

EVALUATION REPORT

**Evaluation of a Pilot Use of  
Second Life in an English Course:  
2006-2007 <sup>1</sup>**

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Tomoko Traphagan PhD  
tomoko.traphagan@austin.utexas.edu



Division of Instructional Innovation and Assessment

research, evaluation and assessment section

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THE UNIVERSITY OF TEXAS AT AUSTIN

<http://www.utexas.edu/academic/diia>

P.O. Box 7246  
2616 Wichita Street  
Austin, TX 78713-7246

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<sup>1</sup> This report draws extensively upon a formative evaluation report, based on only fall 2006 results, produced by Michael Mayrath and Tomoko Traphagan. Planning, data collection, and data analysis were conducted in collaboration with Michael Mayrath, Joel Heikes, and Avani Trivedi, with editorial support provided by Michael Barrett. Kyung Huh provided valuable suggestions to the draft of the report. The author and all contributors are from UT Austin's Division of Instructional Innovation and Assessment.

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## Executive Summary

The purpose of this pilot study was to evaluate the effectiveness and practicality of using a virtual world called Second Life in instructional settings and to consider best practices in using Second Life for instructional applications. Four research questions were addressed (p.13):

1. Is Second Life easy to use?
2. How do students feel about using Second Life in a course?
3. How do students use Second Life beyond what their course assignments require: how much do they use it, how do they access it, what do they do when they use it?
4. What are the possibilities for future use of Second Life at UT Austin?

The study was conducted in a two-semester, freshman English course section of 18 students, with data obtained through surveys, interviews, and observation.

### Key Findings

- 1.1.** Students generally perceived the Second Life interface to be unintuitive. (pp. 18-19)
- 1.2.** Students reported that basic functions, such as moving avatars and communicating with others, were relatively easy. (p. 17)
- 1.3.** Students reported that building and placing texts using Thinbook or Notes was particularly difficult. (pp. 18-19)
- 2.1.** Students reported that using Second Life was effective for learning how to integrate visuals and writing, learning about architecture, and leaning about others' perspectives. (pp. 20-22)
- 2.2.** Role Model activity was perceived as more successful than Building activity in several respects: addressing learning objectives, clear directions, levels of required Second Life skills, training, resources and learning environment, learning atmosphere with little unnecessary competition, and enjoyable and stimulating social interaction. (pp. 22-25)
- 3.1.** Students did not use Second Life for any purpose other than doing their assignments. (p. 27)

### Key Recommendations (pp.29-32)

- 1.** Avoid building and placing texts with Thinbook or Note, unless they are essential to achieve the instructional objectives.
- 2.** Provide adequate training, a manual, and/or tutorials.
- 3.** Expect difficulties with update, downtime, and slowness.
- 4.** Take advantage of Second Life's affordances—visual, three dimensional, and avatar-rich.
- 5.** Firmly anchor Second Life instructional activities in learning objectives and contexts, and explicitly communicate how activities are expected to facilitate attaining the objectives.
- 6.** Employ Second Life activities along with other activities.
- 7.** Avoid competition among students on the basis of Second Life skills.
- 8.** Capitalize on social interactions in Second Life.
- 9.** Prepare the activity environment and procedure in detail.
- 10.** For discussion activities, create small groups, provide moderators, and allow enough time for discussion.

# FULL EVALUATION REPORT

Evaluation of a Pilot Use of Second  
Life in an English Course: 2006-2007

Full Report

Tomoko Traphagan, PhD

Division of Instructional Innovation and Assessment

The University of Texas at Austin

## Background<sup>2</sup>

### Virtual Worlds

Three-dimensional virtual worlds such as Second Life, Active Worlds, and There are rapidly being accepted in instructional settings. Indeed, virtual worlds—also called multi-user virtual environments or MUVE, where environments and experiences are created by users—are expected to have a large impact on teaching and learning within higher education in two to three years (The New Media Consortium and the EDUCAUSE Learning Initiative, 2007).

Virtual worlds are distinguishable from games with fixed rules and goals on the basis of their affordances for flexible applicability and creativity (The New Media Consortium and the EDUCAUSE Learning Initiative, 2007). That is, there is no limit on how to use the space: instructors can create virtually any learning activities in any disciplines, depending on their instructional design capabilities and skill levels with the virtual-world tools. Some of the positive instructional effects of using games are likely to apply to using virtual worlds, such as accommodating learning preferences of Net Generation students, enhancing student motivation and engagement, facilitating collaboration, and providing experiential learning opportunities unavailable in traditional learning environments (Gee, 2003; Kirriemuir & McFarlane, 2003; Dede et al., 2005; Prensky, 2006). Additionally, some have suggested that there exist positive effects specific to virtual worlds, such as creating a sense of social presence in interactions (The New Media Consortium and the EDUCAUSE Learning Initiative, 2007).

Because the virtual-world environment is not pre-defined, creating effective learning environments in virtual worlds poses substantial demands for instructional design and technical skills with virtual worlds. As yet, there is little empirical literature that addresses how to effectively design instructional activities for use in virtual worlds.

In one study, Delwiche (2006) taught two online virtual world-based courses, the first using the game Everquest and the second using Second Life to teach the fundamentals of videogame design and criticism. He found that potential virtual environments should be selected on the basis of genre, accessibility, and extensibility. Genre concerns selecting games with themes that are relevant to the instructional context. Accessibility concerns assuring that the technology is usable by the students. Extensibility concerns having the power to create new scenarios and to extend the real world into the virtual world. Regarding genre decisions, Delwiche argued that learning objectives should be identified at the outset, with serious consideration given to choosing a virtual world appropriate for the instructional approach. Consensus exists on the importance of the relevancy of activities to the educational context: Becta (2001), Kelly & O'Kelly (1994), and Van Eck (2006) concluded that games should be adopted to align with curriculum and expand on the needs of the class.

Soukup (2004) conducted a study of a virtual space called Palace, with participants interacting within Palace as members of the virtual community, creating an *avatar* (user's representation in the virtual space), and having access to control the space, much like in Second Life. Through

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<sup>2</sup> This section was prepared in collaboration with Michael Mayrath and Avani Trivedi.

ethnographic methods, he discovered that the ability to collectively construct the environment enhanced participants' sense of social community (p. 20), suggesting that there are strong advantages to introducing collaborative learning activities when using virtual worlds.

To date, relatively few such pioneering studies have initiated inquiry into how to use virtual worlds in instructional settings. The present case study used an English course to build on our collective experience with and insight into instructional implementation of virtual worlds.

### **Second Life: A Virtual World**

Second Life, created and managed by Linden Lab, is the most popular of the virtual worlds. Since its first opening to the public in 2003, it has rapidly gained popularity, “inhabited” as of August 17, 2007, by more than 8,900,000 “residents,” of which 1,000,000 had logged on within 30 days (Linden Research, 2007). Residents have been motivated to participate, partly, by its unique internal economic structure connected to real-world profits (Ondrejka, 2004). There is also a separate version of Second Life dedicated for youths, ages 13 to 17 (Czarnecki & Gullett, 2007).

