Gamification
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Module 1: What is gamification?

1.1: Intro

- We’ll discuss how to use the techniques designers use in games can be applied to real-world problems in business, education, health, etc. - a technique called gamification.
- A basic definition to start with: Gamification is about learning from games - not just learning about the games themselves, but learning about what makes them successful, engaging and powerful, then applying those things to other situations that aren’t games.
  - Example: Samsung Nation uses game elements/mechanics to solve Samsung’s business problem: getting more people to visit its site and do things there - and eventually buy Samsung products.
    - Encourages users to interact with products, review products, watch videos, register purchases, etc.
    - Things like leaderboards, badges, points applied to a non-game situation

1.2: Course overview

Four things Prof. Werbach wants students to get out of this course:

- Understand what gamification is
  - Not obvious - it’s a new and often misunderstood concept.
- Understand why it might be valuable
  - Key word is might - gamification is a powerful tool, but maintain some level of skepticism - it’s not right for every problem
- Understand how to do it effectively
  - You need to understand the different techniques, the components, and the pros and cons of different forms of gamification to know how to do the right thing called for in a situation.
- Understand some specific concrete applications
  - You'll see these throughout the course - both in for-profit commercial contexts and non-profit social impact contexts.

This is a business class, not a technical or design workshop.

- Some of those concepts will be discussed, but there are no detailed prerequisites involved.

Course structure/assessment:
12 units of video lectures spread over 10 weeks. (Previous offerings were six weeks long, so you may encounter references to that span in videos that haven’t been updated.)

Embedded quizzes in videos are not graded.

Certificates based on:
- Multiple-choice homework: 35%
- Peer-graded written projects: 35% (5+10+15)
- Final exam: 30%

The class itself is not “gamified”
- One thing we'll learn is that it’s not necessarily simple or easy, and not always the right solution.
- Did not feel it could be fully implemented in a way that would improve the learning experience, given the time and structural constraints of the course.
- This does not mean gamification CAN’T be used in education - lots of K-12 and college teachers are using it to improve the quality of their classes.
- That said … there may still be some fun stuff in store. Keep an eye on the bookshelves behind Prof. Werbach - you might see some changes. Maybe a message?

How is this course different?
- MOOCs are still fairly new as a method of teaching/learning.
- Gamification is a fairly new concept - though it draws on some older concepts in psychology, management, etc. The phrase itself is only a couple years old, and doesn’t have a universally understood definition.
- This is a new course. Though Werbach’s taught on the subject in person at Wharton, he rebuilt the course to take advantage of some of the unique features of online learning.
- This course is about practical knowledge, whereas many online courses focus more on understanding concepts.

For the Win (by Werbach & Dan Hunter) is not required reading, but may be of interest if you’d like to learn more. It’s laid out in much the same fashion as the course.

1.3: Definition of gamification
Not one universally accepted definition, but this one covers most of the major components generally discussed: Gamification is the use of game elements and game design techniques in non-game contexts.

Some examples
- Nike Plus: Shoe company sought to encourage people to run more
  - Developed in-shoe device with accelerometer to track number of steps, how far/fast you’ve run; data can be transmitted wirelessly to phone or computer and aggregated
  - Set of applications built around it to make running more “gamelike” - tells you things like how far you ran, your fastest & longest runs, comparison to earlier times
Can also set goals/challenges - if you achieve them, you get a “trophy” or “medal”
Also includes social features - you can compete with or encourage friends
Takes experience of running, makes it feel more like engaging in a game - game structures make it richer, more rewarding

“Zombies Run”: smartphone app that’s also focused on getting people to run more
- You’re not just running with your phone, but being chased by zombies - theme presented through audio, map; there are also power-ups and social features
- Subtly adds another dimension to the game - more immersive gamelike experience.

Unpacking the three elements
Game elements - the “toolbox” of design patterns you have to work with
- “Empires and Allies” - casual Facebook game by Zynga
  - graphical interface - you don’t have to play to see that it’s a game
  - points system (way of keeping score)
  - leveling up, collecting resources, quests, missions, avatars, social features
  - There’s more to the game than these, but they are elements we could pull out and reuse.
- KEAS - service encourages companies’ employees to make healthier choices; started by Adam Bosworth (formerly of Microsoft, BDA Systems, Google Health)
  - Groups formed within a company; series of challenges; self-reporting on activities.
  - Points, levels presented in a familiar interface
  - Also quests, social, avatars, rewards, badges

Game design techniques
- There’s more to games than just elements slapped together
  - Designed systematically, thoughtfully, artistically to be fun.
  - A lot of engineering/tech involved, but also an artistic, experiential side that requires thinking about problems in a certain way, taking an approach that uses both common and game-specific concepts.
- Think like a game designer
  - Not just a set of practices, but a way to approach challenges

Non-game contexts
- Anything other than the game for its own sake
- Rationale for the experience is an objective outside the game.

1.4: Why study gamification?
Gamification is an emerging business practice.
- Lots of examples from variety of companies, ranging from small startups to very large, established, admired companies.
- Growth and influence of videogames in how things are done at/around workplace
- Games are powerful things.
  - Easy to get absorbed in
  - Important question: What is it about games that makes them so engaging?
- Gamification teaches us lessons from other areas as well - such as psychology, design, strategy and technology.
- Gamification is not that easy or obvious.
  - Doing it well, ethically, and in a way that fits with your business objectives requires thought, perspective from a broader context.

