

Concurrent Presentation Session
NEW, CREATIVE WAYS TO LEARN



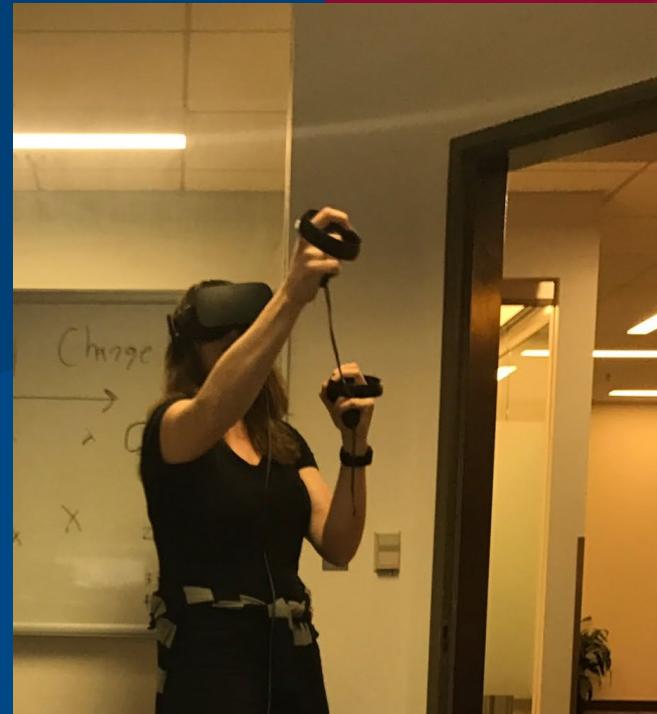
Alternate Reality Courses: A Paradigm Shift in Using Games to Activate Learning

Sarah Toms
Wharton Interactive

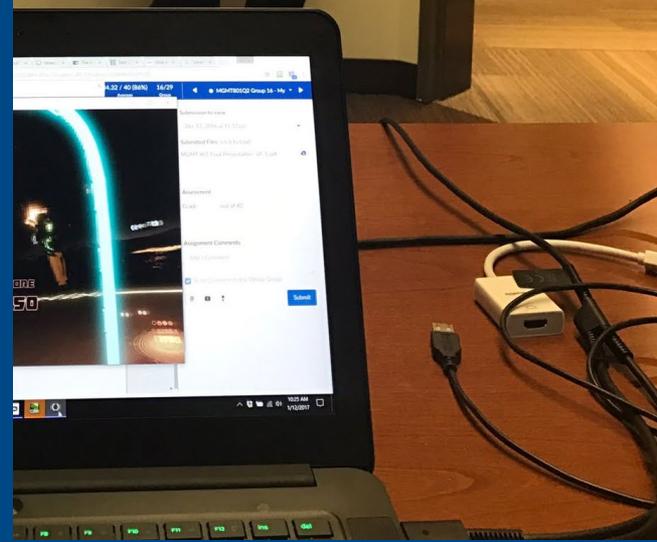
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Alternate Reality Courses: A Paradigm Shift in Using Games to Activate Learning



Yes, we get paid to do this!



Wharton Interactive



Prof Ethan Mollick,
Academic Director

Wrote the book on games and teaching, and has designed numerous award-winning simulations.



Sarah E. Toms,
Executive Director

Developed dozens of award-winning simulations & teaching platforms, for over 100 professors.



interactive.wharton.upenn.edu

Learning just got interesting.

Wharton Interactive is on a mission to transform education with our award-winning interactive platforms and simulations.

Get in touch

View Products

Founded in 2018

Interactive Learning for the 21st century

Improve Education Through Interactivity

- Build transformative educational platforms accessible to everyone
- Research-based, validated approaches

Expand Wharton's Reputation for Teaching Excellence

- Provide platforms for Undergrad, MBA, EMBA, Exec, and Online
- Establish a reputation for breakthrough experiences

Fully Sustainable Ecosystem

- Marketplace for Wharton and externally-authored products
- Community of authors, practitioners & technologists

The logo for 'idea MACHINE' features the word 'idea' in a lowercase, sans-serif font above the word 'MACHINE' in a larger, uppercase, sans-serif font. To the left of the text is a graphic of several small white dots arranged in a curved path, suggesting a trajectory or a series of ideas.



“Teaching by simulation is the most powerful way to train teams.”

— DESMOND MCEWAN, ET AL. 2017
"THE EFFECTIVENESS OF TEAMWORK TRAINING ON
TEAMWORK BEHAVIORS AND TEAM PERFORMANCE: A
SYSTEMATIC REVIEW AND META-ANALYSIS OF
CONTROLLED INTERVENTIONS."

