

HIMSS[®]16

Conference & Exhibition

FEB 29 – MAR 4, 2016 | LAS VEGAS

TRANSFORMING
HEALTH THROUGH IT



Gamification: the Synergies in Health and Games

March 3rd, 2016 2:30-3:30PM

Amanda Havard
Charlie Schroder



Health ELT

 #HIMSS16

www.himssconference.org

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.

Conflict of Interest

Amanda Havard, M. Ed.

Has no real or apparent conflicts of interest to report.

Charlie Schroder

Has no real or apparent conflicts of interest to report.

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

HIMSS STEPS



Realizing Gamification as a path to better Health Information

#HIMSS16

Satisfaction

"games have the ability to engage players in a way that provides them with a sense of purpose and identity"

American Psychological Association

Treatment /Clinical

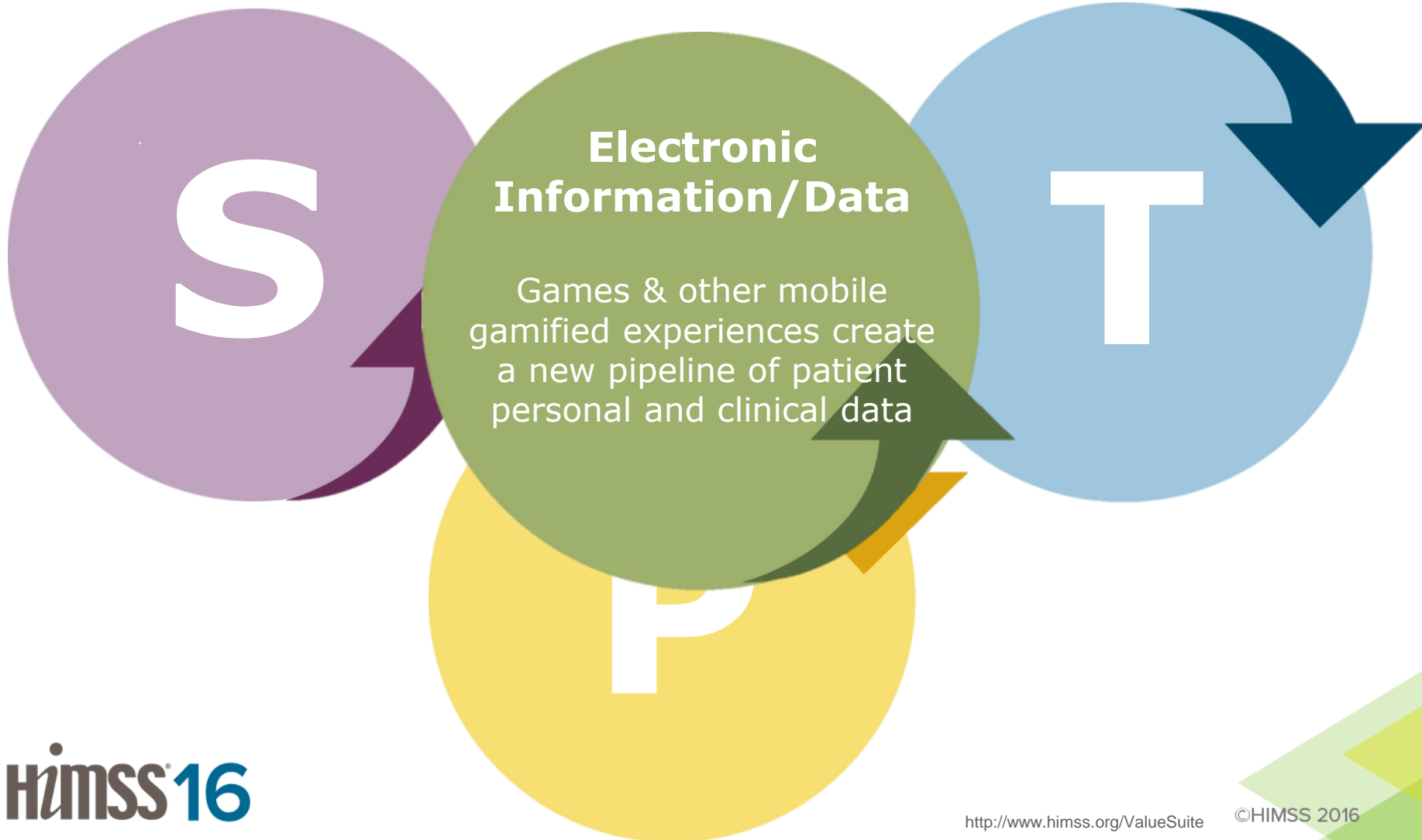
Stanford 1997 study of 60 diabetic children aged 8-16 found a 77% reduction in urgent care and emergency clinical visits

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

🐦 #HIMSS16



What Do They Have in Common?