1.5: History of gamification
New as a business concept, but its roots go way back:
- 1912: Cracker Jack starts putting a toy surprise in every box
- 1980: First use of the word “gamification” - game designer/researcher Richard Bartle joined the MUD1 project, a text-based multi-user dungeon (essentially, the world’s first MMO game - precursor to things like Second Life, WoW)
  - His role was to “gamify” a collaboration project - he jokes that the term then meant taking something that wasn’t a game and making it into a game. These days, it involves breaking a game into constituent elements - taking an actual game and turning into something not a game.
- 1980-present: education scholars’ research on video games and learning
  - Tom Malone (early 1980s) - showed kids could learn from video games
  - Others have done follow-up work, including James Paul Gee - wrote a number of books about how even commercial video games encode powerful knowledge creation/learning mechanisms
- 2002-present: “Serious Games” movement
  - Serious Games Initiative - founded in 2002 by Ben Sawyer & David Rejecsk, brought together private sector, academia, military that were using games for training/simulation
  - “Serious games” aren’t quite what we have in mind in this course - they are full-blown games built for a specific purpose.
  - “Games for Change” - related movement focused on using games for social impact - for example, a “Peace Maker” game that lets you “play” as a side in the Arab-Israeli conflict to learn about its complexities.
  - Games are great for teaching systems thinking - how your actions fit into part of a complex, larger whole
- 2003 - First use of “gamification” in something like its current sense - British developer/designer Nick Pelling created Conundra consultancy to promote gamification of consumer electronics products. It didn’t last long, but it was indication of game mechanics/concepts applied in these kind of situations
- 2007: The company Bunchball (founded 2005) launched the first modern gamification platform - incorporated points, leaderboards, etc. for engagement.
Followed by rivals such as Badgeville, Bigdoor, Gigya
Also specialized companies such as KEAS, Practically Green, Rypple (Salesforce) for specific areas

- 2010: Gamification took off as community reached critical mass & agreed on the term; several presentations crystallized the idea.
  - Notably one by developer and Carnegie Mellon instructor Jesse Schell of Schell Games - spoke at DICE conference and presentation went viral
    ■ Toothbrush gives you points for brushing today, brushing every day this week, brushing as long as you’re supposed to. Who cares? A toothpaste company - the more you brush, the more toothpaste you use.
    ■ Your box of cornflakes has a web game on the back of the box you can play while you eat - you get points for eating cornflakes, can see which of your friends ate cornflakes/played the game, and compare scores.
    ■ You take the bus - the government gives out bonus points to users of public transit that can be used for tax incentives.
    ■ You recall this dream you had about your mom dancing with a Pepsi can, then remember it’s the REMtertainment system - puts little ads in to influence dreams. Can fill out a survey; if those little pictures came through, extra points.
  - ARG designer Jane McGonigal’s *Reality Is Broken* and a TED talk she gave on how games could solve major human problems. (She dislikes the term “gamification” and worries it trivializes the possibilities.)

- Today (2011): Gamification starting to mature - many conferences, companies, market research emerging. Industry has reached a point where it is “real” and “significant.”

1.6: Examples and categories

Three main areas in which gamification adds value:
- **External contexts** - gamification for a company’s customers/potential customers
  - marketing
  - sales
  - customer engagement
- **Internal contexts** - gamification for people within a company, typically employees
  - HR
  - productivity enhancement
  - crowdsourcing - reaching out to people to help you accomplish a task
    - This could involve:
      - breaking it up into smaller pieces given to each person.
      - putting out a challenge to anyone who wants to respond.
    - this is “internal” in the sense of within a community - not a company
- **Behavior change** - situations where someone wants to do something (or appreciates the value of doing it) but can’t get over the hump. Often used in social impact contexts.
  - health and wellness
Now, let’s look at some examples:

- **External: Club Psych**
  - Business problem: The USA Network wanted to drive more engagement from viewers of the show *Psych*.
  - A complement to the main site for the show
  - Activities/challenges can be done to earn points (to be used on rewards and ranking on a leaderboard) and badges
  - Non-generic implementation - elements are keyed to motifs from the show (example: pineapple badge)
  - Results:
    - 50% increase in overall traffic to USA Network site
    - 50% increase in online merch sales
    - 130% increase in *Psych*/Club Psych pageviews
    - 130,000 show-related Facebook shares (in challenges), reaching 40 million users
    - note that TV audience for *Psych* is only ~4.5 million

- **Internal: Windows 7 Language Quality Game**
  - Business problem: Microsoft puts out software to millions of people in hundreds of countries, dozens of languages. How can it ensure ALL its localizations are tested?
  - Test group, led by Ross Smith, developed game deployed to Microsoft employees who’d volunteered to track bugs.
  - Participants are presented a dialog box in their language alongside two buttons - “Looks good” and “Something wrong” (the latter to be used for things like odd phrases)
  - Presented as not just a way to help Microsoft, but a way to compete against other offices - via a leaderboard of bugs tracked.
  - Putting this mind-numbing task into a game-like framework had significant results:
    - 4,500 participants reviewed over 500,000 dialog boxes.
    - 6,700 bugs reported, resulting in hundreds of significant localization fixes.

- **Behavior change: “Speed Camera Lottery”**
  - Business problem: How do we get people to avoid speeding?
    - Officers with radar guns work, but can’t be deployed everywhere, and people only slow down at that point.
    - Radar “Your Speed” signs display an oncoming vehicle’s speed as it approaches. The real-time feedback creates a behavior loop - seeing that info outside the vehicle (vs. on speedometer) often gets driver to slow down
The winner of Volkswagen’s Fun Theory contest devised the Speed Camera Lottery:

- Monitoring device tells people their speed, but also includes camera to take picture of license plate.
- If you’re not speeding when you pass the device, you get one “entry” into a lottery. A portion of fines collected for speeding is set aside for jackpot.
- VW got the city of Stockholm to actually try this for 3 days - the average speed decreased from 32 to 25 kmph

What do we learn from these examples?
- Gamification can motivate
- It has applications in many domains
- It encompasses many techniques

Module 2: Games

2.1: Gamification in context

Gamification is NOT:
- Making everything a game (or a immersive 3-D virtual world)
- Any games in the workplace (like playing Solitaire at work)
- Any use of games in business (like McDonald's Monopoly game)
- Simulations (though they may constitute serious games)
- Just for marketing or customer engagement
- Just PBLs (points, badges, leaderboards)
- Game theory

Gamification IS:
- Listening to what games can teach us
- Learning from game design (and other fields)
- Appreciating fun

A framework (based on work of Sebastian Deterding et al) →

2.2: What is a game?