“Second Life is an open-ended environment in which players themselves design the world, its objects and their behaviors. Incorporating sophisticated three-dimensional modeling tools and a powerful scripting language, the game invites players to freely unleash their imaginations” (Delwiche, 2006, p. 164). After installing the free client ([www.secondlife.com](http://www.secondlife.com)) on their computer, users create their representations in the space, called *avatars*. Then, they can move around, visiting various places, attending events, and interacting with one another in Second Life. Users also can create buildings and materials, selling and buying objects and properties in Second Life. Therefore, while there is no embedded gaming aspect to Second Life, numerous possibilities are open for activity in various sectors. For example, already establishing their presence in Second Life are several recognizable commercial residents such as IBM, Dell, Nissan, as well as the John Edwards campaign and entertainment venues for concerts, casinos, and bars.

Education is one major sector whose presence in Second Life is conspicuous. An ever increasing number of universities—more than 300 as of August, 2007 (Sussman, 2007)—are using Second Life for many purposes: providing a virtual campus for prospective students to visit, creating a campus community and providing campus functions, conducting courses or course activities, implementing projects, and holding academic community functions.

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## Second Life Pilot Project by Division of Instructional Innovation and Assessment

One of the missions of the Division of Instructional Innovation and Assessment (DIIA) at the University of Texas at Austin (UT) is to enhance instruction by facilitating the use of emerging technologies. Second Life has been identified as an emerging technology with substantial potential for enhancing instruction and learning, and Jerome Bump in the English department was interested in adopting Second Life in his freshman seminar. With the matching interest between DIIA and Dr. Bump, the Second Life pilot project was conceived, to continue over two semesters, fall 2006 and spring 2007.

To provide an adequate instructional environment, DIIA purchased a virtual island and 25 accounts for student access to Second Life, with access to the island limited to those with permission to enter. These arrangements were necessary because one of the students enrolled in the course was a minor. Also, by purchasing the accounts for students, DIIA could cover expenses incurred when students took certain actions in Second Life, such as uploading materials in Second Life.

Reflecting DIIA's vision to integrate pedagogy, instructional technology, and evaluation, a Second Life pilot team was formed to support Dr. Bump's course, with one technical support staff member (the team leader), two instructional designers, and one evaluation specialist. The team coordinated efforts to assist Dr. Bump in designing instructional activities, creating instructional support environments in Second Life, and assessing instructional effectiveness. The technical support specialist provided three buildings on the UT island and managed the students' and instructor's Second Life accounts and permissions to enter the UT island. The instructional designers provided Dr. Bump with consultations, an instructional manual, and in-class Second Life training sessions and provided students help with their Second Life assignments by means of regular office hours and individual appointments. They also created environments for the Role Model activity (see below). The evaluation specialist conducted the assessment of the Second Life pilot as described in this report. To address research interests within DIIA concerning instructional effectiveness, two additional researchers joined in planning the evaluation study and in collecting and analyzing the data.

Unfortunately, due to an unexpected change in one key team member immediately before the pilot, the team could not provide full support to the instructor during the first semester, especially in instructional design. This resulted in some of the difficulties encountered during the pilot project, but it did yield valuable lessons for planning the instructional use of Second Life.

### The Course

The Second Life pilot course was titled *Composition and Reading in World Literature*, taught by Jerome Bump<sup>3</sup>, a 30-year faculty member at UT with the rank of professor. Dr. Bump, having long embraced the use of instructional technology, wanted to upgrade from MOO (Multi-user, Object, Oriented) technology to the new, promising Second Life. His one-year, two semester

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<sup>3</sup> We thank Dr. Jerome Bump for providing the opportunity to pilot Second Life in his course and for collaborating with the research staff in all phases of the project.

course for fall 2006 and spring 2007 was designed for Plan II Honors freshmen, with 18 students (6 males and 12 females) enrolled, all of whom agreed to participate in the study. Students attended class twice each week for one hour and fifteen minutes and did not use Second Life while in class, except for training sessions and a Role Model activity session. In this course, literature was defined much more broadly than it is commonly understood:

(<http://www.cwrl.utexas.edu/%7Ebump/E603/course06.html>):

For us "World Literature" will mean primarily literature of the world around you here on and near campus: the sense of the "world" as your "sphere of action or thought; the 'realm' within which one moves or lives" (OED). And we will *expand the sense of "literature"* [italics added] as well: all of your world will be your text. We will approach it as semioticians, those who *study all signs, linguistic and non-linguistic, including art, architecture, landscapes (geography), material culture (archeology)*[italics added], etc.

### ***First Semester (Fall 2006)***

All Second Life learning projects were designed so that learning experiences during activities could lead to writing assignments. To address one first-semester instructional objective for students to learn how to integrate visual and verbal rhetoric, Dr. Bump planned two Second Life-related activities.

For the first assignment, called Personal Roadmap, students created representations of themselves in Second Life by creating an object, uploading an image to use as a texture on the object, posting their paper on their personal roadmap (future plan) on a Web page, and creating a link to the Web page inside the object in Second Life, using a pre-written "webloader" script. Two in-class training sessions were held two weeks before the assignment was due, covering avatar customization, communication, navigation, and Web link creation in Second Life.

For the second assignment, called Campus Plan, students learned about iconography and architectural styles on campus and applied that knowledge in Second Life by creating their own ideal campus buildings, as shown in Figure 1. This activity is referred to as Building activity in the rest of this report. Students then wrote to argue why their buildings were the best. The DIIA technical support specialist provided three buildings prior to the start of class as models for how to build: the Main Tower, Battle Hall (Mediterranean style), and the Harry Ransom Center (Modernist style). While no in-class training session was held for this assignment, students seeking help could contact instructional designers during office hours and by appointment. In addition, to reduce students' anxiety, Dr. Bump provided a flexible timeframe for completing the assignment.

Second Life provided a means for Dr. Bump to provide students with several opportunities for extra credit. They could earn grading bonuses by finding the most innovative ways to publish in Second Life, by constructing the most creative buildings, and by attending a virtual Social Hour held twice a week (Wednesday and Sunday nights from 7-8 pm), which was introduced to give students a sense of community and opportunities for social interaction inside the virtual world.

**Figure 1. Students' Campus Plan Projects*****Second Semester (Spring 2007)***

Based on findings from evaluation of the first semester, the pilot team offered several recommendations for the second semester, including:

1. Make sure that Second Life activities and experiences match instructional objectives and contexts and communicate to students how Second Life activities relate to the objectives.
2. Develop Second Life instructional activities that capitalize on students' strengths and comfort zones in Second Life.
3. Provide training, support, and clear directions for Second Life activities.
4. Do not offer extra credit for Second Life work, to avoid unfriendly competition among students.

In light of these recommendations, the second-semester activity was changed from making a robot, which would have required students to learn programming, to role playing that capitalized on students' existing Second Life skills. Because one instructional objective of the second semester was for students to explore leadership through role models they selected, the pilot team

felt that the revised activity would more directly address the instructional objective than would the robot activity.

