MAGNA ONLINE SEMINARS

Virtual Worlds, Simulations and Games for Online Educators

Tuesday, August 17, 2010

2:00 PM – 3:30 PM (Atlantic)
1:00 PM – 2:30 PM (Eastern)
12:00 PM – 1:30 PM (Central)
11:00 AM – 12:30 PM (Mountain)
10:00 AM – 11:30 AM (Pacific)

Presented by:

Clark Aldrich

Today's presenter:

Clark Aldrich is an independent consultant who works with academic clients on learning, software interface, and communication strategies. He is also the author of *The Complete Guide to Simulations and Serious Games*, and *Learning Online with Games, Simulations, and Virtual Worlds*–all published by Wiley. His work has been featured in hundreds of sources, including CBS, the *New York Times, Wall Street Journal,* CNN, NPR, CNET, *Business 2.0, BusinessWeek, U.S. News and World Report,* and, among other distinctions, he has been called an "industry guru" by *Fortune Magazine.*

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Virtual Worlds, Simulations and Games for Online Educators

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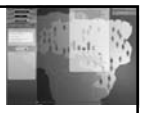
Magna presents

Virtual Worlds, Simulations and Games for Online Educators

August 17, 2010

Goals:



- Understand educational simulations, serious games, and virtual worlds
- Know why and how to use each
- Know how to launch a successful program
- Prepare for the new role of instructors as coaches

Sponsored by

DISTANCE education Report

Why Sims?

- Participation and Practice
- Emotion and Engagement
- Richer Content

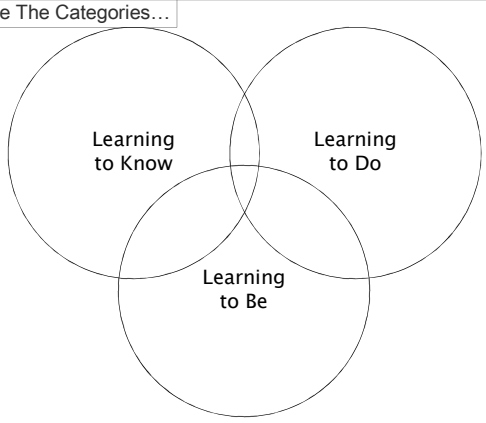
Our presenter

Clark Aldrich

clark.aldrich@gmail.com

Author of "Learning Online with Games, Simulations, and Virtual Words" and "The Complete Guide to Serious Games and Simulations"

Define The Categories…



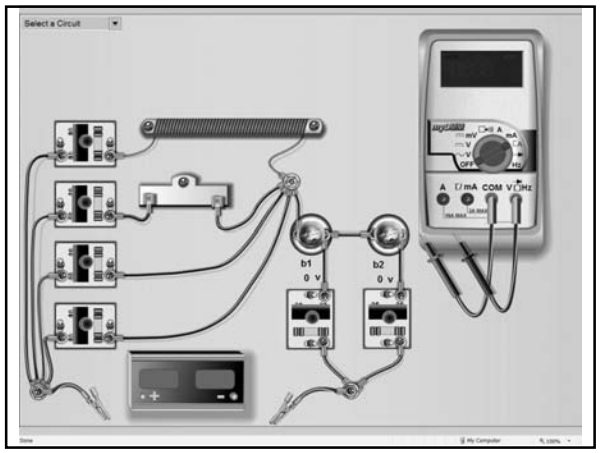
The Opportunities…

Learning to Know

Learning to Do

Learning to Be

WIKIs



The Opportunities…

Google

WIKIs

Simulations

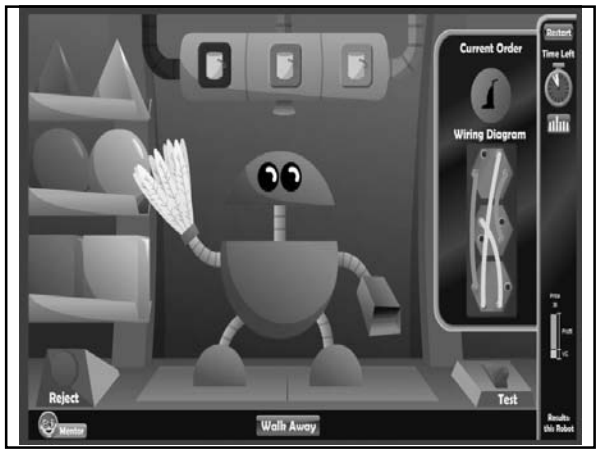
Learning to Know

Learning to Do

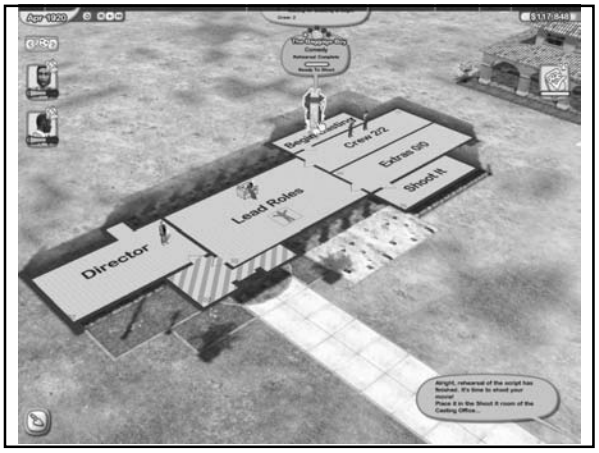
Learning to Be

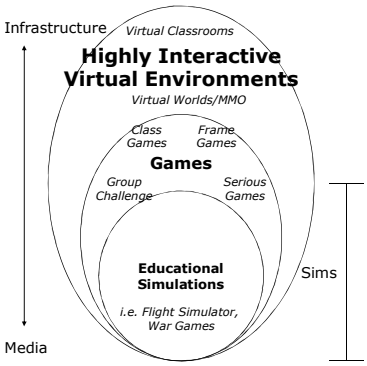
Let's Play

"**Virtual World, Game,** or **Simulation?**"

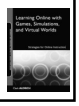

Current Order
Wiring Diagram
Time Left
Restart
Reject
Test
Walk Away


Flex your POWER
Saving Energy. It's a Way of Life.
Which of these is the largest user of energy in your home?
a Vacuum cleaner
b Refrigerator
c A teenager's video game system
d Dishwasher
GAME POINTS
Click here to sign up to receive email or mobile phone FLEX ALERTS when California faces a power crunch

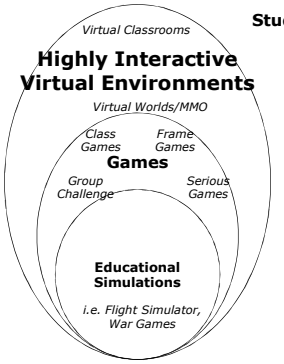

Director
Lead Roles
Extras 99
Shoot It
Crew 22



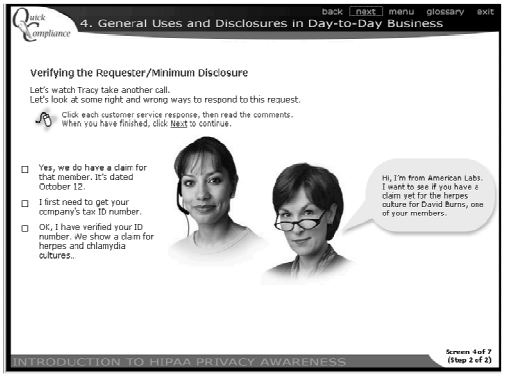
1) They Are Different: Accessing a *virtual world* does not give you a *game* for free, nor does having a *game* give you the transferability of an *educational simulation* for free.



Simulation Genre:
Branching Story-Based Simulations



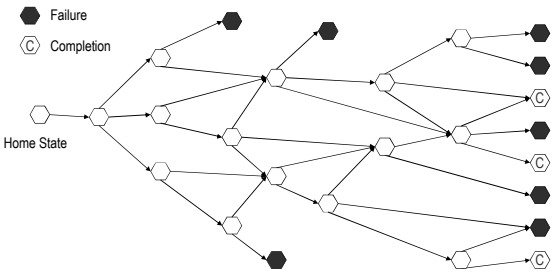
2) They Are Similar: There are overlaps of processes, such as light games to help students access technology.

