Gamification: the Synergies in Health and Games

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DISCLAIMER: The views and opinions expressed in this presentation are those of the author and do not necessarily represent official policy or position of HIMSS.
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Agenda

- Learning Objectives/STEPS
- Labels & Definitions
- Misconceptions & Challenges
- Gamification Examples & Lessons
  - Healthcare
  - Mass Media
- Building the right team
- Audience / Population: The Driver for Engagement
- Where are we headed?
- Q&A
Learning Objectives

▶ Assess the viability of current, mainstream gamification strategies available and applicable to the healthcare space
▶ Identify instances of pointsification vs. gamification and their relative merits
▶ Recognize critical skill sets needed to develop and implement a gamified intervention
▶ Evaluate populations to determine strategic fit for engagement in a gamified intervention
REALIZING THE VALUE OF HEALTH IT

Health IT creates five kinds of value of benefit to patients, healthcare providers and communities.

- S: Satisfaction
- T: Treatment/Clinical
- E: Electronic Secure Data
- P: Patient Engagement and Population Management
- S: Savings

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HIMSS STEPS
Realizing Gamification as a path to better Health Information

**Satisfaction**
“games have the ability to engage players in a way that provides them with a sense of purpose and identity”
(Stated by American Psychological Association)

**Treatment**
Stanford 1997 study of 60 diabetic children aged 8-16 found a 77% reduction in urgent care and emergency clinical visits.

**Patient Engagement**
Kids that played Super Mario prior to surgery woke up with “less than half the anxiety of children given drugs – and with zero medication side effects.”
Realizing Gamification as a path to better Health Information

Electronic Information/Data

Games & other mobile gamified experiences create a new pipeline of patient personal and clinical data
What Do They Have in Common?
The Issue of the Label

gameful elements game mechanics
exergames fad

gamification pointsification gamification

serious game gamified
learning apps fitness

game wearables
“Gamification [is] the use of game design elements in non-game contexts”

(Deterding et.al 2011)
Question 1

We're going to do an activity. You can earn points for different tasks. For the first task, answering this question, you can earn 1 point for choosing ☀, 4 points for choosing ☽, 7 points for ☢, and 18 points for ⭐.

Which do you choose?

A ☀ +1  B ☽ +4
C ☢ +7  D ⭐ +18
Question 1

Which did you choose?
Definitions & Implementations

- Gamification vs. Games
- Gamification vs. Pointsification
Question 2

Who among you currently play games on your smartphone, the web, on PC, consoles, etc.?

A  I have a soft spot for the occasional game.

B  I don’t play any kind of game.
Question 2

Which did you choose?

I have a soft spot for the occasional game.

I don’t play any kind of games.
“What we’re currently terming gamification is in fact the process of taking *the thing that is least essential to games* and representing it as the core of the experience. Points and badges have no closer a relationship to games than they do to websites and fitness apps and loyalty cards. They’re great tools for communicating progress and acknowledging effort, but neither points nor badges in any way constitute a game.”

- Margaret Robertson on pointsification
**Question 3**

Who among you do absolutely anything that tracks points or progress? Including but not limited to games, FitBits, credit card points, diets, airline miles, apps where you earn badges for check-ins and other task?

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<table>
<thead>
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<tbody>
<tr>
<td>A</td>
<td>I definitely count points, progress, badges, and banners.</td>
</tr>
<tr>
<td>B</td>
<td>Nope. I don't track any progress or points.</td>
</tr>
</tbody>
</table>
Question 2

Which did you choose?

I definitely count points, progress, badges, and banners.

Nope. I don't track any progress or points.
Challenges & Opportunities

- Lack of in-depth, longitudinal academic research
  - Early successes
  - Concerns over incentives
  - To risk or to research?

- Explosive, pervasive growth
Explosive Growth

GAMIFICATION GOOGLE SEARCH TRENDS 2005-2015

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32% Share of mobile device usage spent on gaming alone – nearly twice that of Facebook’s
Flurry Analytics 2014

80M Adults were playing Farmville at its peak
AppData 2010

97% Of children currently playing games on console, mobile, & computer
Pew Internet 2008
Not Just for Kids

VIDEO GAMES

MEN: 29%
WOMEN: 38%

AGES 50 AND OLDER

SOCIAL MEDIA

2005: 2%
2015: 35%

AGES 65 AND OLDER

Source: Pew Research Center 2015
Gamification in Healthcare

A Survey of Common Elements (Lister, 2014)

