Senior honors research project: The effectiveness of a Second Life® simulation as a teaching strategy for undergraduate mental health nursing students

Samantha J. Knisley
Senior Honors Nursing Student
The University of Akron College of Nursing

Lori I. Kidd
Assistant Professor of Nursing
The University of Akron College of Nursing
Abstract

Virtual reality and simulation programs have gained increasing popularity in university settings, where educators have sought to incorporate virtual reality into the classroom setting. In nursing education, learning may be enhanced through applications of technologies where students may safely practice skills with simulated patients and gain confidence. Second Life® is a virtual world where users may simulate social interaction and practice skills such as communication and assessment. Bandura’s self-efficacy theory provides a theoretical framework for this study. If students learn a set of skills through Second Life® virtual simulation, confidence related to the performance of those skills increases (Eastman & Marzillier, 1984). The purpose of this descriptive study was to measure the effectiveness—based on educational efficiency and technical difficulty—of a Second Life® virtual simulation as a teaching strategy for undergraduate nursing students during a mental health nursing rotation. The study involved 87 student participants enrolled in a baccalaureate nursing program using a Second Life® virtual simulation. Data were collected using a Likert scale survey. Results indicated that students perceived the Second Life® virtual simulation to be moderately effective as a teaching strategy and slightly difficult as technical program.
Senior Honors Research Project: The Effectiveness of a Second Life® Simulation as a Teaching Strategy for Undergraduate Mental Health Nursing Students

Virtual reality and simulation technology programs are being increasingly utilized in health care education in the last ten years, especially in nursing education. According to a study in the *Geriatric Nursing Journal*, virtual technology has been described as “virtual fieldtrips that allow students to review practice relevant websites” and “a series of websites through which faculty guide the students via an accompanying script” (Bonnel, Fletcher, & Wingate, 2007, p. 301). In these programs, virtual technology incorporates computer graphics, sounds, and other sensory input to create a computer-generated world in which the user can interact. According to Gregg & Tarrier, the focus of virtual worlds is to create the opportunity for students and health care professionals to interact with a make-believe reality. A “sense of presence,” or the feeling of real world stimuli, is important for a successful program (Gregg & Tarrier, 2007, pg. 343).

With updates in technology, universities are seeking to incorporate virtual simulations in the classroom and enhance the learning experience for students. Rovai (2002) defines an online learning community as “mutual independence among members, a sense of belonging, connectedness, spirit, trust, interactivity, common expectations, shared values and goals, and overlapping histories among members” (p. 2). According to the Community of Inquiry framework, the core elements of a collaborative constructivist learning environment consist of three main elements: teaching presence, cognitive presence, and social presence (Garrison, Cleveland-Innes, & Fung, 2009). The results of Garrison, Cleveland-Innes, and Fung’s (2009) study found teaching presence to be essential in creating and sustaining social and cognitive presence in online learning environments. Through these three main elements, virtual technology “potentially provides a means for understanding, assessing, and treating a number of clinical...
disorders” in clinical mental health nursing (Gregg & Tarrier, 2007, p. 352). In education, virtual technology can greatly facilitate education to a generation where technology use is second nature. One such virtual technology program being used is called Second Life®. This online tool allows students to enter an alternate reality and create an avatar that is able to virtually interact with characters who have an illness.

Several changes in nursing and in health care provision are relevant to the need for identifying new and better teaching strategies. Currently, there is a high demand for nurses due to the rapid population growth of persons 85 years and older. Consequently, nursing student enrollment as well as demand for nursing educators has increased (Bonnel, Fletcher, & Wingate, 2007). New ways to integrate information “are important with decreasing clinical resources and shortages of qualified nurses,” (Reyes, Stillsmoking, & Chadwick, 2008, p. 48). Virtual technology can be effective in teaching a larger group of students while still maintaining the student-teacher socialization relationship. Group teaching may decrease the amount of time needed for one to one faculty-student time.

While virtual technology has the potential to benefit teachers and students in the classroom, there are concerns about using too much technology in the nursing profession and education. According to Kokol (2006), “we must accept the fact that technology alone does not automatically improve the learning progress. In order to be successful, the focus must be on teaching and learning, not merely the technological issue” (p. 389). Virtual technology lacks face to face interaction between the instructor and students, for “educators remain the essential element in clinical experiences” (Reyes, Stillsmoking, & Chadwick, 2007, p. 48). Thus, research does not currently support virtual technology as a replacement for traditional education, as there
needs to be a balance of technology and clinical practice in order to ensure optimal learning (Gregg & Tarrier, 2007; Kokol, Blazun, Turk, & Abbott, 2006).