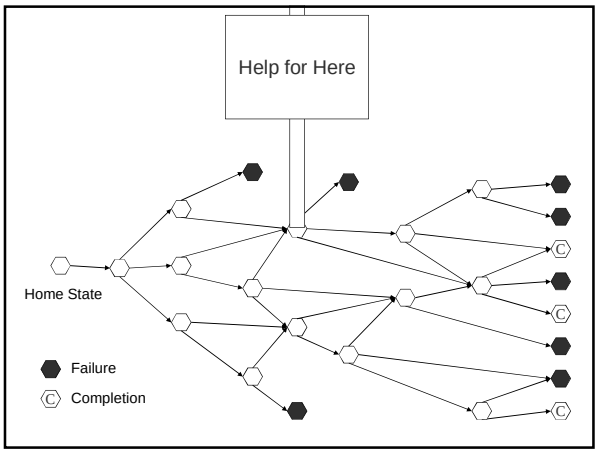


Sims Come in Genres

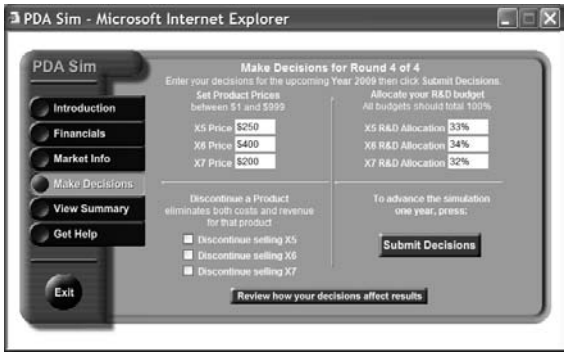
- Stand-Alone
- Embedded in Virtual World

Branching Structure





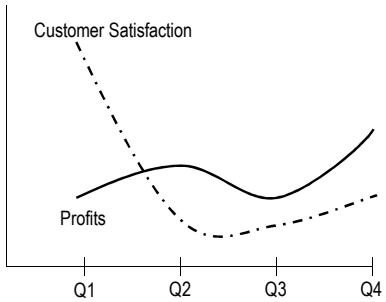
Simulation Genre:
Interactive Spreadsheet-Based Simulations

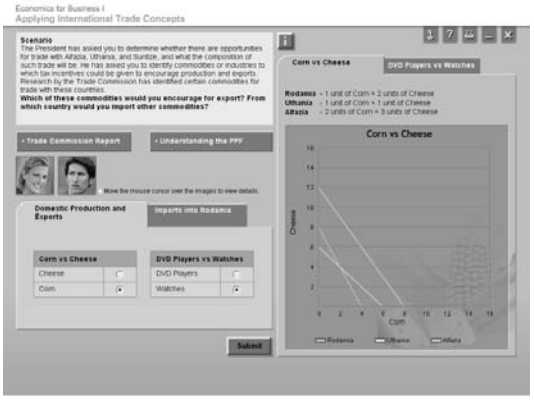


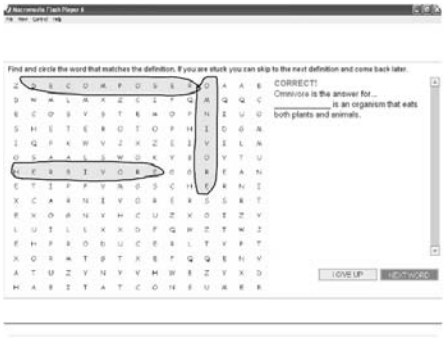
Branching Story

- Shows exact behavior to imitate
- Stand alone
- Reluctant learners
- Introductions to deeper content

Moving Primary Variables



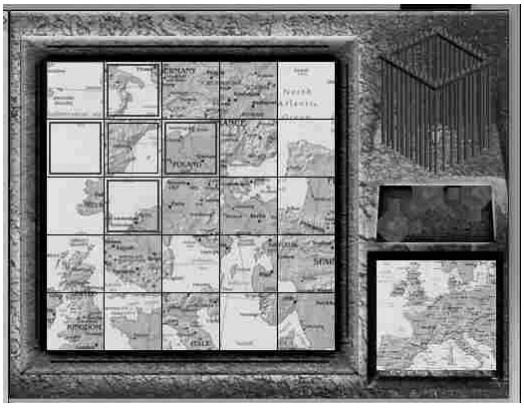




Interactive Spreadsheet

- Goal is to understand the system, manipulate the system
- Often instructor chaperoned
- B-School style content

Simulation Genre:
Game-Based Models



Template Driven

Game Shows

- Wheel of Fortune®[1,2], Jeopardy®[1,2,3,4,5], Who Wants to Be a Millionaire®[1,2,3,4,5], Family Feud®[1,2,3,4,5], and Hollywood Squares®[1,2,3]

Word Games,

- Hangman[1,2,3] and Word Jumble[1,2,3]

Card Games,

- Solitaire[1,2,3,4]
- Memory/Concentration[1,2,3,4,5];

Board Games,

- Trivial Pursuit®[1,2,3,4,5], Monopoly®[1,2,3,4]

([1] Names, [2] Jargon, [3] Acronyms, [4] Facts, [5] Charts)

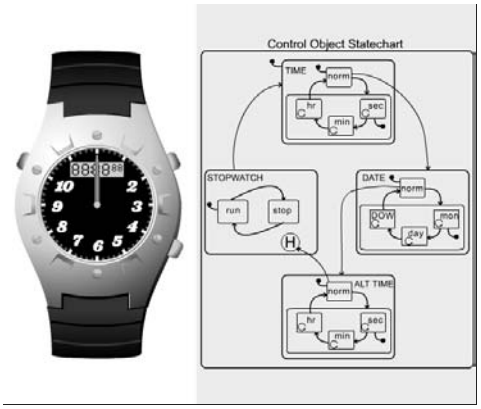
Simulation Genre:
Virtual Product-Based Simulations

Game Models

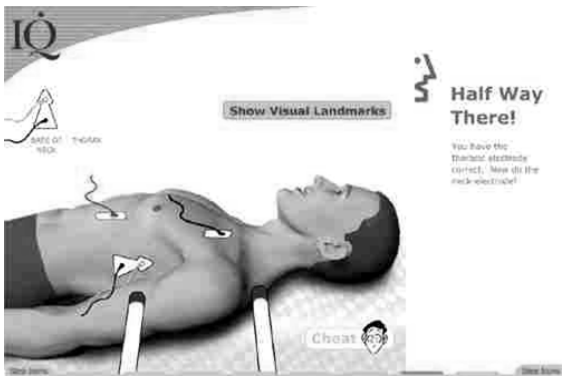
Games2Train

- Make people want to engage content

LearningWare



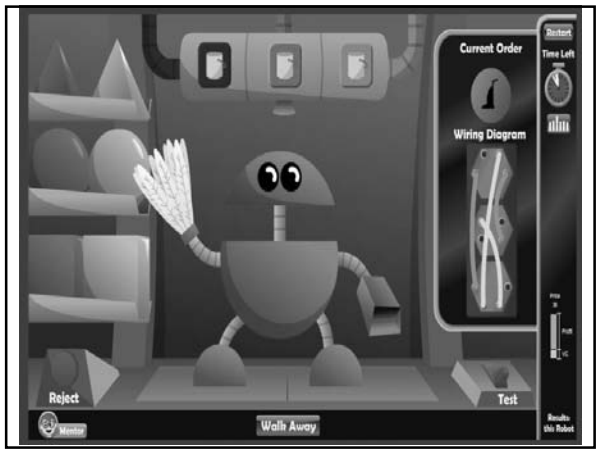
A lot of leaders think that "game" is a four-letter word.
—Matthew Sakey, E-learning designer



Virtual products to virtual labs

They can be "better than realistic,"

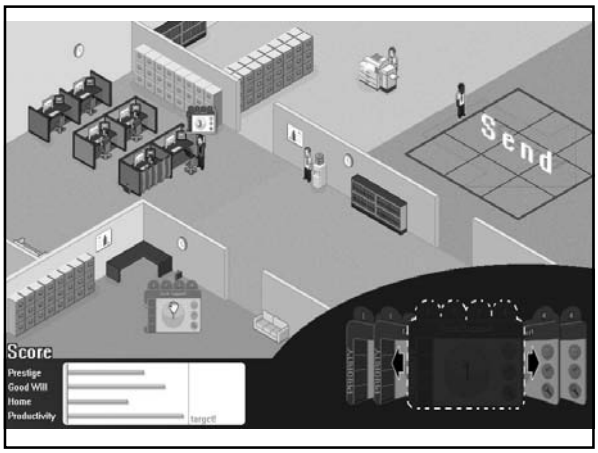
- Allow physical exploration without regard to weight
- Can provide annotation as to their internal states
- Can be cheaply deployed anywhere in the world
- Never need to warm-up or cool-down, and they can be restarted instantly



Virtual products and virtual labs

- Learning is kinesthetic
- Learning applies to real use
- Familiarize students with equipment
- Train students on a procedure
- Enable students to practice the procedure being taught

Simulation Genre:
MiniGames



Recommendation: When to Use Sims

- To provide distributed access to labs and props (educational sims)
- Increase conviction through depth of knowledge (educational sims)
- Long-lasting "learn to do" skills (educational sims)
- Meet certification requirements (educational sims)