Key Challenges: Creating Simulations/Games

COST

- Simple (< 30 mins): \$25k
- Moderate (< 90 mins): \$200k
- Complex (1+ day): \$400k+

TIME

- Simple: 1-3 months
- Moderate: 6-12 months
- Complex 2+ years

EXPERTISE

- Limited Pool of technical experts
- Expensive to hire
- Takes time to develop

Platforms deliver opportunities to **rapidly build complex** interactive experiences at a **fraction of the cost** of traditional simulations

Alternate Reality Courseware

In a class of its own

A pioneering alternate reality gaming engine – Wharton's Alternate Reality Courseware (ARC) is a new way of providing experiential learning through a realistic, largely unbounded virtual experience that can take place over the course of days or weeks



Alternate Reality Teaching Student Experience
The Wharton School at the University of Pennsylvania



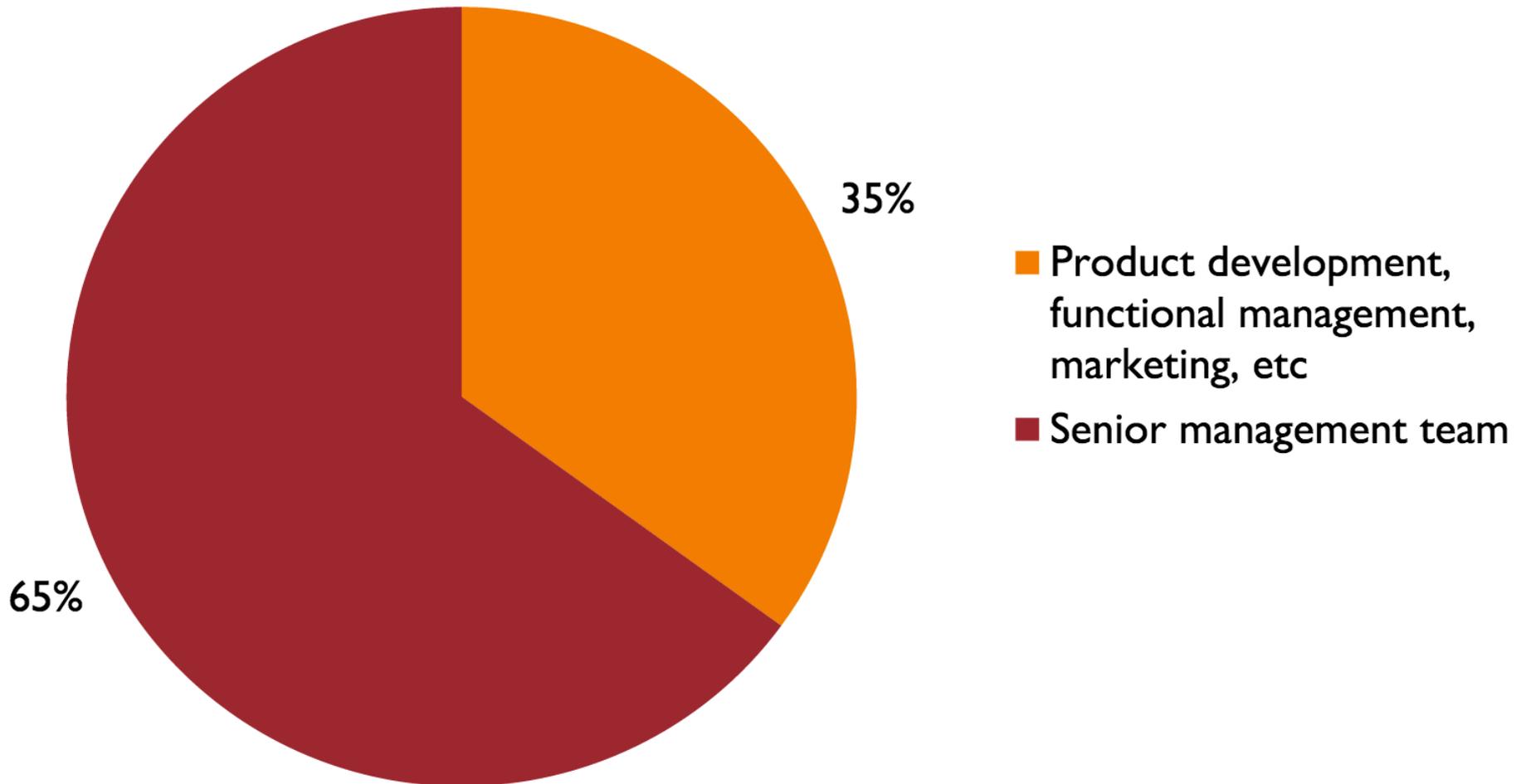
Alternate Reality Teaching Student Experience
The Wharton School at the University of Pennsylvania



“Classroom education doesn’t offer a chance to practice, and practical experience usually requires students to act as interns in other roles that are below those of the leaders they aspire to be.”