The purpose of this study is to measure from the student’s perspective the effectiveness of a Second Life® virtual simulation as a teaching strategy for undergraduate nursing students during a mental health nursing rotation. The research questions are: How effective is a Second Life® virtual simulation as a teaching strategy for undergraduate mental health nursing students? How technically difficult is a Second Life® virtual simulation program for undergraduate mental health nursing students?

This study will examine from the students’ perspective both the educational effectiveness and technical difficulty of virtual technology through the Second Life® program. Student evaluation of Second Life® for learning about mental health has the potential to assist the nursing faculty in their evaluation of this educational tool in the classroom setting. Student feedback may help faculty make changes to this teaching strategy that will ensure optimal learning.

**REVIEW OF THE LITERATURE**

The majority of articles about this topic were found in educational journals and were studies explaining or evaluating the effectiveness of simulation tools. Findings of quantitative and qualitative research and education studies are discussed in the review of the literature.

**Virtual Reality Application in Education and Nursing**

Researchers have examined the educational effectiveness of virtual reality applications as a tool to increase awareness of health problems through the use of virtual avatars. Many have
found that virtual reality simulations, such as Second Life®, are effective as a teaching strategy. Researchers examined undergraduate nursing students and found that many of the students viewed the online access to virtual technology as convenient to access and simple to understand (Beville, 2002; Bonnel, Fletcher, & Wingate, 2007; Fletcher, & Wingate, 2007; Gregg & Tarrier, 2007; Wiecha, Heyden, Sternthal, & Merialdi, 2010). Reyes (2008) examined the effectiveness of virtual technology to teach intravenous insertion technique to LPN nursing students and found that virtual technology “allows students to achieve an understanding of their thinking, perceptions, and responses faced or encountered before they practice in the clinical setting” (p. 43). Boyd (2008) examined the use of virtual reality to expose nursing students to dementia and found that the students reported feeling confident when performing in clinical settings the skills they learned during virtual reality practice.

Researchers and educators have investigated the use of virtual reality and simulation in mental health education. Specifically in mental health nursing, Gregg & Tarrier (2007) examined 17 research articles that compared effectiveness of virtual technology treatment and found virtual technology can potentially provide a means for understanding, assessing and treating many mental health disorders. For example, virtual technology can recreate situations that can not be re-experienced, such as the attack on the World Trade Center which may be useful for patients with post-traumatic stress disorder (Gregg & Tarrier, 2007).

Researchers found many advantages of virtual technology in educating health care professionals and students (Barratt, 2009; Bonnel, Fletcher, & Wingate, 2007; Gregg & Tarrier, 2007; Reyes, Stilsmoking, & Chadwick, 2007). Barratt (2009) examined the effectiveness of video reality education for nurse practitioner students and found a large portion of nursing students are visual learners. Virtual technology complemented the student’s learning-style by
using a visual aide (the computer program) to enhance the student’s capacity to learn. Also, the students appreciated the online convenience, time flexibility and the time to reflect on the experience (Barratt, 2009). Bonnel (2007) found that virtual technology “opportunities for students to participate, interact, experience, and construct knowledge to meet their own learning needs are consistent with learning styles of the new ‘millennial’ student generation” (p. 302). Also, virtual technology can provide content that is practical and relevant to students and allows them to actively engage in the program, instead of reading the course textbook (Bonnel, Fletcher, & Wingate, 2007). Gregg & Tarrier (2007) noted that many nursing research articles found virtual technology to be flexible, programmable, and life-like. Reyes (2007) reports virtual technology increased patient safety when intravenous insertion was practiced in simulation; it also allowed students to make decisions based on patient-centered scenarios and provided a cohesive student-faculty bonding experience (Reyes, 2007).

