Utilizing the Platform of Second Life to Teach Future Educators

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Instructors and students were required to redefine the role they take in the classroom, essentially being asked to manage a paradigm shift. The task required the abandonment of established ways of practice and the development of new constructivist strategies of learning. Based on our instructional experiences in a virtual world i.e. Second Life, we address the following questions: (1) What are the required pedagogical outcomes underpinning the curriculum? (2) How does the curriculum design redefine the habits and modes of experience that have previously been taken for granted as instructional best practice? (3) What are the results in terms of the distribution of authority and whose knowledge counts? Specifically, the intent of this paper is to identify how learning through a virtual world (Second Life) impacted opportunities for learning from the perspective of the instructors, the students, and the technologists providing expertise, support, and guidance.

Keywords: Second Life, pre-service teachers, curriculum design

As teachers it is imperative that we continually enhance our technological skills in order to engage young people in the art of learning. The authors of this article took up the challenge to not only engage higher education students in an innovative curriculum but to explore previously unknown territory, a virtual world. We share the experiences in Second Life of both our students and ourselves (university instructors from the College of Education) as we embarked on an invigorating journey. Thirteen students signed up for a January term (J-term) course, entitled "Virtual School Planning: Beyond Budget Restrictions" at a southeastern private university. We found that both in curriculum planning and delivery there were a number of challenges to overcome as we wrestled with using a virtual world platform for this first time. Although virtual worlds may be part of the technological landscape we found that in our higher education institution expertise was limited.

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As it relates to the course, the information in this article will provide the background, theoretical framework, the objectives, assignments/tasks required of the registered students, and the reflections of the students and instructors after completion. The instructors will also share a checklist created for colleagues wanting to incorporate Second Life into their curriculum.

BACKGROUND

Teacher-centered approaches have existed in university curricula for hundreds of years. Students gain the delivered knowledge through attending lectures, completing exercises, and preparing for exams. This includes more enlightened approaches employing case studies, or experiential learning activities (McGill and Beaty, 1992). Used for centuries, teacher-centered classroom teaching techniques have been criticized for a considerable time (Dewey, 1938). Despite many new technological tools now available to teachers, there is little evidence of change in the classroom. The prevailing model has been transmission of face-to-face interactions (Laurillard, 2009).

As instructors we frequently go out into the field supervising pre-service teachers out in the field. We see little evidence that computers and the internet are being used innovatively in the classrooms. In our experience, technology is being used by teachers to support the traditional transmission model. If we want to engage student learners there is a moral imperative to utilize the technology available to transform teaching and learning. Currently there are over 200 million registered avatars in nine virtual worlds. While the majority of registered avatars are teenagers they will soon be entering higher education (Kingsley & Wankel, 2009). As teachers of future teachers we have a responsibility to ensure that technology is at the core of student learning rather than a peripheral add on.

This article describes the reculturing process surrounding the design of a course in which the university instructors endeavored to address the diverse learning styles of their student clientele. Though the kernel for this course began in the university's College of Education, it quickly became a collaborative project with the university's Center for Innovation and Instruction (CII). The authors were cognizant of several studies conducted over the last decade which investigated the applications of virtual worlds in education (Boulos et al., 2007; Hughes and Moshell, 1997; Wagner & IP, 2009). According to Hobbs et al., (2006), there are three things to consider. Primarily, students develop skills and interact with other people via customizable avatars, so virtual worlds make the distance and remote learning realistic and feasible. Secondly, virtual worlds facilitate information and knowledge sharing and learning. Thirdly, virtual worlds provide simulation platforms.

Choosing to use the platform of Second Life to deliver instruction was grounded on two factors: the mission of the university to be innovative; and the conceptual framework underpinning delivery of programs during J-term which run for 3 weeks and is based on experiential learning opportunities. Second Life was also chosen as the platform because at the time this is the most popular virtual world for educators (Wankel & Kingsley, 2009). "As of the summer of 2009, there were over 4000 people registered on the S L Educators List" (Wankel & Kingsley, 2009, p3). Students can select a course outside of the focus of their major and opt for any J-Term course. Thirteen students all female, opted for the class entitled 'Virtual School Planning: Beyond Budget Restrictions," twelve being education majors, and the thirteenth being a student of business administration.