— ETHAN MOLLICK

Causes of Failure in VC Backed Firms



Gorman and Sahlman, "What do VCs do?," JBV, 1989

Alternate Reality Games

- Story
- Puppet Master
- The Curtain
- Rabbit Hole
- TINAG – This is Not a Game

Alternate Reality Games

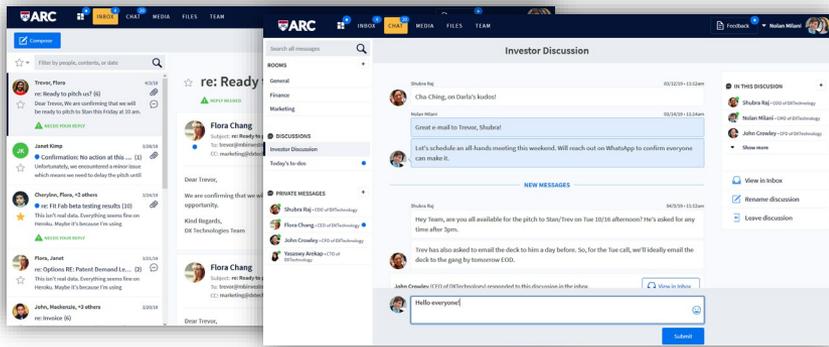
“Story drives the game play and players are performing activities that mirror their real life.”

– KOREEN OLBRISH / AUGUST 2011, eLearn magazine

ARC is an entirely new kind of simulation

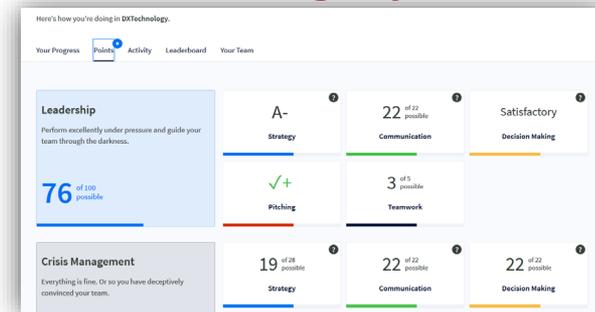
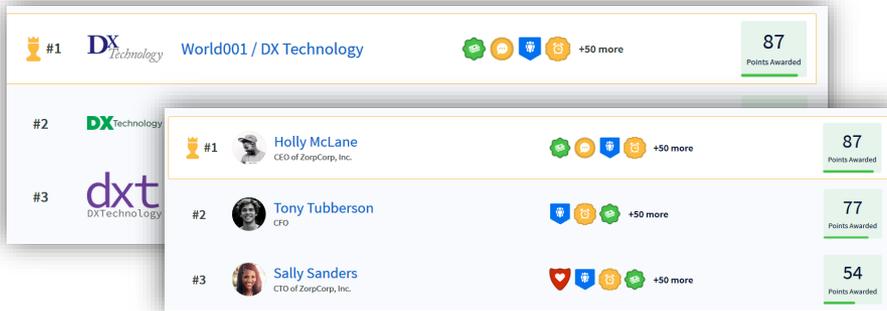
Players use simulated email, chat, & other real tools

Runs virtually or live over the course of hours...or weeks



Techniques drawn from games and the latest pedagogical research

Easy to create new scenarios with new learning objectives



ABC Simulation

Protagonist

Sample Scenarios

Startup
playing as founders



Scaling (Marc Lore*)
Market Sizing (Josh Koppelman*)
IP Rights (Penn Law Clinic**)
Working with VC (Eurie Kim*)
Customer segmentation
Team management

2 weeks

Crisis Management
playing as attacking
firm



Crisis Management (Leane Cerven*)
Ethics (Scott Sonbuchner, Fed)
Information Security
Customer segmentation
Team management

Digital Business Strategy

playing as C-Suite leaders



Technology and Strategy (Rahul Kapoor)
Build, Buy, Borrow Decisions
Team management

Team Performance
playing as
astronauts

The Saturn Parable

Emotional Contagion (Sigal Barsade)
Game Theory and Strategy
Extreme Team Environments (Imagineers)
Team management

3 days

* Appears in debrief. ** Appears in live game.