MiniGames

- Next generation content
- Highly interactive

Acquiring Sims

- Virtual Worlds, such as Second Life
- Commercial Off the Shelf Games
  - Civilization
- Free Sims from Foundations, Causes
- Off the Shelf or Customized Sim Vendors
- Internal Development

Recommendation: When to Use Sims

- To tap the emotions of presence (virtual worlds)
- To access real world communities (virtual worlds)
- Increase student engagement (games)

Selection Criteria

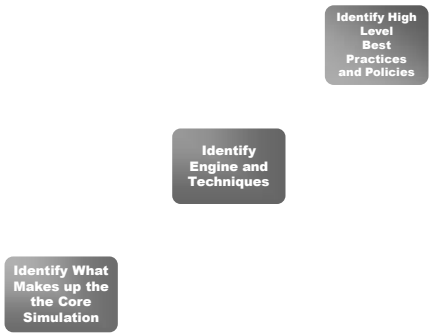
- Technology accessible by Most Students
- Instructor Controls
- Curriculum Alignment
- Instructor Support Materials
- Sim-produced Artifacts
- Self-paced/ Asynchronous/ Synchronous

The Structure of Simulations

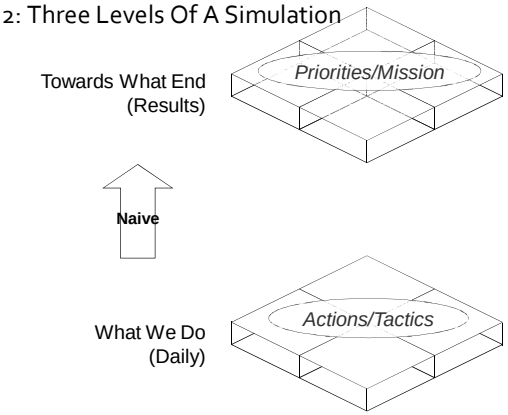
1: Top Down

- Inspirational Stories
- Time lines
- Reference
- Case studies
- Rules and Simple Processes
- Pictures and Visualizations
- Tables

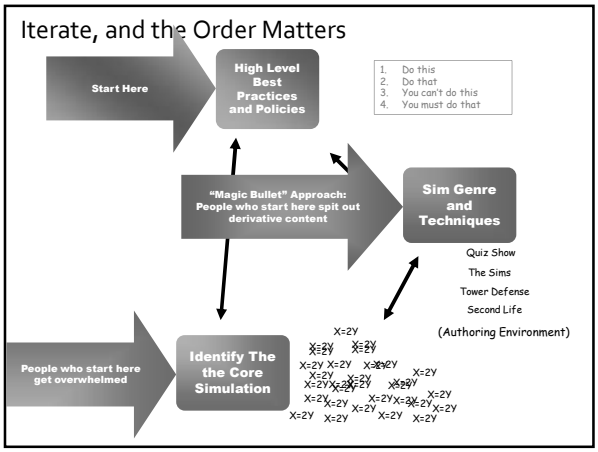
- Trimester One: Create



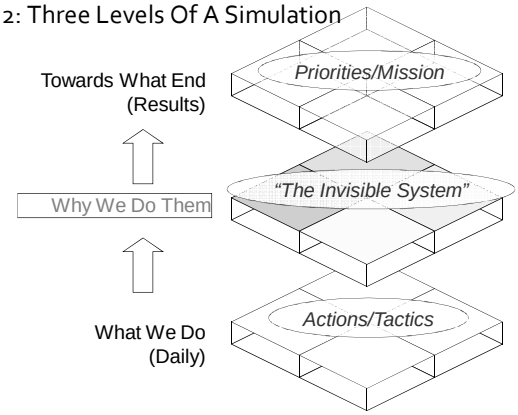
2: Three Levels Of A Simulation



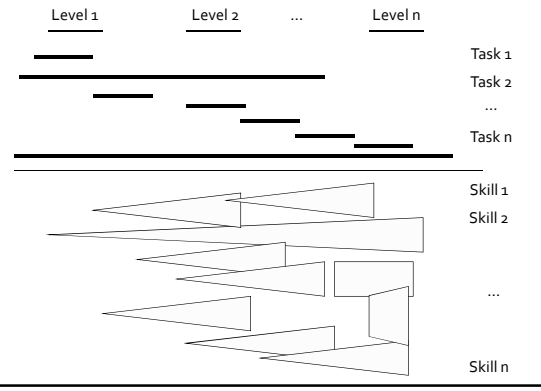
Iterate, and the Order Matters



2: Three Levels Of A Simulation



3. Borrowing "Skill Cones" from Computer Games

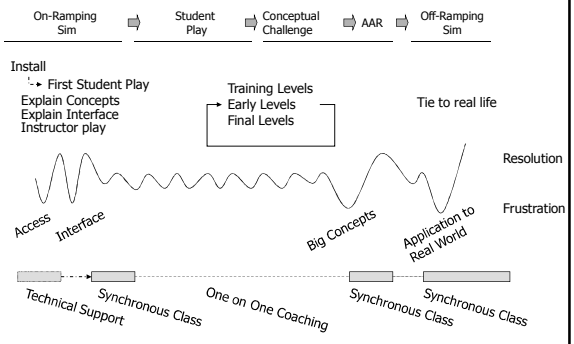


Do they Work? How do you Know?

Deploying Sims
Making a System "Learnable"

Leadership: Results

Organized into Levels



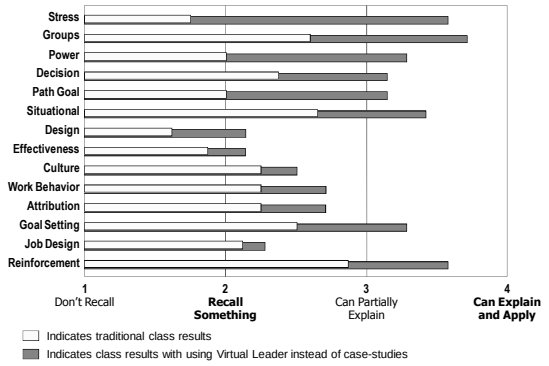
University Executive Education Program

Challenge

- Organizational Behavior Class Required of Executives
- Rated Very Well By Corporate Students
- But Little or No Measurable Result in Workplace Effectiveness

TROY UNIVERSITY

Applying Organizational Behavior with Executive Education Students



Fortune 100 (part 2 of 2) Productivity Assessment

The participants who went through the program improved their relative performance ranking (non-subjective), on average, 22.0%

Fortune 100 Company

Challenge

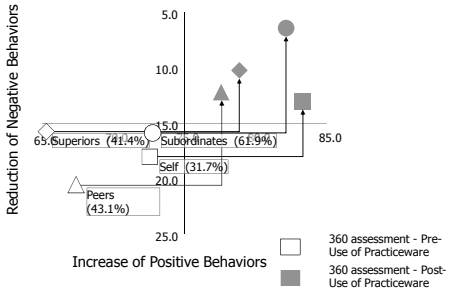
- Managers who Deployed Service Teams to Customer Locations
- Many were Low Performing, not Effective Leaders

Take Away

Sims Can Work.

But that is not enough.

Fortune 100
360 Pre & Post Assessment



Balanced Scorecard of Sims

Conviction
- Richer than Awareness
- In invisible system

Actions
- New behavior
- Reinforceable and permanent

Engagement
- Fun enough
- Relevant

Convenience
- Well chunked
- Easy to access

Acceptable Cost per Student

Acceptable Time to Creation

Comfort level of instructors

One Implication

Thank you!

clark.aldrich@gmail.com

Thank you for participating

We would like to hear from you! Please consider completing an evaluation form found at:
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Virtual Worlds, Simulations, and Games for Education: A Unifying View

I wrote this article for Innovate magazine a few months ago, to coincide with the release of Learning Online with Games, Simulations, and Virtual Worlds. While pieces have been excerpted, many have asked for the complete article, which I am reprinting here.

Many practitioners have been struck by a paradox. They sense an overlap between virtual worlds, games, and simulations, and but they know that one is not synonymous with the other. The three often look similar; they all often take place in three-dimensional worlds that are populated by three-dimensional avatars (Figure 1).

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http://2.bp.blogspot.com/_S3BG5PDFbQI/SbMCrTZ_sMI/AAAAAAAAJVY/1xa7AxDfgW8/s1600-h/Fullscreen+capture+1252009+61905+PM.bmp

Figure 1: ProtoSphere Virtual World

Yet as I have argued elsewhere, the differences are profound. Games are fun, engaging activities usually used purely for entertainment, but they may also allow people to gain exposure to a particular set of tools, motions, or ideas. In contrast, simulations use rigorously structured scenarios carefully designed to develop specific competencies that can be directly transferred into the real world. Finally, virtual worlds are multiplayer (and often massively multiplayer), three-dimensional, persistent social environments with easy-to-access building capabilities. They share with games and simulations the three-dimensional environment, but they do not have the focus on a particular goal, such as advancing to the next level or successfully navigating the scenario.