The aim was to deliver scholarly content, apply theory to practice by creating a clinical setting in a virtual world and further develop multimedia practices and skills. Making students' active participants with practitioners, and working together on common

projects, changes the dynamics of the student/teacher relationship: making them part of the process of creating knowledge. Students at both the school and college level learn by doing, whether it is using manipulatives or interacting with technology. Students gain the experience necessary to reason, strategize, and make sense of situations that arise in practice (Laurillard, 2009). Once teachers seek to engage in pedagogical work that does not proceed from the traditional transmission model, "it is possible to understand pedagogical exchange as a form of values creation rather than knowledge transmission" (McWilliams, 2008, p.3).

These thoughts grounded our planning as we began to design an innovative and challenging syllabus. Grounded by constructivist philosophy, and building upon an instructional pedagogy that challenged traditional course design and methods of teaching we worked to ensure the development of new critical learning skills. All the time being driven by the fact that we constantly tell future teachers to engage their students, use new tools, and look beyond the classroom rather than defaulting to the traditional classroom lecture and here was an opportunity to "walk the talk," and "practice what we preach."

Second Life is an Internet based three-dimensional virtual world, created by San Francisco based company Linden Labs. Although Second Life does face competition from other similar virtual environments such as Twinity (Metaversum GmbH, 2009), Active Worlds (ActiveWorlds, 2009) and There (Mekena Technologies, 2009), Second Life still has a strong user base and strong attraction for new users, with some attributing its popularity to the large amount of varying in-world activities (Wagner, 2008). Users interact within Second Life, with objects and other users, through their virtual representation known as an avatar (Wang & Braman, 2009). The servers at Linden Labs host vast landscapes for users to appear and interact in when they log on. In addition to creating an avatar, users are allowed to purchase land and use 3-D modeling tools to create objects, houses, and designs to upload into the game. The Second Life program has some basic 3-D modeling and animation tools. In addition, users may create their own designs with outside programs and upload them into Second Life, making all designs in Second Life user-created. Users can trade, sell, or purchase objects and land that they own using an in-program currency called the Linden dollar, which can be exchanged for or purchased by US dollars. Some users have been known to make significant supplemental incomes by trading their land and creations in Second Life.

As we endeavored to learn more about Second Life we encountered "The Second Life Educators List" (SLED) which is for educators and academics interested in using Second Life. Through SLED you are able to communicate with colleagues and to share experiences using Second Life for education. There is also a Group in Second Life called 'Real Life Education in Second Life' which is comprised of people who are interested in the educational possibilities of Second Life. In addition there is a special list for sharing and discussing research in Second Life. Linden Lab runs other social mailing lists e.g. Educators Working with Teens, Healthcare Support and Education, Non-Profits, Government, and Corporate Use.

It quickly became evident that a sharp learning curve was required before progress could be made on course design and syllabus. Help was required and thus developed a collaborative dialogue between the College of Education and the Center for Innovation and Instruction (CII). Not surprisingly, as the vision for the program emanated initially from teachers, the starting point was "What do we want our students to learn in this class and how can we best engage the students?"

Through dialogue and discussion our minds were opened to an initiative that the university had recently become involved in through "The New Media Consortium" (NMC) a non-profit consortium of learning-focused organizations which became self sustaining in 2007. Since 2006 the NMC has used Second Life as another medium to

achieve their mission - to encourage the use of emerging technologies in support of teaching, learning, research, and creative expression by helping more than 150 colleges and universities learn to make broad use of virtual spaces. NMC has built the largest educational project in any virtual world. NMC provides shared spaces in Second Life but many member organizations have created their own unique campuses that are an essential part of the NMC Campus project. We were fortunate in being allowed to become temporary residents in a space owned by Dr. Sharon Collingwood (Women's Studies Professor, Ohio State University). Her beautifully landscaped island includes several inviting spaces to meet with students. Dr. Collingwood fostered our own learning and invited us to use several methods that had proven effective in her experience, such as a treasure hunt and shopping for free clothing expedition, to encourage students to learn to navigate the virtual world with newly created avatars.

Within the virtual world of Second Life, anything is possible. Conference rooms, lecture theatres, science labs and art studios have been created. Students across the globe can visit virtual campuses and are provided educational opportunities to attend seminars, lectures, or symposia without having to travel. We found this to be an inspiring vision but in our research we were unable to find a College of Education that was using Second Life as a pedagogical tool to deliver course content in teacher preparation.