In preparation for the Role Model activity, students first conducted research and wrote short essays on role models of their choice, such as Mother Teresa, Malcolm X, and Shakespeare. Then, one class period was used to help students customize their Second Life avatars to look like their role models, and students seeking additional help could contact instructional designers during office hours. The Role Model activity took place in a computer lab during one class period, with students asked to discuss various aspects of leadership from the perspective of their role models, using only Second Life chat to communicate. The 18 students were divided into four groups, and discussed leadership using Chat, at four pre-developed meeting places in Second Life (see examples in figures 2 and 3) with a designated moderator in each group. Students repeated the activity four times with different discussion group members in different meeting places. Each chat session lasted for 10-20 minutes. Two strategies were developed to avoid confusion: first, students were given a one-page handout that described the procedure step-by-step; second, teleport balls were provided in each meeting place, so that students could move to the next meeting places promptly and smoothly. The Chat History for each discussion was copied and pasted in a Word document, to be used for later analysis and critical writing on lessons about leadership.

**Figure 2: Role Model Activity in the Greek Amphitheater Setting**



**Figure 3: All Role Models**



## Evaluation Approach

### Research Questions and Evaluation Plan

#### *Purpose of Evaluation*

The purpose of the study was to evaluate the effectiveness and practicality of using Second Life in instructional settings and to generate insight into best practices in Second Life instructional application. Ultimately, the researchers wanted to determine whether—and in what forms—virtual world learning environments should be promoted at UT.

#### *Research Questions*

Four central questions were addressed:

1. Is Second Life easy to use?
2. How do students feel about using Second Life in a course?
3. How do students use Second Life beyond what their course assignments require: how much do they use it, how do they access it, what do they do when they use it?
4. What are the possibilities for future use of Second Life at UT?

### Data Collection and Analysis

Data collection procedures are summarized in Table 1.

**Table 1: Approaches to Data Collection**

| Research Questions  | Survey | Interview | Observation |
|---|--------|-----------|-------------|
| 1. Is Second Life easy to use?  | ✓      | ✓         | ✓           |
| 2. How do students feel about using Second Life in a course?              | ✓      | ✓         | ✓           |
| 3. How do students use Second Life?                                       | ✓      | ✓         |             |
| 4. What are the possibilities for future use of Second Life at UT Austin? | ✓      | ✓         |             |

#### *Surveys*

Surveys addressed five areas:

- technology self-efficacy
- writing self-efficacy
- affect towards gaming
- flow
- students' reactions to Second Life
  - usability and technical difficulties
  - comfort with the Second Life learning environment
  - learning/writing-skill development in the Second Life environment
  - reaction to using SL in the course

- uses made of Second Life

All surveys were administered online, according to the schedule shown in Table 2.

**Table 2: Schedule of Survey Administration\***

| Survey Occasion   | Areas addressed  | Completion Time      |
|---|--|----------------------|
| September Survey (first survey):<br>beginning of fall semester 2006                       | <ul style="list-style-type: none"> <li>• technology self-efficacy</li> <li>• writing self-efficacy</li> <li>• affect towards gaming</li> <li>• flow</li> </ul>   | less than 20 minute  |
| November Survey (second survey):<br>after the Building activity in the fall semester 2006 | <ul style="list-style-type: none"> <li>• technology self-efficacy</li> <li>• writing self-efficacy</li> <li>• affect towards gaming</li> <li>• flow</li> <li>• students’ reactions to Second Life</li> </ul> | less than 25 minutes |
| March Survey (third survey):<br>after the Role Model activity in the spring semester 2007 | <ul style="list-style-type: none"> <li>• technology self-efficacy</li> <li>• writing self-efficacy</li> <li>• affect towards gaming</li> <li>• flow</li> <li>• students’ reactions to Second Life</li> </ul> | less than 25 minute  |

\* Students were awarded 20 points (out of 1000) for their participation in each of the three survey administrations.

Items in each survey were modified or deleted for repeated administrations as deemed appropriate.

**Interviews**

Rounds of interviews with five of the eighteen students were conducted each semester, with the same set of students. The first interviews took place in November after the Building activity, and the second ones took place after the Role Model activity in March. After the Building activity, students were stratified by means of their scores on the technology self-efficacy scale from the September survey and by means of the instructor’s assessment of students’ ability to build in Second Life. Two students were selected for interviewing based on their high technology-confidence scores, their class leadership in Second Life building skills, and their general satisfaction with the Second Life learning environment. Three from among the remaining students who were considered “average” Second Life users were randomly selected for interviewing.

The interviews were semi-structured, with approximately 25 questions prepared in advance, but the interviewer added questions as necessary to probe the students’ responses. Interview questions focused on students’ experiences using Second Life and completing assigned Second Life activities. Interviews were audio-recorded, transcribed, and analyzed for emerging themes.

***Observation***

Students' behavior was observed in the virtual and real worlds. One of the instructional designers observed students while they participated in Second Life activities. Real world observations were performed during the initial in-class training sessions, during office hours, and during the Role Model activity. Observers focused on three behaviors: students' overall skill level, manifestations of their attitude toward using Second Life, and their engagement during the Role Model activity.

## Findings

### I. Student Confidence and Attitudes (self-report from September survey)

#### Summary

At the beginning of the pilot study, students generally indicated confidence in their writing skills for assignments and in their basic technology skills, but they were less sure about their competence for performing game tasks. Only about a half reported that they liked video games or virtual worlds. In general, students expressed positive feelings about the instructional use of technology, although very few agreed that technology increased their engagement or interest in learning.

#### *Confidence in Writing Skills*

At the beginning of the first semester, students were generally confident about performing the writing tasks required for college assignments, particularly with writing a well-organized passage, writing a persuasive essay, preparing a résumé, and with using correct punctuation, spelling, and grammar. Except for one student, all agreed or strongly agreed that they believed their skills would allow them to meet the challenge that they felt in writing.

#### *Confidence in Technology Skills*

Asked to compare their information technology skills with those of other students their age, most students chose either the same skill level (50%, 53%, and 44% in the September, November, and March surveys, respectively) or a level more skilled or much more skilled (39%, 41%, and 56%, respectively).<sup>4</sup> At the beginning of the first semester, students were particularly confident about their skill in word processing and in using presentation software, e-mail, computer operating systems, Internet search engines, and Web browsers. They were less confident about creating Web pages, uploading files to Web sites, creating/editing audio/video, using course management systems, using graphics, and securing their electronic devices. Compared to their responses to the September survey, students' responses to the November survey indicated that they were more confident about using graphic design programs, scanning images or documents, publishing a Web site to a server, creating 3-D images, and building digital structures using shapes, suggesting they had gained technological maturity from performing the tasks required for fall semester Second Life projects.

#### *Computer Game<sup>5</sup> Skills*

At the beginning of the first semester, students indicated high confidence in performing some computer game tasks—loading a game or navigating to an online game (83% agree/strongly

<sup>4</sup> This finding is consistent with a national trend for students to report average or more than average competency, as seen in a survey conducted by the Educause Center for Applied Research (2006). Among a sample including 10,057 freshmen, 15,287 seniors, and 3,380 community college students nationwide, 49% indicated that their information technology skills were about the same as other students' skills at their age, and 38% indicated that they were more skilled or much more skilled than others at their age.