It is not enough, however, to categorize virtual worlds, games, and simulations as either entirely synonymous or utterly different. It is more useful, and perhaps more complete, to see virtual worlds, games, and simulations as points along a continuum, all instances of highly interactive virtual environments (HIVEs) (Figure 2).

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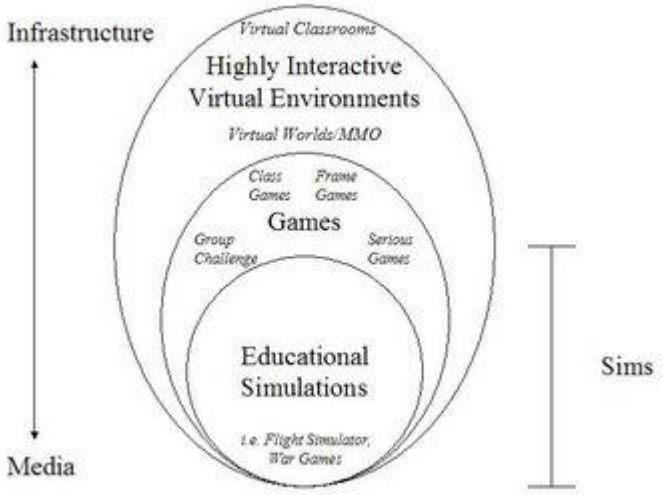

7s/s1600-h/HIVE.jpg
http://1.bp.blogspot.com/_S3BG5PDFbQI/ShQXhErqedI/AAAAAAAAKfE/J1xxWfQn-7s/s1600-h/HIVE.jpg*Figure 2: Virtual Worlds, Games, and Educational Simulations as a Continuum*

This framework recognizes the relationships among virtual worlds, games, and simulations:

- All games take place in some kind of virtual world—and not solely a Second Life-style, massively multiplayer online environment. Even physical games are played in a synthetic world structured by specific rules, feedback mechanisms, and requisite tools to support them. Children playing stickball on the curb create a play world structured by the broad requirements of the game and overlaid by its rules. Those rules become stricter in more intricate games and in simulations.
- Simulations share key characteristics with games, including the use of a virtual world (that is, to some extent, also structured by the rules and constraints of the simulation) and the focus on a particular goal, but simulations use a more highly refined set of rules, challenges, and strategies to guide participants in developing particular behaviors and competencies that are highly transferable.
- Participants often shift subtly between the various modes, moving from undirected exploration of a virtual world then to games and then to more structured simulation as they become comfortable in the environment.

The Swimming Pool

One of the most natural examples to show how participants move across the different uses of a HIVE while staying in the same virtual environment is the process by which children are introduced to the swimming pool. The pool is a synthetic, albeit not a virtual, environment. Some of the rules associated with dry land are the same in this new environment, and some rules are different. From the moment they first approach the pool, children naturally move from treating the pool as a virtual world, to seeing it as a place for more-structured games, and then to using it as a venue where they practice the skills they will need to swim well.

Their behavior and expectations as well as the expectations of those around them change at each stage. At first, new young swimmers perceive the pool as a scary, foreign environment. The challenge at this stage is simply to get them to enter and move around in this strange world. A parent or swim teacher may force them to get in or coax them in, or the novices may dip their toes in while watching other people or they may just jump straight in. Similarly, when introducing students to a virtual environment, an instructor's first goal is to get students into the environment and practicing basic tasks of navigation, manipulation, and communication. In a third environment, a would-be pilot experiencing a flight simulator for the first time begins by looking around and perhaps trying to move the plane a bit. The goal is to get comfortable simply existing in this new environment.

Once children get comfortable in the pool itself, they start to play. They see how long they can hold their breath; they do flips in the water or sit on the bottom of the pool. They invent small games or their swim teachers give them broad rules for light games, such as tag or undersea kingdom. These games start off very casually and tend to become more structured and more complex. Likewise, as students get more comfortable in the virtual world to which their instructor has introduced them, they begin to mess around. They build crazy objects; they change their clothes and hair and body; they visit places they are not supposed to. In the same vein, the new pilot may try to see what the virtual airplane can do, perhaps by trying to fly it under a bridge or into similarly unlikely situations.

Finally, the children begin to test themselves (either on their own or because their swim teachers or parents push them) through increasingly rigorous rules and specific challenges. They go into the deep end, sometimes getting unwelcome mouthfuls of water. They practice new strokes. They try to swim the entire length of the pool underwater. They go from open-ended tag to racing each other. This is the educational simulation part of the experience; these exercises force them to learn skills that they can transfer to other bodies of water, such as lakes or oceans. Meanwhile, the students in the virtual world, having demonstrated their comfort in that world, receive an assignment requiring them to work together to achieve an instructor-defined goal. They fight a bit as a team and get frustrated; they resolve the frustration and complete the assignment. When the work is done, the class debriefs around a conference table or, perhaps, in the virtual world itself. The pilot-in-training is also working harder, having been tasked with increasingly challenging scenarios, such as landing with broken gear or under stormy conditions. The pilot crashes quite a bit at first but gradually gets more and more comfortable and confident.

The ease with which the children in the pool, the students in the virtual class, and the pilot in the flight simulator move from exploratory virtual-world behaviors to structured but simple games to taking on rigorous simulation challenges illustrates both the differences across these three instances and the connections that link them. It is only by building from open experimentation to increasingly rigorous rules, structures, and success criteria that children learn transferable water survival skills and pilots learn critical flying skills.

Distinctions and Connections

As the HIVE model sees virtual worlds, games, and simulations as both different and connected, there are two large sets of consequences: one emerging from appreciating the distinctions among the three and one related to the view of them as connected.

Distinctions

The HIVE model asserts that virtual worlds, games, and simulations are all different; each has its own affordances and purposes. A virtual world will not suffice where a simulation is needed. The virtual world offers only context with no content; it contributes a set of tools that both enable and restrict the uses to which it may be put. An educational simulation may take place in a virtual world, but it still must be rigorously designed and implemented. Organizations routinely fail in their efforts to access the potential of virtual worlds when they believe that buying a virtual world means getting a simulation.

Likewise, a game is not an educational simulation. Playing SimCity will not make someone a better mayor. Some players of, for instance, World of Warcraft may learn deep, transferable, even measurable leadership skills but not all players will. The game does not provide a structure for ensuring learning. Just because some players learn these skills playing the game, that does not mean either that most players are also learning these skills or that it should be adopted in a leadership development program. Conversely, a purely educational simulation may not be very much fun. The program may have the three-dimensional graphics and motion capture animations of a computer game, but the content may be frustrating. Specific competencies must be invoked, and students' assumptions about what the content should be, likely shaped by their experiences with games, will be challenged.

Connections

However, the ease with which players in a new virtual environment move from exploratory behaviors to more structured simulation structures also illustrates the connection among virtual worlds, simulations, and games. There are overlaps of both processes and best practices between them. For instance, the same structures that help students get access to a virtual world (say in a university or corporation) also help them get access to a simulation and vice versa. These include help desks, technology test tools, accurate and understandable download information, and password and username management. The aspects of computer game design, such as scoring mechanisms, scripted storylines, and competition-based motivation, can drive increased engagement in an educational simulation. By the same token, a good teacher with a good curriculum can use a relevant game as part of a meaningful learning experience, but the experience must be carefully prepared, presented, and debriefed (Exhibit 1).

One example of the commonality across all HIVEs is the need for introductory structures. These asynchronous, self-paced levels or locations allow students to learn and demonstrate basic competencies in manipulation, navigation, and communication before moving on to the "real" exercise. These have been successfully adopted in Second Life where students often have to navigate through a custom challenge before joining a class for the first time. Computer games frequently have single-player levels with scripted stories and even their own training sequences that players must complete before joining multiplayer teams. Given the parallels between simulations, games, and virtual worlds, multiplayer simulations designed to teach specific skills may do well to include a significant single-player mode in which students can first learn the basic interface and gameplay.

A second area of commonality is the need for communities around games and simulations. Community-building tools and opportunities can be built in as a seamless, integrated piece of technology within the world or simulation or they can be provided separately via a chat room or other tool.

The biggest area of commonality, and this will be true for years and perhaps for decades, is that HIVEs get people to do things. In a formal learning program, this means that they can be integrated with the goal of getting students to learn how to do, not just what to know. To accomplish this, instructors in virtual worlds will find a range of techniques already refined in stand-alone simulations useful, including assessment methodologies such as benchmarking and coaching strategies to manage student frustration and to provide effective debriefing. More complex interactive structuring techniques, such as the use of branching structures or mathematical modeling to allow students' decisions to guide the development of events in the world, can also help by increasing the interactivity of these environments.