Cheal (2009) in a recent quantitative study points out that only a small number of higher education faculty are actually teaching in Second Life, and that Second Life courses are few. In her research she found that students rate Second Life as enjoyable but are often discouraged by the significant technical burdens of the program. As instructors' we empathized with this finding as our increasing knowledge of Second Life directly impacted our personal level of frustration as it would for any student in the classroom encountering new knowledge and required skills for the first time.

Cheal (2009) also found that undergraduates tended to approach a course taught in a virtual world as play rather than learning. In our course design we were cognizant of this finding and in order to evaluate the success of instructional strategies we built into class time the opportunity to conduct pre- and post-course surveys measuring student's perception, experience, knowledge and skill with games, technology, and virtual worlds.

VISION

The vision that developed was to create a virtual school in Second Life. It was envisaged that undergraduate students aspiring to be teachers would apply for a teaching position and graduates in the M.Ed Educational Leadership program would apply for a principal position having seen a variety of advertisements on the web, Higher Education Chronicle, and in Education Week. Potential candidates would submit a resume and a letter of application to College of Education faculty. Applicants would then be invited for a formal interview and if successful would be offered a job. Fortunately, the school board of the hypothetical or virtual district in which the applicant's virtual school is situated had begun the appointment of faculty one semester before the school opened. As a consequence, teachers had the opportunity to design their classroom, the playground, and stock the library in their virtual school while the principal could work with the teachers to develop curriculum initiatives, discuss instructional strategy and design whole school policies. The platform for this would be Second Life. This was seen initially as a yearlong program enabling undergraduates and graduates to work collegially in a virtual world but it would be offered initially as a "taster" in the J term.

Not long into the design and planning stage it quickly became apparent that though we were keen to move, design, and build in a virtual world, our limited skills reduced much of what we envisioned. However, with the help of the faculty in CII we were able

to create an experience for the enrolled students to participate in learning activities in a virtual world.

THEORETICAL FRAMEWORK

Based on constructivist principles our starting point was to identify and build upon students' prior knowledge and to act as learning facilitators, rather than dispensers of knowledge (Phillips, 1995). This approach was also influenced by the fact that our level of expertise was below the mean on the novice/expert continuum. We utilized a backwards design approach, as advocated by Wiggins and McTighe (2001) to identify the specific knowledge and skills that we wanted the students to demonstrate.

Our thinking was further guided by the recent work of Gardner (2008) who, when reflecting on the demands that will be made on citizens, managers, and leaders in a global market place dominated by technology, suggested that there is an educational imperative to cultivate and nurture five minds or capabilities in order for a person to thrive and be successful. In Figure 1 we visually represent Gardner's five minds/capabilities framework to illustrate the connection among these five areas as they relate to the learning objectives of this course. Applying this frame to develop student learning outcomes had the dual effect of increasing student awareness of the five minds, and also emphasized to them how they could be applied in their own syllabus design as they ventured into the classroom. Specifically individuals will need:

- Strength in a discipline
- Ability to synthesize information
- Creative capacity
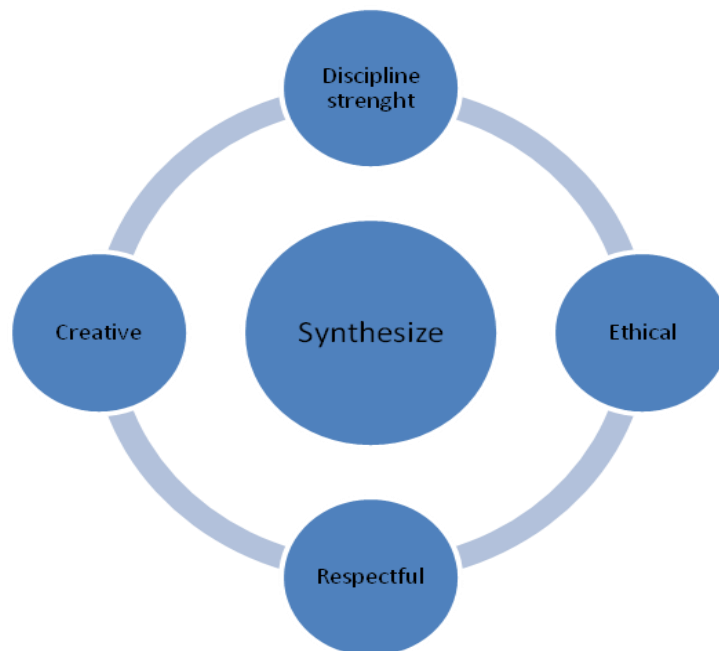- Ability to foster respect
- Strong sense of ethics

Figure 1: The Five Mind/Capabilities

Gardner (2008), points out that that "teachers, trainers and supervisors should cherish and embody these kinds of mind. In reality, however, many individuals in positions of

influence will themselves be deficient in one or more kinds of minds" (p.163). He also suggests that there may be a "trade-off" between the cultivation of these minds. While the cultivation of one should not preclude the cultivation of others there may be tensions for example between creativity and respect—creativity required that you challenge orthodoxy.

