the fact that these men and women go overseas and put themselves in harm's way, witness all types of carnage, have to kill others to save their own lives, and then get inserted back into normal civilization with little more than a pep-talk and a phone number for "support" if they have problems re-assimilating back into society. Then I think of the other side and the children with shrapnel wounds, lost limbs, etc. that we so gladly repaired for them but then I am left to ask about [their] quality of life once we leave?
> What about their inner scars that we cannot see (Sheri, May 10, 2011, p. 9)?

Sheri reflected on governments' acts of retaliation which have resulted in considerable tragedies and cruelty. This includes the dilemma of many American soldiers in choosing between obedience and morality in the field as well as the hostile treatment they receive and the difficulty of adjusting to normal life once they return home. She also talked about innocent civilians' physical injury and mental suffering which were hard to, or

even never, heal. She was angry at political actions on wars that turn soldiers on the battlefields into pawns of politician wrestling.

Glenner09 used the terms appalled and disgusted to describe his irritating emotion towards politicians' pretending to encourage democracy.

> The wars were shown to have been started under false pretenses and continued out of greed and the desire to "spread democracy." The oil spill left me speechless; I wondered how something like that could have happened as well as why it took so long to close off the oil flow. I hope that our Earth will forgive us and help us move past this transgression.

Similar to Sheri's reflection, Glenner09 was angry at politicians manipulating wars due to apparent false desires for spreading fake democracy. Governments' slow reaction in dealing with natural disaster was another incentive to anger citizens who cared about the future of their children and the next generation. About two-thirds of participants' emotional expressions often combined anger and sadness toward a specific war or natural disaster. For example, they were sad about the underprivileged victims of Hurricane Katrina, but at the same time, angry at government's slow response to the storm's aftermath.

Many participants mentioned that videos (2.1.4) play a very important role on stimulating their recollection at the regressive phase. Some even articulated the essential function of videos which they would consider to incorporate into their future teaching. Allykat18 commented that:

The videos did a good job of helping me remember things that happened that I would have otherwise forgotten if I hadn't seen the video. I think the videos were the best part of Second Life, but there might have been a bit too many of them for the time period allotted.

Aside from videos, other media such as background text information, collages, and web links were presented during the Glasscock-Island exhibitions. The majority of the participants highlighted videos as the key part when recalling the war and ecological events. Sheri used some examples to illustrate the cruel and horrifying realities non-battlefield scenarios could reflect.

The "We Were Soldiers" movie and the "Blackhawk Down" movie clips stirred up several emotions in me when I viewed them. I understand that the first movie was set in Vietnam, but any military wife can tell you that the scariest part of war is sending your husband off and then waiting...hoping that letter or that knock at the door never comes.

Toward the end of regressive phase, a question inquiring about the reflection, thoughts, and understanding of this process was raised to sum up the first stage of *currere*. Mathval1608's regressive reflection (2.1.5) could represent the participants' reflective voice.

War is the one activity mankind constantly improves upon. We constantly find new ways to kill each other. I am amazed that mankind has the capacity to create such wonderful things like the Golden Gate Bridge or the Eifel Tower. Yet we so often choose destruction, all in the name of progress. When new

neighborhoods are created, new homes built, we bulldoze the existing forest.
All trees and vegetation are destroyed to make way for progress. How ironic it
is that once the new homes or shopping plazas are built, we go to the nearest
nursery and purchase trees and vegetation to plant. Why don't we just build
the homes and plazas around the existing trees? As the video clip "We All
Have a Date with the Planet" discusses, our lives must exist in "balance" and
"harmony" with all other life on earth if we, as human beings, are to survive.

Mathval1608's distress reflected on both war and ecological destructions, such as
massacre in wars and pollutions on earth. She equally criticized both war and ecological
destruction when she discussed the issue of those in power who pursued these
destructions to satisfy their desire. This can be attributed to outrage without proper
evaluation. The way Mathval1608 combined both exhibition themes in the same
reflective expression is a good issue for educators, politicians, businessmen, and
authorities to ponder upon.

Progression (2.2)

Derived from participants' *currere* writings of progressive phase, the themes in
this category are educating, curriculum development, progressive imagination, bringing
awareness, and Holocaust memorial. Majority of the participants articulated the
importance of truly educating (2.2.1) the next generation when asked how to prevent
future tragedies and disasters. Allykat18's statement represents most participants'
progressive goals:

I think the best thing an educator can do is to truly educate. Students need to

be taught that wars are going to happen, and that history repeats itself. The

best form of prevention is through education. Students will learn to recognize

the signs of an oncoming war (based on those fought previously) and will

hopefully be able to take steps to help avoid war. Students are taught much

about ecological turmoil/climate change in schools now, so they should know

what is good and bad for the environment. Through this education, students

will be able to see the warning signs of war/ecological turmoil before it

becomes impossible to prevent them from happening (Allykat18, July 2, 2011,

p. 5).

Because the participants were all graduate students in education, their idea of changing

the world was using education to assist children. They thought it was important for

children to discern the benefits and drawbacks in balance between economy and

environment, as well as peace and justice. If preventing disasters or wars can be foreseen

and actions can be taken to save more people and protect environments, then education

is meaningful. Similar to Allykat18, Akopp105 highlighted the importance of educating:

One of the most important things that I can do as an educator is educating.

Educating is more than having students memorize facts, formulas, or

characters from plays. If my students know about the flaws of humanity from

our past, they can hopefully learn and prevent them from repeating the same

mistakes. If my students know about the harmful things we have done and are

doing to our environment, they can start to implement change. I think that I

must also help my students learn how to communicate, accept others, and

think with an open mind (Akopp105, July 2, 2011, p. 4).

Rather than having students remember the details of history, Akopp105 suggested

explaining the issues raised in the regression stage, such as focusing on human

unawareness on global issues, implementation of prevention, and prompt actions for

future generation. She also thought that being able to listen, communicate, think, and

accept others is important when it comes to educating our children. Puppleball also

agreed with teaching students how to apply their knowledge rather than just giving

information. She stated that:

I considered my most important job as an educator not the passing on of

information, but the application of it to help better others, as well as teaching

my students conflict resolution and social skills through the use of cooperative

group activities (Puppleball, May 10, 2011, p. 3).

She highlighted that using collaborative teamwork to find peaceful resolutions to conflict

and learning social skills were her mission as an educator. Additionally, some students

connected their professions to educating young people on war and ecological topics.

Laurenj1411was an example: "I believe as an agricultural educator, it is my job to

educate [the] youth about sustainable agriculture and responsible use of the environment"

(Laurenj1411, May 10, 2011, p. 2).

Continuing the discussion about educating, participants were also required to

develop their own curriculum with the purpose of preventing wars and natural disasters

which I coded as curriculum development (2.2.2). Sheri pointed out that she will use

journal writing, thinking, and dialogue to develop her ecological curriculum:

> I have a variety of artworks at my fingertips via the internet or personal
>
> resources. I am going to develop a few journal writing activities. To start, I
>
> will show a painting or a photograph from a popular place from years past and
>
> ask them to use their senses to tell me what they see. Once we discuss those
>
> answers, I am going to show them a present day picture of what they see and
>
> repeat the same activity. I want to create an open dialog with my students
>
> about the environmental tragedies going on in the world which I am pretty
>
> sure many of them are not aware of for whatever reason (Sheri, May 10, 2011,
>
> pp. 5-6).

Being an elementary art teacher, in the progressive dimension, Sheri would like to utilize

artworks, like paintings and photographs, to stimulate her students to write. Moreover,

by engaging in a discussion activity, Sheri would encourage her students to speak while

viewing images and writing journals. The open classroom dialog will enhance student-

teacher and student-student interactions which will promote students' awareness and

thus help students voice their thoughts. With regards to a war curriculum, Sheri planned

to:

> Start with reading a few children's books about war and/or soldiers. My
>
> husband is in the military so I have a wall of soldier-related pictures, poems,
>
> etc. I would ask them to tell me what they think war is and why people go to
>
> war. If they are my older students, I do have a "Tomb of the Unknown Soldier"

project I could do with them. I would have them list in their journals their

favorite things that they like to do. Ahead of time, I would have done research

on children in other countries and what "freedoms" they have so my students

could have something to compare [with] (Sheri, May 10, 2011, p. 6).

A little different from the ecological project, in the war project Sheri would like to start

with reading books about war and encourage thinking about the meaning and purposes

of wars. The activity of comparing her students' life in the United States and their

counterparts in other countries will provoke students to value freedom and their current

life, and at the same time, be aware of the difficulties some other countries are facing.

Without access to SL, Kebeth09 will like to use videos and pictures instead:

My students are nine and ten years old so that in a way hinders some of the

material I can use because they are not age appropriate. I would love to be

able to use Second Life as a way to teach my children about wars and

ecological issues but my district does not allow the use of it in elementary

schools. One way that I can deliver the curriculum to my students is through

videos and pictures. Standing in front of the room telling the students about

the tragedies that are happening on our earth are not going to impact them as

much as them seeing it for themselves. I really like to let the students see what

is happening ecologically in certain parts of the world through pictures and

videos and then letting them come up with a way to prevent the problem from

happening in the future by doing research and interviews (Kebeth09, May 10,

2011, pp. 6-7).

By delivering the ecological and war content through videos and pictures, Kebeth09 will illustrate world current events, and at the same time, let students to discuss viable ways to prevent discord and disasters. These activities can be bolstered by doing research and interview in which students can examine the ideas and possibly put them into action.

Another example is Jennamb89 who will like to use different teaching methods to engage her students in her future curriculum.

> I will use as many tools as possible to help my students realize the seriousness of these issues. Some would be lectures, research, assignments, videos, projects, community projects, and field-trips. I think something like Second Life would be a wonderful way to incorporate all of these things and teach them about these issues. I loved the idea of the exhibitions, when you are surrounded by the information it is so much more impactful (Jennamb89, May 10, 2011, p. 4).

Jennamb89 also planned to take advantage of SL in a variety of ways when she developed her future curriculum. The exhibition experience provided her with the fundamentals for progressive construction of more ideas in developing a curriculum.

In terms of progressive imagination (2.2.3), the participants were asked a question about imagining receiving an award for delivering an exceptional curriculum on teaching wars and ecology. The majority of participants were humble and would like to share this honor with all who have made contributions to the world. This question was raised to let participants envision the future, or even those educational events that may

never happen. Wasson's imagination is a little bit different from majority of the
participants. He stated that:

> According to some metrics, I am presenting information in a way that is
> meaningful and useful for students, and equally important is that the
> information is something that I find particularly important to building a better
> future. I have some apprehension though, as I do not know what aspects of
> curricula the award is judging (Wasson, May 10, 2011, p. 4).

Although Wasson was not clear about his imagination of a concrete curriculum the
award was judging, which was also not the key in the progressive stage, he guaranteed
that the curriculum he will teach and deliver would be meaningful and useful for
students' future. His perception of delivering an important curriculum can be developed
in his analytic and synthetic stages. AggieBurchett, as a soldier who had served in the
Iraq and Afghanistan wars, possessed very different opinions about receiving an award
from others.

> If I am being recognized for bringing awareness to the historical failures and
> conflicts that lead to wars that could somehow reduce the potential for future
> conflicts, then I would be honored. However, if I was simply being honored
> for putting together a curriculum that ignored the vast potential for future
> wars, then I would be shamed as I would feel like a hypocrite. As I have
> stated forcefully, I believe that there is no end to war. There are conflicts that
> may be avoided or ended, and that is what I would rather be honored for:
> bringing an understanding between groups that may prevent a conflict

(AggieBurchett, July 2, 2011, pp. 2-3).

He supported wars as a means to preventing bigger wars. Thus, he would like to bring awareness and understanding about wars to students in hopes of being able to prevent a conflict. He stated that there is no end to war but only the possibility of reducing conflicts. Bringing an awareness (2.2.4) of using wars to prevent wars was definitely different from others in the progressive stage.

Among those who envisioned bringing positive awareness (2.2.4) to students in progressive stage, they commented that their new goals had changed after attending the virtual exhibitions. In the perspective of ecology, Glenner09 commented that:

> My other goals were about bringing awareness and expanding it to be an understanding of the problems leading to our destruction. My new goals are building on the awareness and experience that people have from having almost been wiped out. Making sure we as a race understand that everything we do has an effect on the world and it is up to us to make sure that those effects this time around need to be more positive than negative (Glenner09, May 10. 2011, p. 4).

Glenner09 viewed bringing students the awareness and understanding about destructive issues can help students to realize the cause and effect to every event in the world, so students can further figure out the ideas or take actions that lead to conflict resolution. This is similar to Russcular's progressive plan stating that:

> In the future, I will spend most of my time educating the public on what has been accomplished and formulating awareness tactics that will allow the

public to understand how to continue to prevent these devastating situations

from reoccurring (Russcular, July 2, 2011, p. 3).

Bringing awareness to educate students and prevent destruction from happening were the

majority goals in the progressive stage. Sheri mentioned more details about how she will

bring awareness (2.2.4) to students:

> One of the duties for my students next year will be a recycling monitor. The
>
> monitor will make sure the papers that are "trash" go to the recycling bucket
>
> and will empty the bucket once a week into the recycling dumpster outside
>
> (Sheri, May 10. 2011, p. 4).

Sheri explained that the detailed steps she will take to implement and monitor recycling

will help increase students awareness to protecting the environment.

At the end of the progressive stage, some participants highlighted the benefits of

the exhibitions which utilized technology to relive the past. The Holocaust Memorial

(2.2.5) on Kristallnacht Island was the one that intrigued most participants. Kebeth09

connected Kristallnacht Island to her grandfather who fought in WWII:

> One of the war exhibitions vividly brought back memories of my
>
> grandfather who fought in World War II. My grandfather fought in Germany
>
> and he got to see firsthand the effects of the Holocaust. I have always been
>
> very intrigued by the Holocaust and Adolf Hitler so when I knew what my
>
> grandfather had fought in this particular war I found myself wishing he was
>
> still alive so I could ask questions about his experiences in Germany. He
>
> died when I was very young so I never got to hear old war stories and his

perspective of Germany during that particular time period (Kebeth09, May 2, 2011, p. 4).