<sup>5</sup> Responses to the November survey revealed that students' definition of "computer games" varied. So in responding to questions about "computer-games" in the September survey, students could have been referring to virtual worlds, console games, and/or online/off line computer games that do not include virtual worlds and console games.

agree) and learning to use computer game controls (72%)—but low confidence in performing others: learning game rules and constraints (33%), interacting with other players and/or characters in a game (39%), and creating and/or modifying one’s character in a game (44%). By the time of the November survey, students’ confidence had generally increased. In particular, significant increases in confidence were observed for learning game rules and constraints (from 33% to 82% agree/strongly agree) and for interacting with other players and/or characters in a game (from 39% to 88% agree/strongly agree). These are tasks that students had to perform in using Second Life.

### ***Attitudes about Games and Virtual Worlds***

At the beginning of the first semester, 45% of the students indicated that they liked playing video games and 50% reported that they liked playing virtual games such as Second Life and SIM City. Students typically spent less than one hour or no time at all (67%) using computer games or virtual worlds per week, whereas 12% reported spending 3 hours or more a week using computer games. Most students (77%) disagreed or strongly disagreed that they chose to take the course because it included use of Second Life.

### ***Attitudes towards the Instructional Use of Technology***

At the beginning of the first semester, most students agreed or strongly agreed with four statements about the use of technology: using technology in courses had helped them better understand complex or abstract concepts (72%); using technology had helped them to communicate better with their classmate (67%); they preferred using a word processor than writing by hand (89%); and they enjoyed using technology in class (78%). Students were less inclined to agree that they were more engaged in courses that require use of technology (33%) and that they were more interested in school work when they used a computer to do it (33%), though students indicated they did not become frustrated when trying to use a computer to do school work and 61% indicated that they liked it when instructors used games in class. Students indicated that information technology provides several benefits, including easing communication with classmates and instructors (89%), adding convenience (83%), helping manage course activities (61%), and improving learning (56%).

## **II. Question 1: Is Second Life easy to use?**

Method: Data to address this question were obtained through a student survey, student interviews, and observations.

### **Summary**

In general, students perceived Second Life as “not very user friendly and not good for self-learning,” as one student reported. Students indicated that basic functions, such as moving avatars or communicating by means of chat or instant messages, were easy to master, although the interface for these functions was not as intuitive as it might be. Many students singled out the building function as extremely difficult to perform, and students found several other functions difficult as well, including placing texts in Second Life by using ThineBooks or by embedding Notes, sending Notes, and changing avatars to match exactly their envisioned images. Students expressed frustration with Second Life’s frequent updates and downtime, its slowness, its

unintuitive interface, and its failure to offer full training resources. Many students found the Building activity to be difficult; they found the Role Model activity to be reasonably easy.

### ***Easy Functions—Moving Avatars and Communicating***

- In both the November and March surveys, large majorities of students indicated three activities were easy:
  - moving avatars around (82% and 83%)
  - communicating with others by Chat or instant messages (82% and 78%)
  - socializing with others in Second Life (65% and 67%).
- In comments to open-ended survey questions, students mentioned five activities they found easy:
  - moving avatars (2 students total, 1 in November and 1 in March)
  - using Chat (1 in March)
  - instant messaging (1 in November)
  - using inventory (1 in March)
  - changing appearance (1 in March)
- When students were asked about Role Model activity, which required changing avatars, moving avatars around, and communicating with other avatars, 89% reported that they had the skills to complete the activity (6% disagreed) and 78% reported that they had a sense of control over what they were doing in the activity (6% disagreed).
- Observations during the training sessions also suggested that students did not have many problems changing appearances at a basic level, moving avatars around, and communicating with others.

### ***Difficulties - Overall***

- One-third of the students (29% in November and 33% in March) agreed that Second Life was easy to use in general.
- At the end of the second semester (March survey), 44% of students indicated that they were confident in playing a virtual world, and 33% said that they liked playing in virtual worlds such as Second Life or There.
- Six comments (four in the November survey and two in the March survey) indicated that using Second Life was frustrating. One student wrote, “At first, I hated Second Life. I was often frustrated because I felt helpless and was unable to do anything on my own because I do not use computer games usually.”
- One interviewee (November) estimated that up to two-thirds of the class could have been frustrated in using Second Life.
- Interviewees (November) said that students’ difficulties in using Second Life were related to their lack of experience as gamers.

### ***The Hardest Task - Building Objects***

- 35% of students agreed that creating objects was easy (November survey).
- Responding to open-ended questions, several students (six comments in the November survey and four comments in the March survey) singled out difficulties with building. For example, in the November survey one student said, “Putting a building together was probably the most difficult thing I have ever done on the computer. The controls were

- complicated, and you practically had to be an engineer to figure out how to cut/rotate/skew and then fit the pieces together to get the structure you wanted.” A few students also mentioned that it was difficult to translate ideas into a building.
- Many students indicated that they were not confident about their building skills in Second Life. 41% of students disagreed or strongly disagreed that they had the skills to be a builder in Second Life, while 35% agreed or strongly agreed (November survey). Also, 55% of students disagreed or strongly disagreed that they believed that they could express their ideas fully when building in Second Life, while 12% agreed (November survey).
  - Interviewees said that the Building activity, for which students were to build an ideal campus building, required much time to complete. They explained that it was because learning to build in Second Life what one envisioned was very difficult for everyone except for those who had extensive gaming experience, who were skilled in geometry, or who had graphic design experience.

### ***Difficulties with ThincBooks and Notes***

- Only 18% of students indicated that it was easy to place texts in Second Life by using ThincBooks (a book-formed object for placing texts) or by embedding Notes. Four comments among responses to open-ended questions singled out Thincbook (one in the March survey) or embedding Notes (three in the November survey) as presenting particular difficulties. Also, only 41% of the students agreed that communicating with others by sending Notes was easy (November survey).
- Interviewees generally mentioned that ThincBook was not a good tool either for publishing or reading information in Second Life, though a few students said it was not too difficult to publish in ThincBook. Reading the Thincbook was difficult because the avatar has to be made to stand at the proper angle to be able to see it well (November interviews).
- Interviewees said that the Notes tool was better than ThincBook for publishing and reading information. However, students had difficulties in sending Notes to each other and finding Notes sent to them, due to the difficulties in setting permissions by account groupings.

### ***Difficulties with Changing Avatars***

- The percentage of students who indicated that changing an avatar was easy dropped from the November survey (71%) to the March survey (39%), perhaps due to the necessity to change avatars in much more sophisticated ways for the Role Model activity in the spring semester. Two comments in the March survey concerned the difficulty in changing avatars to reflect their creator’s envisioned images.

### ***Difficulty with the Frequent Updates, Downtime, and Slowness***

- Interviewees said that they experienced minor frustration with the need for weekly updates and with the occasional downtimes (November interview).
- Three comments characterized updates as too frequent and too time consuming (one in the November survey and two in the March survey). Also, three comments (one in the

- November survey and two in the March survey) characterized server down time as a difficulty.
- Four comments (two in the November survey and two in the March survey) concerned the slowness of computer responses when Second Life was running. One student said that his or her computer froze while running Second Life (November survey) and another said that he was taken out from Second Life (March survey).