Implications

This HIVE taxonomy has a range of implications for instructors structuring classes and for students exploring virtual worlds. Accepting the idea that HIVEs exist on a continuum, each providing its own benefits but each also being linked to the others, will affect how classes in virtual worlds, serious games, and educational simulations are conceptualized, developed, and deployed. Virtual environments provide a natural way for people to learn by nurturing an instinctive progression from experiencing to playing to learning; instructors should encourage the shifting across experimentation, play, and practice in which students naturally engage. In fact, instructors can exploit that behavior by providing stages that accommodate each stage. Light games and self-paced introductory levels can be used to get students comfortable with basic concepts and the interface necessary to exist in the virtual world, and the complexity can be increased to encourage students to move on to play and practice stages.

Content created for virtual worlds should reflect the nonlinear nature of HIVE learning and exploit the opportunity to learn by doing. The goal should not be to repurpose existing content but to rethink its goals and to imagine new types of content and new modes of presentation that fully access the power of HIVEs for learning. While best practices in content structuring may be transferred from stand-alone educational simulations to virtual world-based simulations, metrics and learning objectives for the different contexts should be different. Learning objectives and assessments around games, for instance, should be focused on the engagement, exposure, and use of simple interfaces while those for educational simulations should measure the development of complex, transferable skills.

Community is also an important element in virtual world-based learning, whether in games or simulations. Even stand-alone simulations need to provide participants some opportunity to access a community even through a separate tool if it is not possible to integrate the community into the simulation platform itself.

Conclusion

This emerging, unifying view of HIVE learning is the future of education (Exhibit 2). It represents, finally, the practical convergence of best practices and technologies, leveraging and building upon what we already know for better results for all involved. However, the critical trick for today is knowing when to look at virtual worlds, simulations, and games as part of a greater whole, sharing best practices when appropriate, and when not to let this holistic view obscure the critical differences among them, optimizing the sense of place and presence offered by virtual worlds, the fun engagement provided by games, and the rigor and transferability of skills promised by simulations.

References

Aldrich, C. 2009. The complete guide to serious games and simulations. Somerset, NJ: Wiley.

Exhibit 1: Examples of Commercial Games Used in Classrooms

Sid Meier's Civilization Series by Firaxis for history and social sciences.

SimCity Series by Electronic Arts for urban planning and social psychology.

Age of Empires Series by Microsoft for history.

Zoo Tycoon by Microsoft for planning and economics.

Roller Coaster Tycoon by Chris Sawyer Games and Atari for planning and economics

Exhibit 2: The future of HIVEs

Here are some brainstorming thoughts, some personal speculations, about how content may be created and experienced as universities, corporations, and other organizations increasingly explore the power of nonlinear and engagement-based media.

2010: Understanding and Procuring HIVEs

In the near term, educational and commercial organizations will explore their understanding of HIVEs and where HIVEs may fit in their missions. They will seek to how and when to use virtual worlds, serious game, and educational simulations.

And they will make mistakes. As more organizations acquire access to virtual worlds, corporations and academic organizations will use them primarily for building communities and bridging distances, although about 80% will be greatly underused. Large organizations will commission their own customized, self-contained simulations to teach foundational skill sets, mostly using external vendors. Others will buy and often modify off-the-shelf simulations, such as those now available from Harvard Business School Publishing and Capstone Business Simulation. We will see a proliferation of short, stand-alone simulations, typically using Adobe Flash and often connected to online communities, as the dominant model of customer-build stand-alone educational simulations.

Both socially focused virtual worlds, where users meet primarily for interpersonal interactions rather than to pursue goal-focused activities such as games, and self-contained simulations, when done well, will work better for learning than people now realize, developing in students a greater understanding of and interest in the content and a better ability to apply their learning, beginning a rethinking of the multitude of flawed current assessment methodologies currently in use, such as tests and papers. However, corporations especially will still pursue the Sisyphean task of "managing through metrics," trying to assess the usefulness of an active virtual community or an effective simulation by seeking a quantifiable return on investment.

In universities using three-dimensional virtual worlds, these environments will increasingly be used to host student work, providing a venue for students to create interactive content, rather than as virtual classrooms. Schools that do not focus on the students' role in building interactive content will wind down their use of virtual worlds in favor of easier tools, such as enhanced virtual classrooms. At the same time, the military will continue to lead the way in using

simulations, using specifically developed simulations to develop soft power through the application of interpersonal skills, an effort begun in earnest a few years ago with projects such as the Institute for Creative Technologies (ICT), a University of Southern California (USC) project funded by the U.S. Army.

A widespread and growing preference for highly interactive content will have far-reaching implications. Business models structured around the production of linear content will continue to deteriorate. Newspaper and book publishers, as well as schools and traditional training providers, will find themselves in increasingly dire shape. But there are also huge problems in those consulting industries whose major outputs are traditional analysis and recommendations to large clients. Corporations will simply no longer buy traditional reports of events that are accurate, even profound, because they just sit on shelves unused. And the sale of interactive applications via providers such as iTunes and Android will continue to flourish. Simply, the market will shift to reward HIVE production as opposed to traditional media.

2013: Authoring in HIVE Environments

Widespread availability of robust and easy-to-use authoring tools and environments will develop quickly in the next three years. While small vendors will initially meet these authoring needs, these tools and capabilities will increasingly be aggregated by the biggest software vendors. The availability of these tools will enable large organizations to bring sophisticated authoring capabilities in house, as students who grew up authoring in Second Life enter the workforce. The time it takes to build a useful simulation will be reduced asymptotically to about four weeks, but larger budgets will be available for more complex simulations that take years to build. The range of development time for simulations will reflect both the maturity of the tools and the market value of these products.

Just as games have developed and refined such genres as first-person shooters and real-time strategy, the increased focus on HIVEs for learning will catalyze new ways of structuring content around the goal of "learning to do." The power of simulations and virtual worlds to help teach the Big Skills (also known as 21st-century skills) will be recognized and embraced. Linear content will be viewed with increased suspicion as thin and ineffective compared to the robustness of well-created HIVE content. Institutions supporting schools will try, and fail, to build simulations around traditional content, such as biology and literature. HIVEs will increasingly be seen as a continuous whole; students and teachers will expect a smooth transition between the real world, the open virtual world, the fun game, and the relevant simulation.

Second Life will suffer as corporate customers follow younger users to better looking and more dynamic, but also more splintered, environments. Ironically, as the virtual world market fragments, the platform for simulations will converge. Adobe Flash will run everywhere (including hacked future versions of Xboxes and Playstations) and be the common authoring environment of choice, enabling schools to assign simulations without babysitting hardware.

2016: Rethinking Knowledge

By 2016, the culture will be rethinking the possibilities and necessities of captured wisdom. Research organizations and consulting groups will reluctantly reject the easy lens of linear content and, pushed by competition and client requests, follow a research and analysis process similar to the complex methodologies required to generate simulation-based content, even when not building a simulation (Supplement 2-1). Business reports will talk about actions, systems, and results, not just processes and tips. Search engines will be significantly challenged, with

huge investments and infrastructure trapping them in old content, as people realize that you can't learn leadership from Google. Instead of straight information, people will be seeking interactive, learn-to-do content; they'll want to access virtual environments that allow them to practice particular skills, such as negotiating scenarios. Google has the same constraint as all linear content is shocking. You can't learn stewardship, relationship management, innovation, or security any more from Google as you can from a traditional book, magazine, or traditional class. As a shared understanding of the limitations of "learning to know" vs. "learning to do" emerges, the realizations of the limitation of "Learning to know" approaches becomes obvious.

Increasingly, everyone from the MacArthur Foundation to Accenture will default to producing interactive content over passive. Reports will be produced not as binders but as experiences, not as bullet points and inspirational quotes but as equations, interfaces, and dynamic relationships. For example, rather than having a report describing new market conditions and evolving customer preferences delivered to top executives of a large retailer, a consultant firm might produce a fifteen-minute mini-simulation that all employees of the company can access; in place of a mass of data that must then be disseminated through the corporation, the client will have a tool that can create across the corporate hierarchy a shared belief in the changes identified by the consultant and an understanding of the new behaviors necessary to adapt. This new research will cycle back into increasingly detailed simulations. As the perceived value of information and expectations for its presentation change, journalism will disappear as a distinct college major and career.

Open-source simulation design will flourish and be compatible with professionally created content. When the $49 laptop becomes a reality, sometime before 2015, China and India will both announce that a majority of their school curricula across all ages will be simulation based. Game makers will enter the educational simulation space for real here, as they see there is a market for finished goods, but they will be too late to create real brands. They will still manage to wipe out large tracts of smaller companies.

2019: A New View of Knowledge and Wisdom

Moving forward, school curriculum in the U.S. will be retooled around teaching innovation and stewardship and other Big Skills. The first Pulitzer Prize to a simulation will be announced in 2019, as well as the greatly diminished use of multiple-choice standardized tests (after years of decline). The last textbook publisher will fold. Pure linear content will be looked at the way we listen to scratchy phonographs. Finally, and truly, the most valuable content in the world will be educational simulations and serious games. IBM will launch a new initiative into this space.