The Issue of the Label

gameful elements game mechanics
exergames games fad
gamification pointsification
serious game gamified apps
learning 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



B



C



D



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?

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

B Nope. I don't track any progress or points.

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





32%

SHARE OF MOBILE DEVICE USAGE SPENT ON
GAMING ALONE – NEARLY TWICE THAT OF
FACEBOOK'S
FLURRY ANALYTICS 2014

80M

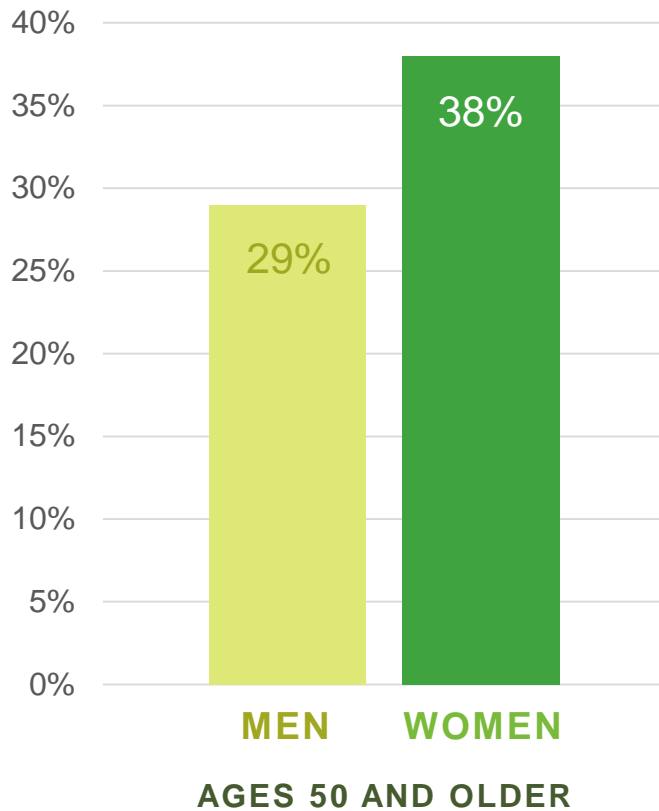
ADULTS WERE PLAYING
FARMVILLE AT ITS PEAK
APPDATA 2010

97%

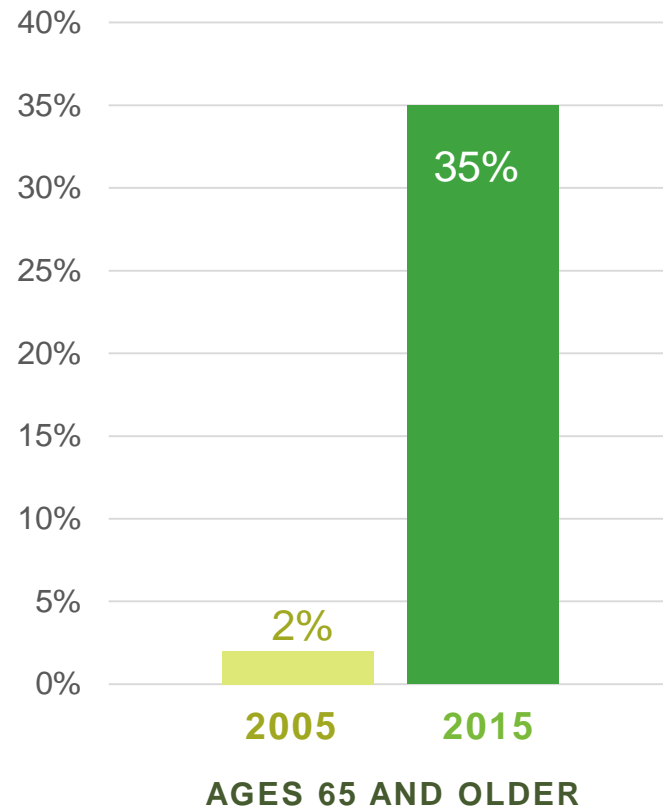
OF CHILDREN CURRENTLY PLAYING GAMES ON
CONSOLE, MOBILE, & COMPUTER
PEW INTERNET 2008

