

Immersive Learning in Preservice Teacher Education: Using Virtual Worlds

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Abstract

The purpose of this project was to use virtual world technology in a fully online course to assist preservice teachers in examining their stated and implied beliefs, attitudes, and expectations about social roles related to gender. Second Life was explored as a viable means to enhance interactivity and engagement in an asynchronous entirely online class. Data was generated by a social roles questionnaire, a perception survey, journal entries and written final examinations. Results showed that students' initially held beliefs about social roles as determined by the questionnaire did not significantly change; however, data generated from journals and final exam indicated that experiences exploring gender and social roles in a virtual environment were powerful and transformative, leading to new insights into gender roles and how these roles impact our beliefs about ourselves and others and how teachers and students are impacted by these beliefs. Preservice teachers surveyed indicated agreement with the idea that Second Life makes online coursework more interactive.

Key Words: Virtual learning, gender, social roles, teacher beliefs, second life, teacher preparation, online learning.

INTRODUCTION

Professors of all disciplines can impact student learning by varying the way in which they engage students in knowledge sharing and creation. Online education technologies have become an important means to provide a more varied and differentiated curriculum, especially in higher education settings. Not only do online technologies provide an alternative or supplement to face-to-face lecture, but they also provide a variety of ways for students to interact with the content of the curriculum as well as the professor. Through technology experiences, especially when social media is employed, students become more actively engaged in their own learning when provided the opportunity to collaboratively work with their peers in constructing information (Norton & Sprague, 2001). Many universities offer courses through an online learning management system such as Blackboard Vista; Discussions, emailing, virtual meetings, instant messaging and a variety of other functions allow for students to interact with each other and with the professor; however, with the advent and development of virtual world technology for use in education, immersive education within these virtual worlds offer an alternative education experience.

THEORETICAL BACKGROUND

There is emerging evidence that virtual world technologies supplement and provide the online education experience by providing opportunities for meaningful social interaction, a constructivist element that can improve student learning during online instruction. When students meet together in virtual settings where they can “see” each other via avatars and interact in a virtual world a sense of belonging and an embodied social presence is created (Edirisingha et al., 2009; Holmberg & Huvila, 2008; Omale, Hung, Luetkehans, & Cooke-Plagwitz, 2009; Salmon, 2009; Warburton, 2009).

How Do Virtual Worlds Enrich Learning?

Immersive or virtual world learning provides students a multimodality experience. These technologies are 3D Internet-based simulation environments in which users can play games, they are not games (Dawley, 2009). The virtual learning environment offers the opportunity for students to do what might otherwise be impractical or impossible in the real world (Twinning, 2009). Students can communicate with each other while walking, running, swimming, flying through environments as varied as coral reefs, Antarctic ice caps, volcanoes, or they can visit museums, art galleries, and classrooms that are virtual replicas of the real-world locations. Users can build buildings, cars, upload pictures and watch movies together.

Web-based applications have facilitated the use of virtual worlds in learning, allowing the development of a range of teaching tools such as document and file sharing, holding meetings, conferences, and class lectures and seminars. In particular, virtual worlds have been studied as environments in which to instruct using problem-based and project-based education methodologies (Mayrath, Sanchez, Traphagan, Heikes, & Trivedi, 2007). Virtual environments appear to provide opportunities for situated learning, contextualized and supported by communities of practice which can provide powerful experiences that engage and inspire education that goes beyond the traditional classroom (Lave & Wenger, 1991; Lave, 1996; Wenger, 1998).

Research on the use of virtual world learning has shown that learners are motivated to engage in the learning events because of the life-like avatars and the interactivity with digital mentors and role-playing actors within world (Veletsianos, 2008; 2009). Ang & Wang, (2006) studied students using virtual learning environments for science education. They observed notable improvements in engagement and in attendance. Scores on science exams were reported to have improved.

Questions remain however, as to how best to utilize the technology available and study is needed to identify the strengths of learning in virtual environments (Prasolova-Forland, et al., 2006). Although virtual world technology has generated a great deal of interest among educators interested in using educational technology, the field is still in its infancy and little empirical evidence is available about its use as an effective instructional tool (Edirisingha, Nie, Pluciennik, & Young, 2009; Jarmon, Traphagan, Mayrath, & Trivedi, 2009; Mayrath, Sanchez, Traphagan, Heikes, & Trivedi, 2007; Warburton, 2009).

