Presentation Overview

This presentation will demonstrate how avatars can be used for e-learning simulations and applications.

- Benefits of online learning
- Research and theory
- Avatars in nursing simulations
- Demonstrations of avatars in learning applications
- Questions, issues and challenges.
Benefits of Online Learning

Offering e-Learning opportunities and simulations online has a number of advantages and benefits.

- Self operating – once set up, they run themselves
- Availability – available 7 x 24 around the globe
- Scalability – few limits as to numbers of users
- Updateability – easy to update and maintain
- Affordability – relatively easy and inexpensive to produce
- Individualization – learners can select which topics to review at a time and place convenient to them
Benefits of Online Learning ... 2

Having your courses, simulations and quizzes online could have the following benefits: (continued)

- Pacing – learners can progress at their own rate
- Feedback – instant feedback provided (if enabled)
- Engagement – simulations and e-courses require active learning that is engaging and interesting
- Safety and comfort – if anonymous with certificate
- Randomization – questions and responses can be randomly selected and presented from a larger pool
- Data – capture results that can be used to identify learning needs and monitor effectiveness of quizzes.

Research / Theoretical Considerations

What research says about avatars and virtual learning environments.
Adult Learners

The key premises of adult learning theory are:

- Adults need to know why they need to learn something.
- Adults need to be in charge of their own learning.
- Adults come from a wide variety of backgrounds and experiences.
- Adults become ready to learn when they need to apply a skill or knowledge to the real world (J-I-T-L).
- Adults are task-focused and learn things best in the context of using learning to achieve desired outcomes.

Source: Knowles, 1998

Engagement

There is a significant body of research that positively links learner engagement with the achievement of learning goals and outcomes (Falloon, 2010, p. 110).

The multimedia capabilities of virtual learning environments cater to a range of learning preferences and styles, enhancing engagement and enabling learners to set their own pace and blend the range of audio, video, graphic and text-based resources to match their own information needs. (Foreman, 1999).
Engagement … 2

According to flow theory, the more the following elements are present, the more enjoyable, engaging and immersive an activity is:

- A challenge that requires skills with an attainable goal and known rules
- Complete absorption in the activity
- Clear goals
- Immediate feedback
- Concentration on task in hand
- A sense of control, and lacking the sense of worry about losing control
- Loss of self-consciousness
- Transformation of time.

Source: Csikszentmihalyi, 2002

Avatars

Avatars have been defined as:

- Online manifestations of self in a virtual world, and are designed to enhance interaction in a virtual space. (Peterson, 2005, p. 30).
- Allowing the user to take on a visible personal within a virtual world, affording them the opportunity to engage in surreal and imaginary experiences that transcend the actual world in which they live. (Deuchar & Nodder, 2003).
Virtual Worlds in Learning

Virtual worlds hold considerable potential as powerful mediums for learning. Virtual worlds:

- Enable users to carry out tasks difficult in the real world due to constraints, including costs, scheduling or location;
- Allow for continuing and growing social interactions, which can serve as the basis of collaborative education; and,
- Can adapt and grow to meet the user needs (Antonacci & et al, 2008).

Virtual Worlds in Learning ... 2

Virtual worlds hold considerable potential as powerful mediums for learning.

- Virtual environments allow learners to experience learning opportunities that would not normally have been easily accessible, including role playing, operating simulated equipment, designing and building things, and creating simulations of physical or procedural processes.
- Through these activities, learners engage in higher levels of cognitive functioning such as interpreting, analyzing, discovering, integrating, critical thinking and problem solving. (Antonacci & et al, 2008).
Learning Simulations

Learning simulations:
- Attempt to model an environment with a high degree of realism
- Show genuine cause and effect, and interaction between elements of system being simulated
- Can be explored and interrogated by the user
- Can provide environment to experiment so not necessary to have explicit goals
- Simulations are often used to address real-world obstacles such as:
  - Cost / danger or risk of harm
  - Accessibility / time
- Can provide control, consistency and predictability to training activity

