

2013 Quest for Excellence Conference

Hagerstown Community College

Game-Based Teaching



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Disclosures & Affiliations

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- Springer Publishing – Author
- Relevant Stock – CAE, Zynga, GE, Pfizer
- Society for Simulation in Healthcare
 - Serious Games & VE SIG Co-Chair
- International Nursing Association for Clinical Simulation and Learning

SPRINGER PUBLISHING COMPANY

GAME-BASED TEACHING AND SIMULATION IN NURSING AND HEALTHCARE



ERIC B. BAUMAN

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Objectives

Participants will explore how to use game-based learning in educational contexts

Participants will be able to identify types of content that provides a good fit with game-based learning

Participants will explore how game-based learning provides an expansion of the clinical learning space



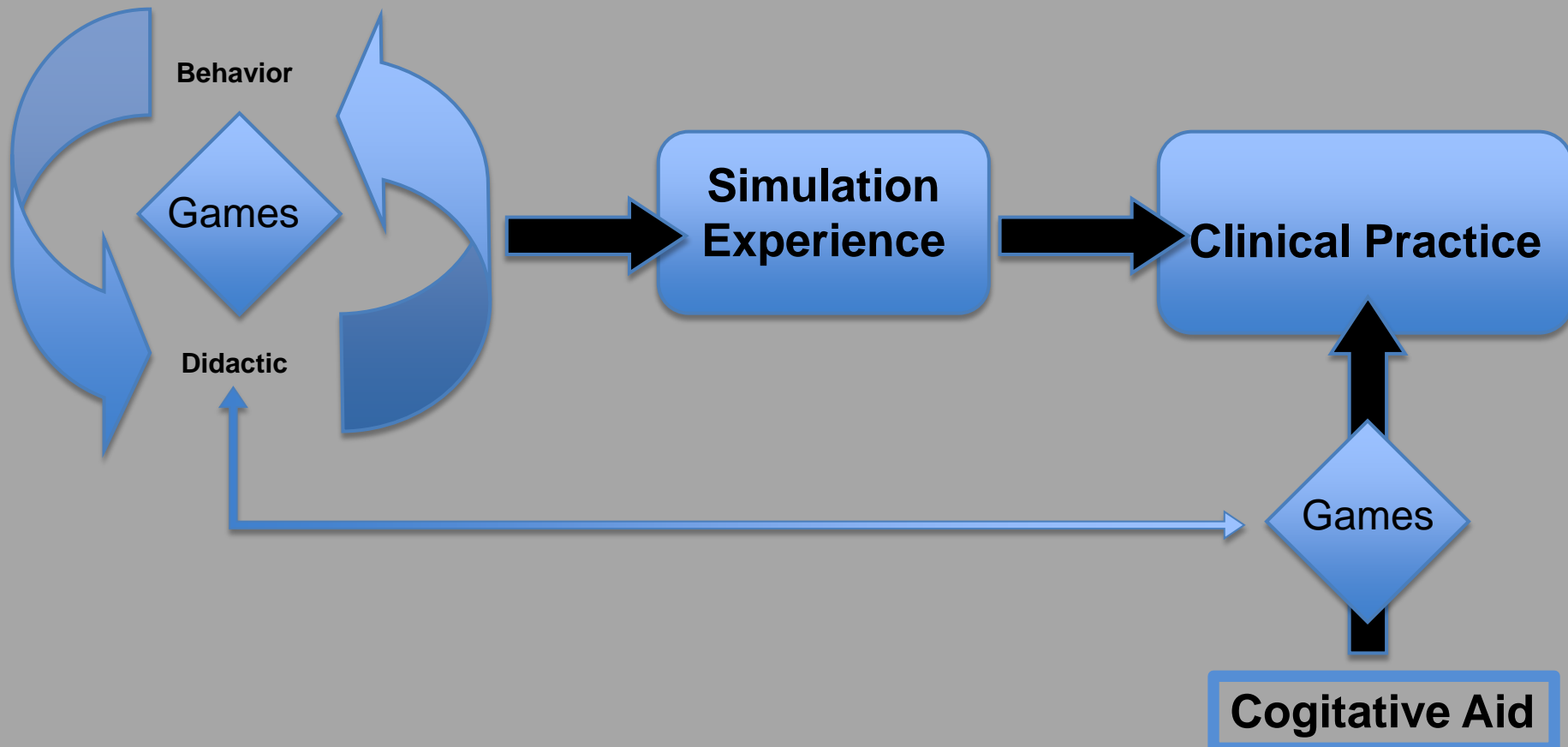
Hold on a minute... What sort of games is this
guy talking about?



Games and Simulation

Illustration 2.1
Rethought Simulation to Practice Pathway
© Bauman 2010 © Bauman 2012

Knowledge Acquisition



Game-Based Learning and Reward

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Intrinsic	Extrinsic
Reward comes from Mastery	Tangible Reward
Goals are clear, meaningful and situated	Goals assigned
Progress is intuitive apparent and immediate [real-time or just-in-time]	Progress is determined or assigned outside of the current activity
Endorses or reinforces behavior you are already committed to or hope to engage in the future – <u>Represents Player Agency</u>	If you complete this task you will be given access to another task – <u>Hierarchical Direction</u>
Autonomous	Directed



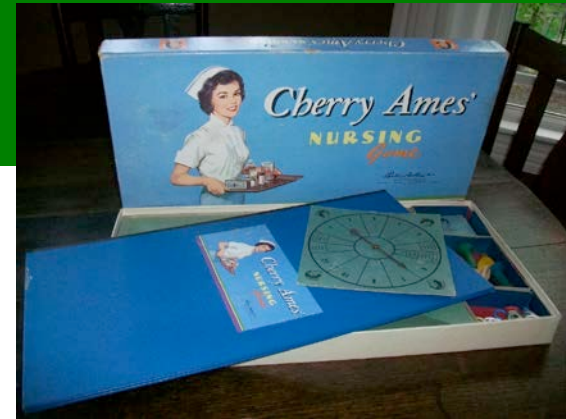
Terminology



- Games vs. Simulation
- Gamification
- Ludology
- Metagaming
- Mini-Games
- Virtual Worlds [Environments] versus Game-Based Learning Platform
- Augmented Reality
- Avatar or Player Character
- Non-player Character
- Created Environment