Gender, Social Roles, and Teacher Preparation

This project sought to create experiences for preservice teachers in a teacher preparation program that would provoke insight into their thoughts, feelings, and unexamined assumptions if not misunderstandings they had about gender roles and the complexities of gendered experiences. Teachers' beliefs about gender and social roles are often entrenched if not unreflectively established by the time they enter a teaching program. Yet, teacher beliefs and perceptions are the closest predictors of future behavior and, importantly, influence teachers' actions, perceptions, and treatment of children which ultimately impact student performance (Pajares, 1993).

Believing that women and men are fundamentally different and that they are specifically suited for roles in society based upon their gender leads to differential treatment and expectations especially of boys and girls in school. In fact, contemporary research suggests that fixed-gender /sex differences in social behavior do not exist (DeFrancisco & Palczewski, 2007). That is, knowledge of an individual's sex does not predict the individual's behavior (Aries, 2006). Patterns of interaction have been studied; for example, forms of politeness, topic initiation, pauses, interruption, inquiry, amount of talk, and no consistent differences have been found (DeFrancisco & Palczewski, 2007).

In fact, individual differences such as race, ethnicity, language, socio-economic differences, social context, and personality are more a predictor of behavior (Gollnick & Chin, 2009). Still, teachers treat children differently in the classroom and have different expectations of them based upon their sex. Interacting in a virtual world where students could experiment with and experience different gendered behaviors and social roles promised to offer a learning adventure that might challenge personal beliefs about the nature and character of gender and social roles.

Kumishiro (2000) in his theory on anti-oppressive education describes marginalized groups as students of color, students from under-or unemployed families, female, male but not stereotypically "masculine," and students who are perceived to be gay, lesbian, bisexual, transgender, and intersex. Would experiencing the world as "the other" impact these teacher preparation students' understanding of and empathy for children who get "othered" or marginalized at school and in classrooms? How would preservice teachers feel if they experienced what others experience? Would they be less inclined to dismiss or embrace differences or similarities? How would a male student teacher experience the world as a woman? How would a female student teacher experience the world as a man? How would each experience the world as someone whose gender is ambiguous? How could a virtual environment offer a world in which preservice teachers could explore these other identities?

The Purpose of the Project and Study

The purpose of the project and study was to determine the extent to which Second Life, a virtual world, could be used as a viable means to enhance interactivity and provide a transformative experience in an all online class and to assist preservice teacher candidates in the successful in examining their stated and implied beliefs, attitudes, and expectations about social roles related to gender. There were three parts to this small university grant funded project. Part I consisted of

purchasing property in Second Life for university use, building the virtual environment for conducting lessons, and conducting the study. Part II consisted of developing and implementing lessons for a prerequisite course to the university teacher education program that would take place in Second Life within the context of a fully online course. Part III consisted of examining the efficacy of the lessons that took place in Second Life and explored the students' perceptions of Second Life as a viable tool for learning in an online course.

What is Second Life?

The virtual world used in this study was Second Life made by Linden Lab (<http://lindenlab.com/>). Second Life (SL) is a computer-based, simulated multi-media virtual world environment that users inhabit, living, traveling, and interacting with other users representing themselves to others in the form of avatars (Mansfield, 2008; Dawley, 2008). The user selects an initial entry avatar, selects a name, and then, when entering the virtual environment or when going "in-world," can change body type, color, gender, race, weight, height, race and clothing. Second Life also maintains a virtual economy based upon the Linden dollar which is the in-world unit of trade. "Lifers" exchange US dollars for Linden dollars to spend buying and selling in-world. While the emphasis is primarily socializing with others, schools, universities, hospitals, and companies use Second Life as a virtual location for teaching and learning, networking, and holding virtual conferences. Universities such as East Carolina University (Hodge & Collins, 2009) and Ohio University of Athens (Jennings, 2008) have constructed virtual models of their real world campuses in SL, in addition to private universities such as Harvard and Stanford University.

METHOD

Participants

The participants who volunteered in this study (n=15), seven males and eight females, were a subset of 77 students enrolled in two sections of a required course for preservice teachers. The context of this study was a required course in the teacher preparation program in a medium-sized rural, state university. All students were required to complete 10 modules which focused upon topics such as race, language, socio-economic status, religion, exceptionality, age, and gender. The study took place in the module on gender and social roles. Second Life was used as an alternative means to meet the requirements of the module. For the gender and social roles module, students, could volunteer to complete the module using Second Life with readings, posting, and video or complete the module with readings, posting, and video alone. At the end of the semester, they also chose between two final course exams, a school study or a gender study in Second Life.

Data source

The purpose of this study was to assist preservice teacher candidates in the successful in examining their stated and implied beliefs, attitudes, and expectations about social roles related to gender and to explore the extent to which Second Life could be used enhance interactivity and transformative experience in the all online class. Quantitative and qualitative data from three

primary sources were generated to conduct this assignment evaluation. Two sources of data were designed to measure student learning outcomes and one source measured student perceptions Second Life as an effective virtual learning environment.