Not Just for Kids

VIDEO GAMES



SOCIAL MEDIA



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.”

– Jane McGonigal, game designer/author,
SuperBetter

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

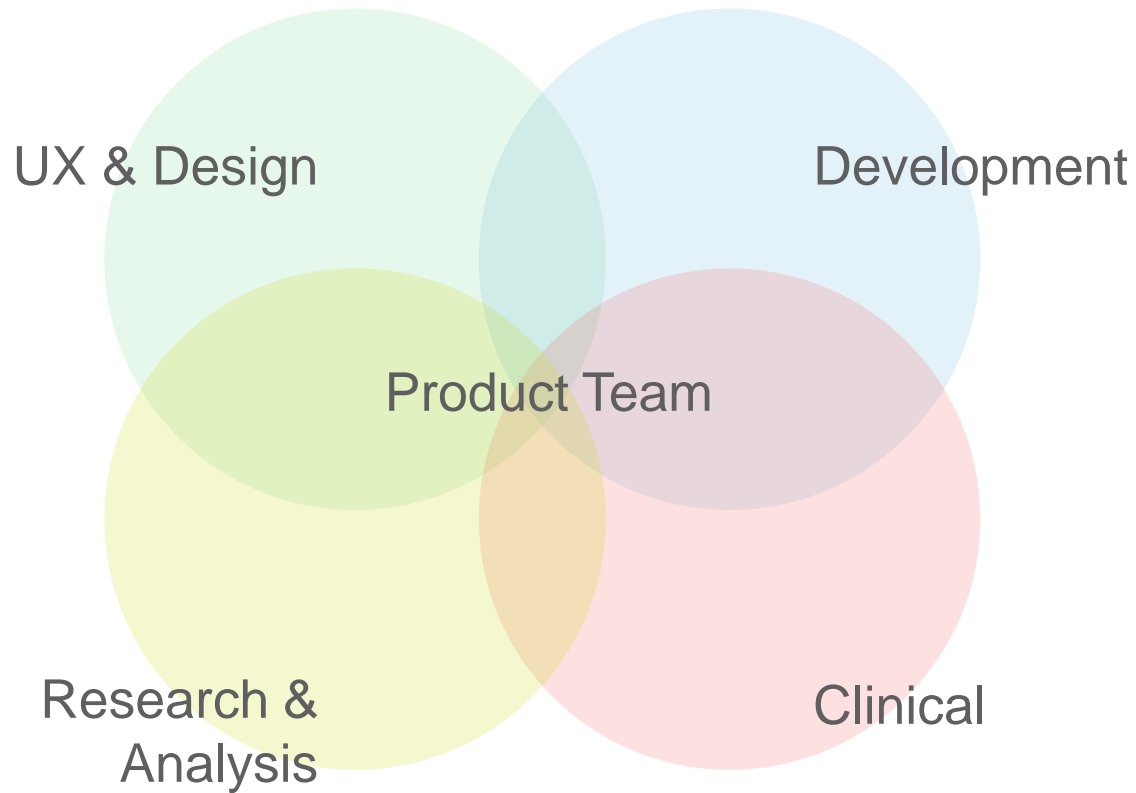
Common Themes

- ▶ 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



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

#HIMSS16

Satisfaction

"games have the ability to engage players in a way that provides them with a sense of purpose and identity"