Games versus Simulation

- Traditional Perspective on Games
 - Goal Oriented
 - Rule Based
 - Sense of Consequence
 - Rewards or otherwise
- Traditional Perspective on Simulation
 - Imitation of something real
 - Representation of key design elements or variables of a system or process



Gamification

“... the use game elements
in a non-game contexts”

Deterding, S., Dixon, D., Khalid, R., Lennart, N. (2011).
MindTrek'11, September 28-30, 2011, Tampere, Finland.

- Makes content more engaging
- Encourages users to engage in desired behaviors
- Illustrates a path to mastery & autonomy
- Provides incentive to complete chores or tasks otherwise seen as boring
- Data from “gamified” applications can be leveraged for CQI Projects, Curricula and ROI Evaluation



<http://en.wikipedia.org/wiki/Gamification>

Game Design over Gamification!

“Games are Machines For Gaining Competence”



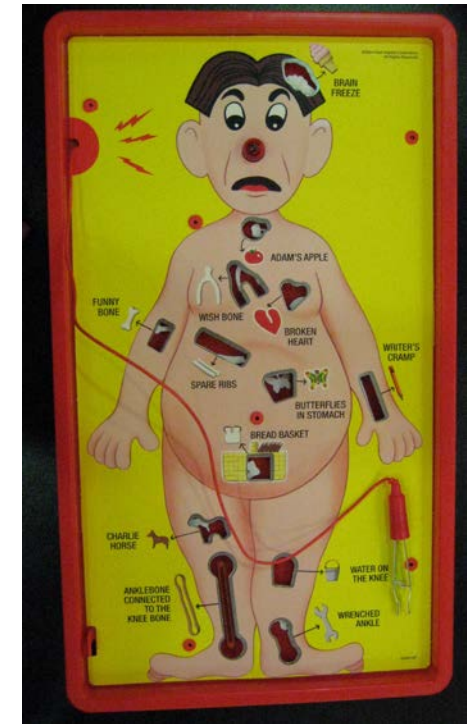
Reward should come from Mastery

Game Does not by Definition = Fun

Thus Gamification is not always Playful



Sebastian Deterding
GLS 8 – June 15, 2012



Ludology

“We are entering the Ludic Century...
... we will use games to shape the future of
education”



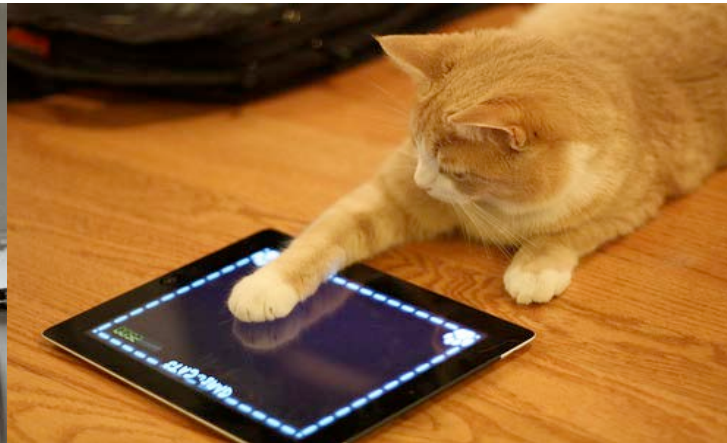
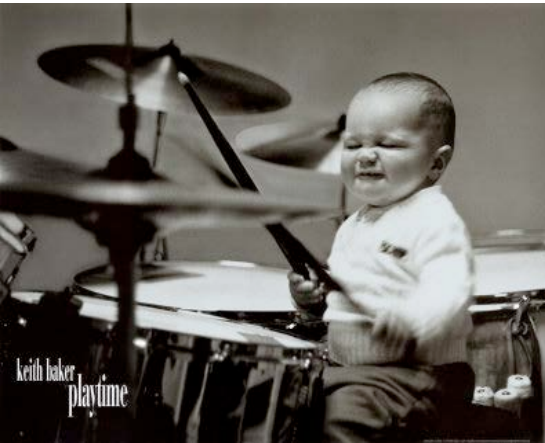
Eric Zimmerman, NYU Games Center
6/15/2011 at GLS7

www.ericzimmerman.com/

<http://gamecenter.nyu.edu/tag/eric-zimmerman>

Ludic Pedagogy

Ludology while a relatively new term refers to the study of games in general – but in contemporary discussion often refers to the study of videogames



The manner through which games teach [learners]
players to play [Learn]...

Mini-Games

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Mini-games are games within games

Inform players of important information [Just - in - Time]

Support in-game processes

Drive engagement



Metagaming

Metagaming is the use of out-of-game resources and strategy to promote in-game success