Measuring student learning outcomes

The targeted learning objective of the course was the following: Candidates will be able to systematically examine their stated and implied beliefs, attitudes and expectations about diversity (race, ethnicity, language, culture, class, religion, gender, and sexual orientation).

1. The Social Roles Questionnaire (Baber & Tucker, 2006) (see Appendix A) was given to students to measure student teacher's attitudes toward gender roles. This data source consisted of a 14-item questionnaire in a Likert-type format (1 strongly disagree, 5 strongly agree). These questions are designed to assess the preservice teacher candidates' attitudes toward gender (gender-linked vs. gender-transcendent).
2. Students wrote a final paper and kept a journal describing their experiences in Second Life as both a man and a woman. In the paper, students were required to reflect upon the following: Part I: The Second Life Experience; Part II: Gender and Social Roles Influence on Students; Part III: Creating An Equitable Environment. Data was analyzed from these sources to determine the impact of assignment of student's attitudes toward gender roles.

Measuring student perception of virtual world learning

Student perceptions of Second Life as viable means to improve learning in an online class were measured by a likert-style survey (5 strongly agree, 1 strongly disagree). Three areas were addressed by the questions: Effectiveness, advantages, and usefulness.

A Student Perception Survey of Second Life (see Table 2) was given to examine students' perceptions of Second Life as a viable means to enhance interactivity in a 100% online class.

Procedure

The Social Roles Questionnaire was given to all students before beginning the Gender and Social Roles module. Then, they took the survey again at the end of the course after they had completed their final papers. Pre and post means for *Gender Linked* and *Gender Transcendent* social role attitudes were generated compared with the intent to compare the pre and post data within subjects who participated in the Second Life project and to compare them with the students who did not participate in the Second Life project but just participated in the Gender and Social Roles Module.

Journal entries and the results of a final assignment were collected and analyzed to discover themes related to changing perceptions about gender and social roles. Students were also given a perception survey to examine students' perception of Second Life as a viable tool for learning in an online course.

RESULTS

Social Roles Questionnaire

The chart (Figure 1) below summarizes pre and post-test data with respect to student attitudes toward gender roles for men and women, children, and mothers and fathers as gathered from the Social Roles Questionnaire (Baber & Tucker, 2006). Items represent either *Gender Transcendent* attitudes or *Gender Linked* attitudes. *Gender Transcendent* items seek to document students' belief that gender role prescriptions although acknowledged are irrelevant when prescribing social roles and responsibilities related to work, child rearing, occupations. For example, "The freedom that children are given should be determined by their age and maturity level and not by their sex" or "Tasks around the house should not be assigned by sex." *Gender-Linked* items seek to determine students' attitudes that social roles are fixed and gender specific, or linked. For example, "Men are more sexual than women" or "Some types of work are just not appropriate for women."

Pre-tests were given at the beginning of the semester and post-tests at the end. In general, it was predicted that these scores would increase from pre to post-test. All of the students in the online course which was the focus of this study completed the required module designed to address gender and social roles; however, the critical issue was whether or not there was a difference between the student who participated in the Second Life (virtual world learning) assignment that focused upon gender and the students who did not participate in this assignment.

An independent t-test was computed to determine whether the differences are statistically significant in general between student attitudes before they engaged in the gender and social roles module and after completing the module (whether or not it was completed traditionally or in Second Life). The t-test comparing pre- and post-test scores was not significant ($t = -495.78$, $df = 77$, $p < .001$). Student attitudes toward gender and social roles regarding gender transcendent and gender linked did not show a significant change in the quantitative results. However, the qualitative data generated from the journal responses showed insight and transformation that numerical data was not able to show.

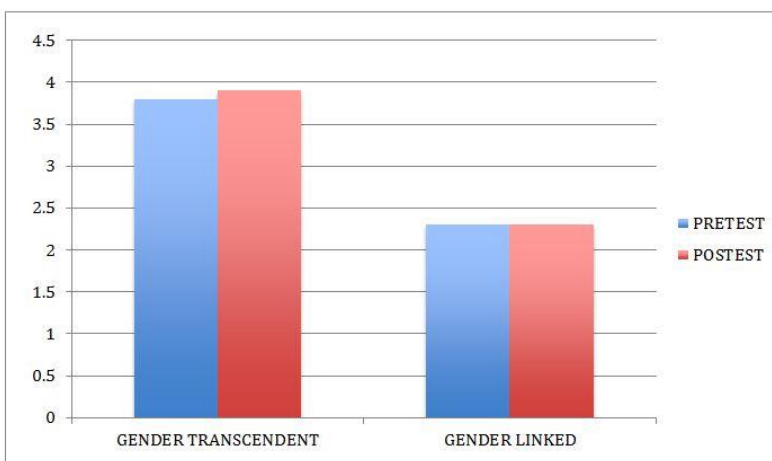


Figure 1. A Comparison of Means: Pre and Post Survey of Social Roles Related to Gender-Linked Beliefs and Gender Transcendent Beliefs. (5=Strongly Agree, 1= Strongly Disagree)