### ***Difficulty with the Interface***

- Six comments (two in the November survey and four in the March survey) characterized the interface as unintuitive, and four comments (two in the November survey and two in the March survey) characterized Second Life as not user-friendly. However, one comment said that the interface was intuitive (November survey).
- One interviewee said, “I don’t like that some of the things you can do in SL are hard. And it’s unclear as to how you do those things. There’s not enough instruction. You see cool things but then are like, how do I do that? Like the building.” One student said that the help function was not useful (November survey).

### ***Needs for Training and Assistance***

- In view of the general difficulty in using the tool, some students called for better training and assistance. Two comments (one in the November survey and one in the March survey) expressed the desire for fuller instruction sessions, and one comment (in the November survey) called for a comprehensive manual or tutorial. Interviewees echoed calls for training, especially for the building function (March interview).

### ***Other Difficulties***

- Students mentioned several other difficulties in their responses to open-ended questions:
  - using code/scripts (one the November survey and one in the March survey)
  - controlling camera angle (one in the March survey)
  - losing track of where one’s avatar is (one in the November survey and one in the March survey)
  - keeping track of the avatar’s location (one in the November survey and one in the March survey)
  - controlling movement (one in the March survey)
  - choosing from among overwhelmingly too many options (March survey)
- While the Role Model activity was relatively free from technical difficulties, some students found that their avatar’s clothes did not appear. They solved this by moving to a different computer.

## **III. Question 2: How do students feel about using Second Life in the course?**

Method: Data to address this question were obtained through a student survey, student interviews, and observations.

### Summary

Students generally reported that using Second Life was effective for learning how to integrate visuals and writing, learning about architecture, and leaning about others' perspectives. They also expressed appreciation for being exposed to the new technology. Given students' significantly different reactions to the Building and Role Model activities, seven strategies seemed to determine the effectiveness of Second Life activities: (a) firmly anchoring virtual world activity in the learning objective, (b) giving clear directions, (c) requiring Second Life skills reasonably in students' comfort zones, (d) providing enough training and resources, (e) eliminating competition based on mastering tasks requiring Second Life skills, (f) preparing the activity environment in detail, and (g) capitalizing on social interactions in Second Life. While the Role Model activity was generally successful, students had ideas for improvement.

### ***Learning How to Integrate Visuals and Writing***

- Most students (71% in November and 61% in March) indicated that their understanding of how to integrate visuals/images and writing improved because of Second Life.
- Three interviewees said that Second Life had increased their ability to communicate in writing about buildings and to use images in their papers for reference. For example, one student said, "It let me talk from the inside about architecture, because I could talk about the things I built rather than the things other people have done." In particular, advanced Second Life users reported that using it facilitated their communication in writing, because they could include screen shots of their buildings in their writings. However, because those who were not as skilled could not create in Second Life what they had envisioned, they did not think that Second Life improved their ability to communicate (November interview).

### ***Learning about Architecture***

- Most students (88%) indicated that their awareness of campus architecture had increased because of Second Life (November survey).

### ***Learning about Others' Perspectives***

- Half of the students agreed that their understanding of the sympathetic imagination (understanding others' perspectives sympathetically) increased because of the Role Model activity in Second Life, whereas 22% disagreed.
- All interviewees said that the Role Model activity facilitated their learning of sympathetic imagination. "We've been learning about sympathetic imagination and like role playing and living in other people's shoes. So this activity allowed us to create our avatar [their role models] and try to speak for them and think for them and do that kind of thing in Second Life." "I learned what the different peoples' views were on the subjects we talked about. We discussed a lot of things like what leadership means. We always discuss it like what we think it means personally, but having to go outside of that and see what other real role models think—it was different." (March interview)

### ***Exposure to New Technology***

- Four students said (two in the November survey and two in the March survey) that they were glad to have been exposed to the new technology in the course.

- Seven comments (three in the November survey and four in the March survey) characterized the use of Second Life as interesting.
- Two students said that they had enjoyed using Second Life (November survey).
- Some students expressed disappointment about having to do everything in the virtual world. For example, one said, “Making everything on a computer is disappointing because I've always loved making things with my hands and getting really involved kinesthetically.” (November survey)

### ***Overall Learning***

- Interviewees said that using Second Life forced them to think from a new perspective. For example, one interviewee said, “[In the Role Model activity] you could be saying anything that your normal person would say and I thought that that was really interesting and that it kind of forced you to get out of yourself and forced you to consider a different perspective.” (March interview)
- Interviewees suggested that Role Model activity enhanced their writing. For example, one interviewee said, “I was able to write as [my role model] would speak; at least I put a lot of effort into that. And I'm sure that that helped my writing in some way, just to try to speak as he would, because he was very articulate.”
- Few students agreed that their learning in the course increased because of Second Life (12% in the November survey and 17% in the March survey). Several students (one comment in the November survey and four comments in the March survey) believed that using Second Life provided small or no benefit for learning. For example, in the March survey one student regarded Second Life as “too complicated and time-consuming for the small benefits we get out of it.” Interviewees explained that students' overall attitudes towards the instructional use of Second Life were negative, because activities in the first semester were not well-designed. But Role Model activity in the second semester did provide a positive learning experience and was instructionally effective.

### ***Facilitating Sense of Class Community***

- Approximately one-half of the students (41% and 56%) indicated that they felt a sense of class community when using Second Life.
- On the other hand, one interviewee said that, in the real life classroom, those who liked Second Life sat together, as did those who did not like it (November survey).

### ***Comfortableness, Involvement, and Enjoyment***

- Few students responded positively to items that addressed their comfortableness (35% in the November survey and 28% in the March<sup>d</sup> survey), course involvement (29% in November and 22% in March), and enjoyment (28% in March) with the instructional use of Second Life.
- The two students who were well-versed in Second Life said that using it increased their engagement and interest in the class. One student said that Second Life decreased her interest in the course, while the two other interviewees were neutral (November interview).

### ***Attitudes towards Using Second Life in a Course***

- Overall, students' responses were mixed concerning the use of Second Life in a course, and more negative for the use of Second Life in a literature and writing course (November and March survey).

### ***Lack of Perceived Relationship with the Course Content in the First Semester***

- Three students commented (two in the November survey and one in the March survey) that they could not see how the use of Second Life furthered the purpose of the class in the first semester.
- One student said that the class was frustrated because Second Life and architecture did not seem to be related to the world literature. Another interviewee said, "I don't think [Second Life] really pertains to the class, so it doesn't make me look forward to the class." (November interview)
- One interviewee said that many students wanted to read but had been frustrated, because their time had to be spent elsewhere, including working in Second Life (November interview).
- Interviewees said that if the Second Life activities had been related to the context of world literature, Second Life would have been more engaging (November interview).

