Designing 3D Virtual Simulations in Nursing Education: The Rest of the Story

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Disclosures

- Dr. Tona Leiker – No Disclosures
- Dr. Karen Whitham – No Disclosures
Acknowledgements

Dr. Judy Burckhardt, Dean and Professor, Nursing Programs
Dr. Elaine Foster, Associate Dean and Professor, Graduate Nursing Programs
Center for Innovation in Teaching and Learning Interprofessional Team – American Sentinel University
Learning Objectives

The learner will be able to describe use of virtual simulations in undergraduate and graduate nursing education.

The learner will be able to describe student and program learning outcomes achieved with use of virtual simulations in undergraduate and graduate nursing education.
Quick Facts

- **American Sentinel University, Aurora, CO**

- **Center for Innovation in Teaching and Learning (CITL)**

- **Collaboration between:** Multiple Nurse Educators, Academic Administrators, Instructional Designers, 3D World Professionals, and University Assessment Personnel
The Technology

- **3D World Platform:** Unity 3D
- **Data Capture:** Jibe
- **Interactive Communication:** ChatScript (a flexible open source chatbot engine)
- **Interactive Players:** Maximo (a flexible source for non-player characters)
- **GUI:** Programmed Internally
- **Learning Management System:** Moodle
- **Access:** Single-sign-on Capabilities
## CITL Workgroup Meetings

<table>
<thead>
<tr>
<th>Weekly CITL Technical Review</th>
<th>Monthly CITL Pedagogy Review</th>
<th>Quarterly CITL Committee Meeting</th>
<th>Nursing CITL Workgroup Meetings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occurred every Thursday</td>
<td>Occurred the first Thursday of each month</td>
<td>Occurred once per quarter</td>
<td>Occurred once a month on Tuesdays</td>
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<tr>
<td>Technical Team: Bugs, building, language, design</td>
<td>Curricular focus - learning outcomes driven</td>
<td>Includes executive team and administrative leadership – oversight group</td>
<td>Nursing workgroup – Curricular alignment with QSEN; project updates; volunteers; DNP projects, demos, etc.</td>
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<tr>
<td>Course</td>
<td>AACN Essentials*</td>
<td>Activity</td>
<td>QSEN**</td>
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<tr>
<td>BSN432PE – Community Health Nursing</td>
<td>Integrate theories and concepts from liberal education into nursing practice. (EI-1.)</td>
<td><strong>Write a letter to head of the health department to improve the water quality in the city.</strong> (C1.M2)</td>
<td>Appreciate importance of intra- and inter-professional collaboration. (TC-A)</td>
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<tr>
<td>N522PE</td>
<td></td>
<td>Complete a comprehensive health assessment following the final course assignment.</td>
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# BSN432PE Community Health Nursing

## Module 2: Planning for Community Change/Community Assessment

**by the completion of this module, you will be able to:**

- Begin to integrate findings from the Windshield Survey of a simulated community: Sentinel City to your target population
- Identify a community assessment model that can be applied to your target population
- Develop a community health nursing diagnosis for a vulnerable population affiliated with your practice learning site that can be applied to the same population in Sentinel City.


**Download Sentinel City Demographic Database (file included in this module)**

**Visit Community Health Nursing Flashcards**

**Read Community Assessment Models and Measures**

**Visit 2009 Community Health Status Indicators: Select your state then county to find health information**

**Visit the Office of Minority Health Web Page, “National Standards on Culturally and Linguistically Appropriate Services” (CLAS): Click data/statistics then Click Data by Health Topic**

**Confirm an agreement with an appropriate community health practice learning site and a mentor who will serve as the key informant for your target population (your target population will be the population for whom the practice learning site provides services). The mentor should be an RN with at least a BSN degree. Other professional persons may serve as your mentor with prior approval from the course faculty. Contact course faculty prior to week 3 if you are having trouble finding an appropriate community health practice learning site or need help identifying an appropriate mentor.**

**Discussion 2 – Question 1:** Compare and contrast geographic communities, communities of interest, and communities of solution. Provide a specific example of how a geographic community can move from a community of interest to a community of solution. Provide rationale and include at least 2 scholarly references.