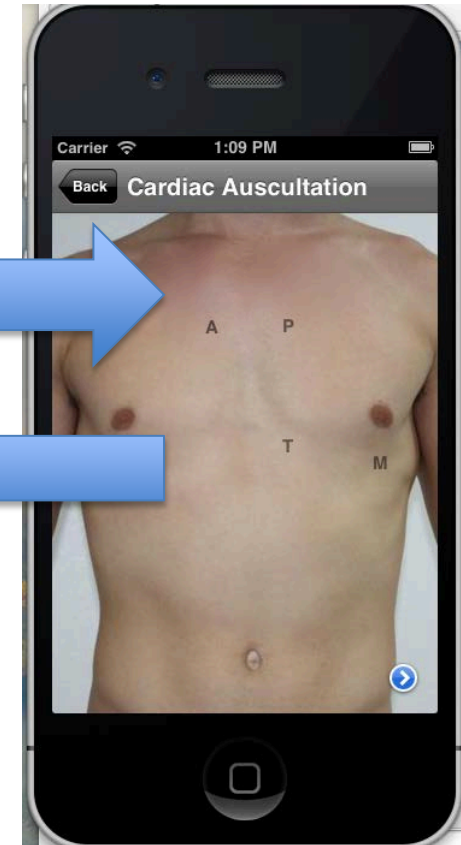
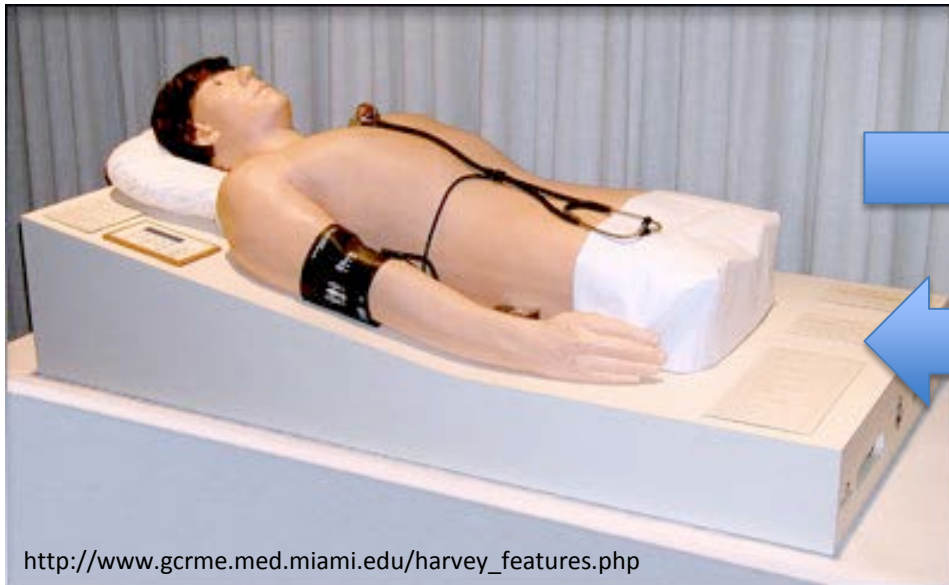
Carter, Gibbs and Harrop, 2012



From a traditional academic perspective we might consider this cheating...

But from a clinical perspective is this cheating or a form of critical thinking... is it thinking-in-action

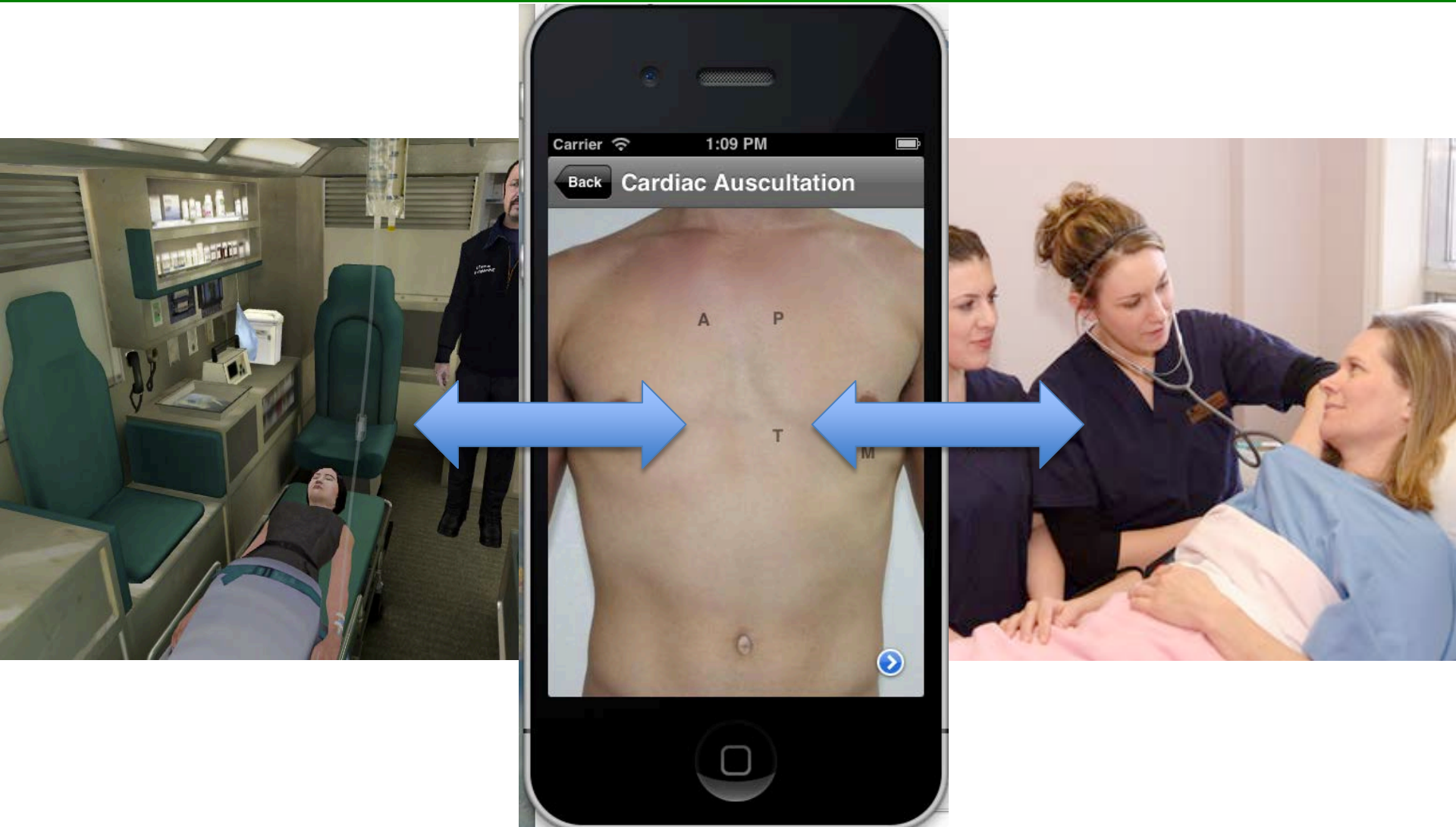
Metagaming



Imagine a mobile application or game that could be leveraged for unique learning and later as a cognitive aid during actual practice