The Second Life Holocaust Memorial reminded her of her early childhood relationship with her grandfather. This virtual experience and the early relationship with her grandfather motivated her to learn more about WWII, the Holocaust, and Adolf Hitler. Moreover, Jennamb89 articulated her virtual reality experience in her progressive stage:

> The one about WWII was the most interesting to me. We teleported to "Kristallnacht" and it really made you feel like you were there. The streets and the buildings were all recreated from the actual streets and buildings that stood there. It was better than a video because you could interact with the things and see the posters that were on buildings. It was a very emotional experience (Jennamb89, May 2, 2011, p. 3).

Jennamb89 was impressed with the virtual environment on Kristallnacht Island, where the streets, victims and their narratives, buildings, and the horrifying atmosphere were relived. The virtual reality gave her opportunity to experience that particular point in time personally.

The progressive stage encourages the participants to envision future situations, technological possibilities, viable education, and effective curriculum development. Through the regressive and progressive processes, the participants were able to reminisce the past, rethink the present, and envision the future. To this point of the *currere* process, the participants were able to enter analytic and synthetic stages and explore deeper for more personal belief, awareness, reflection, and understanding.

Analysis (2.3)

In the process of analyzing the past, present, and future, this category derives the themes of continuing to educate and learn self-awareness, mixed feelings, big ideas, and analytic thinking. When asked about their thoughts at the analytic stage to scrutinize the past, present and future, many participants emphasized the continuation of educating and learning (2.3.1) as the most important goal. Wasson stated that:

> If massive steps are taken to solve our current crises because of educators, I could not accept solitary credit for such a success. Further, no matter how much is done towards producing a healthy, renewable lifestyle for the human race, I think that there will always be more to do. With an eye on global improvement, I will continue educating, confronting my students with the issues presented by hunger, waste, war, inequality, racism, and other difficult issues (Wasson, May 10, 2011, p. 5).

In his *currere* writing, Wasson understood that the difficult global issues will never be ended. The only resolution was to keep educating students so they can be aware of the current and possible disasters, and how they can do their best to prevent it. Glenner09 emphasized the importance of teaching tolerance and understanding:

> My memories of past events make me understand the importance of teaching tolerance and understanding. Simply laying out facts would not be effective in getting my students to understand these issues, rather, an open discussion of what lead to these types of acts and how they can be prevented would be more beneficial (Wasson, May 10, 2011, p. 5).

In the analytic process, Glenner09 resolved to continue educating his students via discussions and brainstorming process which he thinks will be hugely beneficial. He summarized his analytic stage thusly:

> This stage helped me realize what I already knew about what is going on in the world and the vast amount I still have yet to learn. It really makes me realize that I am limited in my knowledge as a teacher and must continue to strive to learn as much as I can to better understand the world (Wasson, May 10, 2011, p. 5).

Not only educating his students, in the end of the stage, Glenner09 emphasized that his own learning was equally important so he can be kept abreast of the world trends.

Before attending the exhibitions, many admitted that they were so unaware of the devastating issues around the world. Chemistry70 was an example, saying, "I NEVER thought about the importance of the environment in the past. I hope to make it more important in the future" (Chemistry70, May 10, 2011, p. 6). Jennamb89 was another example:

> I think the exhibitions made me realize how relevant wars and ecological issues are to people today. These things are not of the past. They play a role in who and what we are today and what we will become in the future. I think having all of the wars in one exhibition was very interesting. We normally see them disconnected and learn them in separate contexts, but they are all war and it was very impactful to see what come of wars when they are all put together. I think this is also true of the ecological events. When you see

one piece about global warming or something like that it may impact you a

little bit, but seeing it all at once and being surrounded by it makes a large

difference. I think I understand the issues much better and have a larger

appreciation for them and the things they cause from the Second Life

exhibitions (Jennamb89, May 10, 2011, pp. 3-4).

Up until she participated in the virtual exhibitions, Jennamb89 did not understand the

cause and effect connecting the past to the future. In seeing all the disconnected wars

and natural disasters as a whole, she had a better understanding of how human behavior

and practices did impact what we are today. Through the SL exhibition, she admitted to

understanding the global issues much better than before. This was the self-awareness

(2.3.2) the SL exhibitions brought to the participants. This appreciation towards SL

curriculum demonstration was confirmed by Laurenj1411. She pointed out that:

After the exhibitions I understood more about why I have certain beliefs.

Although I've had a basis for them, I never knew a lot of facts to back them

up. Now I do (Jennamb89, May 10, 2011, pp. 3-4).

Her reflection showed the essential functions and benefits virtual exhibitions in SL

brought to the participants. This self-awareness (2.3.2) never came to his attention before

now. In addition, Sheri was able to think more thoroughly in the analytic stage for self-

awareness:

My past, as I said before, was sheltered. Everything was kept from me

unless it was Disney, Snoopy, or something "feel-good" related. Anything I

remember was from the news and I remember the emotion I felt at the time

but then it became a very distant memory. Presently, I would say I used to be complacent but now I feel informed and aware. Those things give you a sense of empowerment and that empowerment gives way to a desire for change. The biggest changes will be as I plan for my future. I feel a sense of duty and urgency to talk about issues with my students. I feel a sense of responsibility to share information that is pertinent to their future and understanding of their environment and surroundings (Sheri, May 10, 2011, p. 14).

Sheri was overprotected by her family and parents from many horrible but realistic issues facing the world. After she became more aware, she felt empowered to inform her students about current world events. This self-awareness went through her past, present, and future, and in the end, informed her to be responsible to the next generation and the world.

In the analytic stage, the participants were required to extract deeper emotions again, but with the involvement of ambivalent sentiments. Many thought war is an ugly evil but it is sometimes a necessity for the sake of world peace. Allykat18 stated that, "I remember thinking war isn't something that we should strive for, but sometimes it is a necessary evil" (Allykat18, July 2, 2011, p. 3). In addition, she said "as far as wars go, I don't think wars are something we should try to be involved in but sometimes they are inevitable or a necessary evil" (p. 5). Her ambivalent emotions toward wars still remained unchanged. However, she confirmed in her *currere* writing that it would be wonderful if wars will never be fought to resolve conflict even though she never

believed in world peace. Likewise, Lucybaylor reflected her mixed feelings (2.3.3) that "the wars in general leave me with mixed feelings because on one hand, I can understand the necessities of war, but on the other hand, war is not always the answer" (Lucybaylor, May 10, 2011, p. 4). Similar to the majority of participants, Lucybaylor thought war is not the solution but it is still a necessity.

Glenner09 reflected his mixed feelings (2.3.3) on ecological issues in which he questioned:

> There are all too many things that leave me scratching my head. How people can dismiss ecological changes that are occurring and how people think we ought to lessen industrial regulation because it is costing them too much money always leave me wondering how we ever made it this far too begin with (Glenner09, May 2, 2011, p. 5).

He questioned the balance between economy and environment with a distressed emotion about how humans usually are inclined towards financial benefits. The ambivalent complex was developed as the participants visited virtual exhibitions and conducted *currere* writings. One particular participant developed ambivalence toward himself:

> I am at a turning point. I feel that I have achieved what I came to college to achieve, and I am excited about moving on and applying my knowledge and beginning to make a positive impact in the world. At the same time, I will miss my friends, I will miss my classes, and I will miss the life I have had (Wasson, May 2, 2011, p. 6).

Wasson's mixed feelings stemmed from his own experience when he considered that at some point in his life he will have to find the balance between pursuing higher knowledge and losing contact with old friends and his former life. This personal scrutiny cultivates more personal involvement which is what the *currere* process emphasizes.

One of the analytical questions inquired of the participants' big ideas which kept showing throughout the *currere* process. The big ideas (2.3.4) repeatedly mentioned among the participants were technology, religions, cultures, service, and dedication. Marie2616 pointed out that technology is the key to the future:

> Certainly, emphasizing the need for technology is extremely important because it is the gateway to the future, and the world around us. I also want to influence my students to take care of the world around them and to keep an open mind when it comes to other's opinions (Marie2616, July 2, 2011, p. 5).

Marie2616 viewed the big idea—technology not only played a major role in the past, present, and future, but can also play an important role in influencing students effectively and positively if used appropriately.

Bananabecker, a former director of two synagogues, had lived in Tel Aviv, Israel for two years. She raised the big ideas of culture and religion which she hoped to use to bridge the gap between different races. She confirmed that her big ideas pushed her to obtain a Master's degree in order to become a temple program director.

Allykat18's big idea is that humans should respect the different variety of beliefs, opinions, races, religions, etc. She claimed that:

People should also be respectful to others at all times—you can't expect respect if you don't give respect. I think that these two things (especially respect) will be a big theme that I will try to uphold at all times during my professional life (Allykat18, July 2, 2011, p. 13).

Her big ideas played an important part in her life—from the past to the future—from which the analytic thinking theme (2.3.5) was drawn. She wrote that:

These big ideas play out in my life mainly as learning experiences. I have seen that history repeats itself and will continue to do so (unless something drastically changes). I know that there is always going to be war, and people will always want to be more powerful than others. I have taken these things and realized what it would take for me to have a happy life in the future. I know that there will always be people more successful than me, have more money than me (and the list keeps going)—and knowing these things helps me to keep a realistic view on the world. I know what I want my life to be in the future and I know what I need to do to work towards my goals—so these big ideas have taught me to be aware of these things happening, work towards the things I want in life, and try to be the best educator I can be (Allykat18, July 2, 2011, pp. 13-14).

She analyzed the past as a series of repeating history, the present as a self-examination process, and the future as a responsible blueprint. She confessed that the big ideas (2.3.4) in the analytic thinking (2.3.5) informed her about awareness, responsibility, and self-understanding along the proper path to the synthetic stages in *currere*.

Many reflected their analytic thinking (2.3.5) through the past, present, and future. For example, ConnieB09 addressed that "I have chosen to learn from my past, reflect on my present, and envision my future" (ConnieB09, July 2, 2011, p. 3). In her *currere* writing, ConnieB09 pinpointed her lifetime learning as the big idea which she can use to analyze her teaching and make the society better. She wrote:

> Our students need to be prepared to get to the root of the problems in [the] society and work together to find solutions. They need to be able to think critically to find possible solutions and learn from humanity's past mistakes (ConnieB09, July 2, 2011, p. 2).

ConnieB09 focused on the foundations of issues on which students work collaboratively to search for solutions through the process of critical thinking and learning history. In her *currere* writing, she encouraged students to think outside of their own personal world and view changes both locally and globally. Similar to ConnieB09, Dpascoe also concentrated on her personal learning in her analytic stage:

> I have always loved to learn and have been a problem solver by nature. I will continue to learn both in a formal and non-formal setting. I can transfer my love for problem solving into a way to come up with ways in which my students and I can make a difference in our community (Dpascoe, July 2, 2011, p. 2).

Dpascoe would like to continue to learn and transfer her learning to students in hopes of making a difference in the community. In her writing, she continued to emphasize that

learning and searching for resolution became her big ideas when processing her analytic stage and she hoped to bring about change to the world through these ideas.

Another example is Puppleball's analytic reflection:

> The idea that shows up is how intertwined they [big ideas] are in influencing myself and those I interact with. My past as well as my future plans influences my present, which in turn influences my future. Someday, my future may even collapse back to influence my past. Also, other people's past, present and future influences me. This is mirrored in our relationship and treatment of the earth as well as war and peace (Puppleball, May 10, 2011, p. 4).

Instead of thinking chronologically, Puppleball's analysis of the past, present, and future influenced her life in a tangled way. Her future plans might influence her to change her present plans, so did the present change the previous plans. She used three periods as a mirror to examine her personal life and the world. Mrean also shared similar analytic reflection:

> These ideas resulted from my personal experiences and lead to my current ideas which guide my work as teacher and a student. These experiences will also shape my future. In other words, my present experiences resulted from my past experiences and will shape my future (Mrean, July 2, 2011, p. 2).

He pointed out the importance of his past experience in attaining his present life as a teacher, in which the present experience will be used to shape his future. The personal experiences affecting his life had essentially been brought up in his *currere* writing.

Some participants expanded analytic reflection to personal and global perspectives which are connected chronologically. Akopp105 reflected that:

> I keep coming back to the idea that we have to take ownership of our past, present, and future. While not every event affects us personally or directly, the world is connected. Our past and present influence our future. The devastation and destruction directed at others today could very well be directed at us tomorrow (Akopp105, July 2, 2011, p. 8).

She pointed out that everyone's conduct can have an effect on the world, big or small, positively or negatively, as did the global destructions. The current global status is connected by everyone's behavior with the only difference being the magnitude. Resscular's analytic reflection paralleled the connection of the past, present and future:

> Social issues, economic issues, political issues, war, human rights issues, global environmental concerns, and resource conservation are the major issues that continue to surface. Looking through the war and ecology exhibition – it is clear to see that these two topics intermingle on a number of levels. To me, as resources continue to dwindle, more and more wars will be fought over control of the available resources (Resscular, July 2, 2011, p. 8).

Resscular gave the examples of global persisting issues prevailing in the current world trends, including wars and ecological issues. As he analyzed global issues, he concluded that it is a single incident that leads to another incident, perhaps, of higher magnitude. Through the process, I would summarize that the analytic stage is similar to a chain reaction that happens to individuals and the world in various ways.

Synthesis (2.4)

Synthesis is the final stage of the *currere* process. It synthetizes previous stages and finally leads to the *proleptic* experience, which Slattery (2011) defined as any experience transcending chronological segmentation and developing a holistic realization through the past, present, and future. This section reveals the data derived from the last stage of participants' *currere* writings. The themes in the synthesis category include synthetic thinking, self-understanding, self-reflection, taking actions, and technology integration.

