Getting Lost in a 3D Virtual World: Selecting and Evaluating Appropriate Virtual Worlds for Learning

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Agenda

• Why a 3D virtual world for DAU?
• What were the requirements for a virtual world for DAU?
• What technical lessons were learned?
• What social presence lessons were learned?
• What business lessons were learned?
• What happened during the pilot?
Why? Business Assumption
Find alternative means to increase class throughput.

Explore if DAU could reduce travel costs over the total delivery costs via a virtual world.
Why? Learning Assumption

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Why? Learning Assumption

Social Presence and content delivery authenticity & logistics authenticity were doable!
Why be an Avatar at All?

Research indicates that human social models influence behavior, beliefs and attitudes.

Research also indicates that learners perceive, interact socially with and are influenced by anthropomorphomorphic agents (avatars) even when their functionality and adaptability are limited.

Baylor, A. 2009 Promoting motivation with virtual agents and avatars: Role of visual presence and appearance. Philosophical Transactions of the Royal Society. 364, 3559–3565
An experience as an avatar can change a person's real life perceptions. In a study conducted by Yee and Bailenson (2006), it was found that negative stereotyping of the elderly was significantly reduced when participants were placed in avatars of old people compared with those participants placed in avatars of young people.

If learners watch an avatar that looks like them exercising & losing weight, they will subsequently exercise more in the real world as compared to a control group.

Within 24 hours of watching an avatar like themselves run, learners were more likely to run than watching an avatar not like them or watching an avatar like them loitering.

People tend to conform to how their avatar appears regardless of how it is perceived by others. In one study by Yee and Bailenson (2007), participants with taller avatars behaved more confidently in a negotiation task than participants with shorter avatars; specifically, they were more willing to make unfair splits in negotiation tasks. In contrast, participants with shorter avatars were more willing to accept unfair offers than those who had taller avatars.

Additionally, in subsequent research, Yee et. al. (2009) found that behavioral changes originating within a virtual environment can transfer to subsequent face-to-face interactions.
Requirements

- Browser-Based
- Secure
- Hundreds of Users
- Ability to Collaborate within the Spaces
- Easy to Navigate
- VOIP
Technical Lessons Learned

Anticipate technical complications
Lag time

Don’t plan a session during system maintenance or backup

Establish 2 or more lines of communication

Ask learners not to speak or type unless given permission

Articulate back up plan to students in advance

Request learners lock door, turn off phone
Is VOIP ready for prime time for use in the environment?
Learn to navigate your avatar
What level of systems integration do you require?
Is the cost model complete to include asset development and sustainment?
Do you know your requirements?
Are collaboration use cases fully met?
Does your “click-and-mortar” meet your “brick-and-mortar?”
Use a seminar model for class configuration.
What is the critical to mass production for your organization?

In other words, does your roll out plan match your development plan?
Social Presence Lessons Learned

Why be there if it doesn’t feel like you are there?
Need a more compelling reason to be in a 3D Space than looking at a 2D PowerPoint in 3D.
How much student orientation is required?
Allow time within the curriculum to allow students to customize their avatar.
Keep avatar’s appearance similar to instructor:
**Tall**
**Attractive**
Don’t evaluate 3D with 2D tools.
Designing Virtual World Learning Events
Knowledge Case: Definition 5: LINDEN is the currency in Second Life. LINDENS are like US dollars or the Euro or Yen, it is the basic denomination of the Second Life world.
Guided Tour

Owner: Abbott Bundy
Member: Bliss Yue

It's safe to walk through these fans.

You: give it a try
Self-Guided Tour
Contextual Metaphor
Conceptual Orienteering
Process Practice
Critical Incident
Executive Coaching and Mentoring
Operational Application
Tactical Rehearsal/Simulation
Summary

• Match the 3D environment to a real need within the organization.
• 3D environments require engagement.
• Choose your 3D virtual world environment carefully.
**Business Assumption:**
DAU entered the virtual world arena to find alternative means to increase our class throughput. We set-out to explore if we could reduce our travel costs over the total delivery costs via a virtual world.

**Learning Assumption:**
Social Presence and content delivery authenticity & logistics authenticity were doable!
BUSINESS LESSONS LEARNED

1. **Do you know your requirements?** DAU decided to build (R&D) effort. Requirements were not fully known. Before committing funding and resources, experiment with Faculty using a readily available COTS product to develop the use cases and affordability within your organization.

2. **Are collaboration use cases fully met?** Can you run your offerings in-world. For example, there was a “whiteboard” feature in-world, but it was one instance. Each persistent space had a main classroom and several break-out rooms, but all rooms shared the same whiteboard.

3. **Does your “click-and-mortar” meet your “brick-and-mortar?”** The virtual world did not offer the level of collaborative space that DAU required to run effective group work. Map to your organization’s reality closely to ensure you attain minimum functionality.

4. **What is the critical to mass production for you organization?** The development schedule and desired roll-out schedule were not compatible. The world could not support the minimum number of concurrent users that DAU required to pilot the world and gain return on investment.
TECHNICAL LESSONS LEARNED

1. **What integration(s) do you require?** There was no LMS integration. In order to run a course and/or supplement other courses, additional customization would be required to pass information to/from the LMS.

2. **Is VOIP ready for prime time for use in the environment?** There were numerous issues with VOIP. Issues included: poor voice quality, disparate volume controls for users, loss of voice capabilities to meet DoD Port requirements. In addition, the use of open VOIP (all users have simultaneous voice controls) was not conducive to a virtual classroom (too much distraction); Voice control icons were not intuitive to faculty making it difficult and cumbersome for them to control students during class.

3. **Is the cost model complete to include asset development and sustainment?** In order to create DAU specific acquisition objects, additional development resources were required. This cost model was not effective compared to other competitive virtual worlds.
SOCIAL PRESENCE LESSONS LEARNED

1. **Why be there if it doesn’t feel like you are there?** The avatars did not provide a sense of personal presence. They had limited movement options which received negative feedback.

2. **How much student orientation is required?** Intensive student orientation is required prior to the start of the first class. Without this, students were unable to focus attention and participate as necessary during the session.

3. **Is 3D a must have versus a nice to have?** Observers of pilot sessions mentioned a loss of student engagement in world as students were distracted with the avatar. The content covered was not optimized in a virtual world. DAU findings demonstrated the niche utility for learning is when 3D is a must-have not a nice to have.