To understand how to tap into games’ power, we need to understand what they are.
- Ludwig Wittgenstein - in his Philosophical Investigations, used games as an example of the impossibility of using language to define things.
  - Argued that it’s impossible to define a boundary for what is/isn’t a game.
  - Consider that no one thing ties together hopscotch, water polo, Call of Duty.
Focused more on the indeterminacy of language, nature of thought than games specifically, but other philosophers took him up on the challenge of defining games.

- Bernard Suits - Any game can be defined based on three things:
  - Pre-lusory goal - an objective of the game
    - “lusory” - derived from *lusus*, Latin for “game”
  - Constitutive rules - a set of rules/limitations that make the activity into a game
    - In checkers, pieces can only move in a certain way.
  - Lusory attitude - the player voluntarily follows the rules
    - If I care about the game - if it means something to me - I’m not going to “cheat.”
  - Another way Suits put it: A game is voluntarily overcoming unnecessary obstacles.
- Johan Huizinga - In *Homo Ludus*, argues that games and play are central to what makes us human.
  - “Magic circle” - a physical or virtual boundary dividing the game world from the real world. Within this space, game rules matter, not the rules of the real world.

### 2.3: Games and play
Knowing the distinction between games and play is important for knowing how to successfully do gamification.

- Roger Caillois (French intellectual) - described the concepts of *paidia* (play; from the Greek for “child”) and *lusus* (games) as being polar opposites.

- What’s the difference?
  - Play
    - Some thoughts on what play is:
      - “aimless expenditure of exuberant energy” - Friedrich Schiller (philosopher)
      - “done spontaneously and for its own sake” - George Santayana
      - something that “creates a zone of proximal development of the child. In play a child always behaves beyond his average age.” - Lev Vygotsky (education theorist)
        - “zone of proximal development” - the level a child can get to with a great teacher
      - “free movement within a more rigid structure” - Katie Salen and Eric Zimmerman (game designers & authors of influential book *The Rules of Play*).
    - In essence: Play is freedom to do whatever you want, within a certain structure and limits. Think of Huizinga’s “magic circle.”
    - Relevant to gamification because the ideas of exuberant energy and doing something for its own sake is something are really powerful and get to the heart of fun, engagement and other things we hope to create for players
Some thoughts on what a game is:
- “a closed, formal system that engages players in a structured conflict and resolves in an unequal outcome.” - Tracy Fullerton, Chris Swain and Stephen Hoffman (authors of major game design textbook)
- “a series of meaningful choices” - Sid Meier (game developer)
- a “domain of contrived contingency that generates interpretable outcomes” - Thomas Mallaby (anthropologist studying games/virtual worlds)
- “a problem-solving activity approached with a playful attitude” - Jesse Schell

Formal, structured system that produces outcomes
- actions you take have meaningful results
- involves contingency - randomness, chance
- So a game is a branching path with a set of choices, each of which leads to various outcomes. Each choice might lead to other choices, and so on and so forth. Whatever we do reaches some result. There’s a designated start and a designated finish, reached through a path you choose. The structure put in place gives us the chance to make those choices, feel that freedom, but in an environment where those choices have meaning.

A few takeaways for gamification
- Voluntariness - especially for play, but also in games; user has to feel their choices are meaningful
  - James P. Carse’s *Finite and Infinite Games* - whoever MUST play cannot play. If you’re forced to do something, it’s not a game.
- Learning or problem solving - a game must involve these; if it doesn’t, it is actually play.
  - Games must involve a challenge - a problem to be solved
- Game design is a balance of structure and exploration
  - Too much structure, and the game isn’t fun because possibilities are too limited
  - Too much exploration, and the game has no purpose - it’s just wandering around, which isn’t as much fun for the player and doesn’t achieve the objectives of the game designer

### 2.4: Video games
- Gamification draws from basic principles common to all games, but it also draws specifically from video games.
  - Most examples we’ll think about are online digital systems
  - The size, scale and pervasiveness of video games are why the motifs of gamification are so familiar
**Pong** (ca. 1972) was the first successful mass-market video game.

- Seems primitive by today’s standards, but it was revolutionary then because it allowed people to interact with what’s on the screen. For the first time, gave people the power to interact with a digital game at home.