**Second Life® Virtual Simulation in Nursing Education**

Second Life® has been used in many educational settings, specifically in an array of nursing programs, including BSN, accelerated BSN, and masters programs (Skiba, 2009). Second Life® offers experiences that students may not benefit from in clinical rotations. The University of Wisconsin’s College of Nursing purchased four virtual islands for 77 nursing students to learn in the field of public health nursing. Students are able to make virtual home visits, perform sanitation checks of a restaurant, and learn about disaster planning (Stewart, Pope, & Duncan, 2009). Other universities and colleges have used Second Life® to build replicas of their campuses to hold research seminars and international conferences. Faculty at these universities and colleges can hold virtual office hours in Second Life® eliminating the...
travel time for commuter students and faculty (Richardson, Hazzard, Challman, Morgenstein, & Brueckner, 2011).

Some of the benefits nursing programs have found about Second Life® are that the program “allows for role playing, collaboration, real-time interactions between students and faculty, and experimentation” (Skiba, 2009, p. 129). One study found that nursing students greatly valued online conversation compared to face-to-face, for there was greater opportunity for each participant to add comments in the discussion (Barratt, 2009). Second Life® also provides a risk-free environment for patients. According to Kilmon, Brown, Ghosh, and Mikitiuk (2010), virtual reality is ideal for learners to “experiment with different responses, some of which may be incorrect, to learn what would happen and why certain responses are contraindicated” (p. 314). Situations in virtual worlds can also be standardized and performance by learners can be easily monitored, recorded, and evaluated (Kilmon et. al, 2010).

Resources are available to nursing programs to start Second Life® education. The University of Kansas offers a course on virtual technology, and many programs have existing virtual islands, where new nursing programs can go to for assistance and ideas on how to create a virtual university island (Skiba, 2009).

Problems that have been found with Second Life® as a nursing teaching tool include building the virtual world, lack of accessibility to computers capable of running the program, and decreased knowledge about virtual worlds when dealing with students older than Generation Y students (those born between mid-1970’s to early 2000s). Students report concern that aspects of the program are not applicable to nursing, such as learning to teleport to each island, and some feel uncomfortable interacting with other avatars (Skiba, 2009).
The majority of nursing students from different nursing programs enjoy the experience, request more time in Second Life®, and learn from the program (Skiba, 2009; Steward, et. al., 2009; Warren & Brixey, 2009). The obstacles of the program tend to be overlooked when it comes to the student’s positive educational experience.

Challenges and Limitations of Virtual Technology

While numerous studies show that simulations are beneficial in nursing education, different aspects of nursing may require different teaching approaches (Kokol, Blazun, Turk, & Abbott, 2006). When designing virtual worlds for nursing education, the community structure, process, and emotional aspects need to be considered in order to potentiate the highest learning possible in nursing students (Gallagher-Lepak, Reilly, & Killion, 2009). Kokol et al. (2006) found many potential barriers to virtual technology, including lack of personal contact, lack of transfer, internet connection, fear of technology, and lack of technology knowledge. Kokol (2006) stated, “A major challenge in adopting the online learning mode is to enhance human interaction so as to provide a facilitative environment for establishing peer support, developing academical dialogue and socialization” (p. 389).

Many researchers have found that virtual reality simulations are or have the potential to be confusing and difficult to understand (Wiecha, Heyden, Sternthal, & Merialdi, 2010). While the current Generation Y is fluent in the new technology available today, past generations may have difficulty understanding how to navigate through a virtual simulation. Hansen, Murray, and Erdley (2009) also pointed out nursing faculty’s lack of familiarity with virtual technology’s format and benefits may lead to low levels of virtual education use.
SENIOR RESEARCH HONORS PROJECT: THE EFFECTIVENESS OF A SECOND

**Trends.** Few researchers and educators used theoretical frameworks to guide their studies. This may be due to the newness of the virtual reality phenomena. While the concept of virtual reality has existed since 1985, the majority of the applications have been developed in the last ten years (Gregg & Tarrier, 2007). Few researchers have studied the use of virtual reality in samples of more than 100 subjects (Barratt, 2009; Boyd, Sanders, Kleinert, & Huff, 2008; Gallagher, Lepak, Reilly, & Killion, 2009; Park, Ku, Park, & Park, 2009; Wiecha, Heyden, Sternthal, & Merialdi, 2010). Most have studied this phenomenon with smaller samples (Baas, Nugent, Lissek, & Pine, 2004; Beville, 2002; Bonnel, Fletcher, & Wingate, 2007; Gregg & Tarrier, 2007; Kokol, Blazun, Turk, & Abbott, 2007). They have also tended to use convenience sampling in hospitals and schools (Barratt, 2009; Beville, 2002; Bonnel, Fletcher, & Wingate, 2007; Boyd, Sanders, Kleinert, & Huff, 2008; Gregg & Tarrier, 2007; Gallagher, Lepak, Reilly, & Killion, 2009; Park, Ku, Park, & Park, 2009; Wiecha, Heyden, Sternthal, & Merialdi, 2010). Many used newly developed evaluation tools, which challenges the validity and reliability of the findings. As a whole, studies about virtual technology are limited, with most using small sample sizes and new evaluation methods/tools.