American Psychological Association

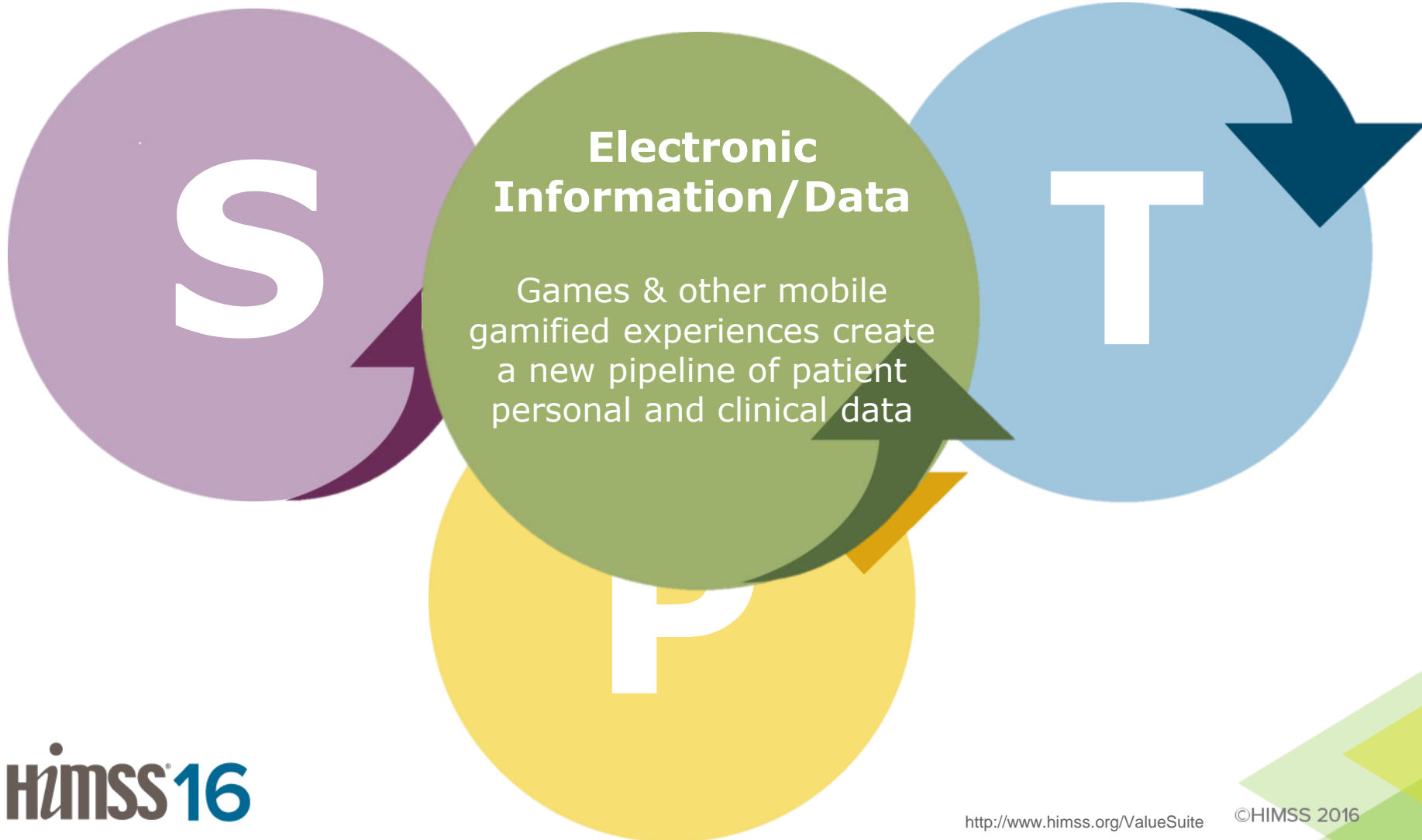
Treatment /Clinical

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."

Summary of Benefits Realized for Health IT



Questions?