In the beginning of the synthetic stage, majority of the participants confirmed they benefited through the previous *currere* process which carefully examined their analyzing skills. As they entered the synthetic stage, they started to synthetize the past, present, and future in personal, educational, and global points of view. Allykat18 perceived her synthetic thinking (2.4.1) and said:

> I learned that the past tends to repeat itself, and things that happen in the past can really shape the present and future. I always knew the past could influence the future, but I guess I never realized to what extent it could. I have learned it is important to look at topics in the context of past, present, and future—instead of just the present. You need to understand how the present came to be to truly understand it and to be prepared for the future. It is important to understand these things when going to teach students in the classroom (Allykat18, July 2, 2011, p. 15).

She understood the causes and effects which the times delivered simultaneously and linearly, but she could not understand the extent to which one impacted the other. She concluded that, as an educator, she needed to understand the past and the present as a whole in order to prepare for the future in her own life so she can be a better teacher. In the synthetic stage, the participants started to view the past, present, and future as a whole and then they could develop the holistic understanding to their teaching and the world. Akopp105 reflected that:

> We have to see that the past, present, and future are linked. History seems to work in circles. Similar events happen throughout history. Students need to see their place and responsibility in this ever-changing world (Akopp105, July 2, 2011, p. 8).

In the synthetic stage, she thought students needed to understand the role history played in the past, present and future, so they can be responsible for the world. Hannah, on the other hand, reflected that:

> I have learned that one person's choice in life can have a ripple effect on the society in ways far bigger than anyone can ever imagine. I have learned that one person can change the world in a split second for better or worse. I have also learned that everything changes, time doesn't stop, and all humans can do is keep changing over time (Hannah, July 2, 2011, p. 8).

She understood that personal life, society, time, and global were interconnected; individuals who initiate a ripple will impact everything. When looking at individual experiences and world history, she believed students could use both to see the world

from other angles, in which she confirmed *currere* was the process of doing so.

Jennamb89's synthetic thinking reflected on her own teaching and how she viewed the

teaching:

> They play into my past because they are based off of things I learned from
>
> my teachers, they are also taking the past and teaching it to the students.
>
> They are a part of the present because they affect me and students today and
>
> how we see the world today which also affects our future and who we will
>
> become. The things I will teach my students will be connected to them on
>
> multiple levels so that they may connect the past, present, and future, and use
>
> this to help them be strong individuals (Jennamb89, May 10, 2011, p. 10).

Students' critical thinking is Jennamb89's big idea for the synthetic thinking exercise.

She learned it as a student and plans to teach it to her students in the future. Jennamb89's

personal connection to the past, present and future, she hoped, will at the same time

connect her students' three-period timeline experience on multiple levels. With the

teacher-student and student-personal connections, she hoped her students will also reach

synthetic thinking and become empowered. Sheri reflected:

> I have learned that they (the past, present and future) are all related. Despite
>
> what I have previously learned, the past does not stay in the past and the future
>
> can be very well decided upon even if it has not happened yet. Information
>
> and staying informed is the key. If our students spend most of their day at
>
> school then school is the place that is going to have to bear the responsibility

of giving them all of the information, in whatever format necessary, for what they will need to create a successful future (Sheri, May 10, 2011, pp. 16-17). She thought that the past and the future were not stable since people use present time to determine both of them. Thus, in her *currere* writing, she pointed out that schools and teachers were responsible for teaching students to learn both formal and non-formal information in order to be accountable and create a better future for themselves. Russcular (July 2, 2011) suggested using reflection, inflection, and prospection to synthetize personal, educational, and global trend in order to reach true *currere*. He pointed out that through the synthetic process; he was able to see the progress of his personal understanding and awareness. In Mrean's holistic understanding about *currere,* he wrote:

This process made me look at the field of education in general and curriculum in particular from different lenses. I learned that the true educational experience is the one that results from the interaction between the past, present, and future experiences. In this process, the present is formed by the past and shapes the future and so it is a continual and interlarded process. This process provides us with innovative foundations for a sound curriculum theory that aims to prepare students for life experiences. Furthermore, this process explains the comprehensive and complicated nature of curriculum theory which involves several fields of study such as autobiography, history, social theory, and psychoanalytic theory (Mrean, July 2, 2011, pp. 4-5).

He synthetized the difference between the general curricula and the ones using the *currere* process; he discovered true curriculum theory is preparing students' for life learning and experiences. Involving the complex nature of the various subjects provided, *currere* assists both students and teachers in embodying complicated conversation, history, autobiographical narratives, and social science for reaching higher understanding of interdisciplinary curriculum.

Throughout Wasson's *currere* process, he focused much more on his personal exploration. In his synthetic thinking, he wrote:

> For a number of weeks, I have been preoccupied with a subject that is heavily involves both my past and my future: the end of my formal education and the beginning of my career. I will graduate from college next week, and I have been thinking a lot about this turning point that I am at in my life: I am at the end of the first major part of my life, and at the beginning of the next. I find that this moment is even more *proleptic* than most (Wasson, May 10, 2011, p. 5).

Although he did not describe much about how he synthesized his own understanding and finalized the *proleptic* moment, he thought the turning points from his hometown experience, college life, and career promoted him to another level of life understanding.

On the other hand, Allison88 commented that the Kristallnacht Island activity in the exhibitions promoted the concepts of *proleptic* understanding. She wrote:

> My favorite exhibit was the recreation of Kristallnacht. I think that this was a unique experience that I haven't had before in an online educational forum.

This sort of interactive experience could be very beneficial to students because it humanizes the situation. In a lot of ways, this is the sort of activity that enhances the concept of prolepsis (Allison88, May 10, 2011, p. 7).

She underlined the interactivity, humanization, and virtual reality experience of past events which, to her, is the way to enhance students' comprehensive synthesis through multimedia.

One of the important inductions for the participants in this Second Life experience was to develop their self-understanding (4.4.2). Many participants at the synthesis stage reported that their self-understanding was influenced by being exposed to their teaching or educational ideas. For example, Ktbeth09 described:

The virtual exhibitions made me realize that I am doing a great thing by teaching equality in my classroom. The war exhibitions really showed me how badly-treated people were in the past, and it reaffirmed that I am doing the right thing in my classroom. I truly believe that treating my students like people rather than like children and ensuring equality among them make[s] a huge difference in the classroom (Ktbeth09, May 10, 2011, pp. 14-15).

As she understood that racial, gender, and religious discrimination resulted in conflict, Ktbeth09's belief in teaching equality was reinforced. Her personal understanding which developed from the virtual world experience will sustain her teaching career as she focuses more on equality issues. Audreyyuan, who had high school teaching experience back in China, her home country, appreciated the benefits she enjoyed from the Second Life experience. She shared her self-understanding (4.4.2):

> The virtual exhibitions make me believe I have the power and opportunity to make the world better. I can also put my effort in activities unrelated to my profession, but I have come to realize that there is tremendous space for me to work to achieve my goals. Education is powerful tool to use to infuse the knowledge of these themes into students' minds (Audreyyuan, July 2, 2011, p. 5).

Like many of her peers, she firmly believed that education was the means to change the world and she will continue contributing her efforts to education so the world can be a better place. Her understanding of her power and abilities bolstered her to explore her potential in order to reach her goals. A current African-American teacher, Mathval1608, appreciated how the virtual world classroom enhanced her self-understanding (4.4.2):

> The lessons on war and ecology in Second Life taught me to open my mind to alternative ways of teaching. I am very old fashioned and I rely heavily on textbooks, note taking and problem-solving in my classes. This experience with Second Life is causing me to rethink the way I teach my classes (Mathval1608, July 2, 2011, pp. 7-8).

In the synthetic process, she started to contemplate the possibility of incorporating technology into her classroom. Instead of relying on textbooks only, she understood the power and effectiveness technology could provide her students. The experience of the exhibitions provoked her to rethink how she teaches curriculum. Sheri also commented on the knowledge and awareness the exhibitions brought to her:

I understand now that I can do more. These experiences have made me realize

that the events are not someone else's problem. War, poverty, disease, human

suffering—all of these things have a place and a purpose in people's lives.

Without the information from this exercise, I could not tell you that my

mindset would have changed. Now that I have the knowledge it is in my own

hands to use that knowledge for a purpose (Sheri, May 10, 2011, p. 15).

Through the virtual exhibitions, Sheri understood that natural and manmade disasters

were all related to humans irrespective of the perspectives of damage initiators or

climate victims. Most importantly, Sheri started to realize her power of knowledge

which can change students' perceptions and enhance their awareness of the urgent global

issues. Similarly, Resscular highlighted the experience of Second Life assisting him to

fully understand global events:

Beyond just exploring this program, the virtual exhibitions helped me to see

one way in which Second Life could be useful in a classroom/community

setting. These exhibitions, covering topics that I felt like I completely

understood, helped me to form a deeper understanding of these events. The

war exhibition in particular helped me see these wars laid out in real time and

actually see these events one after the other over the last century. These

events didn't just happen overnight and there was a huge human cost which

expanded throughout the years from one war to the next. I developed a much

larger self-understanding of these events and the virtual exhibition definitely

aided my understanding (Resscular, July 2, 2011, p. 6).

Like Sheri, Resscular appreciated the full understanding about urgent global issues

virtual exhibitions provided. His self-understanding of the power of the virtual world

applied to education and the importance of war and ecological issues were highlighted.

SarahPrambs, on the other hand, formed her understanding on personal development.

She wrote "the self-understanding that the virtual exhibitions made me come up with is

that it is important to form your own opinions on the topics you are covering and be

open-minded enough to listen to other people's opinions" (SarahPrambs, May 10, 2011,

p. 6). Being creative with your own teaching and accepting others' opinions was her

understanding of personal improvement after the virtual experience. This understanding

and improvement will be integrated into her own teaching in the classroom, as she

continued in the *currere* writing.

The third theme in the synthesis category is self-reflection (2.4.3) which is the most

essential throughout the *currere* process and what this virtual curriculum demonstration

tried to extract from the participants. The participants expressed how the virtual

exhibitions changed their views about education, their personal roles as educators, social

responsibility, teaching strategies, technology application, and awareness of global

issues. AggieBurchett reflected his military point of view and asserted that:

> Anyone who thinks they have seen the last of war is a fool. War is an
>
> unfortunate part of human existence. It is best to train your forces to swiftly
>
> defeat your enemies and reduce the toll as much as possible. My personal
>
> experience with wars has been one that leads me to believe that one cannot

understand what war really is without experiencing it. To paraphrase, "war is an ugly thing, but not the ugliest of things." There are times that wars are just and good, but rarely are things so simple and clear as a bad guy and good guy anymore (AggieBurchett, July 2, 2011, pp. 4-5).

Throughout his *currere* writing, AggieBurchett supported using wars to end wars in order to bring justice to the world, though he declared war was an ugly thing. After the experience of the war exhibition, he was challenged by antiwar criticism and protests, but his faith of using war to bring peace was never moved. His self-reflection toward war in the synthetic stage was even firmer based on his personal belief, integrity, and ethical conduct.

Reflecting on cultural perspectives, Amkerschen described that:

I am sad that I am just now taking other cultures seriously. Growing up in the United States, you are told that your country is the greatest in the world and that other cultures don't really matter. I feel that I have lost considerable amount of time that could have been used to get to know other cultures and languages better (Amkerschen, July 2, 2011, p. 3).

Amkerschen blamed the American traditional mindset she was taught since her childhood for her being unaware of other cultures. Until she was all grown up, she was unaware of the importance of broadening her views internationally, particularly about different cultures and languages. In her self-reflection, she asserted that she was satisfied with only learning the issues in the virtual exhibitions. On the other hand, she desired to learn more and to help those in need. Sheri reflected about the contribution to ecological

issues and education:

> My self-reflection ties in with my self-understanding above. All of the
> knowledge I have gained has caused me to take a hard inward look at opinions,
> mindsets, biases, etc. that I have carried with me. Maybe I need to look into
> the "ugly" solar panels for my own house. Maybe I need to spend a few extra
> dollars and buy the hybrid. Maybe I need to find ways to waste less, give more,
> and be an example for my students as well as my own family. It also drives
> me as a mother to educate my child about the world around her and give her
> the tools she will need to form her own opinions and conclusions in the future
> (Sheri, May 10, 2011, p. 15).

With the self-awareness, Sheri considered the many impacts she was capable of making on the environment, as well as setting an example for her children and students. She thought it was important to deliver the concepts of recycling and green energy to the next generation through education. Her changed mindset and biases were initiated by the virtual ecological exhibition. Likewise, Laurenj1411 reflected on her playing a role in ecological issues and wars:

> The virtual exhibitions made me understand my personal responsibility and
> role in environmental issues and war. I realized that it does affect me, and
> there are actions I can take to help alleviate the situation (Laurenj1411, May
> 10, 2011, p. 2).

Her self-reflection in the synthetic stage was being aware of her responsibility in global issues, and this drove her to take actions (2.4.4). The virtual experience stimulated the

participants' notions of teaching certain materials with the aid of technology, about which Mathval1608 reflected:

> Experiencing the virtual classrooms in Second Life has caused me to begin researching ways I can incorporate virtual learning in my classroom. After taking this class and working in SL, I realize that I need to bring my way of thinking about the tools of teaching (Mathval1608, July 2, 2011, p. 7).

The self-reflection related both to taking actions (2.4.4) and technology integration (2.4.5) which was drawn from participants' consecutive *currere* writings is what the synthetic stage continues to follow and explore.

With the experience of virtual-world exhibitions on curriculum demonstrations, the majority of the participants were impressed at how technology efficiently integrated into teaching and learning. Their conceptions of the new way of technology utilization were fostered at the synthetic stage. Cherita commented on how she thought the virtual world incorporates various subjects:

> I think that virtual world is a wonderful place to use [for] an interdisciplinary curriculum. English/Language Art, Math, Science, and Social Studies can all be incorporated with a carefully selected theme. I am all for it and would love to see it come to life (Cherita, May 10, 2011, p. 9).

In her *currere* writing, she appreciated that Second Life brought a synchronous meeting for distance learning students. She also points out that many subject-matter curricula could be developed through SL technology. Ktbeth09 also shared her impression of SL:

> Before this class I had never heard of Second Life. I thought the new smart

board was awesome technology because it allowed the kids to learn with

hands on interactive lessons. When I first got the opportunity to learn with

Second Life, I was open to the challenge because I am always looking for new

ways to integrate technology into the classroom. One thing that I learned from

my peers regarding the virtual exhibitions is that you can easily use it to teach

lessons in any classroom (Ktbeth09, May 10, 2011, p. 15).