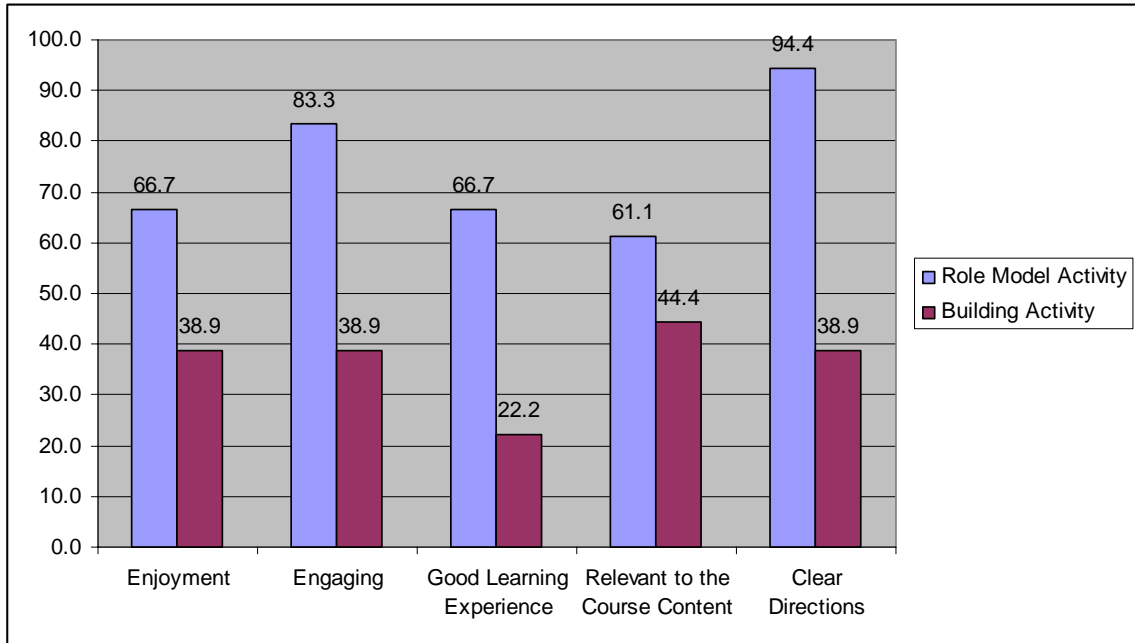
### ***Negative Impacts of Competition***

- Two interviewees said there was a climate of competition in using Second Life and in class in general, partly as a result of the extra credits awarded for creative Second Life work. Such competition, they believed, created a negative atmosphere among students (November interview).

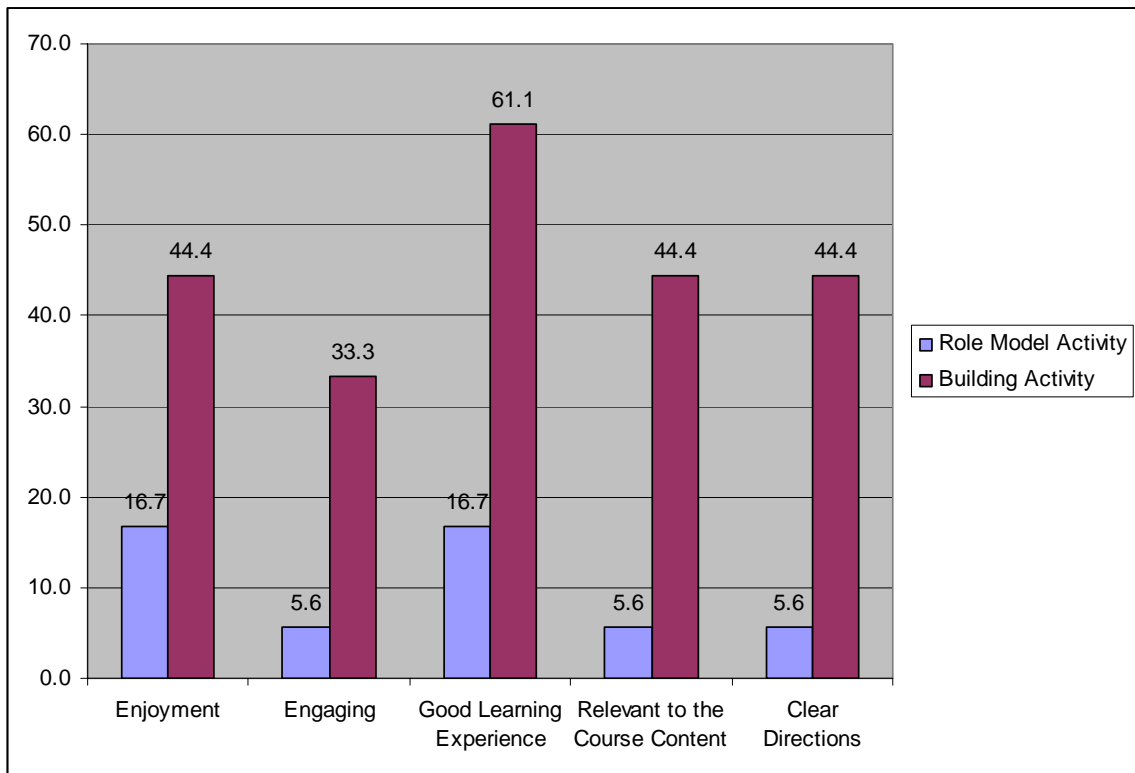
### ***Responses to Role Model Activity and Building Activity***

- Students' responses were clearly much more positive towards Role Model activity than towards Building activity, for all survey questions. The mean of responses for questions concerning the Role Model Activity was 3.8, close to a scale value of 4, corresponding to *Agree*, whereas the mean of responses concerning the Building activity was 2.9, close to a scale value of 3, corresponding to *Neutral*. Specifically, a much higher percentage of students indicated that directions for the Role Model activity were clear, that they had a good learning experience, and that the activity was engaging (Figure 4).
- A much higher percentage of students responded negatively to questions concerning the Building activity than to those concerning the Role Model activity. Specifically, higher percentages of students disagreed that, in the Building activity, they had a good learning experience, that the activity was relevant to course content, and that the directions were clear (Figure 5).
- Interviewees' comments were consistent with the survey results.

**Figure 4: Comparison of the Percentages of Positive Responses (Agree and Strongly Agree) to Survey Questions concerning the Building and Role Model Activities**



**Figure 5: Comparison of the Percentages of Negative Responses (Disagree and Strongly Disagree) to Survey Questions concerning the Building and Role Model Activities**



- Students highly skilled in using Second Life liked the Building activity and appreciated the opportunity to do both the Building and Role Play activities. One of these students said, “I don’t think I would have just wanted to do the Role Model activity. It doesn’t seem like you’re really using it. I like doing the building and the role play both. I felt like the building activity was like using this game to a higher potential.” Students who did not develop Second Life skills did not like the Building activity, and they said that they would have liked Second Life more if it had not been for the Building activity (March interview).