“This was a once in a lifetime experience to work as part of a Senior Level team....”

“This was an outstanding opportunity to use ones expertise among true leaders.”

“I found the exercise to be exciting, thrilling, and fun. At the same time, I did find myself being distracted during the week and other courses by wanting to monitor the sim at all times. “

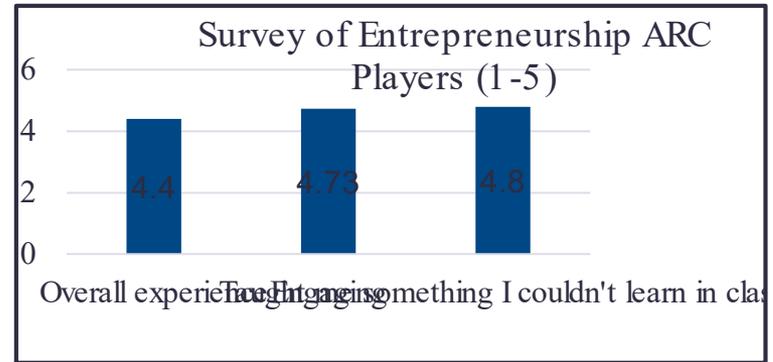


Early results from ARC show high engagement, improved learning, and long-term retention.

Table 2: Regression Results

	(1 Tobit) Total Test Score	(2 Tobit) Total Test Score	(3 Tobit) Topical Test Score	(4 Tobit) Off Topic Test Score	(5 OLS) Entrep. Preference	(6 OLS) Self-Efficacy
Looking Glass Used ARC)		0.40** (0.180)	0.36*** (0.102)	0.07 (0.197)	-0.51 (0.528)	0.13 (0.147)
Gender	0.54 (0.171)	0.47 (0.167)	0.22 (0.095)	0.33 (0.183)	0.07 (0.491)	0.13 (0.137)
Citizenship	-0.23 (0.184)	-0.22 (0.179)	-0.08 (0.101)	-0.17 (0.195)	-0.70 (0.527)	-0.22 (0.147)
Second Year	0.28 (0.176)	0.33* (0.173)	0.07 (0.098)	0.36* (0.189)	0.62 (0.509)	0.18 (0.142)
Constant	2.62*** (0.213)	2.42*** (0.224)	1.04*** (0.127)	1.57*** (0.246)	0.41 (0.650)	0.40** (0.181)
Observations	86	86	86	86	83	83
(Pseudo)R2	0.0603	0.0832	0.167	0.0421	0.067	0.062
chi2	12.95	17.87	20.89	8.197	.	.
p	0.00475	0.00131	0.000332	0.0846	0.241	0.285

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1



Quotes from ABA participants

(All feedback available on request, this is pretty representative!)

“This was a once in a lifetime experience to work as part of a Senior Level team....”

“This was an outstanding opportunity to use ones expertise among true leaders.”

“I found the exercise to be exciting, thrilling, and fun. At the same time, I did find myself being distracted during the week and other courses by wanting to monitor the sim at all times. “

hello Prof. Mollick,

It has been a few months since we have talked last time. Ever since then, CPNET has raised our 700k angel round mostly from our WEMBA classmates. I have started full time at CPNET for a month now. We are releasing version 1.0 of our Industrial IoT product and working on releasing alpha version of our operation optimization recommendation AI agent. Meanwhile, we are working very hard to line up Proof of Concept customers.

Through the way, we are facing some challenges like what you have designed in the Looking glass. I would like to set up an appointment with you to give you a more detailed update and get some advices from you.

How it Works

[Demo](#)

ARC Overview

1

Students are placed on teams and emerged in a fully simulated virtual world

2

They have access to modern messaging tools and information about their world

3

Over time, in-game characters emerge, realistically challenging students through a series of real world scenarios

4

Students analyze information, interact with characters and make decisions in real time

5

Learning outcomes and achievements are delivered in-game

6

Reflection, adaptive feedback and debrief discussions create long-term meaning

ARC creates a new type of simulation

Players use simulated email, chat, & other real tools

Runs virtually or live over the course of hours...or weeks

Techniques drawn from games and the latest pedagogical research

Deeply customized content allows simulations suited to your challenges & objectives

The Alternate Universe: World Building

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[Has anyone used a food scanner \(like a crossmorphic ...](#)
https://www.reddit.com/.../has_anyone_used_a_food_scanner_like... ▾ reddit ▾
Apr 27, 2015 - Has anyone used a food scanner (like a **crossmorphic sensor** or Raman spectroscopy) to analyze the nutrition in their food? How'd it work?