She added that technology, such as virtual interactive slide viewers, videos, websites,

and images, could be included in SL giving the students access to multimedia within a

platform. As she stated, her vision of the use of technology and new ways to apply

multimedia to education was broadened by the experience of SL.

Toward the end of *currere* writings, many participants elucidated how they

envisioned putting their efforts to making changes and taking actions in response to the

urgency the world is facing. Dpascoe explicated that:

It makes me want to ensure that every lesson has an example or activity that

makes the content relevant in the lives of my students. Not just giving them

examples of how they will use it in their future, but how it can be applied in

the immediate. This would make a big difference in both the topics [war and

ecology] covered in the exhibitions for me when I was in school! I want to

take the short comings of some of the teachers that I had and make that

difference a positive ones for my students' experience (Dpascoe, July 2, 2011,

p. 8).

Both exhibitions inspired Dpascoe to develop similar curricula for her students in order

to bring awareness and hopefully change the world. Similarly, Amkerschen reflected about her ideas of action requirement:

> Many of the ecological exhibits, especially those from the conference in Denmark, made me realize how much action is needed to bring the majority of the World to awareness of how severe our environmental problems are. I definitely have a deeper desire to take action (Amkerschen, July 2, 2011, p. 6).

Amkerschen was galvanized by the ecological exhibition, provoking her desire to take action. Both examples affirm one of the objectives of the SL curriculum development, that the participants would be stimulated by the technology and creative ideas of virtual interdisciplinary curriculum. Finally, they will use the concepts and multimedia ideas to educate the next generation.

Throughout the four steps of the *currere* process, the participants all confirmed obtaining better ideas about interdisciplinary curriculum development and multimedia technology. Most importantly, their self-understanding and self-reflection was extracted and further developed as self-awareness which drove them to deliver crucial knowledge and urgent facts. They also extrapolated more ideas on incorporating a variety of teaching methods and technology to not only war and ecological issues, but also other globally persistent issues. The portion of in-depth exploration of the *currere* process will be elaborated on in the following chapter.

Technology-related data

Table 3

Coding Scheme for Technology-Related Data

3.1 SL Materials	3.2 SL Values	3.3 SL Defects
3.1.1 Communication	3.2.1 Virtual reality	3.3.1 Time issues
3.1.2 Subject integration	3.2.2 Emotion connection	3.3.2 Age-appropriate content
3.1.3 Multimedia integration	3.2.3 Future curriculum avenue	3.3.3 Communication issues
3.1.4 Large amount of information	3.2.4 Benefit for distance and diverse students	3.3.4 Technical issues

The last part of the data focused mainly on Second Life as a platform for

multimedia curriculum in terms of its technological materials, values, and defects. By

using the IPA method as well, the last part of data and interpretation were extracted from

a minor portion of *currere* writings and the interview transcripts of five voluntary

participants (see Table 3). In the partial *currere* writings, the participants were reflecting

about SL values, functionality, materials, experience, and defects. The interview portion

mainly explored the participants' narratives, feelings, concept of educational application,

and emotional involvement toward this technology. An attempt was made to identify the

purposes of members checking for triangulation in the qualitative-based research.

SL Materials (3.1)

In the category of SL materials, the themes derived from currere writings and

interviews were communication, subject integration, multimedia integration, and large

amount of information. These themes were related to the features SL possesses, the

technology, media, and information installed in the exhibitions.

The theme of communication (3.1.1) was drawn to demonstrate the chat function in SL, including text chat, voice chat, public chat, and private chat. In the interview, Sheri commented that:

> The text chat will always be the win-win situation because everyone texts now. I mean that is kind of like a second language itself. The voice chat, I noticed in our sessions, nobody really used it. I don't know if that was because maybe people like me don't like the way they sound on the microphone or what kept people from using the voice chat more than what they did. As far as public chat and private chat, to me, that is almost the same thing. I think that it is all about a person's level of comfort using those things. I think they are all great (Sheri, May 5, 2011).

Sheri thought texting has become very popular among youths so the text chat in SL benefited both instructors and students. However, she thought students in SL did not seem to enjoy the voice chat. She also considered private and public chat to be the same thing. On this viewpoint, Puppleball and Andreyyuan had different ideas. They thought the virtual communication can replace face-to-face communication because people cannot engage private chat in real life, but they can in the virtual world. This private chat capability allows students to engage in group discussions in a classroom without disturbing other groups and an instructor can advise an individual who has difficulty understanding. Russcular also found the private chat in SL was beneficial because an avatar can teleport others; send notecards, link, and objects; and conduct private voice chat. Andreyyuan, as a Chinese student, personally preferred SL communication because

she could engage in text chat by typing and reading others' text chat without worrying about language barrier.

As the participants experienced the virtual curriculum demonstration, they did gain insight into using new ideas—new technology, instructional methods, and interdisciplinary curriculum—in subject integration (3.1.2). In Andreyyuan's interview, she thought using virtual activities, painting, photographs, videos, and recreated simulation spaces can get students to learn hands-on. Through these digital activities, students will learn without realizing they are learning. Allykat18 in her *currere* writing addressed the advantages of integrating virtual worlds with subjects:

> I think that a virtual world is a good way to present lessons and curriculum. It would take a good deal of work to set up a virtual world to go across many disciplines, but it could be very beneficial to students if set up correctly. I think a virtual world could help students make connections between concepts in different subject areas that they otherwise would have missed. I think guiding questions would also be an important tool to use to make sure students took away the information from a virtual world that they were supposed to. I also think that a virtual world is good because the world is becoming more technologically advanced, and using technology like this would hold students attention (Allykat18, July 2, p. 8).

She pointed out virtual worlds have the strong connection of concepts among different subjects and the attractions to hold students' attention. However, the proper contents and

effective guidance distributed through a lesson was very important to guarantee students' learning in SL, she emphasized.

Speaking of integrating issues to curriculum, Mrean described his curriculum development plan in terms of subjects:

> I will integrate these issues in my teaching and curriculum. These issues can be integrated in any subject: social sciences, literature, and sciences. I will design units and lesson plans on the themes of wars and ecological issues. I will include activities which stimulate students' interest in these issues and make them engage in a meaningful discussion about the importance of these issues and how they assume their roles in preventing these disasters (Mrean, July 2, 2011, p. 2).

Mrean was thinking to extend the ideas of virtual exhibitions to integrate with the subjects of social sciences, literature, and science via the strategies of critical discussion and brainstorming. As far as issues-related integration, Ktbeth09 extrapolated a number of globally persistent issues that she would like to integrate into the curriculum, some of which are climate change, pollution, natural disasters, poverty around the world, and racism.

Multimedia integration (3.1.3) was a strength the majority of the participants addressed from *currere* writings and interviews. SL activities involved a huge number of technological applications, such as image design, video editing and uploading, PowerPoint, word processing, building, and programing. At the same time users are

designing virtual materials which require innovation and aesthetics. Russcular articulated this vantage in the interview:

> Think about how many technology you have to use in SL, such as designing your character, communicating through your microphone, adjusting your volume (to make sure you have no echo), video setting, and a lot of basic things. It is whole lot of stuff. And maybe create your own stuff, like user supplies, textures, notecards, scripts, and a website that requires a lot of innovation and technological experience. So I think SL definitely taps to creativity (Russcular, August 31, 2011).

Laurenj1411 compared the technology applications between SL and traditional classroom and pointed out that:

> In a chosen specific curriculum, I think it is a really good curriculum to use just because you can add more to it than you can do in a traditional classroom, like incorporating more videos, pictures, essays, and stuff like that. If you are looking for one specific topic, you can put so much information on SL that the students can pick through the things there are really interested in. I think it is really good for specific purposes or topics rather than trying to teach an entire curriculum to a class (Laurenj1411, May 5, 2011).

She thought by incorporating multimedia into SL, a specific topic would stand out. Meanwhile, a huge amount of information can also be installed for students to explore.

The idea of installing considerable information led to the theme, large amount of information (3.1.4). The participants appreciated the huge number of installations and information in the virtual exhibitions. Chemistry70 commented that:

> The virtual world gave me a great deal of information in a short amount of time. I would have never had the opportunity to experience the vast amount of information. Students would have the opportunity to see many different subjects together (Chemistry70, May 10, 2011, pp. 6-7).

Moreover, Jennamb89 shared her feeling that seeing all the information about wars and ecological issues impacted her more strongly than only seeing a piece of the theme. At the same time, the vast amount of information also promoted her understanding of global issues. She said:

> When you see one piece about global warming or something like that it may impact you a little bit, but seeing it all at once and being surrounded by it makes a large difference. I think I understand the issues much better and have a larger appreciation for them and the things they cause from the Second Life exhibitions (Jennamb89, July 2, 2011, pp. 3-4).

SL values (3.2)

The category of SL values contains the themes of virtual reality, emotion connection, future curriculum avenue, and benefits for distant and diverse students. This category focuses on students' reflection about SL technology and how this technology impacts on teaching, learning, budget, etc. Virtual reality (3.2.1) is the major advantage

of SL. Many of the participants echoed this point, mentioning its benefits such as cost

saving, allowing participants to return to any timeline, and safe traveling. Sheri

addressed the benefits of virtual reality in her *currere* writing:

> I think virtual worlds would be an educational asset. One of my group
>
> members was a science teacher and she talked about using a virtual world to
>
> have students work with elements of chemistry that they would otherwise not
>
> be allowed to experiment with for safety reasons (Sheri, May 10, 2011, p.
>
> 16).

By simulating real life situations, Sheri pointed out that SL allowed students to

experience the experimental process without worrying about safety issues. Likewise, in

the interview with Laurenj1411, she exemplified a case about how her department—

Agricultural Leadership Education—used SL in teaching crisis management. She said:

> I think it has the potential to teach students how to react the situations that
>
> are hard to make up or to create. In our department, the way they are using
>
> SL is for the emergency crisis management. The situation might be like what
>
> you will do when there is a fire alarm. In SL, there is an island for you to go
>
> through the process step by step as practice. Students may never get a chance
>
> to actually practice that. This is what you can create in SL (Laurenj1411,
>
> May 5, 2011).

Besides, some participants indicated the point of economizing by using SL in

which students can travel to other states, foreign countries, even to the bottom of the sea,

universe, or earth core without any expenditure. Allykat18 commented that "I think a

virtual reality world is great to help students get a firsthand look into these countries without actually having to spend money to go there" (Allykat18, July 2, 2011, p. 16).

SL is able to create a target scene full of the views, atmosphere, and display of the past time with 3D scenario and sound. For example, Kristallnacht Island, appreciated by majority of the participants, was a place where the time and scene of November 1938 in Nazi Germany and parts of Austria when Jews were persecuted by Nazi government was recreated. Ktbeth09 mentioned that:

> What really sparked my interest was being able to teleport to the Kristallnacht exhibit. I was so interested in reading all of the newspaper articles and how they perceived the Jewish people. One picture really stood out to me because all the Jewish families were lined up in their street clothes waiting to enter the concentration camp. They had just been cleaned and sanitized and were waiting to depart to their camp. The looks on their faces really stood out to me because you could just see the fear in their eyes even though they stood straight and tall (Ktbeth09, May 10, 2011, pp. 4-5).

The theme of emotional involvement (3.2.2) connects a person's autobiography with their personal awareness and understanding. In her interview, Sheri described that:

> It brought back a lot of emotion associated with things different from this. Most of these exhibitions were very close to my heart. Being a military wife, which obviously brought the emotion to the surface and which happens anytime with anything war-related. (Sheri, May 5, 2011).

Being a soldier's wife, Sheri had deeper sentiments toward wars than others had. When she visited the exhibitions, she found a large number of displays touching her heart while others took the exhibition experience the same as visiting a museum. Moreover, Ktbeth09 in her *currere* writing explained that:

> The war exhibition was really amazing to experience because I got to see the wars in the perspective of those other than the United States. After leaving the exhibition I understood the importance of history classes and learning about past wars. I feel like students do not learn from history because it is not presented in a way that they can make autobiographical connections. If they are just reading from textbooks and doing worksheets they will not learn from the past and will not be able to make the future any better (Ktbeth09, May 10, 2011, p. 5).

She pointed out that when teaching history, the usual textbook and worksheet exercises did not make a connection with the students' autobiographies. History should be presented in a way that connects to people's narratives; visual immersion, or storytelling which could be demonstrated by invited speakers, video playing, and image display. These active exercises could attract students effectively, and at the same time, touch their in-depth emotions and thoughts, so they are able to connect to their family members, anecdotes they heard, autobiography, or issues they learned.

After the experience of SL curriculum demonstration, the majority of the participants were amazed at the virtual world and consider it as the future curriculum avenue (3.2.3). In the interview with Sheri, she said:

I think SL is an amazing avenue to explore with regards to our curriculum. I

am an art teacher, so I would love to use SL in my class. I would like my

students to walk through the art museums and look at different works of art

which they may not have the opportunities to see in person (Sheri, May 5,

2011).

She addressed the benefits of using SL as a virtual museum to demonstrate art, such as

painting, sculptures, or photography. It might be difficult for students to travel to a fine

art museum in the downtown of a big city but it was very easy to get on SL and

experience the simulating museum visit. Likewise, in the interview with Puppleball, she

thought the same:

I think the students I am going to teach will use a lot of digital media and

technology because everything they do will be on the computer. Instead of

hassling with them, using SL can be really convenient to engage them and

relate to them in different generations (Puppleball, July 19, 2011).

She hoped her students will be an active part of the digital age and do most of their work

on the computer, and thinks using SL as a future avenue in the classroom will engage

them more effectively. Amkerschen had the idea of using SL in her future teaching to

help students explore the interdisciplinary science. She wrote in her *currere* writing:

I think Second Life is a wonderful tool for classrooms, especially those that

are interdisciplinary in nature. I hope to use it to show my students what

volcanoes look like, see how the rock cycle works as it happens, and explore

scientific research projects. Each of those applications could also be

applicable to social studies, math, art classes among others (Amkerschen,

July 2, 2011, p. 5).