**Discussion 2 – Question 2:** Using demographic information from the 2013 Sentinel City demographic database, briefly describe the target population that is served by your practice learning site. Discuss at least 2 health status indicators applicable to your target population. Next describe the community assessment model (framework) appropriate for your target population. Include a rationale for selecting this model. What types of information on the CLAS website pertain to the population served by your practice learning site? Include at least 2 scholarly references – 1 reference should be from a peer-reviewed professional journal published within the past 7 years.
# Health Assessment Dashboard

## Center for Innovation in Teaching and Learning (CITL)

**- 2014 Project Roadmap**

<table>
<thead>
<tr>
<th>Project Synopsis</th>
<th>Q1 1/1-3/31/2014</th>
<th>Q2 4/1-6/30/2014</th>
<th>Q3 7/1-9/30/2014</th>
<th>Q4 10/1-12/31/2014</th>
<th>Dashboard 1/1-12/31/2014</th>
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</thead>
<tbody>
<tr>
<td><strong>Virtual Hospital—Health Assessment</strong></td>
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<td><strong>2014 Budget</strong></td>
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<td><strong>Project Lead</strong></td>
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<td><strong>Staff Involved</strong></td>
<td>John</td>
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<td></td>
<td>Tona, Karen</td>
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<td></td>
<td>Margaret, Bruce</td>
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<td><strong>Contractors</strong></td>
<td>Shadow Health</td>
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<td></td>
<td>Reaction Grid</td>
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<tr>
<td><strong>Courses</strong></td>
<td>BSN432 &amp; BSN457</td>
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<td></td>
<td>N522</td>
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<td></td>
<td>More possible</td>
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<td><strong>Final Completion</strong></td>
<td>8/1/2014</td>
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<tr>
<td><strong>Sign-off</strong></td>
<td>Judy</td>
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- Due to CITL activities in 2013, we are now in the beginning stages of developing a Virtual Hospital that will house many future activities within the nursing curriculum. The first of these activities revolves around a product developed by Shadow Health: Tina Jones Sim. This simulation takes students through two versions (undergraduate/graduate) of a head-to-toe health assessment. In 2013, the nursing team decided to implement this sim into two new courses (Health Assessment and Advanced Health Assessment).

  - Shadow Health’s Tina Jones Sim: to be implemented and tested in Q1 & Q2 of 2014.
  - Other Activities in the Virtual Hospital: Informatics, ethics ecc. To be tackled in Q3 & Q4 of 2014.

- **2014 Deliverable Goals:**
  - 3/1
  - 3/31
  - 4/30
  - 6/30
  - 9/30
  - 12/31

- **Dashboard:**
  - Complete
  - Partially Complete
  - Incomplete

- **Ongoing testing during trial period for each project (Margaret):**
  - Build interiors of Virtual Hospital (John, Trevor, Reaction Grid)

- **Add other rooms, examples, instrumentation, informatics ecc. (Margaret, John, Trevor):**
  - Evaluate and integrate Shadow Health simulation into health assessment courses (BSN432, BSN457, BSN522) at both the graduate and undergraduate levels (Bruce, Karen, Tona)

- **Develop orientation materials to introduce students to accessing and paying for the sim. (Trevor):**
  - Determine accessibility and Single Sign-on options (RT, Karen, Tona, Trevor, Shadow Health)

- **Determine the graduate & undergraduate faculty needing training, and execute any training necessary. (Karen, Tona, Shadow Health):**

- **Add other rooms, examples, instrumentation, informatics ecc. (Margaret, John, Trevor):**
  - Evaluate and integrate Shadow Health simulation into health assessment courses (BSN432, BSN457, BSN522) at both the graduate and undergraduate levels (Bruce, Karen, Tona)
Our Work

Sentinel City™
Community Health Issues
Virtual Teaching Hospital
  Shadow Health – Health Assessment
  Change Management Projects
Nursing Presentation Hall
Maura™
Professor IQ™
Urban Sentinel City™

Sentinel City™ - home to several simulated activities including a “Community Assessment”. 