Journal and Final Exam

Although the questionnaire results revealed preservice teachers has not changed their attitudes significantly, their journals revealed significant experiences that challenged their personal beliefs about themselves and others. They were challenged by experiences that stimulated insight that would otherwise have been challenging if not unsafe in the real world. Data generated from the final reports and journal entries that students submitted were analyzed based on a process outlined by Creswell (2002) for analyzing and interpreting qualitative data. Data analysis consisted of the following three-phase process: developing themes from the data; defining themes based on the findings; and connecting and interrelating themes. Journal responses and all of the responses for each part the assignment and of the final paper were read and analyzed. There were three parts of the assignment: Part I: Student Experience; Part II: Reflections upon Gender Roles; and Part III: Creating an Equitable Environment.

Part I Student experience

Part I of the final required students to reflect upon their experience as a woman or a man. That is, they were required to enter and interact in Second Life, first as a gender-like avatar and then as a gender-different avatar. It was up to the student to decide what qualified as “gender-like.” They were instructed to pick an avatar whose gender most closely matched the gender they felt matched who they were. Prompting questions for journaling were: How did it feel to be interacting with others as woman avatar. How did if feel as a man? What are you thinking about? How do you experience your “body?” How do you like your body, your looks, your hair, your shape, your style? Do you notice what you are thinking about other people’s body, hair, behavior, style, etc.? Do you feel you need to do anything differently? Were you treated differently? Did you move, talk, interact, or approach others differently? Were you treated differently? What did you think about not revealing that inside you were different from how you were presenting yourself? The following themes emerged: Appearance, Deception (Hiding), Freedom.

Appearance

A “Just Like Me” theme emerged from the female participants, but a more detached approach was taken from the male participants. Female students reported feeling preoccupied with how their appearance reflected upon them and how they would be treated in Second Life or judged. Overall, however, when participants were creating or adjusting their appearance as female avatars (whether male or female in real life), they spent more time, effort, and attention to creating “a look” they thought was either “just like” who they are in real life (RL) or “attractive, eye-catching, beautiful, not trashy.”

Men seemed less concerned about creating an avatar that reflected who they were in RL; in fact, they were more like to experiment with their looks, creating an avatar with different race, age, and build, wearing hairstyles and clothing that they would not likely wear in RL. Characteristic of women’s responses were the following:

“I first chose to create an avatar that resembled my actual appearance, short, white and blonde.” (female).

“As a female I felt Second life was stressful. Second life was stressful because I never satisfied with my looks. I tried to make my avatar look like me in real life and it was a difficult task.” (female).

One student noted that she felt freer to experiment with her Male Avatar’s looks but did not take risks with her female avatar as she seemed to be more attached to this avatar. She says, “I found that I liked to play with my male avatar’s features or clothing, more than I wanted to change my female avatar. I think this could be because my female avatar was supposed to represent me; I did not want to change her when I got her features just about right.” (female)

“Being a female in sl poses many different questions and “problems” for me as a male. What should I wear, how should I look, what shall I say and how shall I say it...Of course, being heterosexual and being very much attracted to beautiful women, I wanted a beautiful, eye catching female avatar.” (male).

“As a male, I didn’t really care how I looked. Ginger was a different story. I made her to look like one of my first girlfriends, and subsequently best friend for many years.” (male).

“The first thing I enjoyed about being a male avatar was that it was so much easier to create one and even more importantly to dress one, anything you put on it looked good on it.” (female).

“When I was a woman in SL, the gender role schema I’ve developed is that the men should be the ones to come initiate contact with me, particularly in the places I spent most of my time (bars, clubs). When I was dressed in normal attire I generally felt fine, but when I dressed more risqué, I felt that I was being judged for what I was wearing and that men just wanted me in a sexual manner. I felt that I was going out just to get noticed, which was indeed the case. As a man I felt a little bit more normal even though I made my avatar vastly different from myself, or who I would want to be if I had my preference in SL.” (male).