Similar to using SL simulation as virtual reality (3.2.2), she thinks students in SL could

study volcanoes and explore the structures of the earth without having to encounter any

dangerous situation or experience technical difficulties.

For impelling shy students to be more active in the class, Mathval1608 thought

SL could benefit as a teaching avenue. She reflected in her *currere* writing:

I plan to start researching what virtual teaching tools my school district has

available. I believe my students would benefit greatly from exposure to a

virtual learning environment. I am especially excited that through their

Avatars, students who are too shy to ask or answer questions in class can

perform these tasks through their Avatars (Mathval1608, July 2, 2011, p. 7).

She pointed out an advantage given in the literature section, that once-removed

participation (Ball & Pearce, 2009, p. 51), in which the issues of physical disability,

language barriers, gender difference, or self-confidence does not exist. This point leads

to the theme of SL's benefit for distance and diverse students (3.2.4).

Some participants mentioned the benefits of SL to include, but are not limited to,

bringing distance and diverse students to a synchronous classroom which is different

from those asynchronous online classroom where students only submit papers, take

exams and post discussion online. Andreyyuan contrasts the two styles of online courses

and indicated that "I feel for those people who are not able to attend face-to-face class, I

think they are feeling more in touch rather than just submitting paper and posting

discussion" (Andreyyuan, August 16, 2011). Also, Russcular mentioned that:

> SL is good for the educational setting because it provides an amazing access
>
> that allows students a neutral setting where there are fewer language barriers,
>
> social barriers, or fewer anxieties. By allowing them to be themselves in the
>
> virtual spaces, I think that is something very unique. SL is also a gender and
>
> culturally neutral setting where these differentiated elements don't play a
>
> huge role (Russcular, August 31, 2011).

In the environment where gender, cultural, ethnic, and lots of kinds of variables abound,

Russcular affirmed that SL possesses qualities that prevent the feature of once-removed

participation (Ball & Pearce, 2009, p. 51). Learning and teaching in this kind of

environment will possibly become more simplified, neutral, and impartial.

SL defects (3.3)

In the interviews and *currere* writings, the participants addressed some negative

issues regarding SL itself and the SL exhibitions. The category of SL defects contains

time issues, age-appropriate content, communication issues, and technical issues. Some

interviewees brought up the issue of insufficient time (3.3.1) for student group

discussion as the allotted time was 15 minutes. Russcular said:

> I suggest utilizing more time for students to discuss some of those things in
>
> the small group, maybe like 10 or 15 more minutes. When they come back to

large group setting, I don't know if they would want to talk, but in the small

group, they were very talkative (Russcular, August 31, 2011).

He also noticed that the participants in the class discussion were not using voice chat

which they used more in the group discussion. He suggested more time to be allotted for

group discussion so there'll be sufficient time to discuss all guiding questions. This way,

students might have more time to reflect on the entire class discussion. Laurenj1411

also suggested that:

In one of our group discussions, I think time was the issue because one lady

did not have a microphone so she had to type everything she was responding

to. We went back and forth with her typing, I only went through two

questions on the notecard in the 15 minutes we had (Laurenj1411, May 5,

2011).

When designing the exhibition, I did not consider the issues of time allotment and

assumed that everyone would have a microphone. Obviously, some could not do voice

chat throughout two exhibitions due to lack of hardware, thus resulting in insufficient

time for discussion. The technical requirement or time adjustment should be

reconsidered in the future session.

Some participants raised the question of age appropriate content (3.3.2) in

Second Life as they considered using this technology in their future teaching. Marmahan

wrote in his *currere* writing:

I do not foresee the use of this particular format in either secondary or

elementary education, simply because students have access to or can be

accidentally exposed to adult content. I think there are more age-appropriate

formats available to educators and that students would respond positively to

the incorporation of those into the curriculum (Marmahan, May 10, 2011, p.

5).

During the SL sessions, some did raise the similar questions about age-

appropriate content and the potential use in primary and secondary school. I responded

that SL is reserved for people who are 18 and over with the age verification system when

registering. A system, called teen SL, was available for age 13-17. However, it was

closed at the end of 2010. In 2011, SL general content is accessible for people aged 16-

18, who will then be able to access mature content on turning 18. Under specific

conditions, students aged 13-15 can use Second Life.

Although the advantages of SL communication have been discussed in one of the

earlier themes, SL did have defects of communication issues like not allowing more than

one person to talk and lack of facial expression. Laurenj1411did point out these flaws of

communication issues (3.3.3):

Like last semester, I was in a very heavily discussion-based class, and pretty

much every time we met, it was all discussion. I think it would be very hard

to have that same quality of discussion on SL just because everyone cannot

talk at the same time, you cannot see people's emotions (Laurenj1411, May

5, 2011).

SL did have an echo problem when more than one person talked at the same time. Besides, a lack of avatars' facial expression is another shortcoming that virtual world cannot compare to real life.

The technical issues (3.3.4) were the biggest challenge for implementing a curriculum in SL. Instructors need to prepare fully on order to be able to deal with issues like internet bandwidth, permission issues, not loading videos correctly, sound setup, unqualified hardware, and system overload issues. When the above-mentioned issues were taken care of, some unexpected issues occurred because of users' machines, setup, or Linden Lab's system errors. A few participants did address some issues they faced based on their experience. AggieBurchett criticized the rough graphic quality as compared to other video games. He pointed out:

> I have learned that the virtual exhibitions can be effectively used as a distance education classroom. However, in order to engage today's students, SL is going to have to seriously upgrade their graphics or teens will not take it seriously (AggieBurchett, July 2, 2011, p. 4).

In addition, Wasson criticized the issue of slow video loading:

> The videos were, perhaps, more effective than the pictures, but they required so much time to load and slowed down the whole system so much that it drew me out of the experience (Wasson, July 2, p. 3).

The category of SL defects only addresses a number of issues impeding researchers, instructors and designers from developing effective educational environment. There are still some technical issues related to high system memory usage,

graphic card requirements, or stable operation system. These SL defects require

instructors, designers, and Linden Lab to work together to develop effective resolutions

so that this 3D environment will be productive and successful for teaching, learning, and

research.

CHAPTER V

DISCUSSION/CONCLUSION

By carefully examining the observations, virtual reflective notecards, *currere* writings, and interviews, the focus of this study was to through the four step of the *currere* process achieve the study objectives stated as follows: 1) to demonstrate both the theoretical and practical aspects of virtual curriculum, 2) to extract the participants' self-understanding and self-reflection via their inner voices, and 3) to evaluate participants' educational growth and development after the end of SL experience. Followed by the findings analyzed in last chapter, this chapter will take a closer look at the categories and themes, especially those providing critical elements, in order to answer the three research questions in-depth. Finally, the chapter will discuss the educational implications of the study for technology application, *currere* practice, and future research.

The Regressive Stage

Pinar (2004) explicated in regressive moment, one re-enters "past lived or existential experience as data source" (p. 36) which needs memory to enlarge and transform. During two virtual exhibition visits, the participants had time to read the information, view the images, watch the videos, and explore the related websites about the highlighted war events and ecological incidents. The data from *currere* writings and reflective notecards indicated that the exhibitions were powerful enough to bring to remembrance memories about wars or ecological events connected with their families,

friends, childhood, news or lessons they learned at school, or other experiences. In the *currere* writings, the participants were asked to recall deeply their emotions, attitudes, reactions, or thoughts at the time when the specific event happened. Through the process of entering the past, they were stimulated by the exhibit items, thus recalling their existential experience (regressive emotions and attitudes), enlarging their memories by thinking regressively, and generating the concurrent reflection. These steps are the *currere* regressive stages. The participants found it really useful to connect to the past experience which enabled them to process the following *currere* stages.

Because regressive memory relates inseparably with personal narratives (Casey, 1995), storytelling (Wang, 2010), and autobiography (Miller, 2005), Miller (2005) cautioned us not to parallel the memories as linear autobiographical tales. Instead, in curriculum studies, the temporal arrangement of the *currere* process should provide opportunities for change (Wang, 2010). Miller's (2005) interpretation of nonlinear memories in autobiography aligns with Pinar's (1994) multidimensional and orderless autobiography in the regressive moment. Thus, by experiencing the autobiographical process, regressive memories were enlarged, the forgotten stories were disclosed, and self was formatted in order to integrate with the present.

While narrating their autobiographies in the *currere* writings and virtual reflective notecards, participants' emotions and attitudes were involved in deeper retrospection. Their emotions were released toward wars or ecological issues because of personal connection, morality, humanity, consciousness, and sympathy. Through the

emotional expression in the regressive stage, memories were enhanced, and somehow, gained consolation.

Because of viewing war and ecological exhibitions, participants were full of negative emotions, such as being sad upon seeing videos about innocent victims, angry at governments' slow reaction towards natural disasters, scared while visiting the Holocaust Museum, and confused about some wars that the United States was involved in. These emotions were aroused by the technology-driven exhibitions' text, images, videos, webpages, and virtual environments. These emotions were also important in stimulating participants to not only recall forgotten memories, but also to direct their regressive thinking and reflection.

Slattery (2006) encouraged exploring negative emotions, such as fear, loathing, arrogance, and ignorance, in order to understand prejudice on the basis of irrationality. The prejudice he referred to was discrimination due to race, gender, sexuality, and ethnicity. Unsurprisingly, these issues are usually interwoven with wars (e.g., Nazis' slaughter of Jews) and ecological issues (e.g., environmental justice). In addition, Nussbaum (2001) and Edgerton (2001) found that the emotion of disgust plays a significant role in our daily life which keeps us away from unpleasant environments. Disgust often directs us to the discrimination and prejudice toward a specific group. Therefore, Slattery (2006) stated that curriculum development in the postmodern era needs to investigate these negative emotions and educate students about them in order to minimize social and global persistent issues.

When regressive emotions were manifested, the data indicated that these emotions, especially sadness, anger, confusion, and disgust, prod the participants to think regressively, and compare the past to how they looked upon the present. For example, Mathval1608 was confused because the United States had invested so much money and military on foreign wars while the country itself has been facing severe financial issues and an anti-war movement. Glenner09 replaced tolerance and understanding with sadness and fear when recalling how the World Trade Center collapsed during the September 11 attacks. Their thinking transferred emotions and memories into contemplation which they seemed to be processing with confusion, struggle, misunderstanding, retrospection, and introspection. Some of them figured out practical ideas for the next process of regressive stage—reflection—which they could connect to their pedagogical methods and teaching strategies.

The regressive stage in the exhibitions not only focused on recalling memories or past experiences but also stimulated the participants' recollection of the past. They were encouraged to criticize, question, and judge in order to proceed to intellectual reflectivity on previous issues. Pinar (2004) criticized that being informed is not equivalent to being educated. Rather, educational information needs to be examined carefully through intellectual interpretation, critical thinking, and self-reflectivity.

When proceeding to regressive reflection in the regressive stage, the participants assembled the memories they recalled, the emotions they extracted, and the thoughts they generated. Then, they regurgitated those memories, emotions, and thoughts for reconstructing the methods and strategies of curriculum and pedagogy. This is the

process of regressive reflection in which participants connect their experiences to educational means which can be applied and utilized in the present and future. To finalize the regressive stage, the participants needed to go through the complicated conversation, intellectual judgment, and mutual reflectivity stages. Accordingly, the history or the past mistakes could be comprehended thoroughly, the present situation could be contrasted and compared, and the future scene could be envisioned, after which they were ready to enter the progressive stage.

Pinar (2004) described regressive stage is a "discursive practice of truth-telling" (p. 55). Regressive reflection, which precedes the progressive stage, is a schema roughly examined in order to apply it to potential curriculum in the present or future. Pinar (2004) accentuated the regressive stage as a practice of "self-shattering, revelation, confession, and reconfiguration" in autobiographical maneuver. Regressive reflection is the way to initiate narrative inquiry with the aim of achieving *currere*. Gough (1998) explained that:

> Both *currere* and narrative inquiry seek to understand and question the ways
> in which curriculum is constituted in the subjectivities of teachers and other
> curriculum workers by encouraging personal (and sometimes collaborative)
> reflection on stories generated through such procedures as autobiographical
> writing and journal keeping (p.111).

The autobiographical writing is the same as the first stage (regression) the participants did in the *currere* writings. The regressive reflection was the narrative inquiries in the past events that he/she experienced personally, heard from family members or friends, learned from news, or was taught at school. By using the regressive reflection, a person

can enter the progressive inquiry to explore in-depth personal or collaborative present and future.

In two virtual exhibitions, the participants proceeded to the regressive moment by reading the text, viewing images, watching videos, glancing at webpages, and experiencing the recreated environments in Second Life. These experiences, of course, could be acquired in a real museum; however, using Second Life shortened the distance and time participants had to spend to visit the same exhibits efficiently. Moreover, they could experience those environments that were difficult or impossible to visit. For example, the Holocaust Museum transported the participants back to the Kristallnacht event in Germany in 1938, so they could experience the horrible atmosphere during the Nazi persecutions. The role technology played in the regressive stage was extremely important for retrieving their memories, contemplating (or sometimes baffling) past events, and further reflection as a potential educational means for entering the next stage, progression.

The Progressive Stage

In the progressive stage of virtual world activities, the participants were asked to teleport to re-created islands related to wars and ecological topics, such as the Holocaust Museum, the Vietnam Memorial Wall, Palestine-Israel War, NOAA, Etopia Eco Village and so forth. The majority of the participants were impressed and moved by the Second Life US Holocaust Museum for Kristallnacht exhibits which were addressed considerably in earlier text. The Vietnam Memorial Wall simulated the Vietnam

Veterans Memorial in Washington, D. C. The structure and the shape of the Memorial

Wall, designed by Maya Lin, were also duplicated in the virtual memorial. The names of

Vietnam War service members etched on the walls in D. C. could also be seen and

touched in the virtual world. NOAA (National Oceanic & Atmospheric Administration)

was another re-created island designed by the NOAA research lab, where participants

could experience a powerful tsunami crashing a house and glacier melting and flowing

down into the ocean. The tsunami, of course, would not hurt avatars and the house

would be reassembled in a few seconds after being wrecked. Melted glaciers would also

freeze back to ice within seconds so the participants could witness the melting process

without traveling to the real glacier sites. Etopia Eco Village was an island sustaining a

futuristic world where the participants could take an interactive quiz about ecology, visit

ecological buildings, and understand green products and alternative energies. These

virtual re-created islands simulated the real-world sites of the present time and actualized

the imagination of the future time. Many participants reflected that they enjoyed visiting

these sites because virtual reality made timelines and spaces a non-issue. Meanwhile, the

participants could experience those views, buildings, materials, exhibits, and attractions

with no constraint of cost or physical traveling. From aforementioned points of view, the

technology of virtual world played a very important role beneficial for education,

regressive memories, progressive imagination, retrospection, and introspection.