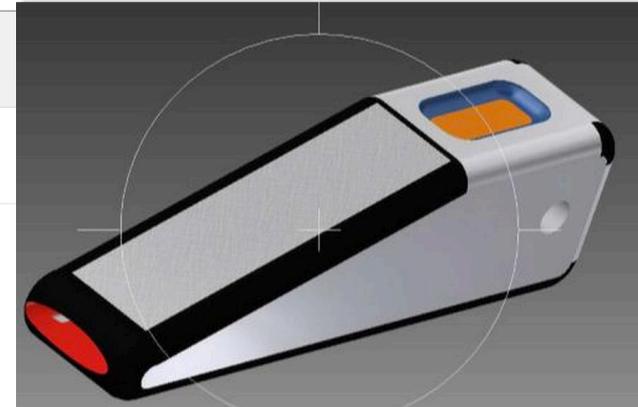
[Crossmorphic Sensor Technology Working Group Conference](#)
<https://www.crunchbase.com/.../crossmorphic-sensor-technology-workin...> ▾
2015-03-15 - First meeting of the **crossmorphic sensor** working group.

[TruuScann - Crossmorphic Nutrition Sensors](#)
<truuscan.com/> ▾
"Using TruuScann has made a huge difference in the level of confidence my staff members and I have in the hospital's food safety. It's not enough to simply trust ...

[What's the deal with crossmorphic sensors? - Blankbaby](#)
<blog.blankbaby.com/.../whats-the-deal-with-crossmorphic-sensors.html> ▾
Sep 2, 2014 - I don't know much about Darla Xavier's **crossmorphic sensors**, but color me intrigued. Self configuring sensors sound like something out of ...

[Spektrotech - American-made crossmorphic sensors](#)
<spektrotech.com/> ▾
Software. Spektrotech Desktop tabulates, correlates, and stores all your **sensor's** information for historical tracking and analysis.

[Wharton Magazine – Darla Xavier ENG'06, PhD'09](#)
<whartonmagazine.com/issues/spring-2014/darla-xavier-eng06-phd09/> ▾
Xavier's latest inventions – related to a new technology called **crossmorphic sensors** – may allow her to do just that. Small but powerful, this patent pending ...



Developing the Characters

Tony Fang Foo: Project Leader, Zhu-Tek Electronics Co.

(aka "Tony"), The OEM Manufacturer

- **Communication Style:** pretty much all-business; as far as outsourced/overseas production vendors go, he comes across as a good project manager in that he promptly considers and advises the team on product and design changes/requests; if he doesn't know an answer (such as how a certain addition will affect the production timeline) he simply lets his clients know that he'll look into it/get back to them when he has an answer
- **Knowledge:** Tony is another character whose business relationship with Darla precedes the team of co-founders, as he began working with her on developing a prototype before she brought them on board; as such, he knows the previously set production/shipping timeline negotiated with Darla as well as the impact any product changes will have on the project's cost and deadlines.
- **Objective:** to keep the team on track for meeting existing production deadlines post-beta testing and finish/ship DXT's first batch order on time and with minimal cost increases; he also seeks to retain the company as a client and oversee future orders/upgrades to the startup's CMS device.
- **Scenario Appearances:** 6, 7

Wharton Interactive's Award Winning Team

Wharton Interactive



**DINA LUCIANO, DIRECTOR
OF PRODUCT, IDEAMACHINE**



**JEN KELLEY,
WRITER**



**JERRICKA HILL,
MANAGER OPERATIONS**

LILACH MOLLICK, ACADEMIC CONTENT

MAX GLADSTONE, WRITER

MICHAEL JOINER, GAME MASTER

KALI KANTNER, QA

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Thank you

A large blue sign for Wharton University of Pennsylvania. The sign features the Wharton crest on the left, which is a shield with a red top section containing a white figure and a blue bottom section with three white circles. To the right of the crest, the word "Wharton" is written in a large, white, serif font. Below "Wharton", the words "UNIVERSITY of PENNSYLVANIA" are written in a smaller, white, sans-serif font, with "of" in a smaller size and lowercase. The sign is set against a background of palm trees and a suspension bridge under a clear blue sky.

Wharton
UNIVERSITY of PENNSYLVANIA



Wharton

UNIVERSITY *of* PENNSYLVANIA