Deception

Overall, students reported feeling “deceptive” in “hiding” their real selves when they were interacting with others as the other gendered avatar. The following are characteristic responses:

“It was like I was tricking the girls into believing I was someone I wasn’t. Even though I don’t think they were interested in us in that way I found it hard to talk to them normally without consciously thinking of myself as a female. I can’t imagine if I had to do that every day, day in and day out, just to feel accepted. I would probably go crazy and at the least slip into a form of depression” (female).

“I felt that I was required to act differently when I was using my female avatar versus my male avatar. This was mostly due to the fact I was, in essence, tricking people into making them think I was something I wasn’t. Kind of hypocritical because my male avatar is a different race and

size than myself, thus also leading people to think I am something vastly different than what I am in real life” (male).

Freedom (safety, boundaries and approachability, movement)

Another typical response reflected students gendered experiences related to feelings of safety, personal boundaries, and freedom to have a say regarding who they want to be, how they want to look, and who they want to approach or be approached by. Characteristic responses were the following:

“I felt the need to be perfect before I could even go anywhere but as a man I was fine with the body I had. I think that directly correlates to societal stigmas that women must look a certain way, whereas for men that concept is not as prevalent. Women, responsible—Man, less responsible. As my female avatar, I did not really notice other people’s appearances or clothes. I think in my female state I was more so concerned about getting my schoolwork done rather than frolicking around. However as my male avatar I found myself looking a lot closer at clothes and other people. I felt more comfortable as a male approaching other people than I did as a female. I was also approached more often as a male than a female avatar.” (female).

“I was concerned someone would think I would dress or act like that in real life. I also thought if I had a wholesome outfit I would be more approachable. I didn’t want to give wrong impression (tattoos, short skirt)” (female).

“As a male avatar I felt I could go anywhere. I visited random locations, simply because I felt more free.” (female)

A female student had an interesting freedom experience at the Holocaust museum. She describes her feelings about the museum when she prepares to go and enters:

“Today I visited the Holocaust Museum. I am Jewish and I felt that since Passover just ended it was appropriate for me to visit the museum. I went as my own gender. I changed my clothes into more formal wear before I went. I also cut my hair so it was more appropriate looking. At first I thought this seemed silly because no one truly would see me and I was just an avatar. However, I realized that as a woman I could not go into such an important place looking shabby. When I entered I was incredibly curious. I came to a place of pictures and memorials. I began to read different memorials and felt happy that I had dressed up my avatar. There were two other people in the area but as I approached them it was clear they did not want to interact. I still do not know if I am ready to talk to anyone.”

Then, she decides to compare her feelings as a man:

“I was curious at this point what it would feel like to be a man in this situation. I went into my appearance menu and changed my gender. I instantly felt new. I felt less emotional and less scared to talk to people. I guess my view of gender is that men are more powerful and have less to be concerned about. When I was exploring this museum as a woman I felt overwhelmed and depressed. I read almost every memorial. However, as a man I felt more empowered. I did not

feel the need to stop and read everything I searched over the museum in more of a broad sense. I went into fly mode and cruised around. As a man I felt freer almost as if I was not placed into a mold. I stopped to think about how silly this was. It was just an avatar. Nothing had really changed but my hair became shorter. Why did I feel so different?” (female)

All students reported that as females they were approached more often than when they were males:

“As a male avatar I feel I had more fun and freedom. I chose a male avatar that was attractive to me and went with it. I did not fuss about my/his looks at all.” (female).

“As a female avatar, I was approached more often for conversation and on a couple of instances I was asked for friendship by strangers without even talking to them.” (female).”

Although female students reported being approached by strangers regularly without their permission, none of them reported feeling that it was out of the ordinary nor did they report feeling like prey; however, all of the males were approached without permission and reported feeling afraid (logging off immediately), surprised, or generally uncomfortable with this social phenomenon that happens regularly for women. A typical response from a male was the following:

“I’m a male in real life and when I first started to travel as a female avatar in Second Life it made me feel uncomfortable. An example would be the time when I went to the Midnight Blues Club. At the club two male avatars approached my female avatar and started talking to me. The two same guys came back to me and tried to IM me again. At that point I just quit and logout of Second Life. The environment and social atmosphere at this club got me uncomfortable plus I’m not use to having guys coming up to me in real life or Second Life and trying to hit on me. That incident made me realized that I wasn’t comfortable being a female in Second Life.” (male).