**Now a 40-year-old industry, video games are substantial as a business phenomenon.**

- Pervasive in popular culture, especially among the young and in the West, though influence is seen in other parts of the world too.
- They’ve developed a very sophisticated language of how to express themselves and entertain/engage people
- Example: *CityVille* (casual Facebook game by Zynga) - clearly a game, graphically simple. Within 41 days of its 2011 launch, it 100 million registered users
- Not only a big industry, but evolving
  - Industry’s revenues are $66 billion worldwide - double Hollywood box office revenues
  - Online sales were set to surpass retail in 2013 as biggest segment of games marketplace
    - China is now the world’s largest online gaming market.
  - Virtual goods (in-game purchases) are a $7.3 billion business globally (over $2 billion in U.S.)
  - Mobile gaming is rapidly growing: 2012 survey found 44% of U.S. and U.K. adults had played a mobile game in the last month.
- “The mass medium of the 21st century”
  - 2012 stats:
    - 250 million monthly unique users for Zynga games, 100 million for Angry Birds, 35 million for Xbox Live, 10 million for World of Warcraft (which is a paid game)
    - Time spent: 120 billion minutes/month on Xbox Live, 60 billion on Zynga games, 50 billion on WoW, 12 billion on Angry Birds
    - Note that number of users doesn’t necessarily correlate with amount of time spent.
    - Not the same as having the TV on for 7 hours a day, but this is interactive time.
  - We’re all gamers now:
    - 97% of 12- to 17-year-olds play video games
    - The average game player is 30, and 37% are older than 35
    - 47% of all game players are women
      - There are some skewing effects: Women tend to play more social casual games; men play more FPS type games.
    - And games are not just shooting stuff or blowing stuff up - a variety of different categories of games have emerged:
      - **Sandbox** (eg *Minecraft*)
• Minecraft written by a single dev, has rudimentary graphics, no central purpose - you’re given a world and then must scrounge up raw materials to build things.

- Building (eg Civilization, SimCity) - create and build things, figure out how your actions create results as they interact with each other and other parts of system
  • Social building (eg The Sims, FarmVille) - construction element but also collaboration and interaction with other players
- Massively multiplayer online games (MMOGs) (eg World of Warcraft)
  • Some measure of running around and killing things, but also guilds, communities, auction houses, leveling up skills, crafting, exploring worlds
- Puzzle (eg Portal, Angry Birds)
- These are not outliers - in many cases, these have been the most successful game releases in recent years.

2.5: Just a game?
There’s still the public perception that games are trivial, insignificant, not serious, not worthy of thought when we’re talking about business.

• Real-world building blocks
  ○ E-business 2.0
    • analytics - game dashboards pulling together rich data about users and activities
      • social game companies like Zynga constantly using A-B testing, collecting data on user interactions to shape those experiences
    • cloud - growth of massive data centers that do central storing and processing of data to take advantage of efficiencies, large-scale processing power
      • games delivered across a network, instead of DVD or CD
  ○ Social networks and media
    • Techniques of leveraging social graph, getting insights about people and using them to make experiences richer are deeply embedded in video games industry
  ○ Loyalty programs - things like frequent-flier miles, credit card rewards
    • 2 billion reward program memberships in U.S.; $50B in rewards outstanding
    • Part of the value is that not all these rewards are redeemed
    • Virtually every travel company & financial services company uses some kind of program
    • Loyalty programs don’t go as far as they could - don’t leverage fun, progression, etc. Also have some problems - manipulative, not necessarily serving user’s best interest
Management and marketing research theories - organizational behavior, work design, customer segmentation, customer analytics

- Games get real
  - Games increasingly real by moving the real world into the game
    - America’s Army - realistic 3-D FPS produced as military recruiting tool
      - shows what being in the Army entails
      - gets people familiar with and excited about process of being in Army
      - weeding out those who aren’t right for the Army because they don’t understand what it entails
      - said to be most successful recruiting tool in Army’s history
  - Games also increasingly coming into the real world
    - Multibillion-dollar grey-market “gold farming” industry - companies in places like China employ a bunch of people to play, say, WoW for 8-12 hours a day to acquire gold and other goods that can be sold to people in the West for real money

- Games were always real - a lot of real-world phenomena are already gamelike, corresponding to game concepts:
  - Monthly sales competition = challenge
  - Frequent-flier program tiers = levels
  - Weight Watchers group = team
  - Free coffee after 10 Starbucks purchases = reward
  - AmEx platinum card = badge (a representation of importance)

2.6: Ethan Mollick interview with Professor Werbach

Mollick, of Wharton’s management department, has done some interesting work with games in business

- started with interest in games, that brought me into the early days of “serious games” or “gamification.” worked on game design for military (cultural understanding), education (financial literacy). wrote book on games in business
- How has market/our understanding changed since Changing the Game (2009) came out?
  - For starters, the term “gamification” came out after the book
  - Massive takeoff of the idea, but still difficulty in getting into mainstream
  - Still a ways to go in establishing best practices, evidence-based approaches, etc.
- Eternally shifting definitions depending on whom you're talking to - “gamification” can mean taking game ideas and applying them to real life, or using games for nongame purposes.
- What have you found most effective in getting across gamification’s potential to those who may not see it?
  - Scale of gaming helps - amount of time spent on games every day is equivalent to what was taken to build the Panama Canal
Link gamification to what we know about psychology, sociology - behavioral economics, social psychology

What’s mostly missing at this point?
- Mistakes tend to get buried - only success stories and vague details are shared, and it’s hard to build on those.
- Common toolkits, sets of techniques
- More basic research

What do you bring to table as a management scholar?
- Study of games not that new - scholars have studied games at work since 1920s. Evidence they were used to help motivate workers building the Pyramids. Consider context of what motivates people to act.
- Lots of factors in play - competition, compensation, gender, social status - understanding how they can be used for good or bad purposes.

What’s new about gamification?
- Separates out the work someone does from the work they think they’re doing - makes it appear to be more interesting without changing the underlying factors.
  - Often compensation = your job is terrible; let’s pay you more to do it better, or let’s make it less terrible, or let’s give you more control.
  - Gamification interesting because you’re labeling images online but think you’re actually competing with other people. Could be diagnosing code but thinking your ID’ing species on Mars
- Also leverages the art of games - graphics, leaderboards, avatars, etc.