Metagaming

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Virtual Worlds Game-Based Platform



Virtual worlds: an environment that hosts a synchronous digital environment, persistent network of people, represented as avatars, facilitated by networked computers (Bell, 2008)

Game-based platform: An environment that provides a narrative and system of rewards for accomplishing specific tasks and objectives. Game-based platforms use virtual environments to stage the game. Not all virtual reality environments are game-based (Bauman, 2010, p. 186).

Augmented Reality

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Augmented reality supplements the *real-world* such that actual objects existing in the *real-world* appear to coexist with virtual objects, computer generated images that are representations of actual objects.

(Univ. of Pittsburgh Simulation & Medical Technology Center)

(Azuma, Behringer, Feiner, Julier, and MacIntyre 2001; Bauman, 2012)

Avatar or Player Character

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The term avatar is originally from Hindi mythology. The gods would take the shape of mortals in the form of human avatars to walk the earth. In video games and virtual environments, an avatar transcends two planes of existence: the real world and the in-world or virtual world. The avatar or player-character is the embodiment of the person playing the game. Players live in and interact with the virtual or game-based environment through their avatars. (Bauman 2010 p.183).



Non-Player Character

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In-world agents of and from the game or virtual environment. NPCs are a function of programming and do not exist outside of the game or virtual environment. NPCs are in-world characters that the players' (learners') avatars interact with

(Bauman, 2010 p. 186)



Eliza the Chat Bot

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> Hello. My name is Eliza. How may I help you?

Eliza Chat bot

**Is she a Rogerian psychotherapist,
a semi intelligent chat bot,
or just a toy?**



Eliza, one of the original chat bots, is now ready to talk to you.

She is programmed to behave as a Rogerian psychotherapist, and is an interesting example of the limitations of early artificial intelligence programs.

#1

If Eliza (or you, or your web browser) gets confused, [refresh the page](#). To start a new session with the therapist [reload the page](#).

Want more bots? Check out the [Chatbot List](#)

chat:

ELIZA was meant to be a parody of a Rogerian psychotherapist who would answer players' questions with questions that were included as part of the game design to provide the illusion of actual person to person interaction (Weizenbaum, J., 1966)

<http://nlp-addiction.com/eliza/>

Created Environment

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Created Environment

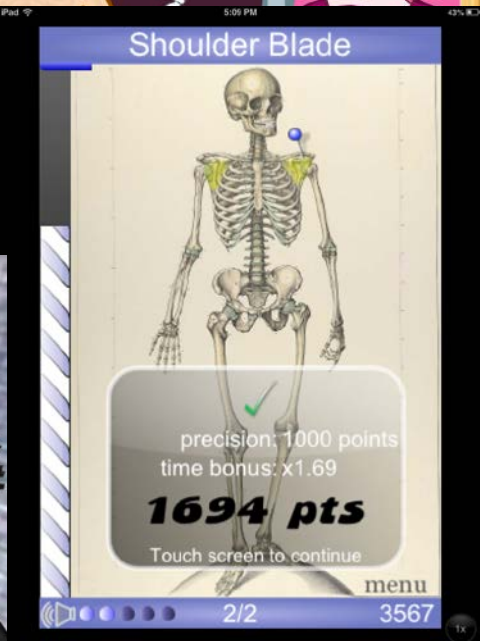
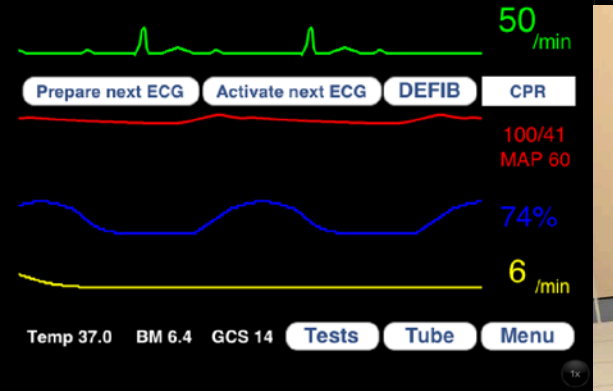
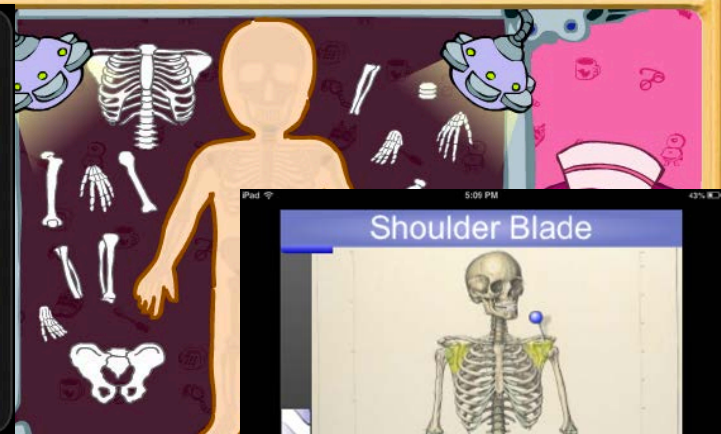
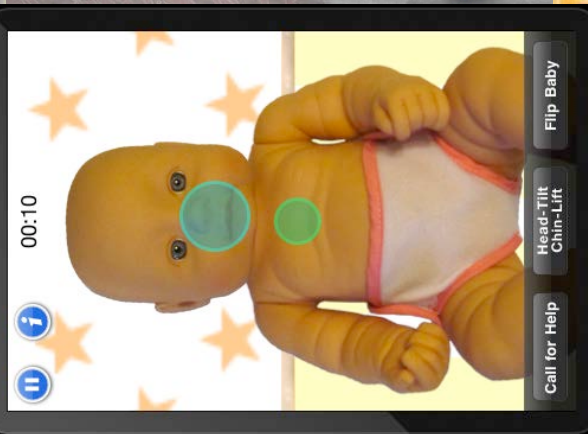
An environment that has been engineered to replicate a real-world space, producing sufficient authenticity and fidelity to allow for the suspension of disbelief. Simulated environments, whether fixed in the case of mannikin-based simulation laboratories or existing in virtual reality, as in a game or application-based environments are created environments.