#### ***Additional Data that Suggest Success of the Role Model Activity***

- Interviewees unanimously said that the Role Model activity was successful. “I actually thought [the Role Model activity] was pretty successful. Out of all the Second Life stuff we’ve done this year, I thought it was the one really successful one. I thought people were really trying to make an effort to speak through the mouths and the minds of their role models rather than themselves. And I think people actually did take it seriously.” “I actually really liked this activity. I thought it was one of the better ones we’ve done this year and I didn’t think it required a lot of time. Just the right amount of time was required. And I thought it was a really great way to accomplish the goals of this specific assignment.” (March interview) Observations of students’ Role Model activity also indicated that students were well engaged by the activity.
- Interviewees believed that the activity was well anchored in course learning objectives. “This semester we’ve been learning about leadership and thinking about who our role models are and tying it all together with what our passion is in life. And this assignment was dealing with our role model, so it was nice to role play into our role models and see what it would be like to be them.” “I think the difference [between the Building and Role Model activities] was that the role-playing activity seemed to relate a lot more to our class, so you could actually have a real purpose, whereas in the first semester it was like we’re just kind of throwing this Second Life thing in, but it didn’t really fit with the purpose of the class. Overall, including role playing, role playing made [the SL experience] good.” (March interview)
- Students suggested that the activity took advantage of Second Life’s affordance, allowing students to do what was impossible or difficult without Second Life, in instructionally effective ways. Interviewees said, for example, “It did help us in terms of putting ourselves into character, because it’s one thing to pretend to be the person, speak like them, but it’s another thing to be able to put yourself inside of a physical manifestation of him. So it made it a lot more fun and interesting, especially to see the others.” “I think it would be better to do this one in Second Life, because if we were to dress up I’m sure people wouldn’t take it as seriously and it would just kind of fall apart, because some people are shy and wouldn’t want to impersonate their role model, so this is a good way for people that are kind of scared to express themselves in the open to use SL to be someone else.” (March interview) Also, 61% agreed that using the Role Model activity to chat with others while seeing one’s own and others’ avatars facilitated discussions better than did text-based chats, while only 17% disagreed. However, 33% agreed that the Role Model activity would have been better if done in person in the classroom instead of in Second Life, while 39% disagreed (March survey).

- Interviewees thought that the directions for the Role Model activity were clear and that teleport balls made their transportation efficient. They also mentioned that having differently furnished environments for each discussion session made the activity fun (March interview).
- Students liked the social interactions in the Role Model activity: 82% of the students agreed or strongly agreed that they liked them, and none disagreed. Also, most students (89%) agreed that they liked avatar interactions with others better than the building tasks in Second Life, and two-thirds of students agreed that they liked working in small groups in Second Life better than working on their own. Furthermore, 72% of students agreed that Second Life would be more interesting if they could interact with students outside of their class (March survey). Interviewees' responses in March were consistent with this view. For example, one interviewee said, "I liked [the Role Model activity] because I was able to interact with the class more. With the buildings, we had to go see other peoples' buildings and talk about them and rate them, but we never got to interact with the actual people. It's one thing to interact with their expressions and ideas, but it's another thing to interact with the people themselves. I thought it was a lot more fun that we could actually do that and have this activity on a different level from the usual talking to each other in class." (March interview)

### ***Rooms for Improvement for Role Model Activity***

- The interviewees suggested that the Role Model activity could be improved by adding more depth to discussions. One interviewee, for example, said, "I think we could have done it more. Like discuss more stuff or took on another character or something." "The first one was what is leadership and the next following ones would bring up a certain aspect of it."
- The interviewees suggested that the moderators should give more structure to the discussions so that all participants can have an opportunity to write cogent statements in the discussion. "When you're typing you have to look at what you're typing and you don't really see what other people are saying. So it's not a very turn-based discussion." "It was really tough trying to keep up with who was saying what. [For example,] you wanted to respond to something that someone else said a while ago, so you're typing out your big long response, then 10 other comments go by and it's like, oh wait, we've moved on." "I think it would be beneficial to start with the leader, make it a lot more organized rather than everyone go and give your opinions right now. Have the leader specifically ask every single role model what is your opinion of this subject. And then from there, there can be more discussion. Like more of a formal debate that you would see in real life." (March interview) A few comments in the March survey also suggested that it was difficult to sustain cohesive discussion, and so students suggested a need existed for stronger moderator control of the discussion flow.
- The interviewees suggested allowing more time for discussion sessions so that all participants could express themselves fully—20 minutes or longer sessions appeared to be deemed adequate. For example, one interviewee said, "I thought the 10 or 15 minutes was pretty short.... The discussion could have lasted longer, because I know we were actually getting into some really interesting topics by the end of it." (March interview)
- One interviewee suggested having more discussions in Second Life, saying, "I think it would be better if we did [the Role Model activity] more often rather than the typical

discussions we have in class.... In Second Life, having different sessions and having different groups really did help in terms of having a more coherent discussion.”

#### **IV. Question 3: How do students use Second Life beyond what their course assignments require: how much do they use it, how do they access it, what do they do when they use it?**

Method: Data to address this question were obtained through a student survey and student interviews.

##### Summary

Students did not use Second Life for any purpose other than doing their assignments. In the first semester, most students used Second Life 1-3 times, for one hour or more a week, but in the second semester, most students used Second Life for less than an hour a week. No students had to use a computer other than their own to access Second Life.

##### *Decrease in Use*

- Students’ use of Second Life decreased from the first semester to the second semester. While 82% of students reported that they accessed Second Life 1-3 times in a week (the rest, less than once a week) in the first semester, 94% of students reported that they accessed Second Life less than once a week (the rest, 1-3 times a week) in the second semester.
- Furthermore, while 71% of students were spending one hour or more (1-2 hours, 53% and 3-5 hours, 18%) a week in Second Life in the first semester, 94% reported spending less than an hour a week (including 39% who reported that they did not use Second Life) in the second semester.
- Interviewees reported that they spent 4-10 hours per week on their Building projects before they were due. When an assignment was not due, they reported using Second Life minimally, for example, attending social hours for a short time (November interview).

##### *No Use for Non-course Work*

- In the second semester, all students disagreed or strongly disagreed that they accessed Second Life for purposes other than doing their assignments (March survey). In the first semester, 82% disagreed or strongly disagreed (November survey).
- Interviewees said that they did not know what to do other than assigned activities from the course. One said, “When I get on, I don’t know what to do.” Another said, “There is nothing to do on our island,” suggesting that limiting students’ access to the UT island resulted in a decrease of students’ interest in Second Life. Students also said that they participated in the social hours only for the purpose of receiving extra credit (November interview).
- Two comments in the survey suggested that it would have been more exciting if students had received access to the world outside of the UT island.

### *Computer Used for Second Life*

- No students had to use a computer other than their own to access Second Life. (November survey)

## **V. Question 4: What are the possibilities for future use of Second Life, or virtual worlds in general, at UT Austin?**

Method: Data to address this question were obtained through a student survey and student interviews.

### Summary

Students contributed various ideas for improving the instructional use of Second Life, including using the main grid as well as the UT island, and they identified specific academic disciplines in which students would be likely to benefit from using Second Life.

- Several students (one in the November survey and four in the March survey) suggested that instructors allow students to use the main grid as well as the UT island. For example, one said, “The separate island is understandable, but doesn't leave much room for excitement, because we were forced to create our own content to study instead of studying hypermedia as a phenomenon when people are given complete freedom.”
- Two students said that Second Life has great potential for instructional use. One said, “I think that second life is a tool with great possibilities. It functions well as a game and as a learning environment. Because it is open source, and because of the power of the internet, absolutely anything could be invented.” Students identified several disciplines in which courses could potentially benefit from the use of Second Life (November and March interviews):
  - architecture (4)
  - computer science (2)
  - courses in which immersive experiences are important, such as anthropology and literature (2)
  - engineering (2)
  - business/economics simulation (1)
  - tech survey (1)
  - courses that deals with hypermedia (1)
- Interviewees also suggested additional areas:
  - design (apparel/textile) (1)
  - cell modeling in biology (1)
  - psychology, to teach getting out of yourself (1)
  - literary criticism, to create scenes (1)
- Student also suggested three approaches to using Second Life:
  - Make sure the activity is relevant to the course (1).
  - Use it for encouraging interaction among students (1).
  - Incorporate interactive components (1).