There was no evidence in his report that the men approaching him were “trying to hit” on him; however, as a female, he seemed to feel more vulnerable. So much so that he logged off. Another male student had a similar experience. He too logged off in fear or discomfort rather than just informing the strangers that he was not interested in talking with them. For example, RH (male) reports while being female:

“While I was looking at the “secret hideaway at the Holocaust Museum”, and listening to the old woman describe what it was like to live for years in hiding as a child, an blond male avatar walked up to me. I received an IM from him asking “A/S/L”. I paused for a second. Why was he asking my age, sex and location in a museum? I figured it was worth the experiment though. “19, female, 20 miles north of L.A. U?” I responded. “21, males. I’m in San Diego, yet how about I drive up there and by you some whine?” The English major in me really wanted to correct him on his many errors, but instead I just said “Sorry, I’m just here to learn about the Holocaust” and logged off. I was stunned. Apparently I was successful at being a female. So much so a stranger was soliciting me in a museum- A museum about genocide. I found myself actually disturbed by this experience. For the rest of my journeys as Ginger I found myself vastly uncomfortable as a woman.” (male).

Part II Reflections upon gender roles

Part II of the final required students to reflect upon gender and social roles influence on students in schools. Prompting questions were: How do social roles and expectations impact how we arrange learning experiences for children. How do these roles and expectations impact how children socialize with each other and how they treat each other? How do you think children feel when they have to hide who they are or hide what they really want to say and do based upon a role they believe they must play? If being gay is not okay, how does that feeling of hiding one's real self-impact a student day-to-day? Do males who like to sew feel they have to hide this? How were your attitudes and beliefs about yourself and others illuminated? The following theme emerged: Socialization and Stereotyping.

Socialization and Stereotyping

Students noted that gender is a socialization process and that stereotyping children has a negative impact. These observations were noted in the textbook chapter on gender and social roles also. Students were noting that their experiences in Second Life (general socializing, hiding gender identity, appearance adjusting) impacted their sensitivity toward children who are interested in atypical gender roles, interests, or have an atypical appearance. Clearly, they were empathizing with the feeling of being an outsider or feeling different or "other." The following is a characteristic statement:

"I would imagine that most students who do not fit into the specific gender roles and try to hide it have a horrible time emotionally, which would, more than likely, make its way into the classroom and affect their schoolwork." (male).

Another student (female) reported:

"I have a friend who experienced gender stereotyping. He has been dating one of my best friends, who is female, for three and a half years. However, once he began to attend the Art Institute for Fashion, a whole string of rumors and questions began on whether or not he was gay. Studies show that those who feel threatened, bullied, or the minorities at school tend to do poorly with their studies. Lack of self-confidence, self-worth, and society's acceptance can impact how a student performs in school and socially amongst friends."

Part III Making recommendation

Part III of the final required students to reflect upon and make recommendations for creating an equitable environment for all students in schools. Prompting questions were: How can you create an environment in your classroom that honors individuals instead of stereotypes? What are examples of ways in which gender stereotyping and social roles can inhibit children from learning and impact their social, emotional, physical well-being?

The answers to the final question were looked at specifically as the others were clearly pointing students in the direction of the readings and text: Describe how this experience impacted your

attitudes and beliefs about gender stereotyping and social roles. The following theme emerged: Personal Transformation.

Personal Transformation

Students reflected upon how the assignment and the experience “feeling” like the “other” impacted them. One student called the professor conducting the study during office hours on several occasions to ask questions about the material, wanting to process the question of gender and social roles more personally. Thinking about her experiences was starting to impact her relationship with her husband in their new marriage. She was living with him on a military base in another state and was grappling with the new roles she felt she was having to assume as a new wife. She reports:

“My upbringing definitely influenced my actions in second life. I was raised with the “traditional” female social roles instilled in me. My favorite color was and still is pink. Although my favorite color has not changed, my views on social gender roles has changed dramatically. Since I began the assignment I got a job and I no longer tend to the home and my husband has begun to help around the home. My husband helps with laundry and even takes pride in learning how to cook. My husband likes to brag to his friends that he can cook! I appreciate all that he does around the house, and feel a bit saddened to think that it is “expected” of us, but it is something that deserves appreciation when a “man” does it.”(female).