Supplement: Research Questions to ask Subject Matter Experts When Designing an Educational Simulation

Most business research relies on the same intellectual constructs as other forms of linear content-including linear analysis, case studies, and inspirational examples. And like with movies and magazines, these reports end up impressing with their cleverness but don't actually enable effective action (or any action, except more presentations), because they are not designed to. The process of creating a simulations or other "learning to do" content, requires a different process. Even if the goal is not a simulation, the new types of questions can result in richer, more action driven content. Here are some examples of different questions for Subject Matter Experts:

1. What situation have you experienced that you feel epitomizes the subject matter? (This could be a real-time event or an event that took place over weeks, months, or years.) Were there multiple situations?
2. What were your available options? At each moment, what could you have done in that situation, and what might a naive or inexperienced person done? What did you end up doing?
3. Why would the naive approach fail? What would it not have taken into account?
4. What were clues that informed your analysis of the situation? What did you see immediately, and what information did you have to look for? How did you look?
5. What did you want success to be? What did the conclusion end up being?
6. What were you looking for to suggest that things were going well? What were you looking for to suggest that things were not going well?
7. What were the "maintenance" or routine activities that you had to do (even including body language) to keep the situation developing well? What would happen if you did not do them?
8. What was the moment were you knew you were successful (or not)?
9. What was each person's best case and worse case outcome? What were their strategies and actions?
10. What would have been three to five legitimate alternative approaches to the problem or situation?
11. What were the three to five high-level metrics that you were monitoring? Time? Commitment? Alignment?
12. What trade-offs were you willing to make? What trade-offs did you make?
13. Can you graph the high level metrics over the course of the experience?
14. What were the inflection points for each?
15. How do the actions impact the high level metrics? What else impacts the high level metrics (be as specific as possible)?

DISTANCE education Report

Volume 14, Number 15 August 1, 2010

The Two Critical Steps Toward Using Sims in Distance Learning

By Clark Aldrich

As with any teaching approach, there are quite a few steps involved in successfully using simulations and virtual worlds in a classroom context. Here are two significant steps: "Getting Access to the Content" and "The Role of Teacher as Coach."

Step One: Accessing the Content

Using virtual worlds or self-contained simulations obviously requires gaining access to virtual worlds or building them. Here are the best ways to do it:

Accessing virtual worlds

Right now, there are quite a few virtual worlds existing out there. Depending on your interests, either *World of Warcraft* or *Second Life* comes to mind. Across all virtual world models, once "in world," participants (often represented as people-like avatars) , can meaningfully interact with each other and the environment, including instant messaging, performing tasks/objectives/goal/missions, trade, and create artifacts.

Let's focus on the most popular world--*Second Life*. Second Life makes money not by allowing an individual to go "in world" (which is free) but by selling virtual real estate. So anyone can download the *Second Life* application for free, create an avatar, and explore.

Often enough, when an institution wants to create a presence in *Second Life*, their first instinct is to buy land (often in the form of an "island") and build a three-dimension facility. However, organizations should focus first on running great events, rather than spending a lot of money on the perfect classroom environment or island.

We are seeing an explosion of technology savvy academic hobbyists creating simulations to support their class, developed in their free time.

The truth is that there are a lot of empty classrooms in *Second Life*. (In fact there are a lot of entire ghost towns.) So find an institution that is interested in building up traffic, then schedule time, and have your classes meet there (at least initially).

Accessing Sims

The question of finding the right stand-alone sim, including educational simulations and games, is a bit more nuanced than accessing a virtual world. There are many more options.

- **Commercial off-the-shelf games**

For some lucky professors and students, computer games built for entertainment and bought through retail channels provides a deep enough and curriculum-aligned enough experience.

The two most famous are the *Civilization* and *SimCity* series. The pros are that these experiences have reasonable per student costs (around $40), very high production values, and have at least some element of fun built in to them. The biggest con is that only a few such games exist. Further, both deans and parents can be uncomfortable having the students spend their class time playing off-the-shelf games.

And, obviously, computer games were not built to be accurate. But as Richard N. Van Eck, Graduate Director, Instructional Design & Technology, points out, "errors and inaccuracies are in fact teachable moments." Asking students to find inaccuracies, and then document and defend their statements, can be the best of all worlds.

- **Free foundation, cause, or corporation-sponsored sims**

There are a lot of freesims that have been created in the last few years by various organizations. They are often

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Course Design: 10 ways to add excitement to courses 5

DISTANCE education Report

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Cover...*from page 1*

Adobe Flash based. They represent some of the most successful and innovative examples of serious games including Cisco's *Binary Numbers*, and American Public Radio's *Budget Hero.*

• Off-the-shelf or custom vendor supplied educational simulations

Some vendors sell prepackaged off-the-shelf simulations. The pro's? They tend to be rich and detailed educational experiences. They have technical support. They also have instructional support—notes for how to use them in a classroom environment. They may have gone through several generations of modifications. And often the best supporting documentation has been rigorously gathered from other users. The cons that the licensing is often restrictive, and the costs tend to be three or four times as much as a computer game.

Online Seminar:

August 17: *Virtual Worlds, Simulations and Games*

Join Clark Aldrich for "Virtual Worlds, Simulations and Games for Online Educators" Tuesday, August 17. To register, or for more information, go to: *www.magnapubs.com.*

• Internal development house

Some institutions have a staff of people (usually between one and 20) who are dedicated to building simulations to support classes. The good news is that these people are focused, have the requisite skills, and are aligned with the goals of the institution. Once built, the content can most likely be infinitely reused and shared. The cons?Often the experiences that result are dry, and take three or four times longer to build than expected. These internal development groups often fight with the subject matter experts (the professors) from whom they have to draw content.

• Professor-created simulations

We are seeing an explosion of technology savvy academic hobbyists creating simulations to support their class, developed in their free time. (It was professor-hobbyists who also created the educational simulation genre of *interactive spreadsheets* decades ago that are thriving today.) The pro's are that these tend to be perfectly aligned with content, and are deep and nuanced. They can also be freely shared. The cons are that the simulations are often makeshift, with kludgy interfaces. They also tend to be more labs than finished sims. Knowledge of how they were built, assumptions that were made, and how to best use such simulations tends not to get recorded.

• Otherwise free

Finally, for whatever reason or business model, some simulations are just free. For example, joining and interacting in *Second Life* is free, (though it costs money to buy real estate or the intellectual property of other people). *World of Warcraft* is free for a trial period, often long enough for classroom engagement, but not enough to get to Level 70.

Step Two: Coaching a Sim

A second step discussed here will be how instructors can coach sims. It will start with the set-up, then the sim itself, and the after-action reviews (also called debriefing).

From real life to simulation

After any initial discussion, the first priority of the coach is to smoothly "on-ramp" the student from the real world to the simulation.

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What is the average compensation for adjuncts at your institution for a 3-credit distance learning course?

	Mean	Median	Minimum	Maximum
Entire sample	$2837.67	$2800.00	$65.00	$8000.00

By enrollment level

Number of student enrolled in institution	Mean	Median	Minimum	Maximum
<4000	$2653.33	$2000.00	$150.00	$6000.00
4000-7999	$3119.54	$3500.00	$1485.00	$5384.00
8000-15,000	$2833.13	$2550.00	$65.00	$8000.00
>15,000	$2550.00	$2900.00	$1750.00	$3000.00

By Carnegie class of the institution

Institution	Mean	Median	Minimum	Maximum
Junior or community college	$2208.46	$1800.00	$65.00	$5000.00
4-year degree granting college	$3293.40	$2950.00	$150.00	$8000.00
Masters/PhD level granting college	$3068.33	$3000.00	$1000.00	$6000.00
Level 1 or 2 Carnegie Class research university	$3000.00	$3000.00	$3000.00	$3000.00

By public or private status

Type of college	Mean	Median	Minimum	Maximum
Public	$2855.76	$2900.00	$65.00	$8000.00
Private	$2805.36	$2650.00	$150.00	$6000.00

By profit or non-profit

Type of business	Mean	Median	Minimum	Maximum
For profit	$3671.00	$3650.00	$2000.00	$5384.00
Non-profit	$2742.43	$2500.00	$65.00	$8000.00

By availability to off-campus and on-campus students

Availability	Mean	Median	Minimum	Maximum
Campus-wide program open to off-campus and on-campus students	$2981.26	$3000.00	$65.00	$8000.00
Program focused on off-campus students ; most courses not usually open to traditional on-campus students	$2281.25	$2000.00	$150.00	$4500.00

By total number of students enrolled in distance education program

Number of students enrolled in distance program	Mean	Median	Minimum	Maximum
<250	$2405.77	$2500.00	$150.00	$3825.00
250-1500	$3337.50	$3050.00	$1600.00	$6000.00
1501-3000	$3165.40	$2950.00	$1485.00	$5384.00
>3000	$3102.14	$3000.00	$65.00	$8000.00

Lessons from SUNY: A Sampler of Persistence Tips and Practices

Several community colleges in the huge SUNY (State University of New York) system have been assembling a database of "best practices" in distance learning student persistence, so that other institutions can enjoy the benefit of their experience. Here is a sampler of tips and advice from SUNY's community colleges.