As teacher educators we were very familiar with the principle of standards (goals) and indicators (outcomes), and consequently working collaboratively with colleagues in the CII we embarked on stage 1 of backward mapping-identifying desired results. Utilizing Gardner's framework we formulated the goals of the course. What should future educators know, understand, and be able to do and what "enduring" understandings are desired?   Once the goals had been identified we moved onto the second stage of backward mapping, determining acceptable evidence. How would we know if students have achieved the desired results and met the content standards? What would we accept as evidence of proficiency? Finally, we began to plan for the learning activities. Constantly we asked ourselves how we ensured that student learning was both engaging and effective, given the goals and needed evidence. At the forefront of our mind was the need to provide a close connection between learning activities and the conceptual knowledge that we wanted our student to develop (Cerbin, 2000).

To scaffold student learning and at the same time provide evidence of learning, we required that students keep a daily blog within the BlackBoard section of the course, in which they would reflect on the day's activities and also provide evidence or artifact to show that the goal had been achieved. In the early days of problem solving, the blog enabled students to generate questions about what kinds of help and additional information they required. They could also communally express their feelings with no reprise. Cerbin suggests that "good scaffolding supports and challenges students as they try to make sense out of the material" (Cerbin, 2000, p.7). Instructors would also blog thereby developing "cognitive empathy," allowing them to "look at a situation from students' perspectives, and determine how to assist them in taking the next step to better understanding" (Cerbin, 2000, p.7). In addition the blog would also help the student appraise his or her own level of learning.
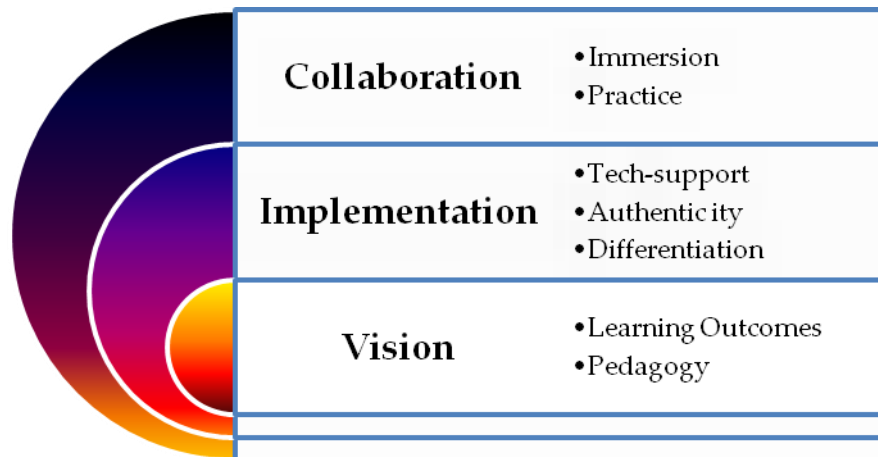

Figure 2: Program Planning

Interdisciplinary collaboration inevitably has some degree of tension and differences as values and culture differ within colleges. Working with colleagues in the CII was a new experience for us as colleges tend to be protective of their own turf (see Figure 2).

One of the first issues that we encountered was developing a shared understanding of education and technical terminology. Immersion in common terminology greatly enhanced interdisciplinary collaboration and practice and we worked to develop the syllabi. We also shared and discussed best practices and research behind the terms being used.

The vision developed by the College of Education was shared with colleagues in the CII and they brought us down to earth as to what could feasibly be achieved in three weeks. The initial concept had been to build a school, design the classrooms, and the playground. Having no previous experience of Second Life it was pointed out to us that this was an ambitious target and it was unlikely that it could be successfully achieved. We therefore stepped back to review our required learning outcomes. After further interdisciplinary discussion we collaboratively developed tasks which were authentically based and could clearly benefit our students in their future professional careers as well as enhance required theoretical knowledge required by their major.