Other characteristic responses were:

“I consider myself a “good” guy. I’ve always tried to be respectful to women and their differences to men. In my youth, I always had more friends who were female than male, and was usually having brotherly chats with their boyfriends about how they should change how they treat them. I don’t think, however, I ever actually put myself in their shoes until I stepped into Second Life.” (male)

“One of the things I have realized throughout this experience is that as a male avatar I felt frustrated, shy, unwilling to participate at times. In real life I am not this way. I am outgoing, and rarely hesitate to participate in discussion. I credit this to an adolescence and early adulthood in which I was never, relatively speaking, sent the message that I am not okay. This tells me that when people are sent the message that what they do or who they are is not okay, they will not grow to have the confidence they deserve to have. This is not only true for the gay student and transgender student, but also for the boy who wants to take home economics or the girl who wants to play football.” (male)

“Educators should provide a safe environment for their students so students feel more comfortable being themselves. They themselves should be role models. Understanding the influence of students’ cultural memberships will be important as teachers try to open up the possibilities for all of them, regardless of their sexual orientation and gender. When school officials and teachers are supportive of (LGBT) students, the students will feel safer in school and do better in school. Educators have the responsibility to eliminated homophobia inside there schools. This experience helps me to understand and realize the impact gender stereotyping and

social roles have on children. I realize that although educators simply can't eliminate gender and social roles stereotypes from occurring in schools they can help limit its effect on students.” (female).

“This class opened my eyes wider to the fact that most of what happens in life can be attributed to societal constructs. Pink is a girl color, football is a male sport, secretaries are all females, iron workers are all males, and so on. Now that I see how these norms have no logical basis, I can implement a more open environment for my students to learn.” (female).

Student Perceptions of Second Life

A Student Perception Survey of Second Life (see attached) was given to examine students' perceptions of Second Life as a viable means to enhance interactivity in a 100% online class. The Student Perception Survey of Second Life was given to all students who participated in using Second Life. Descriptive statistics were generated examining three areas: *Effectiveness*, *Advantages*, and *Usefulness*. A student perception survey was administered to the Second Life cohort. The results of that survey are provided in Table 1 below (n=15)

Table 1.

Student Perception Survey

STUDENT PERCEPTION SURVEY DATA

	RATING					
						1=disagree
						5=
	1	2	3	4	5	strongly agree
EFFECTIVENESS	Q#					TENDENCY
Most people believe that SL is more effective than traditional methodologies.	1	1	2	6	4	1 Agree
In a course with both traditional and SL methodologies, I learn better through the SL portion.	2	1	4	5	2	1 Disagree
I prefer SL use in an online course to traditional online courses.	3	0	3	4	5	1 Agree+

I believe that I can learn the same amount using SL in and online course as in an all online course. 4 0 3 3 6 1 Agree+

I believe that I can make the same grade in an online course that uses SL than in a course that has online course tools only. 5 1 1 2 8 3 Agree+

ADVANTAGES

I would benefit if there were more Online Line courses using Second Life. 1 1 1 3 5 3 Agree+

Second Life does not offer any advantages to me. 2 1 4 6 1 1 Disagree+

I believe that I can learn more or would learn more through on-line material that included Second Life experiences than through online material alone. 4 0 4 3 5 1 Agree

I prefer on-line courses that include Second Life to traditional courses. 5 0 3 4 5 1 Agree+

On-line courses using Second Life make me uncomfortable. 6 2 6 3 1 1 Disagree+

I would feel comfortable taking courses on-line if they used Second Life. 7 0 3 2 7 1 Agree+

I contribute more in class discussion in Second Life. 8 1 3 3 3 3 Agree+

It is difficult to contribute to class discussions in Second Life. 9 0 5 4 3 1 Disagree

I would like to have more courses taught using the SL methodology. 10 0 5 1 6 1 Agree

USEFULLNESS

I believe Second Life in education is useful. 1 0 2 2 7 2 Agree+

Second Life provides me with a valuable learning experience. 2 0 1 2 7 3 Agree+

SL makes online feels more interactive 3 0 1 2 7 3 Agree+

I felt more connected to the professor and students in an online course using SL than I did in an all online course that did not use SL 4 0 2 3 6 2 Agree+

Evaluation of success using SL is objective 5 0 3 2 7 0 Agree+

Using SL requires significant changes by a student 6 0 2 3 6 2 Agree+

The “Tendency” column results below are established by counting the responses higher or lower than the neutral value of 3. For example, in question 7 under “Advantages” there were 4 responses above the neutral value and only 3 below, so there was a very slight agreement with the idea that students would be comfortable if their online class included Second Life components. The + or – quantifiers indicate that the tendency is more significant. For example, question 3 under “Usefulness” earned the + designation because 8 of the 9 students surveyed indicated agreement with the idea that Second Life makes online coursework more interactive.