SUNY's Top Student Persistence Risk Factors

1. Student engagement
2. Time of registration
3. Inappropriate or absent advising
4. First-time DL student
5. Developmental needs
6. Technical factors

1. Risk Factor: Student Engagement

Strategy / Tool / Practice

Pre-course engagement

Comment/Examples

- "Building Online Student Success (B.O.S.S.)" Handbook: *www.monroecc.edu/depts/distlearn/BOSS-Handbook.pdf*
- Online tutorial, Monroe CC: *www.monroecc.edu/depts/distlearn/BOSS*
- Online tutorial, SUNY Learning Network: *http://sln.suny.edu/help/help_helpdeskfaq.shtml* *http://sln.suny.edu/oc/oc_overview.shtml*

Strategy / Tool / Practice

Direct faculty intervention with non-participating students after first, second or third week of term

Comment/Examples

Some faculty may believe direct intervention with students is "not my job." Research on best practices in successful retention suggests otherwise. *http://www.campustechnology.com/articles/62560/*

Strategy / Tool / Practice

Faculty directly email non-participating students before "drop w/o penalty" date (pre-census), with warning.

Comment/Examples

Genesee CC's "early alert" initiative extends to online courses including faculty reports of student participation, Dean's email to faculty "It's week two, do you know where your students are?"

2. Risk Factor: Time of Registration

Strategy / Tool / Practice

Block registration in online sections after course start date

Comment/Examples

- Require DL office permission
- Require advisor sign-off with PIN number
- Genesee CC blocks registration in online courses as of first day of classes, requiring (and discouraging) instructor and dean permission after that date.
- Dutchess Community College blocks registration the Friday before the official start of classes.

Strategy / Tool / Practice

Cut off online registration earlier than F2F / on-campus courses

MCC limits registration for online courses – the SLN Angel Gateway is "closed" the day before classes start and after that students can get in only with permission from the instructor.

Comment/Examples

GCC blocks registration as of first day of term, without written (email) instructor & dean permission.

3. Risk Factor: Inappropriate or Absent Advising

Strategy / Tool / Practice

Require advisor signature before registration can be completed

Comment/Examples

Actual signature not practical with online registration systems

Strategy / Tool / Practice

Require advisor-assigned passcode / PIN # in order for student to register

Comment/Examples

Pop-up window blocks registration in MIS w/o passcode

Passcode can be assigned no matter how advising occurs: in person, by advisor, by phone, or online.

Only one passcode per student; requires Registrar / MIS coordination

Strategy / Tool / Practice

Advisors must be trained & constantly updated

Comment/Examples

Genesee CC advisors meet monthly. DL Advisor is regularly on the agenda; trains & updates all advisors re: DL issues, demographics, risk factors.

MCC offers workshop for online advising

4. Risk Factor: First Time Distance Learning Students

Strategy / Tool / Practice

Mandatory DL orientation

Comment/Examples

- Require first time online students to take face-to-face or online orientation to online learning, and/or tutorials
- Article reinforces the value of F2F

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10 Ways to Make e-Learning More Exciting

By Hong Wang, PhD

Social presence, teaching presence, and cognitive presence are three important elements in online teaching and learning.

Social presence is the ability to present oneself socially and effectively in a virtual environment. An online instructor achieves social presence by presenting himself or herself as a real person who also fills the role of teacher and mentor.

Teaching presence refers to the work of teaching before and during a course. Teaching presence is manifested in the course materials such as the syllabus, choice of readings, content presentations, discussions, and assignments.

To achieve **cognitive presence**, an online instructor needs to shift instructional strategies from giving lectures to questioning, probing, and open inquiry, which help students construct their knowledge through reflective thinking and practical inquiry. Cognitive presence means providing opportunities to help students understand what they have learned. Learning activities that allow students to connect what they have learned to the real world foster cognitive presence.

The following 10 ways are related to each of the three types of presence. The first four activities are focused on social presence, the following four are related to teaching presence, and the last two are associated with cognitive presence.

1. CyberCafé

It is good to set up a forum named CyberCafé or Free Forum as a social place for students to share information that they think is interesting. From information on professional conferences to information on sports, from information on the graduation ceremony to information on other classes in which students are interested, students are willing to share with each other, and it is a nice place for instructors to have some informal communication with students so that online learners feel connected and supported.

2. Class blog

Another easy and fun activity to promote social presence is to set up a class blog. I created a blog and invited each student as a blogger. Each student uploaded a picture and provided a brief self-introduction. They can also share information and resources on the topics they are learning in the course. Students can see each other's pictures on the blog, and this activity allows names, faces, and student background information to be connected. The class blog is a way to help build a visual, friendly, and effective learning community in which all participants, including the instructor, are co-learners.

Learning activities that allow students to connect what they have learned to the real world foster cognitive presence.

3. Instructional Twitter

Twitter is getting more attention from educators in addition to its more popular use in business. I explored the instructional applications of Twitter by asking each student to set up a Twitter account for the class and follow each other, with the Twitter guidelines provided for the students. I send out reminder messages on assignments and virtual office hours as well as information on course change and grade book updates. Students also share course information and community information with each other. Twitter provides students a different channel to get course information in a prompt manner. The picture by each student's screen name also adds a visual presence when students check their Twitter accounts.

4. Synchronous communication

Using synchronous communication will make up for some elements that are missing in the asynchronous communication, such as the speaking tone, facial expressions, and the post if a headset and a webcam are used. Adobe Connect Pro or Elluminate, along with some free web conferencing tools such as Flashmeeting, are some synchronous communication tools that can be used for such activities. We can use the synchronous communication as virtual office hours to answer students' questions and connect the class together, or we can invite guest speakers from the field to answer students' questions and share their field experience with students.

5. Slide shows with audio narration

It is boring to just read textbooks without any additional lecture notes or study guides. Recording lectures over the PowerPoint slides will not only add some personal touch to the presentations, but also add more detailed information to help students learn. The original graphics or bullet outlines on the slide shows may not make much sense to the students, but will be more meaningful with the audio explanation of the instructor. Articulate Presenter is a tool that can serve this purpose well.

6. Audio podcasts

I used Audacity to record a three-to five-minute introduction or a summary of each chapter that students are

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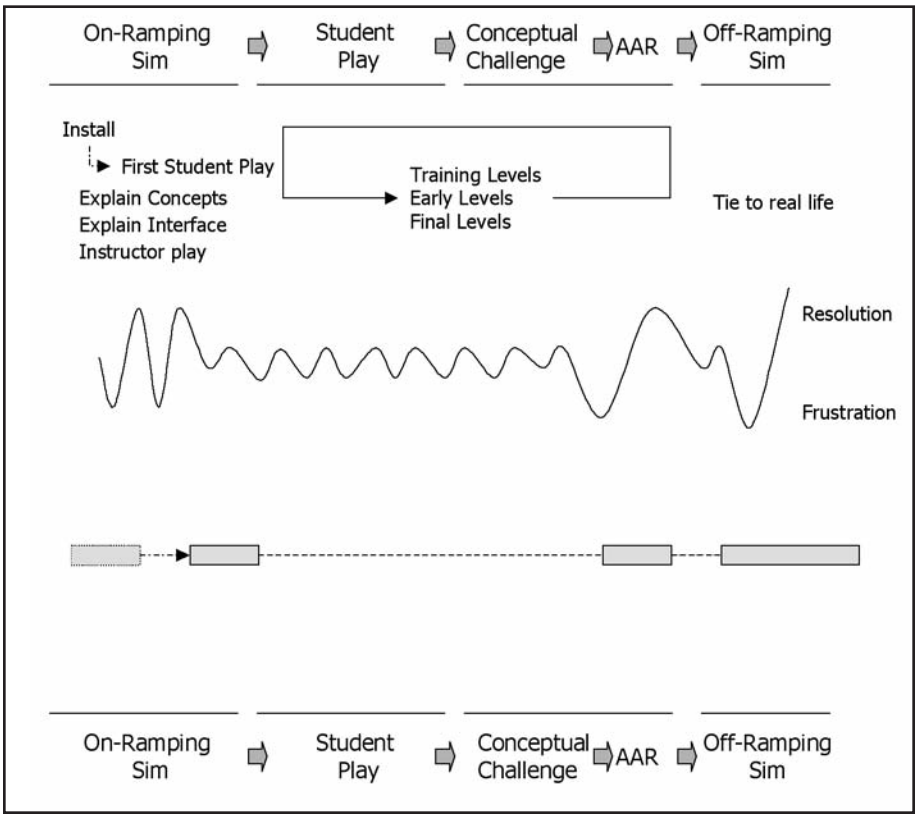

Cover...*from page 2*

The best simulation coaches start off with connecting the sim to the real world. The coach may:

- Ask for personal stories or opinion. "Have you ever been in a fight with someone and you just got stuck in a cycle of violence?"
- Ask the class to define the value of the activity. "Across history, what was the most expensive war, in terms of resources spent and the lack of anything real accomplished?"
- Ask for a definition. "How would you define a successful peace negotiation? What would the outcome look like?"
- Set up a mock debate. "I want half the class to argue that diplomacy is a good strategy, and the other half to argue that going to war is a good strategy."
- Write down a lingering problem or question. "With whom right now, in your personal life, are you in a fight? You don't have to share it with the class, but you do have to pick a real example." Or one could ask, "What concept in the literature are you having the most trouble understanding?"