What are the open research questions we need to explore?
- Understanding or general belief in the gamification world that games are good - people like them. But most people don’t like games, and even those who do don’t like every kind of game. Trying to understand who you’re motivating/demotivating or turning off/on would be helpful
- Understanding which features matter
- Try to understand when this is moral and when it isn’t.
  - There’s something coercive about giving people virtual rewards vs. real ones - uplifting at best and exploitive at work.
  - Implications of distancing people from their job can be troubling.

Final words: An exciting time, though some of the initial hype has died down - now at the stage where we figure out how this works. Interesting chance to find what works and explore. I urge you to make sure you’re sharing, communicating - building a community.

Module 3: Game thinking

3.1: Why gamify?
So, why would you even think to make a site or process more gamelike? Let’s look at Dodgeball, one of the first successful smartphone apps:
● Developed by a group of grads from NYU’s interdisciplinary technology program who liked to hang around in bars
● Showed you a map of where you and your friends hang out
● Was picked up in places like NYC and SF; later bought by Google
● But it had a chicken-and-egg problem: If lots of your friends are on Dodgeball, and there are lots of check-ins on the app, there’s incentive for you to check-in as well. But if the map is blank, why bother checking in? How does the app get to critical mass?
● Challenges Dodgeball had:
  ○ Engagement gap - needed to get more people to engage with, use service
  ○ Lack of variety - your choices were check in, don’t check in, see where your friends are checking in - doesn’t tend to engage people as much unless there’s a direct result.
  ○ No real progression - checking in was the same, whether 1st time or 100th
  ○ Little social interaction
  ○ Habit - if user has to think about pulling out the phone to check in, he’s unlikely to do it as much - so you want to make it automatic.
● After leaving Google, one of the founders, Dennis Crowley, created Foursquare - a new company with a similar basic structure, but with game and social elements
  ○ “Mayorships” - special status given to whoever’s checked in at a venue the most
    ■ Could easily notify friends via Twitter/Facebook that you’re the mayor, who you displaced - created friendly competition that made checking in fun, rewarding
    ■ Super Mayor badge if you’re mayor of 10 places at once
    ■ Some venues offered incentives to their Mayors
  ○ Badges - a critical element of Foursquare
    ■ Allowed creation of a much richer service
    ■ Awarded for things like
      ● Checking in at certain types of places (coffee shops, museums, airports, Apple Stores, Starbucks locations)
      ● Checking in a certain number of times (Gym Rat badge for checking in at a gym 10 times in 30 days; also 9 to 5 for office check-ins)
      ● Check-ins at specific events (such as SXSW) for limited badges
        ■ Later implemented “expertise badges” that could be leveled up - visit 5 coffee shops to earn the badge, 5 more to get to Level 2, etc.
        ■ Prominently displayed on user page
      ○ Variety of data displayed on user page - number of check-ins, days out, things done
      ○ “Points” that didn’t really mean anything but let you compete with friends
● Did it work? As of this 2011 video, before Foursquare’s ridiculously awful pivot, it:
  ○ Had over 20 million users
  ○ Raised over $70 million in venture capital, valuing company over $600 million
Successfully overcome challenges from major companies such as Facebook in the social location marketplace.

To be fair, correlation does not = causation, and this doesn’t tell us that game mechanics were cause of Foursquare’s success. But it’s worth thinking about how the gamification tied back to the challenges it faced.

### 3.2: Thinking like a game designer

- In *The Art of Game Design: A Book of Lenses*, Jesse Schell urges anyone interested in going into game design to utter five words: “I am a game designer.”
  
  - In other words: resolving to look at your problem in the same way as a game designer - whatever your goal is, *think of it as a game*.
  
  - Reminds us that game design is a state of mind, and something we’ve all already done without realizing it’s a skill that can be cultivated.

- Two caveats:
  
  - Thinking like a game designer is different from actually *being* one.
    
    - That requires a lot of technical, creative and other skills that aren’t always necessary to do gamification.
  
  - Thinking like a game designer is different from thinking like a *gamer*.
    
    - If you’re playing the game, you’re not thinking about its structures and frameworks - and probably don’t want to. But if you’re the designer, that’s what you’re focused on.

- Think of participants (customers, employees, community, target population) as *players*.
  
  - They’re the center of the game - its world revolves around them.
  
  - They need to feel a sense of autonomy/control
    
    - They can make choices by their own free will, and those choices have results that they can value.
  
  - Players *play*.
    
    - Play = free motion within a set of constraints.
  
  - As a designer, your goal is to:
    
    - get your players playing - by making an enticing, simple, smooth experience for someone to join in
    
    - keep them playing - by creating an experience that genuinely engages them for an extended period

### 3.3: Design rules

Some basic rules of good game design:

- **The player journey** - the conceptual path followed through the game. Not a random walk - should have a beginning, middle and end, ideally in some sort of progression.
  
  - **Onboarding** - getting the player into the game as quickly and easily as possible.
  
  - **Scaffolding** - how does game provide “training wheels” - make things easier to overcome complexity that would otherwise leave player stuck
  
  - **Pathways to mastery** - enable player to conquer challenges, achieve some real skill/accomplishment within the framework of the game
Example: First level of *Plants vs. Zombies* - what types of onboarding and scaffolding does it provide?

- Guides that tell you exactly what to do - pick up this seed packet, put it on the lawn, etc.
- Highlighting - flashing tells you where to click
- Feedback - tells you “good job” when you correctly do something
- Limited options - “dumbed down” to start: one lane of grass, one spot for plant
- Limited monsters - only one type
- Impossible to fail - the game starts out ridiculously easy, but doesn’t stay that way; if it did, it’d be boring after a couple levels.