We created tasks which would allow students to reveal their differentiated knowledge and their capacity to use their knowledge flexibly. The tasks that students were required to complete are as follows: a) Design a student uniform in SL for your avatar. Keep in mind that this would need to satisfy a classroom teacher, the student and the parent(s); b) In small groups debate the two sides of this statement, "This house believes that school uniform impacts student achievement;" c) The final task was to organize the building of a playground with a team of people from the virtual school and community. Although these tasks were less ambitious than our initial visions, they still proved challenging. We found that building in Second Life was more difficult than expected and the technology support was not extensive enough to be constantly available to our students to support them when needed.

At the beginning of the course students met in the computer lab and were in Second Life for about two hours. As the tasks were assigned the instructors did not put a limit on the amount of time that students were required to be in Second Life. Differentiated assignment outcomes would be based on the results of need identified by the pre-assessment surveys. Students would be required to work individually and in teams (not of their own choosing) and be held accountable for their learning.

STUDENT FEEDBACK

In order to gain quality data about our students' perceptions of the instructional delivery and the strategy of using a virtual world—Second Life, the authors conducted a pre and post class survey relating to technology expertise of our students and requested that they answer instructor directed questions in their blogs. The survey had a dual purpose: primarily, to gain a greater understanding of student prior knowledge about technology, and secondly, to collect information about student attitude to a new technology experience and how this impacted their personal growth. Additional questions relating to pedagogy were asked through blogging. Students responded directly to these questions.

1. What are the required pedagogical outcomes underpinning the curriculum?
2. How does the curriculum design redefine the habits and modes of experience that have previously been taken for granted as instructional best practice?
3. What are the results in terms of the distribution of authority and whose knowledge counts?

STUDENT PERCEPTIONS

The data gathered from a review of the students' blog was broken down into recurrent themes to illuminate similarities and differences. The themes that we found throughout the blog responses were: 1) The tasks that the students participated in on Second Life, 2) Suggestions for uses of Second Life in a college classroom, 3) The personal connections the students made as they completed assignments in the three week course, and 4) The challenges that the students encountered using Second Life in the course.

In the first theme we found that students began the course by doing a type of scavenger hunt throughout Minerva Island that the owners had created to provide a way for new visitors to explore the island. This scavenger hunt was mentioned throughout the course as students continued to search for the items when they were in Second Life. Other tasks with which the students were involved in during the course were the creation of their avatars and then dressing them in a school uniform (the first assignment in the course). Some students went beyond the confines of the island to search for free clothing in other areas in Second Life. This meant that students had to learn how to teleport to different places in Second Life, and this they did because as the course progressed, students blogged that they had been ice skating, skiing and playing pool on other islands. Some students described the islands they went to such as Hogwarts and the Weather Channel. It was interesting to read this response in the blogs because it seems some students took the risk to leave the safe environment of Minerva Island to explore other islands within this virtual world.

The second theme found in the blogs related to the question the instructors asked the students to suggest ways to use Second Life in a college course setting. Many students suggested its use in a fashion design course or a graphic design course. This may be attributed to the school uniform assignment that the instructors asked the students to do and students could see that connection to what they had been doing in the course. The students also said the Second Life could be used to promote communication among the students in the classrooms by providing a chat room atmosphere different from what they had previously experienced in Black Board. The suggestion was also made to use Second Life as the place to do presentations and allow groups to come together to plan their work and do this in a virtual space rather than face to face. And finally some suggested that Second Life could be just a place for students to interact with each other and exchange ideas.

Students often wrote about their own personal connections in the blogs and these were varied as they became more experienced using and understanding what a virtual world, in this case Second Life, could offer. At the beginning of the course students were reflecting on the mechanics of logging on and downloading Second Life on their computers, to feeling comfortable moving their avatars around the island. As the course progressed students were sharing their thoughts on how easy it was to fly and move around the island and to other areas in Second Life. In one case at about the middle of the course one student shared the following reflection with the group.

> Normally, learning new programs becomes extremely frustrating for me and almost exhausting. Navigating around the island and learning about Second Life has been almost the complete opposite. I feel that we are given the opportunity to work at a comfortable pace and not rush. That I have really exercised my strength in keeping patience (sic); Technology usually does not sit well with me, but for some reason Second Life does. This course has helped (sic) me realize not to give up when everything

does not happen easily. It has taught me to try to figure out things on my own and search for my own answers to my questions. (Virtual Schools course blog, 1/13/09, Heather C.)