DISCUSSION AND CONCLUDING REMARKS

The t-test comparing pre- and post-test scores was not significant revealing that attitudes toward gender and social roles regarding *Gender Transcendent* and *Gender Linked* did not show a significant change. The results revealed that these preservice teachers were already aware of stereotypical attitudes toward gender social roles and were already open-minded, if not answering in ways that would paint them in a positive light, especially with a heightened understanding of their role as teachers in equitable teaching all students. However, this data did not reflect a comparison between Second Life participants and non-Second Life participants. To more clearly identify the value of virtual learning as a tools for improving outcomes compared to

more traditional, text-based learning management systems (discussion posting, viewing videos, web searches, reading), the study should be repeated to generate more reliable quantitative data that compares the traditional online tools in Vista for example, and the use of virtual learning technology such as Second Life.

The qualitative data generated shows that students using virtual environment learning to explore gender roles were having experiences that stimulated them to more deeply engage in perspective taking, stimulating them to empathize and learn about their perceptions of gender and beliefs about social roles. Second Life provided a virtual environment for students to engage in learning experiences that would not be possible or practical in the real world classroom. Their responses indicated that virtually experiencing gender roles in Second Life impacted their ability to empathize with others, recognize some of their own prejudices, or at least become aware of the ways in which they think about gender and socialization. The experiences students had gave them insight into a deeper thinking about gender-linked perceptions. For example, feeling vulnerable when approached by a stranger led a male student to have insight into how women may, feeling afraid to be deceptive about one's "real" gender gave students insight into how a high school student may feel if forced to hide his/her sexual identity. Virtual world learning was used successfully to provide students with an experience that would have been impractical or impossible in the real world classroom setting.

The results of the survey indicated that these students have a generally positive attitude toward their experience learning in Second Life. Notable responses include that students apparently would like more online courses that use Second Life. Notable result of this survey is that the cohort strongly agrees that Second Life represents a valuable and interactive educational tool.

Second Life is clearly a very rich virtual environment that with continued experimentation and use will reveal its advantages for providing a more experiential, more interactive component to online learning. The difficulties encountered were primarily with extra time it took for the professor to meet once a week in world to orient students to the environment, take them on field trips, and debrief their experiences. Students voluntarily attended a weekly meeting held in the evening for an hour and sometimes depending upon interest, two hours. These informal discussions and trips were interesting, engaging, and created a kind of group intimacy not usually developed in an online course. Faculty and students talked about feeling as if they "really knew" each other. Yet, all of the interaction was in the form of avatars. Students were not native to the Second Life environment or familiar with gaming technology had more difficulty initially learning the tools for navigating Second Life. However, with the buddy system, students joined together and often met to explore during the week, doing their assignments (exploring social settings) together. On the other hand, they all seemed to enjoy learning about the new environment and they all engaged in unsupervised exploration.

Second Life is a viable means to provide an experiential component to teaching a subject that requires an interactive, social context or social exploration to prompt reflective learning. However, in order for the project to be successful, the professor set a time once a week to meet with students discussing gender issues, debriefing their experiences, going on field trips, and otherwise, teaching an additional class within Second Life to ensure student success and feelings

of interactivity with the professor and each other. This extra time amounted to another class that was taking place within the class.

On the other hand, these meetings, held while sitting around the campfire under the nighttime sky created a sense of intimacy and safety. After all, none of the participants had met each other, knew what the others' age, sex, height, weight, or race unless the participants volunteered this information. All in all, the experience both the professor and the students had together was positive and an intimacy developed that would have been difficult to develop in an otherwise asynchronous fully online course. Anecdotal reports from students indicated that the experience was interesting, exciting, and for some life changing.

Becoming the "opposite sex" sometimes provoked feelings of vulnerability that when reflected upon led students to reveal experiences they had as children with bullying and sexual harassment for example. These conversations took place during the nightly meetings in Second Life while sitting together around the fire at the university home location debriefing the experiences they had during their SL adventures. Students said they would not have revealed in the classroom on campus. These experiences, when revealed, allowed for the professor to guide students in connecting their experience to readings, social theory, teacher/student roles, course films and to the student learning objectives. A social constructivist theory of learning suggests that deeper, longer lasting learning takes place when situate within a socially and culturally shared context (Lave & Wenger, 1991). Second Life offers a possible means to improve the traditional online learning context by providing such a context.

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Appendix A. Social Roles Questionnaire

I am interested in the ways that people think about different social roles. The following statements describe attitudes different people have towards roles for men and women. There are no right or wrong answers, only opinions.

Please express your personal opinion about each statement. Think about your opinions now and indicate how much you agree with each statement with 1 meaning you strongly disagree and 5 indicating you strongly agree with the statement.

1. The freedom that children are given should be determined by their age and maturity level and not by their sex.

1	2	3	4	5
strongly disagree			strongly agree	

1. Some types of work are just not appropriate for women.

1	2	3	4	5
strongly disagree			strongly agree	

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