**METHODS**

**Design, Sample, & Setting**

The study used a descriptive design to describe students’ perspective on the effectiveness of the Second Life® virtual reality program as a teaching tool for mental health nursing students. Eighty-seven undergraduate nursing students in the second rotation in fall of 2010 and the first rotation in spring of 2011 comprised this convenience sample. While the completion of a Second Life® virtual simulation was required for class, participation in the study was voluntary.
Inclusion criteria were university mental health nursing students, completion of the Second Life® program, and at least 18 years of age.

This study took place at a college of nursing at a midwest state university. Approximately 420 traditional nursing students and over 120 nontraditional students are in the nursing college.

**Instruments**

The Second Life® Simulation Evaluation Survey, a 35 item questionnaire composed of both multiple choice and open ended questions, was developed by the researchers. This survey was administered upon completion of the students’ final mental health nursing exam. The researchers chose to develop a new instrument because existing surveys were not specific to the Second Life® virtual technology as applied in the course. Questions were developed based on the researchers’ judgment of potential educational effectiveness and technical difficulty factors of the program. The survey consisted of ten general demographic items, nine items that allowed the student to self-rate the educational effectiveness of the Second Life® virtual technology on a four-point Likert scale, and fourteen items that allowed the student to self-rate the technical difficulty of the Second Life® virtual technology on a four-point Likert scale. Two open-ended questions were also included at the end of the survey, asking students to state what they most and least liked about the Second Life® simulation.

**Procedures**

Participants were selected from the mental health nursing classes during the second rotation of fall of 2010 and the first rotation of spring 2011. Each of the students was required to complete a Second Life® program created for the class as part of the course curriculum. The
Second Life® program consisted of a virtual neighborhood with two houses on a street. One house belonged to a patient with a schizophrenic disorder and the other belonged to a patient with major depressive disorder. Participants could enter the house, view objects on the tables and walls, and interact with the patient. Grading was based upon the interaction between the participant and the patient.

At the end of the course participants were asked to complete a survey in class that assessed the educational efficiency and technical difficulty of the Second Life® virtual simulation. The survey took approximately 10-15 minutes to complete and is shown in Appendix A.

No individually identifiable data was collected about the individual participants. The survey asked participants to identify gender, age, ethnicity, class ranking, and amount of education completed. Participants were referred to by an assigned number. All surveys and pertinent data were locked in the office of the project sponsor. Access was granted to only the honors research nursing student, the research project sponsors, and the mental health course coordinators. The Institutional Review Board granted approval under exemption category 1, research conducted in established or commonly accepted educational settings, involving normal educational practices. The data was collected in the mental health classroom.

Measures

Two dimensions of effectiveness, educational effectiveness and technical difficulty, were measured. Educational effectiveness was measured with items requiring participants to rate the effectiveness on a 1 to 4 Likert scale. Examples of items measured were the ability to conduct a mental health assessment, including determining safety, and the ability to identify behavioral symptoms of schizophrenia and major depression using the Second Life® program.
SENIOR RESEARCH HONORS PROJECT: THE EFFECTIVENESS OF A SECOND

Technical difficulty was measured with items requiring subjects participants to rate the psychomotor skills and ability needed to navigate through the Second Life® program. Subjects Participants were asked to rate technical difficulty on a 1 to 4 Likert scale. An example of an item measuring technical difficulty was the ability to navigate the avatar through the houses in the Second Life® program (Appendix BA).

Two open ended questions were added after the first student group (n=17) completed the survey. The researchers believed that subjective comments would be helpful to faculty assessing effectiveness of the virtual technology VT strategy by providing more specific information. Participants could elaborate and further express their opinions about what they most and least liked about the Second Life® activity. Sixty students had the opportunity to respond to open ended questions.