Professor feedback: As a teacher I find your blog posting extremely encouraging as the qualities you are displaying such as problem solving, critical analysis, resilience and persistence are fundamental to anyone wishing to develop the necessary skills required by a democratic society. – Well done!

This reflection demonstrates in the students words the "aha" moment for her in the Second Life experience. Many students shared that they could work at their own pace in the virtual world but realized that time management needed to be their concern rather than a structure that a professor imposed. Another connection that many students discussed was the hands-on quality of the course. Many felt that this was their preferred learning style and this kept them motivated to continue even when they were experiencing difficulties with the technology.

Finally, the last theme that came out in the blogs was the challenges that the students experienced in the course. At the beginning of the course everyone was very frustrated by a glitch that neither the instructors of the course or the IT personnel knew about, that related to the ability to have an entire class register on Second Life from the same IP address. On the first day of the course only five students were able to register on Second Life from the Computer Lab at our university. Some students had to wait to go home and others went off campus to find free wireless connections to register. Some students experienced difficulty changing the clothing on their avatar but as they understood the directions they seemed to overcome this problem. By the end of the course students had a chance to use Second Life in a variety of ways and felt that they were becoming comfortable with the work they were assigned.

SURVEY RESPONSES

The pre-course survey was used to collect information on the students' perceptions and abilities about technology and the requirements of the course. The students were asked to "Check the statement below which best describes your knowledge of how to use computer technology." The choices which followed were "I am very comfortable; I am relatively skilled, but not completely comfortable; I still feel uncomfortable using it and I do not use computer technology." Of the thirteen responses to this statement ten of the students felt skilled but not completely comfortable or comfortable. When asked how many hours per week the student would expect to spend on the course in and out of class, all the respondents expected to spend 10 or more hours on the course. Another statement students were asked to respond to was, "This is the first course I have chosen with a focus on a virtual environment," and all of the respondents responded in the affirmative. Only one student had personally explored Second Life and was comfortable there before taking this course. Students were also asked the question "What do you hope to gain/learn from the course?" This question was included to find out if the student's expectations matched the outcomes that the instructors had for the course. There were a variety of responses but most focused on getting more information/experience about technology.

The post course survey asked the same questions as the pre-survey and then we added a section that asked students to agree or disagree with statements specific to technology and student perceptions about their learning styles. So when asked how much time that they had spent on this course, ten students responded that they had spent over

ten hours on the course and three students responded that they had spent nine or less hours. All of the students responding to the post survey answered yes to this statement, "I have explored SL and am comfortable there." The statement, "I will continue to explore Second Life" was added to this survey and all of the students answered that they would continue to explore Second Life. The most significant information came from four statements in the survey that related to the students' perception about their learning or the learning that should happen in their college courses. The first statement, "I was encouraged to take responsibility for my own learning." had all of the students either agreeing or strongly agreeing with the statement. The next statement, "I would like to see this instructional method used in other classes," addresses the type of learning the students expect in their courses. All of the students agreed or strongly agreed with this statement. Going along with this statement we asked students to respond to, "The delivery methods of this course helped with my learning," and all of the students either agreed or strongly agreed with this. Finally, the last statement was directed at the students' perception of their knowledge and use of computer technology. The statement asked was, "Because of the way this course uses computer technology, I have acquired skills that will be useful in my profession." All of the students responded that they either agree or strongly agreed to this statement. There was also an open ended question, "Explain the top two things you learned in the class."

We received statements that were related to the students' abilities with technology, such as, "I learned how to use my computer in a different way. I don't really download or play games on my computer." "I learned how to use second life and learned how to work on group projects not being in the classroom." "I learned how to use technology more and really am able to get around my computer easier." "Understand how to use S.L. and more about technology.""I learned in the class would be to learn on a completely virtual area. Knowing you can meet and have class online but still interact with your classmates."

Then there were answers that related to the students' learning, such as, "Secondly, management is another factor I learned a lot about." "I learned to acknowledge my own strengths in taking action on learning on my own." "Also, I learned how teaching students and how students learn are really alike."

Overwhelmingly, the responses were positive even when students expressed frustration at the beginning of the course with technical issues that no one expected. Students also expressed the appreciation of seeing instructor avatar's behave in a traditional teacher fashion and stated that this enhanced their learning experience. This comment reiterated the findings of Andersen's (2009) study which focused on student perceptions of instructor nonverbal immediacy.