Amanda Havard

amanda@healthelt.com

@AmandaHavard

<https://www.linkedin.com/in/amandahavard>

Charlie Schroder

charlie@charliecom.com

@mscharlies

<https://www.linkedin.com/in/charlie-schroder-01a619>



Health **ELT**

Bibliography

- Biro, Meghan. "5 Ways Leaders Win At Gamification Technology." Forbes. Forbes Magazine, 15 Sept. 2013. Web. Sept. 2015. <<http://www.forbes.com/sites/meghanbiro/2013/09/15/5-ways-leaders-win-at-gamification-technology/>>.
- Dennison, Laura, Leanne Morrison, Gemma Conway, and Lucy Yardley. Opportunities and Challenges for Smartphone Applications in Supporting Health Behavior Change: Qualitative Study. Journal of Medical Internet Research. Academic Unit of Psychology, University of Southampton, UK, Apr. 2013. Web. Mar. 2015. <<http://www.jmir.org/2013/4/e86/>>.
- Deterding, Sebastian, Dan Dixon, Rilla Khaled, and Lennart Nacke. "From Game Design Elements to Gamefulness: Defining "gamification"" From Game Design Elements to Gamefulness. Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments, Apr. 2012. Web. Feb. 2015. <<http://dl.acm.org/citation.cfm?id=2181040>>.
- Hamari, Juho, Jonna Koivisto, and Harri Sarsa. Does Gamification Work? - A Literature Review of Empirical Studies on Gamification. University of Tampere. 2014 47th Hawaii International Conference on System Science, Jan. 2014. Web. Oct. 2015. <http://people.uta.fi/~kljuham/2014-hamari_et_al-does_gamification_work.pdf>.
- King, Dominic, Felix Greaves, Christopher Exeter, and Ara Darzi. "'Gamification' Influencing Health Behaviors with Games." Editorial. Journal of the Royal Society of Medicine Mar. 2013: 76-78. JRSM. Web. Mar. 2013. <<http://jrs.sagepub.com/content/106/3/76.full>>.
- Klasnja, Predrag, and Wanda Pratt. "Healthcare in the Pocket: Mapping the Space of Mobile-phone Health Interventions." Journal of Biomedical Informatics 45.1 (2012): 184-98. National Institutes of Health. Web. Apr. 2015. <<http://www.ncbi.nlm.nih.gov/pubmed/21925288>>.

Bibliography

- Lister, Cameron, Joshua H. West, Ben Cannon, Tyler Sax, and David Brodegard. "Just a Fad? Gamification in Health and Fitness Apps." JMIR Serious Games 2.2 (2014): n. pag. JMIR Publications. Web. Apr. 2015. <<http://games.jmir.org/2014/2/e9/>>.
- McCallum, Simon. "Gamification and Serious Games for Personalized Health." PHealth 2012. Vol. 177. N.p.: IOS, 2012. 85-95. Print.
- McGonigal, Jane. SuperBetter: A Revolutionary Approach to Getting Stronger, Happier, Braver, and More Resilient--Powered by the Science of Games. N.p.: Penguin, 2015. Print.
- Moseman, Andrew. "Jane McGonigal: The Gaming Fix for the Real World - Science Not Fiction." Discover. Discover Magazine, 25 Jan. 2011. Web. Oct. 2015. <<http://blogs.discovermagazine.com/sciencenotfiction/2011/01/25/jane-mcgonigal-the-gaming-fix-for-the-real-world/#.VlnYkt-rRE4>>.
- Paredes, Pablo, Anuj Tewari, and John Canny. Design Principles for the Conceptualization of Games for Health Behavior Change. Berkeley Institute of Design, May 2013. Web. Mar. 2015. <http://bid.berkeley.edu/stressmanagement/wp-content/uploads/2013/12/paredes_tewari_canny_gamification_chi_2013_short.pdf>.
- Ryan, Marco, Andy Sleight, Kai Wee Soh, and Zed Li. "Why Gamification Is Serious Business | Accenture Outlook." Why Gamification Is Serious Business | Accenture Outlook. Accenture, 30 Jan. 2013. Web. Jan. 2015. <<https://www.accenture.com/us-en/insight-outlook-why-gamification-is-serious-business.aspx>>.
- Schoech, Dick, Javier F. Boyas, Beverly M. Black, and Nada Elias-Lambert. Gamification for Behavior Change: Lessons from Developing a Social, Multiuser, Web-Tablet Based Prevention Game for Youths. Taylor & Francis. Journal of Technology in Human Services, 5 Aug. 2013. Web. July 2015. <<http://www.tandfonline.com/doi/full/10.1080/15228835.2013.812512>>.
- Walz, Steffen P., and Sebastian Deterding. The Gameful World: Approaches, Issues, Applications. Cambridge, MA: MIT, 2015. Print.