- **Balance** - not too hard/easy, not too many/few choices, should let players compete rather than favoring one or the other.
  - Balance is needed at every stage - should be constant.
  - Example: *Monopoly*
    - Properties at a variety of price points: If Boardwalk cost twice as much, how would that change gameplay? It’d be a lot more fun for Boardwalk’s owner, but a lot less fun for everyone else.
    - Everyone gets $200 for passing “Go” - if money weren’t continuously injected into the game, players would run out.
      - Starting everyone out with 2x or 3x as much money would make the game too easy.
      - Like real economy, in a sense - want to avoid inflation or recession.

- **Create an experience**
  - Example: *Turntable.fm* - music listens sites are common, but this one used gamification features
    - Avatars in a “club” - including DJs selecting music and audience members
    - Audience members can rate songs as “awesome” or “lame,” with the consensus score visible.
    - You’re not just listening to music at home - you’re involved in an experience that makes the act of listening to music richer.
    - Turntable.fm shut down in 2013 to focus on other services. Does NOT mean gamification doesn’t work - just that that service didn’t work as a business.

### 3.4: Tapping the emotion

Games are engaging because they are fun.

- We use that word to represent what it is about games that makes us want to start/keep playing them
- “In every job that must be done, there is an element of fun. You find the fun, and snap! The job’s a game.” - Mary Poppins
Fun not limited to recreation/entertainment, but something we can enjoy at work or in all kinds of contexts

- What types of things might you find fun?
  - Winning
  - Problem-solving
  - Exploring
  - Chilling out
  - Teamwork
  - Recognition
  - Triumphing - similar to winning, but involves vanquishing an opponent
  - Collecting
  - Surprise
  - Imagination
  - Sharing/altruism
  - Role-playing
  - Customization
  - Goofing off, being silly

3.5: Anatomy of fun

- Nicole Lazzaro of XEO Design describes four keys to fun - these are not mutually exclusive:
  - Easy fun - about blowing off steam, chilling out, hanging with friends. Fun because it's light, casual, easy
  - Hard fun - challenges, problem-solving, mastery, completion, etc.
  - People fun - interacting with others, working with others on a team, socializing; requires other people
  - Serious fun - tied in to serious real objectives that have meaning

- Marc LeBlanc’s framework for conceptualizing games includes eight kinds of fun:
  - Sensation
  - Fantasy
  - Narrative
  - Challenge
  - Fellowship
  - Discovery
  - Expression
  - Submission (casual kind of fun - something as a pastime)

- Recommended further reading A Theory of Fun for Game Design by Raph Koster

- Some takeaways:
  - Fun can (and should) be designed - it doesn't “just happen”
  - Fun can be challenging - it isn’t always easy or a purely positive experience
  - Appeal to different kinds of fun - it’s a very nuanced concept and we should focus on as many types of fun as possible.
3.6: Finding the fun
Examples of how to gamify things that might not necessarily seem like great ideas:

- Volkswagen’s Fun Theory contest - encouraged submissions of ideas for using fun to change people’s behavior.
  - Speed camera lottery (previously discussed)
  - Piano stairs - encourages people at a subway station to skip the elevator and take the stairs to “play a tune”
  - World’s deepest trash can - put sensors into a trash can that played a sound that made it sound like you were throwing something into a cavern
- LinkedIn profile completeness bar
  - Wants to encourage users to fill in their profiles as completely as possible
    - Shows commitment to the site, and may make them more likely to purchase paid products down the road
    - Makes it easier for others to find you, and thus easier to network and get some of the benefits LinkedIn hopes you get
    - More data gives LinkedIn more to search and analyze
  - Added a simple display (took someone an hour to code) showing users how “complete” their profile is, with advice on how to fill it out further
  - A game? No - too simple and doesn’t have the kinds of rules and objectives one would expect. But it’s a little bit fun and game-like - and just enough to encourage people to respond
    - Feedback - tells you how far you’ve gotten
    - Progression - we’re talking not about adding data, but moving from the beginning toward the end
    - Completion - You know how close you are to the end - “just a little further.” We like completeness, finishing up a collection
  - When it was implemented, profile completeness went up 20%.

Module 4: Game elements

4.1: Breaking games down
Game elements are regular patterns used in games - tools you can reconfigure and use to make business practices more game-like.

- Consider tic-tac-toe through the lens of elements:
  - 9-position game board
  - Tokens (X and O)
  - Two players
  - Competitive (one person wins, one loses)
  - Turns
  - Includes “win” and “draw” states
  - No progression or scoring (actually a limitation)
• No one set of elements is always good or bad - they have to be understood in context of the entire game
• experiences → GAMES ← elements
  ○ the game and the experience are related but different things
  ○ the elements are the bits and pieces used to build up the game

4.2: The pyramid of gamification elements
Certain elements recur - most are derived from social games or other online games - and from them we can come up with a basic framework. Lower levels tend to implement one or more higher-level concepts.

• **Dynamics** - the big-picture aspects, “grammar.”
  An implicit structure that includes rules along with more conceptual kinds of elements.
  ○ Constraints - limiting users’ freedom creates meaningful choices, interesting problems
  ○ Emotions - games have a broad emotional palette that’s somewhat limited in gamification because evoking strong emotions (such as abject sadness) is not valued in real-world situations. But emotional levers can still be pulled to create a richer experience.
  ○ Narrative - pulls together the pieces of the game/system into a cohesive whole.
    • Can be explicit (as in a game’s storyline) or implicit.
    • Since gamification doesn’t necessarily have the rich aesthetic/experiential components to create a true narrative, it’s involves things like creating a consistent graphical interface, sense of flow, alluding to certain kinds of practices/story ideas in players’ heads
    • With no sense of narrative, you run the risk of having a random array of abstract stuff - badges, points, etc. divorced from any coherence/relevance.
  ○ Progression - giving the player a sense that they have an opportunity to improve, or at least move from where they started
  ○ Relationships - interactions with friends, opponents, teammates, etc.