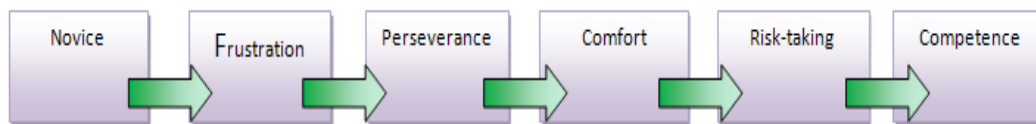| Novice	Frustration	Perseverance	Comfort	Risk-taking	Competence

Figure 3: Stages of Development

Student experiences, as evidenced by their course blogs and instructor observation, indicated common developmental stage (Figure 3) as they became more comfortable with the mode of instructional delivery and their own learning.

CONCLUSION

New technologies have the potential to provide lifelong learning opportunities as long as the following are always at the forefront of instructional planning and design: clearly identified learning outcomes, scaffolds are in place to support understanding; assessment provides self corrective feedback, and knowledge-building social interaction. Following this model is challenging particularly if the instructors are novices themselves. Utilizing Second Life as a platform in a teacher preparation program requires interdisciplinary planning and constant technological support in the early days of the class. It is crucial that all involved in the planning process understand the required pedagogical outcomes and that student learning of curriculum content supersedes Second Life experience. It is also essential that individual students' benchmarks are established at the beginning of the class to ensure that pace and expectations are achievable. Though students are constantly challenged they know that support is at hand and that initial experiences of frustration or the feeling of being overwhelmed can quickly dissipate to be replaced by feelings of elation. Curriculum development requires the instructor to utilize a backward design and to personalize instructional delivery. There needs to be clear evidence of trust and respect between learner and instructor and awareness that responsibility for these two roles can be opaque on occasions.

We would concur with Cheal (2009), finding that success is dependent not only on the pedagogical instructional delivery but also on student perception of Second Life and technology support. Students in our class did not perceive Second Life purely as a game but as an additional tool in the instructor's pedagogical tool box. This study has shown that while there is potential for interactive and engaging education in virtual worlds, these possibilities may be negated if students feel lost with a difficult interface and hardware problems, or if students characterize the virtual world as a venue for play incompatible with learning.

The Second Life experience gave students a better understanding of the need to address the varying learning styles of students if they are to experience success. They began to appreciate that student success in the classroom can ultimately depend on the instructors' ability to differentiate instruction to meet individual needs. As Gardner (2008) points outs, "no one knows precisely how to fashion an education that will yield individuals who are disciplined, synthesizing, creative, respectful, and ethical" (p.19). Yet, our future survival argues Gardner may depend on the cultivation of these mental dispositions.

The utilization of Second Life in this class had a dual purpose. First, to build a foundation for the students (future teacher educators) ensuring that they had the opportunity to engage in and develop Gardner's (2008) five minds for the future. Second, they developed an understanding of the need to deliver interactive experiential learning in their future classrooms in order for their students to develop this pentad of mental dispositions.

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APPENDIX

Instructor's Checklist for teaching in Virtual Worlds (Second Life)

1. Pre-survey expertise, knowledge and experience with Second Life in order to determine pace of delivery.

2. Preplanning requires an interdisciplinary approach involving educational technologists and faculty.

3. Ensure that there is active technical support in the classroom or online during the early sessions.

4. Build into the course program sufficient time for orientation and to deal with potential technical problems.

5. Ensure arrangements are made with Second Life to enable more than 5 registrations from the same IP address, if students are registering from the same physical location i.e. computer labs, residence halls, and classrooms.

6. Ensure that all students have a computer with the minimum requirements recommended for Second Life.

7. Ensure that students have available to them an optional on ground traditional meeting venue.

8. Construct the orientation sessions to reflect the pedagogical content of the curriculum to be delivered. Direct students to the Second Life orientation session on *Orientation Island* and resources available on *Help Island.* Develop a task that validates that the students have experienced the orientation.

9. Ensure there is a secure space for initial exploration.

10. Choose your Second Life name carefully (you can't change it later).

11. Ensure that the activities the students engage in deliver the curriculum learning outcomes.

12. Ensure that students are clear as to the activities which will occur in Second Life and the rationale for them.