DATA ANALYSIS

Quantitative data analysis was performed using PASW version 18.0. Descriptive statistics were used to describe characteristics of the sample and the students’ previous knowledge and experience of virtual technology VT. A one-sample t-test was used to find total scale mean scores of educational effectiveness and technical difficulty.

Seventy of the students were female and sixteen male. 88% of the students identified as Caucasian, 6% African American, and 6% Asian or Other ethnicity. The majority of the students had some college training (91%), while the minority (7%) had either an associates or bachelors degree. The age range was twenty to forty-two years. 0% of the participants had used Second Life® simulation prior to partaking in the survey. 35% had some prior experience with virtual simulation and 58% had manipulated a virtual avatar before (Appendix BA, Table 1).
Educational effectiveness and technical difficulty scores were found using a one sample t-test. Educational effectiveness scores had a possible range of 8-32, with higher scores indicating greater effectiveness. The mean in this sample was 23.43. Technical difficult scores had a possible range of 14-56, with higher scores indicating greater difficulty. The mean in this sample was 26.47. (Appendix B, Table B12A & B22B).

Responses to open ended questions were reviewed by the researchers and shared with course faculty. Seventy participants had the opportunity to answer the questions, and sixty-three choose to answer the questions.

**FINDINGS**

One student was excluded from analysis because the student told the researcher that survey responses were deliberately skewed. Otherwise, 100% of the students eligible to participate willingly took part in this study and were included in data analysis. Results indicated Second Life® simulation is moderately effective as a teaching strategy (mean 23.43) and slightly difficult (mean 26.47) as a technical program.

Results of open ended question review indicated that students identified several benefits of the Second Life® activity. Some of the aspects they most liked included the opportunity to conduct a home health assessment without the potential safety risks (16 participants). The real life aspect of the simulation was enjoyable, requiring quick thinking (11). Some participants liked that the simulation was different than other class assignments (11). Others liked the focus on communication skills (6), the ability to work from home (4), and the capability to save and review the interaction (4).

Students also identified several negative aspects of the Second Life® activity. Things that they liked least included the difficulties in creating and dressing an avatar (17) and
maneuvering around the Second Life® world (12). Many found the program time consuming and difficult to set-up (8). During the interaction with the patient, participants disliked waiting for the instructor to type their response (7) and did not enjoy the virtual setting, stating the program was ‘not real’ (5).

**DISCUSSION**

Overall, the results of the Second Life® Simulation Evaluation Survey suggested that participants found the Second Life® simulation to be a moderately effective teaching strategy and a slightly difficult technical program. Participants found both positive and negative aspects about the program.

Positive aspects tended to be educational in nature, including the ability to conduct a home visit in a safe atmosphere, where mistakes can be made without consequences. In Second Life®, students could explore the homes and interact with the patient without fear of insulting or being harmed by the client. More students found the program to be realistic and enjoyed ‘thinking on [their] feet’. Also, saving, printing, and discussing the interaction during a debriefing session with a faculty member increased the learning process, allowing the student to critique their communication skills.

The majority of the students citing negative aspects found the avatars took too much time to create, which took away from the learning experience. One student suggested, “if avatars were made beforehand for the students, the educational value of this program would increase.” None of the students had ever worked with Second Life® before, so each participant had to take time to learn how to navigate and maneuver around the virtual world, which could be frustrating at times, especially when the instructors were unfamiliar with the program as well. Others found
there was not enough time to tour the house, look at its contents, and have a sufficient
conversation with the patient. “I was too rushed and could not multitask quick (sic) enough,” one
student stated.

**STUDY LIMITATIONS**

Limitations of the study included use of a convenience sample. There was no control
group. In addition, the instrument—the Second Life® Simulation Evaluation Survey-- was not
subjected to parametric testing. Thus, there was no data available on reliability and validity.

Thirdly, the data collection method may have had a negative influence on the
participants’ survey results. The survey was administered in class after the final exam, which
may have forced students to quickly answer the questions due to time restraints, or because the
students desired to be finished with the class faster.

Finally, attitudes of faculty administering the Second Life® simulation may have
influenced student attitudes towards the program. All of the faculty members were new to
Second Life® simulation and may not have been comfortable with technical aspects of the
program or the design of the simulation itself. Especially during the first rotation of spring, a
large percentage of the faculty members implementing the program were part-time faculty
members. Many of these faculty members had difficulty investing a large amount of time in
Second Life® for an occupation that was only a 20-30 hour time commitment.