• **Mechanics** - the processes that drive action forward; the “verbs.”
  ○ Challenges - objectives for the user to accomplish
  ○ Chance - element of “luck”; success not determined by user activity alone
  ○ Competition
  ○ Cooperation
  ○ Feedback - users see how they’re doing in real time, driving them along
  ○ Resource acquisition - getting things to move game forward (resources, weapons, etc.)
  ○ Rewards
transactions - buying/selling/trading with players or NPCs
- turns
- win states - state which defines winning the game

**Components** - the specific instantiations of mechanics and dynamics; the "nouns"
- achievements - attaching a reward to a specific set of actions
- avatars - visual representation of player's character
- badges - specific visual representations of achievements and higher-level mechanics and dynamics
- boss fights - high-level challenges - really hard monsters, often at the end of a level, which you must defeat to move forward
- collections - bringing together, assembling certain pieces
- combat
- content unlocking - having to do something to gain access to new content
- gifting
- leaderboards - rankings based on score
- levels
- points
- quests - similar to achievements you have to achieve something within the structure of the game
- social graph - seeing and interacting with friends within the game
- teams
- virtual goods - items within the game that users are willing to pay for - through in-game currency, time, or even real-world money.

- surrounding the framework is the overall experience - the whole that is greater than the sum of its parts. This includes aesthetics, visuals, sound, and other aspects that tie the game together, make it feel real. All that is above and beyond the elements, and often important to gamification, but these things must be developed creatively.

- marc leblanc (of the 8 kinds of fun) also devised the influential **MDA framework** for understanding games (mechanics, dynamics, aesthetics) - similar in some ways to this one, though some terms are used differently.

4.3: The PBL triad
Some game elements are more common and influential in shaping typical examples of gamification than others:

**Points**
- offer a way of keeping score, showing players' positions relative to each other
- determine win states
- connect to rewards
- provide feedback - you know how you're doing in real time
- display progress
- provide data for the game designer - how many you've earned, how you've earned them, how quickly, etc. - that can be used to enhance the game/system
- Fungible - a point is a point is a point - a “universal currency” that allows activities to be compared to each other

**Badges**
- Representations of achievement - visual indication you’ve reached a certain level/accomplished series of objectives
- Flexibility - an open canvas for game designer to reward/commemorate anything he wants. Very powerful, because gamified system wants to reward certain behavior.
- Convey style - design element can represent and communicate the system’s vibe, overall aesthetic
- Signals importance of something this system wants to mark as significant
- Credentials - tells anyone looking “here’s what I’ve done.”
- Collections - including a “trophy case” for badges on a player profile is often seen by players as an invitation to fill it.
- Social display (status symbols)

There are a variety of badging initiatives out there, notably Mozilla Foundation’s [Open Badges framework](https://openbadges.org/)
  - Taking on informal learning (such as online courses or other skill-building activities).
  - Allows any kind of badge issuer to issue badges to the learner, who has a secure means of displaying them via a “backpack” that can be shared

**Leaderboards**
- Ranking (feedback on competition)
- Danger of demoralizing players by displaying scores so much higher than theirs that it makes them feel less good about what they just accomplished, and abandoning it as “not fun anymore.”
- Personalized leaderboards have emerged in many social games as a result - you see your score in the middle of the leaderboard and scores in close proximity to yours.
  - Also the friend-relative variant - the only “rivals” with scores displayed are people you know from your social graph
- But be careful. In many contexts, studies have shown leaderboards demotivate users if it’s a zero-sum game that’s all about competition.

- Points, badges and leaderboards are fundamentally attractive because they serve a variety of functions.
- When we challenged MBA students to create novel implementations of gamification, virtually every one used PBLs as at least one of the core elements.
- Gamification design should not begin and end with just PBLs, or it can easily become boring and shallow.
4.4: Limitations of elements

Game elements are only a starting point for gamification - they only give you part of what you need to know and do. Throwing elements at a business problem without putting in the work is not successful gamification.

- A frequent flier program COULD toss in things like points, rewards, levels, status, progress bars, badges, leaderboards, etc. … but it wouldn’t work
  - Assumes people love love LOVE their frequent flier mile program and spend a lot of time “playing” it.
- The elements are not the game.
  - What makes the elements successful is the way they’re tied together.
- Not all rewards are fun; not all fun is rewarding.
  - Rewards can actually demotivate - saying you’ll get a badge or maybe a cash reward makes people less likely to participate or to try their best.
  - Should not be the only thing the designer should focus on
- Risk of cookie-cutter design - if your site uses points/badges/leaderboards, it’s likely to look somewhat like a lot of other sites using PBL.
  - Users may not necessarily differentiate your site from others
  - Users may get burnt out - it was fun the first time, but I have to do that again?
- Example: Google News Badges
  - Summer 2011 - Google News adds gamification feature - you get topic badges based on the articles you read on Google News
    ■ You can track what you’re reading
    ■ You can show people what you’re reading
    ■ You can show things to your friends
    ■ Gives you data on how the number of articles you read on a subject compares with other people
  - But none of these reasons are terribly compelling.
  - No actual reward or achievement from these badges - I just happened to read a bunch of stuff on the same topic.
  - Google ditched this idea a little over a year later. What went wrong?
    ■ Comes across as trying out the gamification “trend” - dangerous because it leads to putting a bunch of things into sites that have no direct connection to driving real business value.
- What about:
  - Meaningful choices? Deciding to click something 1 time instead of 100 or watch a video instead of doing something else doesn’t feel weighty or engage user
  - Puzzles? Saying you have to do something doesn’t make it a puzzle - it has to require some kind of problem-solving or creativity to make it feel like a challenge.
  - Mastery? You can get a bunch of badges and points, but is there a way to become a true expert at something. A staircase for its own sake may attract some people but won’t be as rich and engaging.
Community?
Different kinds of users? If there’s just one kind of structure, is it really going to pull in people with different motivations and/or conceptions of “fun”?