- Leaderboards
- Levels
- Digital Rewards (Points, Badges, etc.)
- Real-World Prizes
- Competitions
- Social or Peer Pressure

Source: Lister C, West JH, Cannon B, Sax T, Brodegard D
Just a Fad? Gamification in Health and Fitness Apps
JMIR Serious Games 2014;2(2):e9
URL: http://games.jmir.org/2014/2/e9
DOI: 10.2196/games.3413
PMID: 25654660
PMCID: 4307823
Gamification in Healthcare

Accenture’s 7 Elements of Games (2013)

- Status
- Milestones
- Competition
- Rankings
- Social Connectedness
- Immersion Reality
- Personalization
“...human attention is like a **spotlight**. Your brain can process and absorb only a limited amount of new information at any given moment. So you focus on one source of information at a time, ignoring everything else....if you learn to control your attention spotlight, you can actually stop your brain from spending its limited processing resources on pain signals from your nerves.”

Games in Healthcare

Packy and Marlon (serious game)
- Game designed to improve self-care behavior in children with diabetes
- 1997 Stanford study: 77% reduction in urgent care and emergency clinical visits

Project Evo (serious game)
- Treats individuals with cognitive disorders, seeking to be first video game categorized by FDA as therapy

Super Mario Bros. (video game)
- Kids allowed to play Super Mario on NintendoDS prior to surgery experienced “virtually no anxiety”
- Wake from anesthesia with “less than half the anxiety of children given drugs – and zero medication side effects.”
Gamification in Healthcare

Ayogo
- Empower app to help patients with chronic conditions adhere to treatment regimen

Mango Health
- Gamifies prescription adherence with rewards

Cohero Health (Asthma Hero)
- Reminds and rewards patients for adherence to respiratory medication schedules

- Finity
- Wildflower Health
- Primrose Health
- Pact
- Audax Health
- Cog Cubed
- Akili
- Synandus
- Atari Fit
- Fitocracy
- FitRPG
- HabitRPG
- Strava
- Map My Fitness
- Nike+Running
- Didget
- Runno
- Health Month
- GymPact
- RunKeeper
- Zombies, Run!
- Charity Miles
- WalkJogRun
- EveryMove
- ShapeUp
- Re-Mission
- FeetApart
Gamification in Mainstream Media

**Wii Fit** & other exergames
- Using social interaction to boost general fitness

**Farmville, Minecraft** & other cooperative and social games

**Pact** & other financially incentivized games
- Created on behavioral economics principle that people are more motivated by NOT losing money than by simply earning it

Jane McGonigal’s **Super Better**
- SuperBetter Method = gamifying life

**Khan Academy** & other coding and skill growth games
Common Themes

- Most of the notable mainstream gamified health apps aren’t supported by widely recognized academic research
  - Ambiguity over FDA authority
- Little transparent information on gamified app design processes
- There are examples of serious games having positive health effects
- Gamification usually targeted at specific cause i.e. adherence
- Most compelling research has basis in cognitive science or behavioral theory
  - Bandura’s elements of cognitive learning theory
  - Gardner’s theory of multiple intelligences
- Further discussion
Setting the stage for successful interventions

- Executive buy-in
- Representative decision makers across clinical, reporting, administrative staff
- Clearly defined goals and clinical outcomes
- Clearly defined populations
- Defined metrics
- The right construction
Building an Interdisciplinary Team

- UX & Design
- Development
- Product Team
- Research & Analysis
- Clinical
Audience Drives Digital and Healthcare

No engagement elements are universally successful. Thoughtfully aligning incentives to audience breeds the best potential for sustained engagement, but that alignment varies by population.

Effective engagement is about

the right person, the right interaction, the right place at the right time
Audience Drives Digital and Healthcare

Digital access is growing:

- 36% of US households have 3 devices – computer, smartphone and tablet (PEW INTERNET 2015)
- 68% adults across all demographics own a smartphone. 52% adults making less than $30k per year own a smartphone (PEW INTERNET 2015)
- Teens from lower income households spend 2hr and 45min more each week with digital media than from higher income households (COMMON SENSE MEDIA 2015)
The future of population health?
Summary of Benefits Realized for Health IT

Satisfaction
“games have the ability to engage players in a way that provides them with a sense of purpose and identity”
American Psychological Association

Patient Engagement
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Treatment /Clinical
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http://www.himss.org/ValueSuite
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Summary of Benefits Realized for Health IT

Electronic Information/Data

Games & other mobile gamified experiences create a new pipeline of patient personal and clinical data
Questions?

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Bibliography


Bibliography