**Conclusions and Implications for Nursing Education**

The results of this study are important as nursing education faces decreasing clinical
resources and shortages of qualified nursing instructors. Second Life® simulation has great
potential for distance learning, and should be further developed for additional use in other nursing education courses in order to facilitate student learning. This study should be repeated with a larger sample size at this institution and expanded to a multisite design in future research. Technical difficulties of the simulation experienced by students and faculty members need to be resolved.

While integrating virtual technology VT simulations into nursing curriculum is exciting, educators are an essential element in both the simulation and clinical experiences. Second Life® simulation training needs to be made available to nursing instructors in order to help them feel comfortable with the new technology. Use of traditional methods of nursing training, like clinical experiences, need to continue to be implemented in addition to the use of Second Life® simulation. Virtual technology VT does not replace the value of the actual clinical experience.

The results of this study suggest that virtual worlds like Second Life® offer opportunity to provide a different learning tool to enhance learning outcomes not provided by traditional courses alone. As nursing education faces increasing enrollment and faculty shortages, Second Life® virtual simulation can be an education tool that is an effective teaching strategy, easily accessible and convenient for faculty and students, and safe for educational experimentation.
REFERENCES


doi:10.1007/BF01172994 from Springer Link Beta database.


Appendix A

The Effectiveness of a Second Life® Simulation as a Teaching Strategy for Undergraduate Mental Health Nursing Students

INFORMED CONSENT FORM FOR PARTICIPANTS

You are invited to participate in a study being conducted by Samantha Knisley, an Honors student from the College of Nursing, The University of Akron, Akron, OH.

The project focuses on the effectiveness of Second Life® virtual simulation based on the educational efficiency and technical difficulty of the program for The University of Akron College of Nursing Mental Health students. The information from this project may serve as a guide to nursing faculty in making changes to this teaching strategy that will ensure optimal learning.

If you decide to participate, you will be asked to complete a questionnaire. It should take about 15 minutes of your time to complete the questionnaire. **Completion and submission of this survey represents your consent to serve as a subject in this research.** Participation in the project is completely voluntary. If at any time you decide that you do not want to participate in the study, you may withdraw. There is no penalty or loss of benefits if you refuse or change your mind and do not continue in the study.

Your confidentiality will be protected throughout the study. Your name will not appear on any questionnaire documents or be connected with any answers you may give. All data obtained from your questionnaire will be kept confidential and will not be viewed by anyone but the researchers and advisor. All completed questionnaires will be kept in a secure file located in a locked office at the College of Nursing at The University of Akron. All findings will be reported as aggregate data. You will not be identified in any report. A copy of research findings will be made available upon request.

If you have any questions about the research project, you may contact my advisor, Dr. Lori Kidd at (330) 972-6703 or kidd@uakron.edu.

This research project has been reviewed and approved by The University of Akron Institutional Review Board for the Protection of Human Participants. Questions about your rights as a research participant can be directed to Sharon McWhorter, Associate Director, Research Services, at 330-972-7666.

Thank you for your participation!

Samantha Knisley
The University of Akron, College of Nursing
209 Carroll St. Mary Gladwin Hall
Akron, OH 44325-3701
Appendix A
Second Life® Simulation Evaluation Survey

Thank you for taking the time to fill out this survey for the use of an Honor’s research project. Your input has the potential to assist The University of Akron’s Mental Health nursing faculty to evaluate the Second Life® virtual simulation program in the classroom setting. Survey results will help them make changes to this teaching strategy that will ensure optimal learning. All answers will be confidential and will not be used outside of this educational evaluation.

Please check the box next to the answer that you choose.