Research on Avatars

A review of research on games and simulations shows that:
- Avatar is a teacher
- Avatar can change perceptions and behaviour
- Two avatars are better than one
- Simulation builds confidence
- Simulation works better in program of instruction
- Simulations do NOT have to be entertaining or fun!
- Make simulations difficult and stressful!
- Effectiveness of simulations:
  - Declarative information = 11% higher
  - Procedural information = 14% higher
  - Retention = 9% higher

Source: Karl Kapp, CSTD Conference, Toronto, Nov. 2010
Research on Avatars …2

A review of research on games and simulations shows that:

- Avatars are useful in scenario-based training
- Avatars can be reusable learning assets
- Avatars increase engagement in the learning activities
- People establish relationships with avatars; makes it difficult to use them effectively in other scenarios or applications
- Give their avatars complete personality and backgrounds
- Careful with copyright issues with names, photos and audios.

Robin Yap says: (CSTD Conference, Toronto, Nov. 2010)

Avatars in Education Simulations

Demonstrate examples of how avatars can be used in nursing diagnostic simulations and other learning applications.
Nasal / Sinus Problem Simulation

Created a prototype simulation for diagnosing nasal and sinus problems in patients.

- Typical nursing assessment process involves:
  - Gathering data from the patient
  - Doing a physical examination
- Simulation has six avatar patients (3 female and 3 male)
- Tried to create a range of different personality types
- Each patient has a different, but common nasal / sinus disorder
- Eleven “appropriate” questions for diagnosis can be asked
- Each avatar patient answers the questions asked
- Physical examination findings provided for each patient
- Description of common symptoms provided for each nasal disorder
- Final quiz to provide feedback to the learner on the content.

Simulation Development

The process for creating the nasal and sinus problems simulation was as follows:

- Selected the topic and the six specific nasal disorders
- Selected six avatar patients (3 female and 3 male)
- Wrote scripts for each patient in response to the nurse’s questions
- Used professional narrators to do the voices of the avatar patients
- Created Flash videos for each patient response using Character Builder synchronized with narrated voices
- Used PowerPoint to create the scenarios and package
- Used Articulate Presenter to insert and place the Flash videos on pages to respond to specific questions
- Articulate Presenter was used to convert the entire PowerPoint presentation to Flash which was uploaded to the website.
Avatars as Patients

Using a talking avatar as a patient has a number of advantages:

- The nurse doing the simulation has to record and remember what she hears from the patient in response to each question.
- It helps the nurse develop active and critical listening skills.
- Interviewing avatar patients can create life-like emotional tensions, especially when interviewing irritable patients.

Simulation Demos

We will now demonstrate the use of avatars in:

- Nasal and Sinus Diagnostic Simulation – http://www.learningnurse.com
- Other Learning Nurse applications – Nursing Nuggets
- Media Semantics demos – http://www.mediasemantics.com
Many questions still need to be answered and issues resolved before we can take full advantage of avatars in learning and simulations.

Questions and Issues

Here are some questions we have asked:

- For which learning applications are avatars most suitable?
- Can database technology be used to create the simulations? (PowerPoint requires many slides)
- What are the most effective instructional designs for use of avatars in simulations?
- Do avatar personalities and voices have any significant impacts on the effectiveness of the simulations?
- What components and resources should be included in the simulations?
- How do learners work through a simulation? Does it matter and/or should we care?
Presentation Summary

Avatar examples  Benefits of online learning  Questions and issues

Research and theory  Avatars in simulations

References

Here are some of recent books and articles on digital learning that we recommend:


Resources

Here are some of software tools that can be used to create animations and avatars.

- Character Builder – $295 USD (additional character packs $100) [http://www.mediasemantics.com]
- Codebaby (high-end animation software) – [http://www.codebaby.com]
- Go Animate (create your own animations) – hosted service (free and subscription) [http://www.goanimate.com]

Resources

Here are some of software tools we use to create e-Learning modules with embedded avatars.

- **Wondershare PPT2Flash Pro**: [http://www.wondershare.com] Converts PowerPoint to Flash video. Not as many features as Presenter but still a good program. $200 USD
Contact Information

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