   Pinar (2004) pointed out that the progressive moment focuses on the future

concept of education where multimedia technology is everywhere and can be used to

spread out personal subjectivities. The subjectivities are not daily communities but the

"abstract cyberspace and global village" (p. 8). Pinar (2004) continued that "cyberspace reconfigures subjectivity, dispersing the cult of individualism, rendering rationality sensate, even recognizable in its modernist manifestations" (p. 134). The cyberspace, made up of hypertext and cyborgs, develops subjectivity and sexuality more visually. Hypertext is the non-linear text connecting readers with more relevant information via the electronic links (Pinar, 2004; Landow, 1992). A cyborg is described as a creature of social realities, emotional experience, and cultural fictions, including sexuality, feminism, transgender, homosexuality, etc. (Haraway, 2006). Cyborg, Haraway continued defining, is also a revolutionary model existing in a human's life, where oppositional consciousness inspires resistance for minority groups. Opposition consciousness is the contradictory identity of differences and specificity, as Haraway cited from Chela Sandoval. Cyberspace, in Levy's points of view, is the support for future education and cyberculture involving historical experience, humanity learning, skill training, and professional knowledge. Levy (2001) suggested that:

> Cyberspace supports intellectual technologies that amplify, externalize, and modify a number of human cognitive functions: memory (databases, hyperdocuments, binary files), imagination (simulation), perception (digital sensors, telepresence, virtual reality), and reasoning (artificial intelligence, modeling complex phenomena) (p. 137).

Levy continued that these intellectual technologies promote "new forms of access to information" as well as "new forms of reasoning and understanding" (p. 137). The access benefits users with the avenues of all sorts of hyperdocuments (electronic

information and data), software, and digitalized knowledge. Reasoning and

understanding were enhanced because of multi-sensory simulation, virtual reality,

reflective memories, and digitalized social networking. Intellectual knowledge in

cyberspace is effectively and efficiently transmitted and transferred to the public without

time and space limitations. The intellectual understanding and reflection, through online

complicated conversation and multi-dimensional sharing, were deconstructed and

reconstructed to "collective intelligence" (Levy, 2001, p. 138).

Cyberspace is a new form of collective intelligence which, as Levy (2001)

described, is "a single and unique virtual world, one that is immense, infinitely varied,

and perpetually changing" (p. 88). In cyberspace, all personal identity (e.g., class, gender,

race, etc.) is non-existent. Moreover, distance learning, virtual reality, hypermedia,

interactive networks, and intellectual technology would promote a new style of

pedagogy and curriculum, as well as personal and collaborative learning (Pinar, 2004;

Levy, 2001). Within this context, a new knowledge compass is constructed to a higher

level of being nonlinear, non-traditional, comprehensive, kaleidoscopic, multi-

dimensional, interdisciplinary, and intersubjective (Slattery, 2006; Levy, 2001), which is

the platform of virtual reality.

In this study, the context of virtual reality offered the participants the

opportunities to invoke, inspire, and extract their imagination regarding target content,

interdisciplinary curriculum, and current global issues. In the progressive *currere* writing,

the participants were asked about their imaginative picture of the world facing

devastating climate change and war conflicts. The majority of the participants mentioned

that the process of continuing to educate students and delivering meaningful curricula were important keys in order to prevent the world from human-made and natural disasters. As the participants were aware of the importance of global issues and the ways to stimulate deep thinking and not just giving students information, the participants highlighted many pedagogical strategies for educating students and curriculum development. Some of the strategies mentioned were collaborative teamwork, journal writing, dialogue, field trip, and multimedia application. Their awareness to teach urgent global issues, their mindset to build up and develop a meaningful curriculum, and their creativities to construct their teaching were the thriving paths for curriculum development in the progressive stage.

Eisner (2002) articulated curriculum development as a process transformed from educational imagination because there are no specific theories, curricula, instructions, or strategies suitable to individual students. With educational imagination, a new perspective is opened, confinements can be broken, concreteness can be sensed, consciousness is awakened, and alternatives are discerned in order to interpret and evaluate the education that sustains different cultures and humanities (Greene, 1995). In this study, when the participants applied their educational imaginations into past experience, current viewpoints, and future visualization, they re-evaluated the curriculum and pedagogy that they utilized, and reconstructed a new educational meaning for the future. Via this imaginative process, they approached the analytic stage with better capabilities for examination, scrutiny, and interpretation.

The Analytic Stage

The virtual world activities of the analytic stage were group discussion and reflective notecard writings after the participants reviewed what they had just visited (background information, images, videos, webpages, and re-created environments). As they first reviewed the procedure of regression and progression, they still considered that continuing to teach and lifelong learning were the ideas that kept showing up over and over again.

During the analytic stage for reviewing the past, present, and future, the participants confessed that the virtual exhibitions and the *currere* writings inspired their self-awareness of current world issues by understanding and analyzing the timeline. Their self-awareness foresaw the devastating future caused by war and ecological destruction. Most of the participants agreed that continuing educating and lifelong learning can fulfill the self-awareness, and further, sublimate the self-awareness to social responsibilities both for teachers and students. Some participants showed their appreciation to the SL exhibition presented in the *currere* process because they had never come to that self-awareness before. As the participants went through some of their timeline from the past to the future, it increased their self-awareness thus inspiring them to want to deliver meaningful curriculum.

The analytic stage in *currere* also allowed the participants to review and analyze their timeline and aroused the self-awareness to educators' duties. James (2007) argued that "*currere* has the power to move prospective teachers toward greater awareness of their commitments and goals as educator" (p. 164). Henderson and Gornik (2007)

especially emphasized that self-awareness requires continuous reflective practice—reflective inquiry, democratic inquiry, and multifaceted inquiry. Maxine Greene (1971) suggested that using autobiographic inquiry to explore the world is another access to self-awareness. In response to Greene, James (2007) explained that the exploration of self allows us to "go out into the world with renewed awareness, a greater sense of purpose, and greater awareness of who we are becoming" (p. 164). Thus, in the study, the self-awareness the participants invoked empowered them to clarify their responsibilities as educators, which was considered a critical accomplishment in the analytic stage. This accomplishment juxtaposed the perception that self-awareness is the democratic education (Henderson & Slattery, 2005) through which educators are capable of witnessing and influencing students (Sameshima, 2007).

In the study, the participants used many different adjectives to describe their mixed emotions. Most common combination is "sad and angry", and others were "scared and disgusted", "struggled and appalled", "hatred and confused", and so forth. Their mixed emotions were usually negative attitudes brought about by exposure to urgent global issues; these awakened their in-depth emotions and motivated their responsibility for taking action. The mixed emotions could be an ambivalent attitude which means a person evaluates an object with both positive and negative emotions simultaneously (Eagly & Chaiken, 1998). To some extent, the ambivalent mixed emotions are advantageous in searching for resolutions for predicament. Joans, Broemer, and Diehl (2000) define ambivalence as an "aspect of attitude strength which is likely to have consequences with respect to its impact on information processing, the persistence of the

respective attitude, its resistance to persuasion, as well as the relationship between the attitude and relevant behavior" (p. 35).

Pinar (2004) argued that "the analytic phase is not self-scrutiny for the sake of pubic performance, a self-theatricalizing in which social life becomes a spectacle" (p. 37). He consistently articulated that self-scrutiny would not be able to interpret the analytic stage and also created an awkward gap from the daily routine. He elaborated that "the point of *currere* is an intensified engagement with daily life, not an ironic detachment from it" (p. 37). In this study, the participants engaged their various emotions on the past and current events of the world, and realized their roles of being responsible educators through self-awareness. Their self-awareness was not invoked by the self-scrutiny, but by examining cautiously the past history, the current evaluation, and the future trend. Then, they understood the importance of continuing education and personal lifelong learning. This awareness and understanding was extracted from many big ideas generated through the analytic stage. The big ideas frequently presented in their *currere* writings and reflective notecards were how technology influenced education, how religion played a role in life pursuits, how culture embedded itself into personal identity, how serving the community was important to the meaning of life, and so forth. These big ideas encouraged the participants to think through the timeline, as ConnieB09 stated "learn from my past, reflect on my present, and envision my future" (CoonieB09, July 2, 2011, p. 3). The participants affirmed that their analytic thinking, examined through regressive and progressive stages which informed their awareness, responsibility, and self-understanding, directed them to the synthetical stage.

The Synthetical Stage

As emphasized earlier, the complicated conversation is not simply an information discussion; rather, it helps to digest and comprehend the information through critical thinking, self-reflexivity, intellectual judgment, ethics, aesthetic concept, interdisciplinary intellectuality, and erudition (Pinar, 2004). Pinar (2004) reinforces the ideas in his book that the complicated conversation is neither an instructional or pedagogical concept, but a curricular one. He argues that the complicated conversation is a specific version of "vigorous public debate," which supports "solitary study and discovery in rooms of one's own as well as in classrooms as civic squares" (p. 256). The complicated conversation overthrows the traditional approach of writing textbooks, arranging curriculum agenda, and establishing educational policies according bureaucratic politic interests. The engagement of complicated conversation brings self-understanding, self-reflection, self-awareness, and self-criticism to interdisciplinary subjects, educators, and students. The efforts of complicated conversation will reform educators' subjectivity, reconceptualize curriculum development, and reconstruct the world view of postmodern humanity (Slattery, 2006).

In the study, the virtual world activities in the synthetical stage focused on the complicated conversation between student-to-student and student-to-instructor. The participants were assigned randomly into groups and teleported to designated sites to engage in group discussions. The discussion was directed by a number of guiding questions, including 1) the reminiscence of war and ecological events, people, or incidents, 2) the feelings, emotions, perceptions, understanding, and reflection on SL

curriculum, 3) the creative ideas for designing an interdisciplinary curriculum on debatable issues, and 4) the general opinions of using SL as the medium to support an interdisciplinary curriculum. Although they were not very talkative when they came back to whole-class discussion, their *currere* writings and interviews showed that the process of mutual complicated conversation benefited their synthetical process in *currere*.

In the data from *currere* writings and reflective notecards, the important process for the participants to form their synthetical moment, or what Slattery (2011) called *proleptic* experience, was through self-understanding and self-reflection. Self-understanding usually came in first in the synthetical stage because they connected themselves to the education in terms of role responsibility, meaningful curriculum, attractive teaching strategies, and so on, after analyzing their past experience, evaluating present situation, and envisaging the best future.

As Pinar (2004) constantly highlighted that the autobiographical method of *currere* focused on self-understanding, which he argues is neither self-improvement nor self-withdrawal. Instead, self-understanding is a form of self-management which can be achieved via the understanding of "political context and historical moment" (p. 10). Self-understanding is the autobiographic part of the synthetical stage in *currere*, which is supported by interdisciplinary knowledge and personal history. "It is to oneself one comes to practice the autobiographics of self-shattering, revelation, confession, and reconfiguration" (Pinar, 2004, p. 55). When self-understanding adds complicated conversation with self and with colleagues, educators will reach the synthetical stage of

curriculum development dramatically different from the one established "according to politicians' self-interested agendas" (p. 207). As Pinar addressed through the complicated conversation and self-understanding, self can be added more consciousness, opinions, awareness, beliefs, values, emotions, and knowledge in order to achieve social reconstruction.

After the experience of virtual world exhibition and *currere* process, the participants took away the understanding of how to develop teaching ideas, instructional strategies, educational avenues, and an understating of the responsibilities of an educator. For example, Ktbeth09 understood the importance of teaching students about equality for which she thought the identity discrimination was the origin of conflicts. She believed that by using the once-removed participation in virtual world to teach the topic of equality, students can learn to treat everyone the same first, and subsequently appreciate the beauty of difference. Another example was that Audreyyuan understood her power to influence her students and make the world better. She was awakened by the understanding of social responsibility and realized the importance of empowering students. This way, students are expected to influence other students regarding global issues and to also contribute to the extent of their capabilities.

Pinar (2004) suggested that self-reflection may not result in self-transformation since the self does not change concretely. Slattery (2006) argued that the modern education exists with insensitive autocracy, ineffective bureaucracy, oppressive cultures, and monopolism. For solving this stalemate, self-reflection in curriculum development theory is the only feasible alternative. Slattery (2006) continued to point out that self-

reflection is a pivotal ingredient in autobiographic analysis and imagination. The ability to reflect the context of a significant event, a person, or an object directs people to the lived human experience. Self-reflection experience can also enlarge the vision in discerning the essence between human subjectivities and world objectivity.

Self-reflection came after self-understanding in the study; however, it frequently tied with self-understanding since both self-disclosures were meant to explore the participants' holistic comprehension and learning process by synthesizing first the three *currere* stages. Self-reflection disclosed more about their thoughts of the future, like what actions they were inspired and propelled to take after the experience. Not only were they concerned about their capabilities, they also embodied this thinking into a movement, which could possibly change the society and the world. In processing the self-reflection, being faithful to personal belief, integrity, and ethics was important, as AggieBurchett pinpointed. Because through listening to the inner voice, one should not be distracted by the world, instead, one should be focused on reconstructing the world via reconceptualizing teaching and learning, rethinking education, and reconstructing meaningful curriculum policy.