Bauman, 2007, 2012



The notion of "Fit" & Identifying tools/products

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Good Fit for Game-Based Learning & Simulation

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In order to accomplish a good fit between technology and curriculum, the instruction must be effective, efficient and appealing – and that technology without good fit becomes a distraction to learning

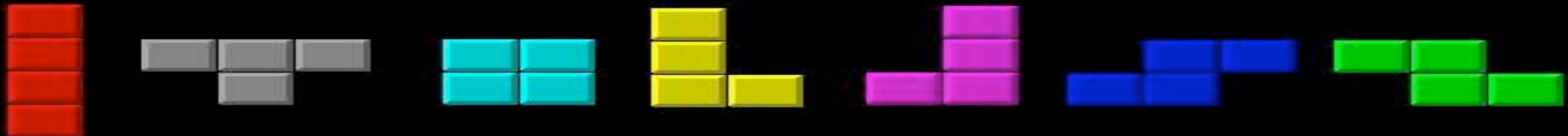
Ralston-Berg, P., & Lara, M. (2012).



Good Fit for Game-Based Learning & Simulation

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- Are you using simulation to meet your needs or your students needs
- Using technology for the sake of technology often leaves students confused and faculty frustrated
- Understand that all forms of technology have their limitations
- Play down the “coolness” and “be-all... end all” factor with students.
- Do you have the infrastructure to support the integration of game-based learning



Infrastructure

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Technology Support

- IT ≠ Anything that gets plugged in
 - Informational Technology
 - The acquisition, processing, storage and use of information (in any format) by computers and telecommunications technology
 - Instructional Technology
- Who is responsible for the technology that supports a game or application?



Infrastructure

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Educational Design Support

- Who is responsible for the game or application that supports the curriculum and how it is acquired and integrated into curricula?

Instructional Design

The practice of implementing pedagogy using a systemic approach that is effective and efficient for teachers while being appealing to learners. Often used with online and new media sources, but can refer to any form of instruction or other learning experiences.



Infrastructure

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Leadership and Champions

- There are Champions Among You
- Department and Institutional Leaders need to give permission to faculty/staff that pursuing Game-Based learning, teaching, and research is OK
 - Will be considered for workload
 - Will be considered for promotion
 - Is in fact a legitimate pedagogy and research pursuit
- Faculty/Staff have to give permission to students to engage in game-based learning

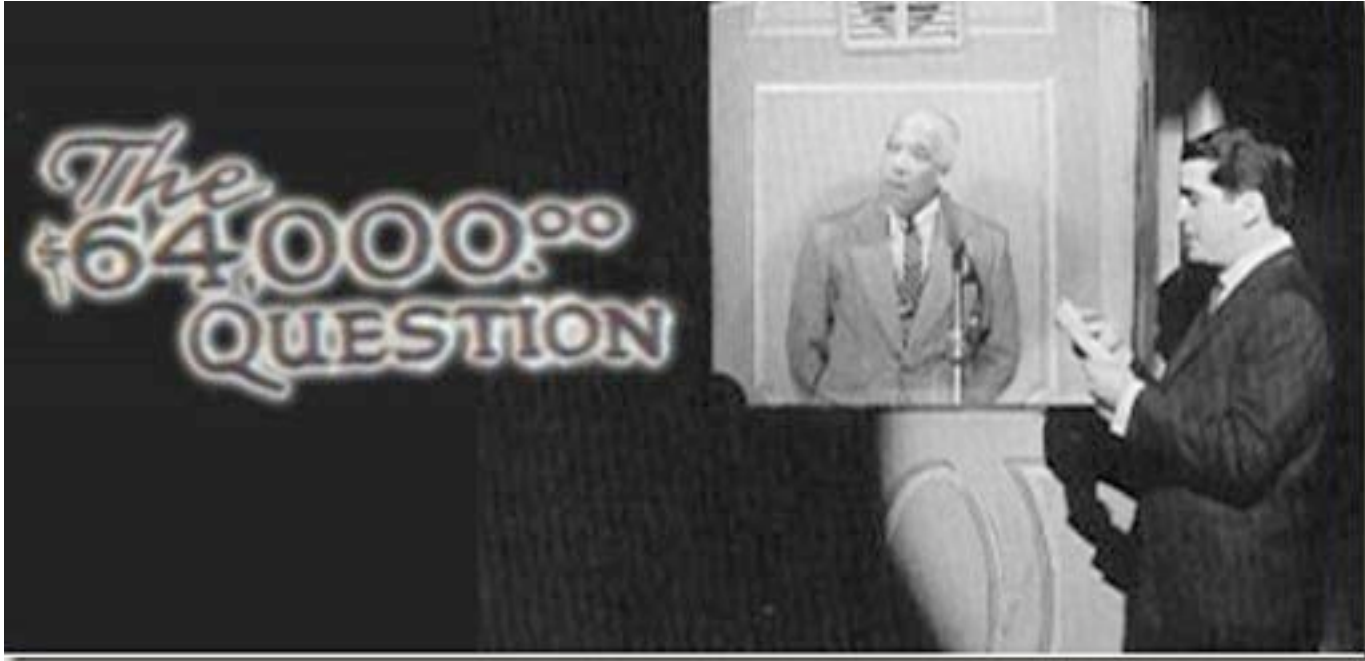


Expansion of the Clinical Space

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How do we expand the educational space in terms of Clinician/Student Education and Patient Education?