## Recommendations

Based on these findings, 15 recommendations are offered, 12 for using Second Life to support instruction and 3 for using Second Life to facilitate discussion.

### General Recommendations

#### 1. Take students' gaming background into account.

Although Second Life is not a game, students noted that the skills necessary to use Second Life are similar to those necessary for playing games, and students often attributed difficulties in using Second Life to their lack of gaming experience. So while gaming experience would appear to be a desirable prerequisite for using Second Life, only a half of the students identified themselves as gamers.

It will, therefore, be a good practice to

- not assume that all students are gamers simply because they are in the Net Generation,
- assess students' gaming experiences, if possible, and
- design Second Life learning activities and Second Life training with consideration of students' Second Life technical skills, based on their previous gaming experience—unless the development of Second Life technical skill is a learning objective.

#### 2. Avoid building and placing texts using Thincbook or Note, unless doing so is essential to achieve instructional objectives.

Building objects and placing texts using Thincbook or Notes presented considerable difficulties to students and was time consuming. Therefore, unless there is no more efficient alternative to achieve instructional objectives (including cases where the development of Second Life technical skills is an important learning objective), try to avoid these tasks. If it is important to include these tasks, provide sufficient training, manuals, tutorials, and/or other supports.

#### 3. Provide adequate training, manuals, and/or tutorials.

The interface of Second Life is not intuitive for users in general. Even when learning activities require only easier tasks, such as moving avatars and communicating, it is essential to provide enough support resources—such as training, manuals, and/or tutorials—to ensure that students are familiar enough with Second Life that they can concentrate on the learning activities comfortably, without being hindered by their knowledge of Second Life. If possible, provide both training sessions and self-training resources, such as manuals and online tutorials.

#### 4. Expect difficulties with updates, downtime, and slowness.

Updates and server downtimes are frequent with Second Life, and slowness may become an issue for students using Second Life, depending on the capacity of their computer. Neither support staff, course instructors, nor students have control over these issues, so they should be anticipated and dealt with by

- warning students to schedule their work around the frequent updates and server downtime,
- clearly stating the policy concerning late submission of Second Life-related assignments,

- making public computers with Second Life installed available to students.

### **5. Take advantage of Second Life’s affordances—a visual medium, in three dimensions, and avatars.**

The data suggest that Second Life was effective for helping students to

- learn how to integrate visuals and writing,
- learn about architecture,
- understand others’ perspectives by means of role playing through an avatar.

It appears that using Second Life to improve learning is effective when instructional design takes advantage of Second Life’s strong features, such as providing three-dimensional visual input, and an avatar-based social experience. More information should be sought to determine what types of learning may be facilitated by Second Life.

### **6. Firmly anchor Second Life instructional activities in the learning objectives and contexts, and explicitly communicate how activities are expected to serve the objectives.**

While many students expressed appreciation for the opportunity to become exposed to the new technology, some expressed frustration with not seeing a clear connection between the Building activity and work with literature and writing. In this course, literature was defined broadly to include “all signs, linguistic and non-linguistic, including art, architecture, landscapes (geography), material culture (archeology), etc.,” and with that definition the Building activity had direct relevance to the course objectives. Yet, some students failed to observe the relevance as evidenced in their comments in the surveys and interviews. This suggests two things: (a) relevance of Second Life learning activities to learning objectives was an important issue to students, and (b) students may fail to see the relevance if not explicitly pointed out. When the relationship between the Role Model activity and the learning objective was made clear to the students, they did see the effectiveness of using Second Life.

### **7. Employ Second Life activities along with other activities.**

Some students expressed their desire to work with their hands rather than on computers or to do more traditional literature tasks such as reading and writing. Also, the findings suggest that, while Second Life is good for achieving many instructional objectives, it is not necessarily the best option for achieving all of them. It seems reasonable, therefore, to mix various learning resources consistent with various learning objectives to accommodate more students’ learning styles and to offer appropriate resources for specific learning objectives.

### **8. Avoid competition among students on the basis of Second Life skills.**

Students reported that a climate of competition developed due to the extra credit available for students demonstrating superior skills in using Second Life, creating a negative atmosphere. Unless competition is necessary or competition will clearly not negatively affect students, it is advised to avoid provoking student competition by rewarding tasks that require advanced Second Life skills. For many students, using Second Life is struggle, so they experience considerable frustration when faced with competing tasks for which Second Life skills are critical. Additionally, providing time guidelines or limit for time to be spent for assignments may help students avoid spending unnecessarily large amount of time and frustrate themselves.

### **9. Capitalize on social interactions facilitated in Second Life.**

Students' reactions to social interactions in Second Life were particularly positive—they liked the social interaction activity in Second Life better than the building activity, and they liked group activities more than individual work. Therefore, capitalizing on social interactions is likely to help create positive learning experiences. One should consider adopting Second Life, if the activity requires or maximize the benefits of the social interaction opportunities afforded by Second Life.

#### **10. Prepare the activity environment and procedure well.**

A large part of the success of the Role Model activity was attributed to the good, detailed preparation for it. Three aspects were particularly critical to the preparation:

- provide four discussion spaces
- provide teleport balls to facilitate smooth movement from one discussion space to another
- provide a one-page handout to describe the activity procedure in detail

Because Second Life activities are considerably less familiar to students than traditional activities, more detailed preparation for Second Life activities are desirable for smooth implementation.

#### **11. Determine students' access areas with caution.**

Several students suggested that they be allowed to use the main grid as well as the UT island. While that would likely open up new instructional possibilities, as the students suggested, environments in the main grid may not be educationally sound. Therefore, students' access to the main grid should be carefully considered, with attention to students' maturity and needs.

#### **12. Explore educational possibilities for Second Life in other academic disciplines.**

Students repeatedly suggested that some academic disciplines may present more appropriate opportunities for using Second Life than others, such as architecture, as noted by four students. Pilot efforts in different disciplines should continue in order to explore the utility of Second Life in different academic contexts.

### **Discussion Activity Specific Recommendations**

#### **13. Provide moderators.**

Interviewees suggested that moderators are essential to discussions in Second Life, which would benefit from clearer structure. It is recommended that moderators be trained to perform several critical tasks:

- Regulate the flow of discussion so that a new topic is not introduced before participants have finished writing about the present topic.
- Regulate speaking turns so that all participants have opportunities to express themselves fully.
- Save notes or a summary of the history of the discussion for later reference.
- Take snapshots of Second Life discussions, if necessary

#### **14. Allow enough time for discussion.**

Some students suggested that more discussion time would be desirable. For an activity similar to the Role Play activity, a minimum of 20 minutes for each discussion seems to be adequate.

**15. Create small groups**

Given the difficulties with regulating the discussion flow, it is not advised to form groups larger than four or five students, the size of groups for the Role Play activity.