With regard to personal, global and educational points of view, self-understanding and self-reflection in the educational means of the complicated conversation enforced the participants to synthesize the past, present, and future. Participants reviewed themselves and gained life understanding. They applied critical thinking and intellectual conversation, connecting them to their own timelines. These activities motivated them to take action to fulfill their responsibility of empowering their

students to influence the world. This is the process of synthetical stage. Their

determination to take action was what Pinar (2004) called "self-mobilization" which

occurs after self-excavation, self-understanding, and self-reflexivity and it encourages

them to be responsible educators for social reconstruction. Self-mobilization is

aggregating self-knowledge, self-understanding, and self-reflection for reconstructing

the community and the society. Simons and Masschelein (2008) used self-mobilization

to explain governance and finance, which has equal meaning with different approaches.

They argued that self-mobilization means mobilizing skills and knowledge into the

environment or network where economic values and social responsibilities exist. Thus,

in the synthetical stage, autobiographic method again played a pivotal role in providing

self-study as a strategy in the *currere* approach. The ultimate goal for *currere* is to seek

the "synthetical moment of mobilization when, as individual and as teachers, we enter

the arena to educate the American public" (Pinar, 2004, p. xiii). This supports Pinar's

point that towards the end of the synthetical stage, self-mobilization is derived and

serves for social reconstruction.

Perceptions of SL Curriculum

Second Life, the main medium of virtual experience for *currere* in this study,

played an important role for visual and auditory richness, multimedia integration, distant

learning, considerable information, synchronous communication, and virtual reality.

Drawn from the data from *currere* writings and interviews, the participants shared a

number of constructive perspectives onto virtual SL curriculum. Regarding students'

perspectives of learning about the *currere* process and curriculum development, the participants indicated that SL assisted students in extrapolating ideas for subject integration and interdisciplinary curriculum due to the SL demonstration of innovative installation. In the perspective of technological utilization, SL changed the participants' perception about how integrating technology into the classroom made teaching and learning so accommodating for distant students, and further, motivated students to understand the target content more concretely and more effectively. In the perspective of autobiographic emotional involvement, SL also delivered the powerful images and videos to the participants, which directed them to understand why they possessed certain kinds of emotions towards specific events.

With regard to SL communication context, the 3D technology in SL allows simultaneous communication to get across online networking. The 3D Flash communication synchronizes text and voice chat among avatars in an online collaborative environment (de Lucia et al., 2009). Pita and Pedro (2011) found that SL has the advantage of promoting the communication of social cooperation, reciprocal interaction, and information sharing. Although it has been found that non-verbal (gesture) communication is rarely used in SL, the sense of presence and immersion that SL provides enhances interactive communication between avatars and between avatar and object, which in turn enhances content creation, role-playing, socialization, and social awareness (Pita & Pedro, 2011; de Lucia, et al., 2009). Moreover, Jarmon et al. (2009) discovered that students' engagement in learning in virtual world to some degree highly impacted their real-world social communication and collaboration. Responding to the

study, the participants whose first language is not English indicated that SL communication provided a comfortable environment for non-native speakers to be able to see the typed words and to prepare for text or voice chatting. Language barriers could be overcome easily and this virtual world experience could enhance real-world non-first language communication. Besides, the participants also discovered that the SL communication allows avatars to teleport others, send notecards, links, and objects, and conduct private text and voice chatting, which enhanced their real-world collaboration and socialization.

Virtual reality is another advantage the participants mentioned frequently and an important theme drawn from *currere* writings and interviews. The re-created sites the participants were assigned to visit impacted them in many perspectives, such as immersing into past time of Nazi persecution in Holocaust Museum, feeling the sad and angry atmosphere in Palestine-Israel War, or learning about ecological protection in Etopia Eco Village. Schroeder (1996) defined virtual world as "A computer-generated display that allows or compels the user (or users) to have a sense of being present in an environment other than the one they are actually in, and to interact with that environment" (p. 25). The power of being able to feel the past experience in the present is what Schroeder described about virtual reality. Mackenzie, Buckby and Irvine (2009) stated that virtual reality, as Web2.0, allows online content to be created by imitating the real world or based on an imagination. It not only provides an open-learning space for users to experience themes and subjects in more concrete sensation, but also enables the digital generation to share files, collaborate, and socialize synchronously.

When Dr. Slattery led the doctoral students to conduct the public event which inspired my research of virtual world exhibitions, he encouraged them to identify as many *currere* themes as possible, which are debatable, contemplative, challengeable, and discussible. The extrapolation of curriculum is another method to develop curriculum. Slattery (2006) emphasized that the postmodern curriculum extrapolates outside of the traditional chronological and linear pattern which confines understanding along with regular time and space. SL curriculum utilized multiple types of media (text, images, videos, webpages, and re-created sites) to surround the participants in thematic environments where enormous information was installed for them to explore. This is similar to what Provenzo (1992) described about microworlds in the early video game era which is a computer-based environment for players to engage in electronic dialogue and imagination. The only difference is that video games are preordained, and players need to follow the pre-set scenario step by step as programmed so as to complete the mission. Second Life allows designers and participants freedom to imagine, create, and explore. The virtual exhibitions in this study demonstrate to participants how to integrate interdisciplinary curriculum into advanced technology. This way, the participants could start to construct the ideas about how to engage students in their own fields with multimedia and multiple strategies.

SL is not a singular technology in terms of technological skills; instead, it is an aggregation of multiple technologies, such as PowerPoint, image and video designing, word processing, building, and programming. Also, SL skills involve writing notecards, teleporting, shaping avatar, avatar movement, using camera, and chat. The most

important notion is for a designer to display his/her creativity to adopt certain technology

in order to achieve specific goals. Drawn from the synthetical stage of the *currere*

writings and interviews, the participants were impressed about the ability to integrate

technology into curriculum development. About half of the participants stated that they

will use SL in their future classroom. Many of them said that they will incorporate more

technologies into their teaching because of the experience of the virtual participation.

In the perspective of autobiographic emotional involvement, SL also delivered the

powerful images and videos to the participants, which directed them to understand why

they possessed certain kinds of emotions towards specific events. The installation of SL

exhibitions and *currere* writings were thought to provoke the participants'

autobiographic emotions successfully. They possessed stronger and extreme attitudes,

especially when inquiring about their emotions toward the events they had experienced.

As cited in Pinar's (2004) "*What is Curriculum Theory*":

> Virginia Woolf understanding: strong emotion leaves traces, which is to say
>
> clues. What one does not remember, or, at least, remember immediately (and
>
> that "immediately" can last for decades), is probably more important. That is
>
> why the periphery—of one's everyday ego, of the body politic—is so
>
> important (p. 53).

There are two Likert scale questions included in the questionnaire of *currere* writings.

One of the questions inquired from the participants if the two SL exhibitions were

compelling enough to make them recall people or event related to the wars and

ecological occurrences. Twenty-nine out of 31 participants agreed with the powerfulness

of SL. Among those 29 participants, five of them responded "strongly agree." The second question asked about their emotions toward those specific events. This data showed how powerful the SL exhibitions brought memories, emotions, and attitudes to the events. They also understood why they possessed certain emotions toward specific events.

Educational Understanding of SL Curriculum

As explained earlier, to prompt self-mobilization "in the service of social reconstruction, self-understanding is usually provoked first in the synthetical stage" (Pinar, 2004, p. 201). When the participants in the study awakened their self-understanding, they further connected to educational implementations. They started to ponder how to attract students with meaningful curriculum, how to awaken students' consciousness on urgent situations, how to be responsible for the educational roles, how to empower students to bring changes to the world, how to put their enthusiasm into practice, and how to finally achieve social reconstruction. The self-understanding and educational understanding sublimate into mobilization, as the coding theme took action (2.4.4). Self-mobilization is developed as powerful curriculum and teaching which can reconstruct both private and public spheres of education.

In the study, the participants were influenced and awakened perceptibly by going through the *currere* process of virtual exhibitions and four steps of *currere* writing. Their self-reflection, self-understanding, personal emotions, and sense of responsibility were invoked to anticipate putting self-mobilization and social reconstruction into action.

This process aligned with what Pinar (2004) highlighted that *currere,* as the social and subjective reconstruction, "provides a strategy for students of curriculum to study the relations between academic knowledge and life history in the interest of self-understanding and social reconstruction" (p. 35). As Pinar (2004) reminded us to understand political context and remember the historical moment, the SL curriculum was installed to extract the participants' past memories and political activities on wars and ecological issues. Through multimedia information, the participants commented that their consciousness towards global urgent issues was awakened by complicated conversation and autobiographic narratives during virtual exhibitions in which they came to understand their own capabilities regarding reconstructing curriculum and teaching. In reaching the synthetical stage, they obtained an educational understanding about Pinar's (2004) curriculum theory:

> Teacher preparation becomes the education of self-reflexive, private-and-public intellectuals, intellectuals whose primarily loyalty is multiple, shared among their academic discipline(s), the social reconstruction of the institution and society in which they teach, and the intellectual and psychosocial development of the students they teach (p. 229).

Pinar (2004) argued that the *currere* process goes through psychoanalytic practice, but it is not considered as a personal therapy; instead, it is a process of social reconstruction. Educators who apply *currere* "must teach beyond contractual obligations for self-realization and democratization, for self-mobilization and social reconstruction" (Pinar, 2004, p. 232). Besides, he pointed out that the synthetical moment in *currere*

aims to fulfill self-mobilization and social reconstruction which, in the educational context, need educational understanding in the service. The coding themes, such as self-awareness (1.1.4 &2.3.2), prospection (1.1.5), self-experience (1.1.6), self-understanding (1.1.7 & 2.4.2), taking actions (1.2.2 & 2.4.4), responsibility (1.2.4), and big ideas (2.3.4), reveal their educational understanding towards the *currere* process in the SL curriculum, as well as their consciousness and desire to reconstruct public and private educational spheres.

Educational Reflection of SL Curriculum

Some participants remained fixed on their educational belief in response to exhibitive issues while others expressed that they were never aware of those issues and claimed to have been awakened by the exhibitions. For example, AggieBurchett advocated that wars could bring peace and justice to the world although he considered wars as an obnoxious means to an end. His self-reflection on wars was steadfast on the basis of original beliefs, personal integrity, and ethical concepts. This personal reflection on future curriculum development aligned with Ross, Cornett, and McCutcheon's notion that "teachers' personal theories and beliefs serve as basis for classroom practice and curriculum decision making" (p. 3). Unlike AggieBurchett's firm beliefs, some affirmed that they were awakened because of the virtual multimedia environments and the *currere* process. For example, Amkerschen wrote in her *currere* writing that she started disliking the traditional way most Americans think of their nation, a powerful and rich country in terms of unrivaled democracy and economy. The idiosyncratic mindset results in

arrogance and unawareness of the importance of foreign languages and cultures. By experiencing the virtual exhibitions, she reflected more educational enlightenment in morality, integrity, ethnicity, multiculturalism, and eco-awareness needed to be implemented for contributing to global urgent issues.

In the study, the self-reflection in the synthetical moment aroused participants' consciousness to moral responsibility and social commitment in the difficult time. This was a wide-awakeness as Greene (1978) considered, that many people are currently lacking. She argued that "few people ask themselves what they have done with their own lives, whether or not they have used their freedom or simply acceded to the imposition of patterned behavior and the assignment of role" (Greene, 1978, p. 42). Wide-awakeness, as Greene highlighted, is a form of anxiety that appears when acting without freedom, living without sublimated lives. The perception of wide-awakeness confronts the world with inequities and injustices which can be "overcome through conscious endeavor on the part of individuals to keep [them] awake, to think about their condition in the world, to inquire into the forces that appear to dominate them, to interpret the experiences they are having day by day" (p. 44). Considering educating youth about urgent moral issues, Greene encouraged teachers to play out the responsible roles and conduct teaching with serious consideration. She argued that teachers must be accountable to be role models which encourage students' ethical carriage.

The power of teaching and curriculum development is not to tell students what to do or what they should choose, but rather to empower them "to internalize and incarnate the kinds of principles that will enable them to make such choice…involving taking a

principled position of one's own and speaking clearly about it, so as to set oneself on the right track" (Greene, 1978, pp. 48-49). Greene (1978) concluded teaching with wide-awakeness is threefold:

> It involves equipping young people with the ability to identify alternatives, and to see possibilities in the situation they confront. It involves the teaching of principles, possible perspectives by means of which those situations can be assessed and appraised, as well as the norms governing historical inquiry, ballet dancing, or cooperative living, norms that must be appropriated by [persons]desiring to join particular human communities. It also involves enabling students to make decisions of principle, to reflect, to articulate, and to take decisive action in good faith (pp. 50-51).

The educational reflection was the educational extension of self-reflection in personal, virtual exhibition, social, and global perspectives. Their wide-awakeness, withdrawn from educational experience and virtual-world exhibition, affirmed their role as an educator, accountability of social commitment, motivation of taking actions, inspiration of technology integration, and awareness of global urgent issues. The participants reflected that, because of the development and extrapolation of their educational reflection, they were prompted to take actions to implement awakening curriculum, and integrate technology to bestead teaching as well as arouse students' interests in learning. The coding themes, such as self-reflection (1.1.3 & 2.4.3), self-awareness (1.1.4 & 2.3.2), self-experience (1.1.6), subject integration (1.4.2 & 3.1.2), regressive reflection (2.1.5), changing curriculum (2.2.2), bring awareness (2.2.4), and

technology integration (2.4.5), reveal their education reflection toward the *currere* process in the SL curriculum.

Educational Development of the Participants

In her dissertation of using *currere* to explore white teachers' teaching to African American students, Milam (2008) concluded that:

> In many teacher education programs across the nation, the potential teacher candidate progresses through a series of courses aimed to develop content knowledge, an understanding of pedagogy, and explore the role and expectations of being a teacher in a school setting. What is lacking in most teacher education programs is a conscious and consistent exploration of an engagement with pre-service teacher candidates' lived experiences, their perceptions of themselves and others, and how both of these will likely impact the kind of teacher they will become (p. 191).