Why Games and Mobile Applications?



Expansion of the Learning & Clinical Space

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Games, Digital, Environments and Applications

Map Back to Curriculum Objectives

Map Back to Actual Clinical Practice

Be Intrinsically Motivating [Becomes a Cognitive Aid]



M. Presky, 2001

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Digital Natives

People who were born with (contemporary) digital technologies already in existence.



Versus



Digital Immigrants

Those who were born prior to (contemporary) digital technologies and migrated into the digital realm adopting the technology later in life.

Digital Natives

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Digital Natives may have spent more time playing videogames than they did reading by the time they begin college

(Prensky, 2003)



The *Digital Native* is able to leverage digital technology intuitively. “*Digital natives* are fluent in the language of the digital environment. They possess an innate sense of media literacy”

(Bauman, 2012, pgs 79-80)

Integration of Games into your Curriculum

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Hybrid Approach

Virtual Sim

Real World Sim

Virtual Sim



Successful Hybrid Simulation uses multiple modalities of simulation in a complimentary way to meet facilitate a learning experience or facet research



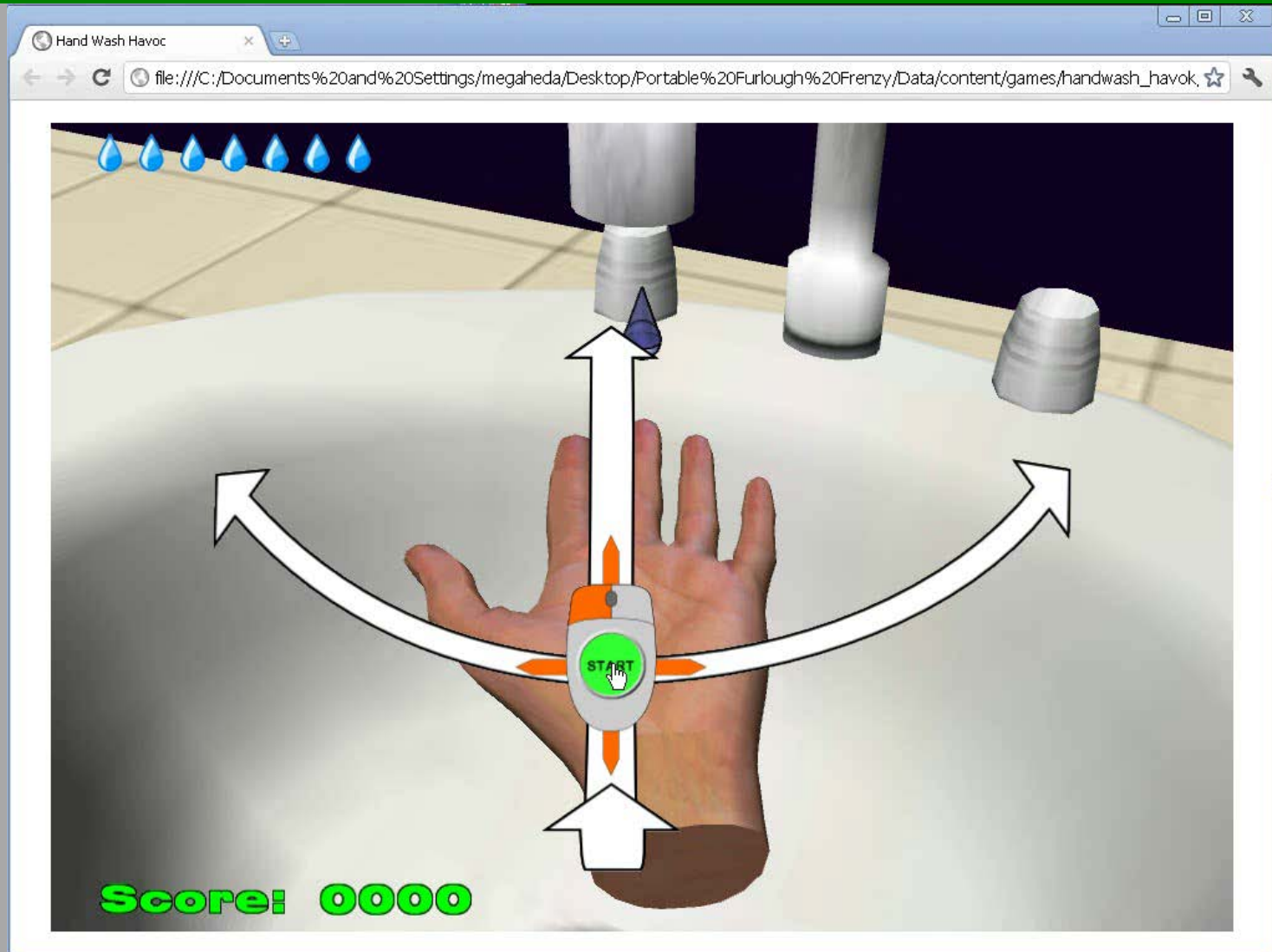
Real World Sim

Virtual Sim

Real World Sim

Desktop/Laptop Applications Browser Based

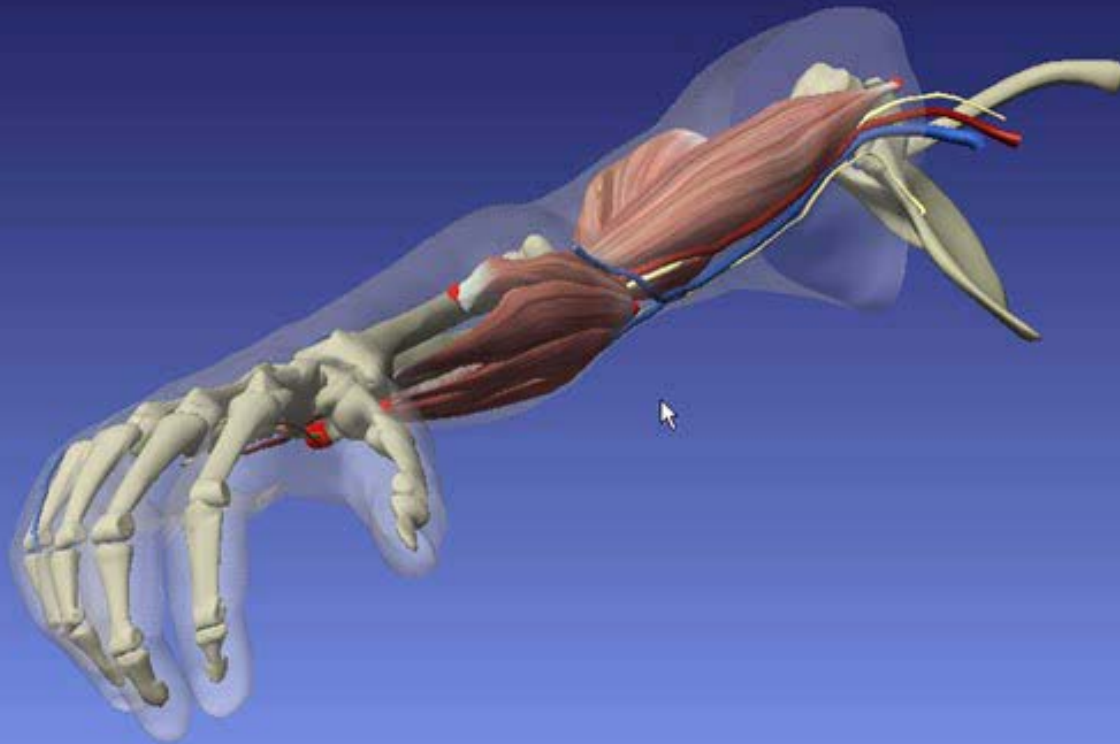
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Hand Wash Havoc