1. What is your gender?  _____
   - Male
   - Female

2. To which ethnic group do you belong?  _____
   - American Indian or Alaska Native
   - Asian
   - Black or African American
   - Native Hawaiian or Pacific Islander
   - White (Caucasian)
   - Other
   - Do not wish to respond

3. What was your age on your last birthday?  _____

4. What year (level-status) are you currently in?  _____
   - First year (Sophomore)
   - Second year (Junior)
   - Third year (Senior)

5. What is the highest level of education you have completed to date?  _____
   - Some college training
   - Associates degree
   - Bachelor’s degree
   - Graduate degree

6. Before this class, have you used Second Life® simulation?  _____
   - Yes
   - No

7. Before this class, have you used computer simulation?  _____
   - Yes
   - No
8. Before this class, have you used avatars, such as in video or computer games? 
- Yes
- No

9. What computer did you use to access Second Life® simulation in this course? 
- Home computer
- College of Nursing computer
- Another University of Akron Computer
- Other

10. If you used a home computer, what is its age? 
- less than one year old
- one to two years
- two to five years
- over five years

Educational

DIRECTIONS: The following items are learning outcomes related to the Second Life® simulation. Please circle the number that best describes the effectiveness of the simulation in helping you to accomplish each outcome.

How effective was the simulation in helping you to:

<table>
<thead>
<tr>
<th></th>
<th>Not At All Effective</th>
<th>Slightly Effective</th>
<th>Moderately Effective</th>
<th>Very Effective</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Conduct a mental status assessment?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Evaluate a home environment for safety issues?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>Evaluate a home environment as an indicator of a client’s mental health?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>Identify behavioral symptoms of schizophrenia?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>Identify behavioral symptoms of major depression?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
SENIOR RESEARCH HONORS PROJECT: THE EFFECTIVENESS OF A SECOND

4. Identify priority nursing interventions for clients with serious mental illness?  1  2  3  4

7. Identify follow-up recommendations for clients with serious mental illness?  1  2  3  4

8. Analyze strengths and weaknesses of communication skills?  1  2  3  4

9. Document a summary of your clinical findings from the home visit?  1  2  3  4

Technical

DIRECTIONS: The following items are technical and psychomotor skills related to the Second Life® simulation. Please circle the number that best describes the perceived degree of difficulty you experienced while using the Second Life® simulation.

How difficult was it for you to:

<table>
<thead>
<tr>
<th>Technical Skills</th>
<th>Not At All Difficult</th>
<th>Slightly Difficult</th>
<th>Moderately Difficult</th>
<th>Very Difficult</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Make certain that the computer you used met technical requirements for the simulation?</td>
<td>1  2  3  4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Log into the Second Life® program.</td>
<td>1  2  3  4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Create a username and password.</td>
<td>1  2  3  4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Transport to the Akron Island?</td>
<td>1  2  3  4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Create your avatar?</td>
<td>1  2  3  4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Dress your avatar?</td>
<td>1  2  3  4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>7. Use gestures, such as walking, sitting, etc.?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8. Transport to debriefing session?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9. Use online chat to communicate with the client?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10. View objects in the environment?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11. Navigate through house?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>12. Save the interaction?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>13. Print a copy of the interaction?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>14. Log out of Second Life®?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

**Open-Ended Questions**

**DIRECTIONS:** Write or list a few comments to the following questions.

What did you most enjoy about the Second Life® simulation assignment?

What did you least enjoy about the Second Life® simulation assignment?

Thank you for taking the time to fill out this survey. Your feedback is greatly appreciated.
## Table 1: Student Demographics Data:

Gender: 70 Female 16 Male  
Race: 88% Caucasian 6% African American 6% Asian, American Indian, Alaskan Native, or Other  
Education: 78% Some college 6% Bachelor’s 2% Associates  
Age: 20-40 years  
Computer Skills: 0% Used Second Life® Prior, 35% Used Computer Simulation Prior, 58% Manipulated an Avatar Prior

### Table 2A: Sample T-Test for Educational Effectiveness and Technical Difficulty Total Scale Mean Scores

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effectiveness</td>
<td>86</td>
<td>23.43</td>
<td>6.776</td>
<td>.731</td>
</tr>
<tr>
<td>Difficulty</td>
<td>86</td>
<td>26.47</td>
<td>6.764</td>
<td>.729</td>
</tr>
</tbody>
</table>

### Table 2B: One-Sample Test of Educational Effectiveness and Technical Difficulty

<table>
<thead>
<tr>
<th></th>
<th>Test Value = 0</th>
<th>95% Confidence Interval of the Mean Difference</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effectiveness</td>
<td>32.06</td>
<td>23.43</td>
<td>21.98</td>
<td>24.88</td>
</tr>
<tr>
<td>Difficulty</td>
<td>36.28</td>
<td>26.46</td>
<td>25.01</td>
<td>27.92</td>
</tr>
</tbody>
</table>