The lack of personal autobiography, perceptions of self-understanding and self-reflection, and the exploration of current urgent issues and future prospection result in teachers (or pre-service teachers) having difficulty extending to educational insights, including the aforementioned educational understanding and education reflection. In addition, the lack of educational insights will further cause the stagnation of self-mobilization and social reconstruction, which are the ultimate goals of interdisciplinary curriculum and teaching, as well as of *currere*. This study applied four stages of *currere* into virtual curriculum by involving multimedia demonstration, multi-sensory learning, complicated conversation,

and autobiographic and *currere* reflection, to examine global urgent issues from the perspectives of self, peers, community, and society. The point of this study was not to focus on global urgent issues, but demonstrate interdisciplinary curriculum development and the *currere* process to educators (education graduate students in the study) which they can then implement in their future teaching.

Participants' memories, thinking, emotions, attitudes, imaginations were aroused frequently during the virtual exhibitions and *currere* writings for invoking their self-understanding, self-awareness, moral consciousness, synthetic thinking, self-reflection. These personal synthesis followed their educational extensions—educational understanding, educational reflection, educational mobilization, motivation of educating, and social reconstruction, which involved educational application of synthetical experience. The study indicates the process was conducive in terms of participants' perspective of self-examination, educational insight, curriculum development, and technology integration. Drawn from a variety of research data, the participants signified that they changed a number of viewpoints in delivering information, connecting to personal experience, inspiring students' interests of learning, educational meaning, pedagogical strategies, technology utilization, and teaching for benefiting the world after the SL participation and the *currere* process. The research proposes that the development of the *currere* teaching and learning is close to what Pinar (2004) defined about public education:

> …as a political, psycho-social, fundamentally intellectual reconstruction of
> self and society, a process in which educators occupy public and private

spaces in-between the academic disciplines and the state (and problems) of

mass culture, between intellectual development and social engagement,

between erudition and everyday life (p. 15).

In achieving subjective and social reconstruction, this study of the *currere* process also

aligns the trajectory of postmodern education Slattery (2006) proposed, which is:

radically eclectic, determined in the context of relatedness, recursive in its

complexity, autobiographically intuitive, aesthetically intersubjective,

embodied, phenomenological, experiential, simultaneously quantum and

cosmic, hopeful in its constructive dimension, radical in its deconstructive

movement, liberating in its poststructural intents, empowering in its

spirituality, ironic in its kaleidoscopic sensibilities, and ultimately, a

hermeneutic search for greater understanding that motivates and satisfies us

on the journey (pp. 296-298).

The coding themes, such as self-reflection (1.1.3 & 2.4.3), self-awareness (1.1.4 & 2.3.2),

self-understanding (1.1.7 & 2.4.2), subject integration (1.4.2 & 3.1.2), taking action

(1.2.2 & 2.4.4), changing curriculum (2.2.2), bring awareness (2.2.4), responsibility

(1.2.4) and multimedia integration (3.1.3), reveal their education development toward

the *currere* process in the SL curriculum.

Conclusion

In response to the introduction section, this study significantly attempted to 1)

incorporate *currere*—"the interdisciplinary study of educational experience" (Pinar,

2004, p. 2)—with the multimedia virtual world of Second Life, 2) demonstrate theoretical and practical perspectives of curriculum development to education major graduate students, and 3) identify the effects that the virtual *currere* process has on the participants' self-understanding, and take further actions for educational reconstruction. To sum up the study, a number of suggestions on the aspects of technology, *currere*, and practical execution are provided for the quality enhancement of similar research.

With regards to perspectives of technology, the project related majorly to the aspects of content designing and curriculum execution. During the designing of the virtual exhibitions, it took about ten months overall to initiate, modify, and finalize the installations of the two virtual exhibitions. A number of technical issues occurred which caused delays while we awaited consultation from Second Life experts. The time spent on installing a large number of text, images, videos, and animations, searching for relevant resources, and counseling for quality was considerable. As to the perspective of executing the projects, the participants had to first overcome the technical difficulties, including higher level computer processor, a persistent and high-speed Internet connection, and high resolution graphic cards, in order to attend the virtual exhibitions. Because of above-mentioned reasons, a few participants were withdrawn for alternative coursework during data collection period. Some remaining participants, who barely met the basic hardware requirements, also complained about issues like lagging, slow video loading, and intermittent Internet connection. Communication issue was also another difficulty the participants mentioned. Unlike face-to-face discussion SL does not allow multiple people to talk at the same time. Although SL is advantageous on synchronous

distant learning (Bell, 2008; de Lucia et al., 2009), once-removed participation (Ball & Pearce, 2009), creativity enhancing (Sanchez, 2009), and cooperative teamwork (Burgess, Slate, Rojas-LeBouef, and LaPrairie, 2010; de Lucia et al., 2009; Warburton, 2009), it still needs experienced designers, Linden Lab improvement, and fully virtual curriculum preparation to break the learning curve.

The procedure of *currere* was constructive and complex; so was *currere* data collection and analysis. The participants needed to spend considerable time to recall memories, scrutinize current time, envisage future, examine self, analyze timeline, generate understanding, synthesize reflection, listen to inner voice, awaken consciousness, and construct resolution in order to undergo the *currere* process and compose *currere* writing. Because of the large amount of data—observations, virtual reflective writings, *currere* writings, and interviews, the time and efforts spent on analyzing the data, coding themes, transcribing, filtering useful data, and writing it up is uncountable. Although this is the classical process for a solid qualitative research, I suggest in the future, a similar research can be developed by using mixed methods which can be achieved by modifying the *currere* questionnaires.

In this study, the effect of the integration between Second Life and the *currere* process initially achieves the goals to extract the participants' perceptions, understanding, reflection, and educational growth in learning to teach an interdisciplinary and multimedia virtual curriculum, as well as further to enhance their consciousness to take actions for social reconstruction. Their self-examination (e.g., autobiography, self-experience, self-understanding, self-awareness, self-reflection, and self-mobilization)

and educational development (e.g., educational understanding, educational reflection, educational growth, and social reconstruction) were well processed and evolved. What needs to advance is twofold: (1) the practical methodology in which studies evaluate the *currere* process, realistic educational development, improvement of students' growth in consciousness, and (2) the interdisciplinary curriculum development needed to conduct and understand how effective the virtual *currere* approach can be. Whether conducting future research or developing curriculum, always keep the *currere* approach in mind:

> When we listen to the past we become attuned to the future. Then we can understand the present, which we can reconstruct. Subjective and social reconstruction is our professional obligation as educators in this nightmarish moment of anti-intellectualism and political subjugation. Alone and together, let us participate in complicated conversation with ourselves and with colleagues worldwide. Let us construct an increasingly sophisticated and auditory field of education, one worthy of those schoolteacher and student who, each day, nearly everywhere on the global, labor to understand themselves and the world they inhabit (Pinar, 2004, p. 258).

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APPENDIX A

Please type your answer below each question. Use Times New Roman font, and a 12-point font size. The answer for each question is not limited to the given space. Please use as much space as is needed to address each question as detailed and specific as possible.

Stage One – Regression:

1. Do you remember any wars or ecological details that occurred in your childhood or youth?
   □ Yes □ No

   What wars or ecological details do you remember? Please be specific about the details, including places, time periods, governmental reactions, industrial reactions, educational responses, citizen responses, impacts, etc.

   Describe your personal feelings, emotions, or reaction at the time of the wars/ecological details.

2. Describe one example of wars or ecologies from your school that stands out.

   Why are your memories of the occurrence still vivid?

   Do your memories of the occurrence have any effect on your pedagogical methods when you became a teacher?

3. Were these two Second Life exhibitions strong enough to make you recall people or events related to the wars and ecological occurrences you are familiar with?
   □Strongly Disagree   □Disagree   □Agree   □Strongly Agree

   What parts/aspects of the exhibitions stimulated the recall?

4. After seeing the exhibitions, what are your thoughts, reflection, or understanding about wars and ecological issues?

Stage Two – Progression:

1. Imagine that the world will be devastating in the 22nd century as a result of climate change, lack of food and water, and wars between countries. What are you going to do as an educator to prevent these tragedies from happening?

   In what way and with what tools will you deliver the curricula to your students regarding wars and ecological issues?

2. Imagine you are about to receive an award in recognition for your contribution for delivering a tremendous curricula regarding wars and ecology. How will you feel about it?

   Describe what will be the highlights of your acceptance speech?

3. Imagine you successfully prevented the devastating situations as predicted by scientists, what will be your next set of goals for next five to ten years?

   How is this new set of goals different from the goals you have already accomplished?

Stage Three – Analysis:

This stage will help to recall experiences from the two exhibitions and presentations, and to review responses you made in the previous stages. This is a time to link the past and future with the present.

1. As you ruminate over the past, present, and future, what ideas show up over and over again?

2. As you recall the past, what parts do you wish to be done differently?

    i.   What parts make you sad?
    ii. What parts make you angry?

iii.   What parts leave you with mixed feelings?

3. What decisions did you make today as a result of influences from your previous responses? In what way(s) were decisions you made today influenced by your hopes for the future?

4. Following are two categories for you to jot down your personal experiences, experiences from the exhibitions, and recollections from past experiences.

Personal categories

My past	My present	My future

General categories

World past	World present	World future

Which categories surprised you?

Which categories made you feel sad, angry, or confused?

In which of the categories do you think that you are capable of making contributions that will change the future and in effect affect the future generation?

As a pre-service or in-service teacher, what are your thoughts at this stage of analysis stage?

What are the big ideas or themes you see in your professional life?

How did those big ideas or themes play out in your past, present, and future?

Stage Four – Synthesis:

1. Was what you believed about yourself confirmed through this process? If yes, what are they? If no, what are they?

2. What self-understanding (self-knowledge and self-belief) did the virtual exhibitions make you come up with?

3. What self-reflection did virtual exhibitions make you come up with?

4. What have you learned from peers and classroom discussions regarding virtual exhibitions?

5. What are your thoughts on using virtual world to present an interdisciplinary curriculum?

6. What have you, as a pre-service or in-service educator, learned from the synthetic process of the past, present, and future?

7. If you are an interdisciplinary instructor and you had to design a curriculum about globally persistent issues, what themes will you come up with? What methods will you use to deliver the curriculum? Why did you choose this topic to present?

APPENDIX B

Interview Protocol

1. Do virtual exhibitions impact your perceptions about teaching and learning a curriculum?

2. What are your thoughts about using Second Life to deliver a target curriculum? Could you please respond this question in the perspectives of technology, creativity, and effectiveness?

3. What are your thoughts about the use of communications (text chat, voice chat, public chat, and private chat) to engage distance complicated conversation?

4. What do you think you learned from the Second Life component of this course that you would not have learned otherwise?

5. For what other types of learning activities do you think Second Life would be potentially effective?

6. Did you observe any change(s) in your attitude towards teaching and learning after participating in Second Life activities?

APPENDIX C

Second Life Guiding Questions

1. What are your feelings, emotions, thoughts, understanding, or reflections of the

    multimedia installations?

2. Are any of your visits recall you of any events, people or incident?

3. How would you like to design your target curriculum to discuss about hidden

curriculum or debatable issues?

4. What are your opinions of using virtual worlds, like SL, to deliver an
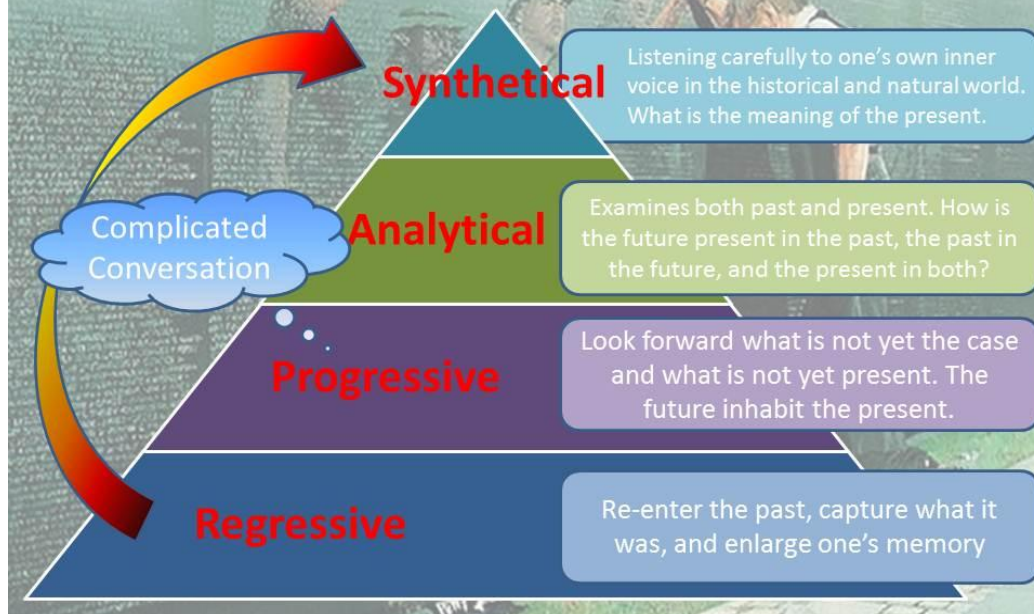
interdisciplinary subject?

APPENDIX D

War Presentation PowerPoint Slides

The Purposes of Virtual Installation

1. To demonstrate a theoretical-wide and practical-wide curriculum.
2. To learn to use multimedia technology for delivering a meaningful curriculum.
3. To encourage self-reflection and self-understanding.
4. To extrapolate other interdisciplinary themes.
5. To use the *currere* approach in the curriculum development.

Williams Pinar's Four Steps of Currere

Synthetical — Listening carefully to one's own inner voice in the historical and natural world. What is the meaning of the present.

Analytical — Examines both past and present. How is the future present in the past, the past in the future, and the present in both?

Progressive — Look forward what is not yet the case and what is not yet present. The future inhabit the present.

Regressive — Re-enter the past, capture what it was, and enlarge one's memory

Complicated Conversation

Initiation & Inspiration

Agenda

1. Introduction of the war exhibition
2. View collaged images and web pages
3. View the relevant video clips
4. Reflection notecards
5. Teleport to out-of-Glasscock islands
6. Group discussion
   (complicated conversation)
7. Self and mutual reflections
8. Q & A

APPENDIX E

By 2050

VITA

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