Community Assessment: The Windshield Survey
Virtual Hospital and Presentation Hall
Health Assessment: Digital Clinical Experience (DCE)

Undergraduate & graduate versions were customized for use within the hospital

- Completed QA review
- A brief introduction video was developed
- Placed within the classroom
- Faculty orientation
- Faculty trial of course
- Courses implemented
American Sentinel University Presentation Hall

Contains exhibits aligned to courses at American Sentinel University. A large presentation space is situated nearby.
Nursing Presentation Hall: Concept Drawings of External and Internal Design
Feature Presentation Space
Virtual Teaching Hospital
Virtual Teaching Hospital

Change Project

- 5 Scenarios for RN to BSN students to choose one
- Complete by reviewing the VoiceThread “Situation”
- Study Floor Plan (of concerns)
- Webliography of resources
- Designing a Storyboard (Caremap; StickyNotes; Whiteboard)
- In a Scenario Room
- May discuss with a seasoned informant (BSN prepared nurse)
- Submit final report
Selecting a Change Project...
Explore the Situation Room
Maura™: My Anytime University Resource Aide
MAURA, My Anytime University Resource Aide

MAURA is an artificially intelligent bot that offers after-hours advising to students looking for answers to frequently asked questions. MAURA lives on the university's student registration site, classroom site and within our 3D virtual scenes. American Sentinel University is currently developing an editor that would allow other educators, with no programming background, to develop their very own artificially intelligent bot.

Accommodates for 6800+ Reductions
Reductions - a variety of ways one can ask a given question.

500+ Unique Responses

Student Inquiry Categories

- University Resources
- APA Formatting
- Assignments
- Course Access
- Drop/Withdraw
- Fees
- Financial Aid
- Grades
- Instructor Communication
- Login
- Tutoring
- Registrar's Office
- Registration
- Success Advisor
- Technical Assistance

"Maura" information can be found at cilt.americansentinel.edu
Professor IQ™

• Assists students in courses with knowledge about the specific discipline
• Takes on the persona of the profession

Welcome to BSN405!
Simply type your BSN405 question or select a specific Module with the buttons above.
Professor IQ™

Answers most common questions in four courses in BSN program

Adding more courses across Nursing Programs

Most common questions are taken from previous course offerings with real faculty responses

Designed to answer by module specific content by course each week

Available 24/7 within the courses
ChatScript Analytics

MAURA™ has been in full use since March 2014. Embedded in student and classroom site. All questions reviewed by student success advisors.

March 2014 - 51% Success
- Errors, 49%
- Corrected reductions, 10%
- Assignments, 8%
- Course Access, 3%
- Registrar’s Office, 3%
- Grades, 6%
- SSA, 3%
- University Resources, 11%

May 2014 - 72% Success
- University Resources
- Corrected reductions, 8%
- Grades 4%
- Instructor Communication 1%
- Instructor Communication Fees 1%
- Drop/Withdraw, 3%
- Register’s Office, 8%
- Registration, 4%
- SSA, 7%
- Technical, 1%
- APA, 3%
- Assignments, 6%
- Course Access, 7%
- Paying for Courses, 4%

Questions outside scope: 49%
Questions outside scope: 28%
Course Formative and Summative Assessments

Formative Assessment
  BSN432PE

Summative Assessment
  Virtual Simulation Courses
    BSN432PE Community Health
    BSN437PE Health Assessment
    BSN421PE Leadership and Management
    N522PE Advanced Physical Assessment
References


Questions?

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karen.whitham@americansentinel.edu