Desktop/Laptop Applications Browser Based

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Interactive Arm

Various Examples

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produced and developed by



CliniSpace Applications

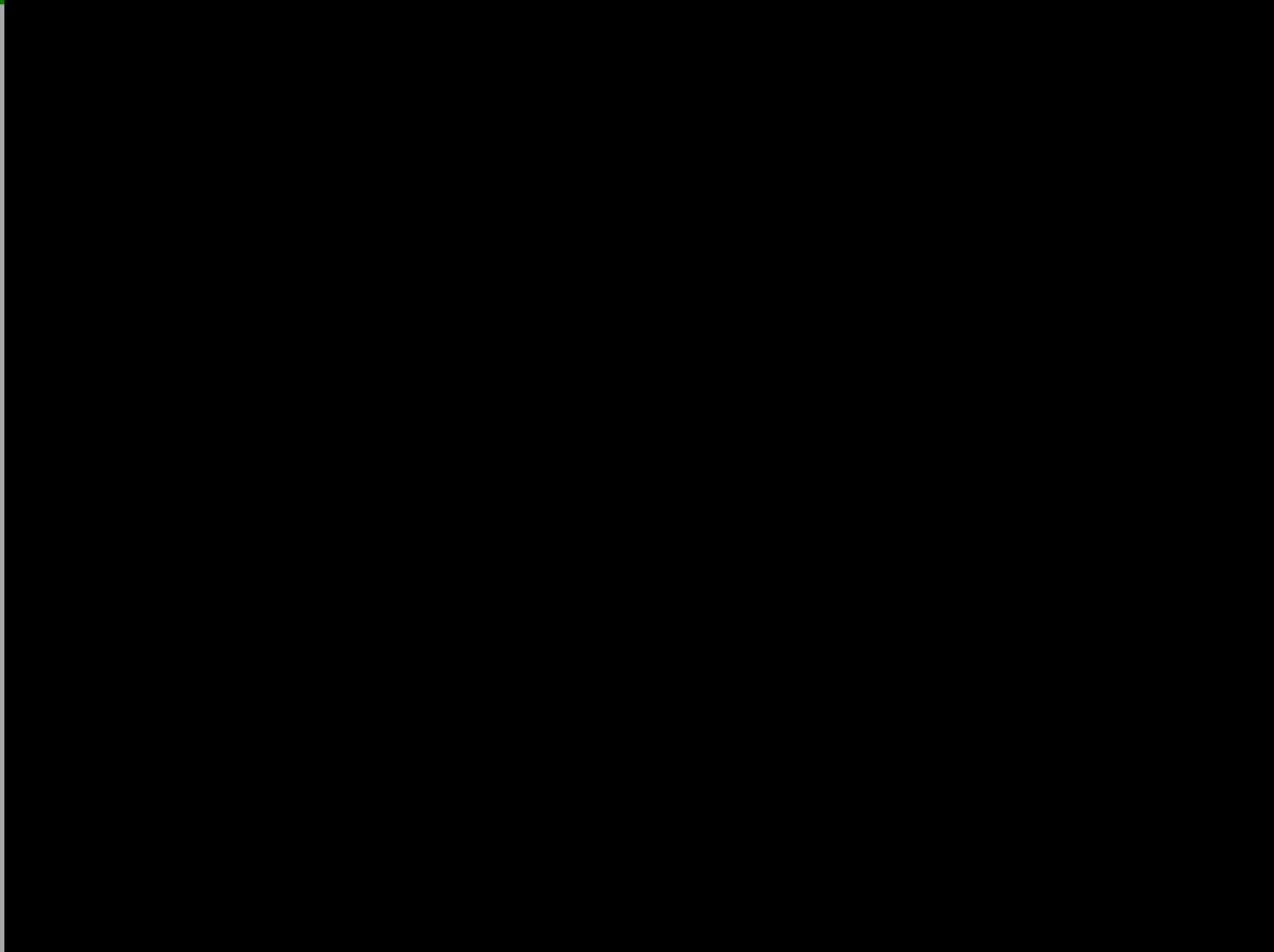
Mobile Application Examples

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iPad Skin Prep Application

Mobile Application Examples

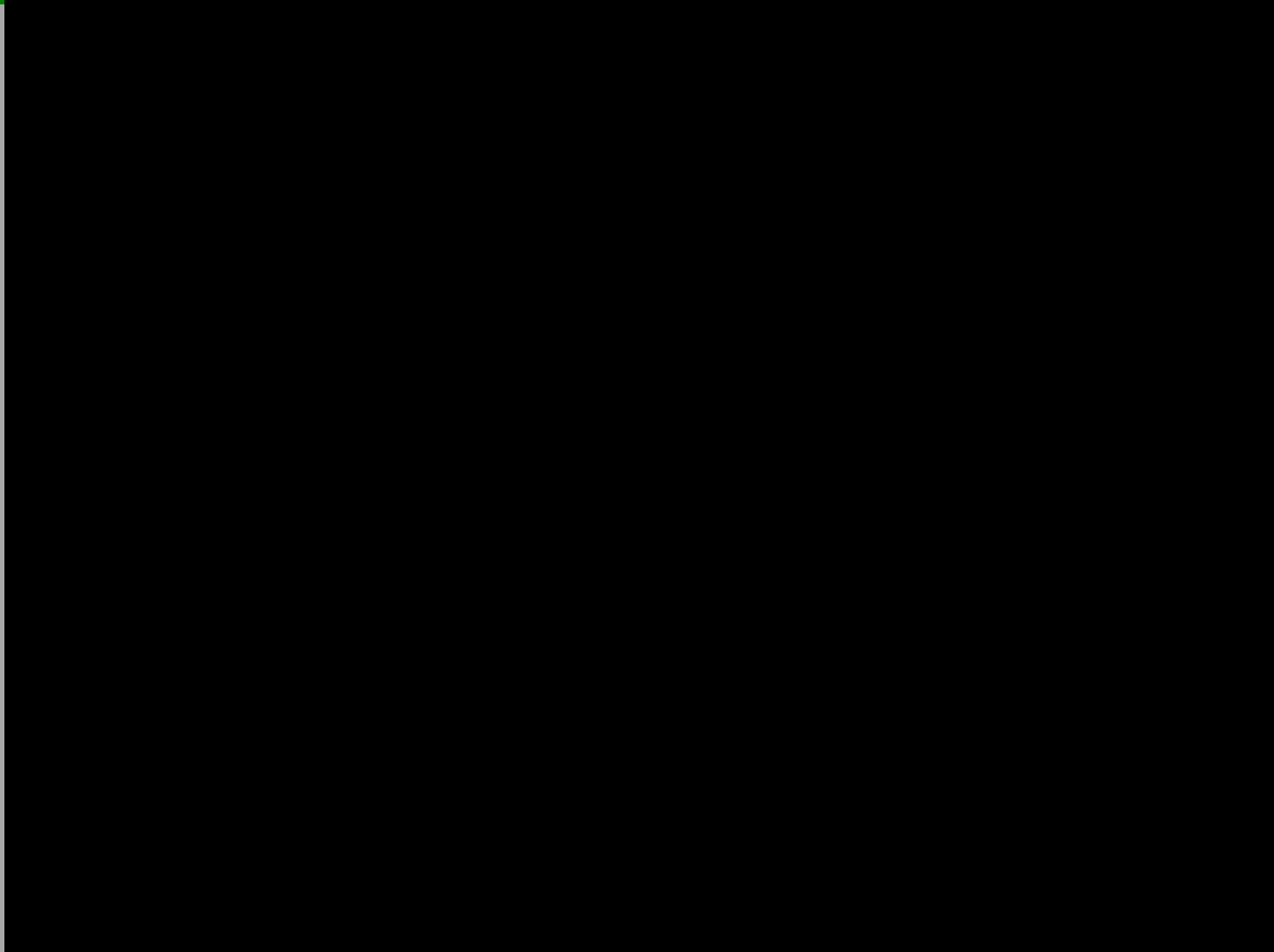
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Anatomy Browser

Mobile Application Examples

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Anatomy Browser

Mobile Application Examples

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ProgenitorX

Resources

<http://healthcaregames.wisc.edu/>

Games & Simulation for Healthcare



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Conferences & Organizations

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GAMES FOR HEALTH

Games for Health - June 26-28, 2013
Boston MA <http://gamesforhealth.org/>



GAMES+
LEARNING+
SOCIETY

Games+Learning+Society June 12-14, 2013
Madison WI <http://www.gameslearningsociety.org/>
Conference - <http://glsconference.org/>



Society for Simulation in Healthcare <https://ssih.org/>
IMSH 2014 – January 25-29, San Francisco
Serious Games & Virtual Reality Track



International Nursing Assoc. for Clinical Simulation and Learning
<https://inacsl.org/> <https://inacsl.org/conference>
June 12-15, 2013 Las Vegas

Questions

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