It is critical to draw everyone in. If anyone sits out during this part, they probably will not be engaged later in the process.

• Teaching the interface

Interfaces provide some of the biggest paradoxes in simulations. For instance: The more intuitive is the use of the interface in the final level, the less the student will probably learn from the simulation. As a result, the interface should be taught as valuable content.

• Coaching during the student use

Like parents, coaches must prepare their students as much as possible, then thrust them into the unforgiving simulated world. Their own role diminishes considerably as their students take up much of the responsibility for their own results. There are, however, a few things to look out for as you scan the activity.

• Keeping students engaged

One role the instructor needs to keep, however, is tracking to make sure that all are engaged and none are forced into "cram" situations, where simulations work remarkably poorly.

• Asking questions

One on-going role for a coach (and some would say the only real role) is to ask questions. These questions can be aimed at individual students, or, even better, to the group as a whole. Some good questions enquire about long-term issues such as, "What is the break-even point for the product you are currently developing?" Other good questions follow the driving instructor model, i.e., "Why did you just do that?"

If a student does something either right or wrong, and the instructor notices it either through immediate screen sharing (but more likely from looking at a dashboard of some type) the instructor asks something like, "What did you hope would happen? What is your thinking right now?" These forced moments of reflection can break the student out of a mindless, clicking mentality that seizes most simulation players at some point; ideally

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Course Design..*from page 5*

required to read for the course. The audio podcast highlights the important concepts or points in the chapter. I also added some soothing background music to make it more effective and enjoyable to listen to.

7. Screen-capturing demonstrations

If you want to show your students how to use a learning tool such as Blackboard or a specific program such as Excel, it is good to try some screen-capturing tools such as Jing, Camtasia, or Captivate. Jing is a free tool that allows the user to create five-minute-long videos. It does not have editing functions within the program itself, but it is simple and easy to use. Camtasia and Captivate are more advanced tools to capture the screens.

8. Online help desk

Similar to the CyberCafé, the online help desk is a place for students to ask questions related to the course you are teaching, including technical support, course logistics, and cognitive problems in the course. The benefit of doing this is to have students' questions answered promptly, as the instructor knows this is a place that needs to be checked daily. In addition, it encourages and promotes peer learning. In a forum like this, students can help each other and learn from each other.

9. Google Docs

Such activity will increase the communication among group members and provide them an opportunity to learn from each other.

10 Individual Blog

Creating a group blog or asking each student to create a blog can help students understand, present, and build their knowledge. Each student in one of my general education courses created a blog, and they all shared a lot with other students through their own research, reflective writing, and comments on each other's posts.

With the rich resources available in the digital age, I believe there are many ways to make online learning more exciting and engaging. The 10 ways shared in this short article are only just a drop in the sea. ●

Persistence..*from page 4*

orientation (w/o discussion about whether this is correlation or causation), and other types of DL orientations. *http://insidehighered.com/news/2008/04/08/retention*

- DCC is piloting a mandatory student orientation for each online class that includes both technical assistance and information about online courses as a whole.

Strategy / Tool / Practice

Self-test readiness quiz / inventory / checklists / links to help sites

Comment/Examples

• Pre-course readiness inventories & checklists
  - o *https://www.hvcc.edu/dl/dlquiz.htm*
  - o *http://www.genesee.edu/_content/depts/dl/Quiz/Online_Course_Choice.htm*
- Many variations of these inventories exist, since nearly all colleges use them. A challenge is whether students read them pre-advisement, BEFORE registration, when prompted to do so after the course begins (i.e. first assignment, etc.), or when they're in trouble (too late).

5. Risk Factor: Developmental Needs

Strategy / Tool / Practice

Block registration (in MIS) when two, three or ?? risk factors are present

Comment/Examples

- Require completion of readiness assessment(s)
- Require instructor permission
- Require DL office permission
- Dutchess CC has implemented an online course policy as follows: "All continuing students enrolling in online courses must have a cumulative grade point average of 2.5 or higher. All full-time students must have successfully completed 12 credits before enrolling in an online course."
- **NOTE: some technical, practical and legal cautions are appropriate here**

6. Risk Factor: Technical Factors

Strategy / Tool / Practice

Online tutorials for LMS/CMS

Comment/Examples

- All current CMS/LMS systems (Angel, Blackboard / WebCT, etc.) include tutorials.
- Advising or DL office can require or recommend completion prior to course enrollment.
- Faculty can require as first assignment, or for late-add students prior to enrollment

These practices were collected by State University of New York (SUNY) Distance / Online Learning staff, including:

- *Martha Dixon, Erie Community College (Buffalo NY)*
- *Susan Gallagher, Hudson Valley Community College (Troy, NY)*
- *Bob Knipe, Genesee Community College (Batavia NY)*
- *Christie Mitchell, Dutchess Community College (Poughkeepsie NY)*
- *Peggy Van Kirk, Monroe Community College (Rochester NY)* ●

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the instructor's intervention will be asked "live" through messaging tools, less well through synchronous tools such as email or chat rooms.

A variation of this is to role-play, often through emails, a stakeholder, such as a customer, a constituent, or a board member. Then specific questions can be asked from a very tight point of view that may have higher emotional stakes. "Why are you supporting the opposing party? Don't you know they are corrupt? I hate you," one email or mp3 voice message might say from a citizen.

Instructors can get at the behavior of the simulation by asking, "Why do you think the simulation did that?" Or "what are the important variables that are being tracked here?" This is especially powerful when students have differing experiences from each other and are becoming confused and frustrated.

• ***Ongoing player comparison***

Where there are multiple students or teams engaged either competitively or cooperatively, it is useful for them to share some aspect of their progress or lack thereof. It can be the sharing of key metrics each turn. It can be a high score list. It can even be "headlines" such as "Team A scores a major victory," or "Team B faces major fine for ethics violations."

• ***After Action Reviews***

After action reviews (AARs, also-called debriefings) are a pedagogical technique using focused sessions, typically after the core gameplay implementation, to better understand what happened, and what should have happened. This can include strategic implications.

AARs are is especially critical when a simulation ends with some students still quite frustrated. The coach has to help the students understand why things got so frustrating, and how it ties back to the real world.

AARs in a sim ultimately require a combination of human and computer intervention. But one or the other can do in a pinch.

Ideally, the participant will give the first analysis of his or her own performance, before any comments from the coach. One of the changes as simulations move online, however, is that both the student/team self-evaluation and the coach evaluation are often enough being done asynchronously.

The coach has to help the students understand why things got so frustrating, and how it ties back to the real world.

AARs risk either being too positive or too negative. Parts of the military have a phrase "thumbs up, thumbs down," meaning, "here is one positive thing and here is one thing to change."

Feedback in AARs can include: raw material, such as recorded plays and time lines, analysis (what happened and why at a thematic level), coaching (how to get better results next time, and perhaps how to transfer to subsequent real life situations, from the perspective of an expert and/or peers), evaluation for certification (how ready the player is to handle any real situation), and even game elements like a high score or rewards and recognition to spur competition and replay/redo.

Off-ramp: From simulations back to real life

The final activity of the instructor in the context of the simulation is to wrap up the entire experience by tying it back to real life. Remember that at the beginning of the simulation launch, the professor tried to go from real life to simulation. Now the professor has to do the opposite.

This includes:

- Asking the students what they have learned, and what they might see and do differently as a result. Highlight some great plays (or at least great results), and any common humor ("Remember when team x accomplished this? I bet no one thought that was even possible.")
- Recalling the content from the on-ramping session, and asking if any of the personal challenges brought up then can now be resolved. ("Go back to your notes. Look at what you wrote down before we started the sim. That thing that was a big challenge, that concept that was hard to get, is it any clearer now?")
- Highlighting the key lessons learned; getting students focused on next steps, if any, including an action plan.
- Tell the students how they can reaccess the sim, and when, and what help is available to them.

Into the breach

The two steps-- finding and accessing the right sim, and teaching instructors to serve as coaches-- are the two critical steps in making sims a powerful educational tool.