Concussion Education in Second Life

A Design Document

By Darryl Funai and Adam Halemano

University of Hawaii at Manoa, College of Education

ETEC 652D / Authoring E-Learning Environment: Virtual Reality

Dr. Peter Leong

October 22, 2012

Table of Contents

Instructional Goal

Concussions have become a major public health concern. According to the CDC, about 1.7 million people sustain a concussion annually. A concussion is a traumatic brain injury. Concussions can be caused by a direct blow to the head or body that results in a rapid acceleration or deceleration of the head and neck. This injury changes the way the cells in the brain normally work leading to a variety of physical, cognitive and emotional symptoms.

We will design an instructional unit in Second Life to engage participants in various activities that will help participants identify and learn about concussions. This instructional module will be an immersive experience set in a medical clinic. As participants progress through the instructional module they will learn what causes a concussion, how to recognize a concussion, and what to do if they or someone they know sustains a concussion.

Performance Objectives

After the instructional module:

- Participants will demonstrate their understanding of what is a concussion by correctly answering the post-test questions at the end of the module.
- Participants will demonstrate their understanding of what are the signs and symptoms of a concussion by correctly answering the post-test questions at the end of the module.
- Participants will demonstrate their understanding of what to do if they or someone they know suffers a concussion by correctly answering the post-test questions at the end of the module.

Description of Target Population

The participants in this virtual instructional unit are adult learners over the age of 18 who are interested in learning more about concussions. This instructional unit is designed to be self-paced walkthrough. This instructional unit assumes participants already have an SL avatar and understand how to navigate and communicate in SL.

Instructional Strategy

This instructional unit strives to create an immersive learning environment by embedding aids within the module. Throughout the module, participants are presented with opportunities to interact with learning objects placed within the unit. The receptionist (participant greeter) provides an interactive social presence as participants enter the module. The medical clinic offers an immersive virtual world environment that offers participants a sense of space, texture, and sound.

To measure learning, the authors decided to incorporate a pre-test and post-test in the module. At the end of the module, participants will also be able to reflect on their learning experience and evaluate their learning experience.

The following outline illustrates the instructional strategy of this unit and is based on Gagne's Nine Events of Instruction:

Gagne's Nine Events	Student Behavior	SL activity and/or Feedback
(1) Gain and Maintain Attention **(2) Stimulate Recall** **(3) Inform the Learners of the Objectives**	Upon entering the medical clinic, participants will be greeted by the receptionist embedded with a proximity-triggered voice over welcoming the participant. The receptionist will instruct the participant that, since this is their first visit, they will have to fill out a questionnaire (pre-test) and pick up the forms on the counter (learning objectives).	A receptionist avatar will greet the participant to the medical clinic and instruct the participants to take the notecards on the counter (learning objectives). A survey dispenser will give the participants the pre-test. The participants will return the pre-test to the survey collector.

	Participants will be instructed to sit in the waiting room while they wait to see the doctor. While they wait, participants will watch an information video on the TV that shows the dangers of not recognizing a concussion.	A TV will be showing a video reinforcing the importance of properly recognizing a concussion.
	Placards, notecards, and links will be available for participants to take in the waiting room.	Various notecards and books containing information about concussions will be available in the waiting area for participants to take.
(4) Present the Stimulus	Students will navigate the walking tour in which new content is provided using images, text, and audio.	An interactive poster will show a video about concussions A notecard will inform the participant of a safe return to activity progression.
(5) Provide Learner Guidance	Red arrows and hover texts will illustrate learning objects and guide the participants through the module.	Red arrows show participants the path to walk and possible learning objects. Each learning object includes hover text that provides instructions on how to use them.
(6) Elicit Performance (practice)	As participants wait in the doctor's exam room they will	Interactive posters with URL loaders provide participants

	be instructed to click on an interactive poster, which will take them to an educational video about concussions.	with information that extends learning.
	As participants wait in the consulting room, they will be instructed to click on a notecard, which will give them a return to activity protocol.	Notecards provide participants with additional information about concussions.
(7) Provide Learner Feedback **(8) Assess Performance**	Feedback will be given via comments in the pre-test and post-test. The pre-test and post-test will be compared to measure learning.	A pre-test and post-test provides participants with 12 questions and answers about concussions.
(9) Enhance Retention and Transfer	Links, resources and note cards will provide additional resources to both build knowledge and expand expertise in the area	At the end of the module, participants receive a notecard contain links to additional resources regarding concussions.

Timeline or Sequence of Lesson Events

Lesson Event	Time Duration
Interaction with receptionist	3 minutes
Participant questionnaire (i.e. pre-test)	5 minutes
Introductory video reinforcing the importance	12 minutes

of being able to recognize a concussion via an URL locator	
Instruction - notecards and posters in the waiting room	5 minutes
Participant will walk to the exam room	1 minute
Instruction - video about concussions in the exam room	15 minutes
Participant will be instructed to walk to the consulting room	1 minute
Instruction - notecard containing return to activity protocols	3 minutes
Participant will return to the waiting area	1 minute
Participant will pay bill (i.e. post-test)	5 minutes
Formative Evaluation	4 minutes
	Total: 60 minutes

Multiple Virtual World Instructional Tools / Techniques Integrated into Lesson
This instructional module utilized a number of SL tools and techniques to facilitate
learning. In addition to the standard SL tools of notecards and builds, several tools were
designed specifically for this module.

- **Prims: This is the foundation of our instructional module. The prims allowed the**
  authors to create an immersive learning environment. In addition to the learning
  environment (medical clinic), prims served as the basis for including such tools as
  virtual posters, URL loaders, notecard dispensers and collectors, and decoration
  within the module.

- **Scripts: In designing the builds, the authors, used various scripts to allow for**
  interaction. They incorporated hover text, URL loader, dispenser and collector,
  voice over, and notecard scripts to create an immersive learning environment and
  allow participants to receive materials / knowledge more effectively.

Formative Evaluation

For our formative evaluation, we will ask two adult participants (a subject matter expert and a non subject matter expert) to pilot the module. The participants will be asked to walk through the module and answer a short survey at the end of the module. The survey will be dispensed via a notecard dispenser and their responses will be collected via a survey collector within the module.

References