4.5: Bing Gordon interview
Our first guest speaker is a major figure in video games industry & advocate for gamification - was chief creative officer at Electronic Arts; now a partner at Kleiner Perkins Caufield & Byers, a leading Silicon Valley venture capital firm.

- Why should every CEO understand gamification?
  - Seeing life as games, being used to the interface, is the new normal for everyone born after 1971. If this applies to your employees or customers, you need to understand how they think and the lens through which they see the world.
    - year appears to be reference to the first commercial video game; more generally, being exposed to games while growing up.
  - Many game design principles underscore and improve all kinds of communication and motivation theory - this can help CEOs inspire and communicate with customers and employees.
  - One of the principles of gamification is instant, tangible feedback - we all remember times when we wished we got that from teachers, spouses, bosses, etc. Games are great at this.

- Where should someone go to figure out what those rules are, how they would apply to this situation?
  - No real textbooks - there’s books on game making but not really on game principles.
  - Golf course designer Robert Trent Jones had some good design principles, such as: A golf course should look hard and play easy.
  - Could check out blogs by interaction designers.
  - I think the easiest way is to play a great game. Every Fortune 500 company should have a video game room in its executive suite, maybe someone at a high level in Wow or Battlefield or Xbox Live.
    - The things working in the best games are the best principles.
    - Game-makers tend to borrow one another’s breakthroughs.
    - In WoW we know how hard it is to get people to cooperate - overlapping buffs in the party system is the best example of an incentive system for working together with strangers. So good that the game’s culture has fostered pick-up groups of players who play together but don’t even have to chat if they don’t want to - everyone knows the rules.

- What things do startups (& civilians) consistently misunderstand about gamification?
  - They think the primary motivation of games is winning competition - actually, cooperation trumps cooperation 3-to-1.
  - Second mistake is putting too much emphasis on a high-score list (leaderboard) when it turns out such rankings demotive most people.
There’s a principle in gamification - “you only get motivated when you’re 90% of the way to success.” If there’s a ring of 1,000 and you’re not in the top 10% you tend to tune out.

You want to increase engagement, not just increase opportunities for trash talk.

- How do you respond to arguments that what’s being done by Zynga and other social game companies is just a fad or cheap trick that will wear off?
  - The ups and downs of businesses are legendary. Principles of games - using numbers, mechanics to improve motivation - have gone on for a long time (example: grades as a gamification of school)
  - Janet Murray at Ga. Tech thinks of play as the great accelerator of human culture. It’s a fun way to apply communication theory, something humans have cared about since caveman/Adam and Eve days
    - Will Wright: You have to have great failures - kind of like Dante saying you have to have great villains.
  - Games are polarizing - some react poorly to extrinsic results. When I was growing up, people reacted poorly to numbers on the outside of consumer products - aside from baseball fans. Newspapers invented baseball stats to get people to buy their product. Today, kids are growing up with numbers on stuff like Pokemon, Neopets, The Sims - the latter is the first packaged game where more than half the user base was female. Numbers on the outside of products is the new normal - gaming Luddites don’t realize this.
    - Lot of pressure on the assembly-line education process perfected a century ago. “I tell kids the game industry was created by high-potential people who were bored with lectures.”

- If this becomes the new normal, where’s the room for differentiation or competitive advantage?
  - Nice thing about being in Silicon Valley is that innovations grow a whole market - not necessarily a loss.
  - We’ve seen that kids who’ve grown up digital believe the purpose of the world is to be the best version of yourself you can be, that life is not hierarchical.

Module 5: Motivation and psychology, part 1

5.1: Gamification as motivational design

Psychology is central to what makes gamification effective - without exploring the mental processes of your users, you’re likely to miss a lot of practices essential to effective gamification.

- **Motivation** = you are moved to do something, either instead of doing something else or instead of doing nothing.
- The reasons we do things can be fairly complicated and not necessarily related to our experience. They may even be counterintuitive.

- **Rewards are not the only type of motivation**
  - Some people are very passionate about their jobs, even if they don’t pay much.
  - Not everyone participating in every competitive activity is doing so to win a trophy.

- **Example: MLB.com badges**
  - Featured players appearing in particular games, each with a specified action.
  - Users of site’s streaming video service would get a badge if a player did that action in a game they were watching.
  - Badges displayed in bookcase on user profiles
  - Visitors to Sons of Steve Garvey, a blog for LA Dodgers fans on this system:
    - one admits it’s a weird “sidebar diversion” but says he’s “obsessed”
    - “felt like a moth to a flame”
    - “collecting virtual items with no observable purpose and no ultimate reward or benefit does seem like an appropriate pastime for a blog such as ours.”
    - In general, acknowledging that the whole enterprise was rather silly but that it was something they could get engaged in, excited about.
  - MLB did not renew the service in 2012.
    - Glass half full version: Got people interested even though there wasn’t any real value to it
    - Glass half empty version: How many people really were engaged? Was it enough to justify the service?

- **In gamification, you should consider these questions - even though the answer is often “it’s complicated.”**
  - What motivates?
    - Many different things
    - Not everyone’s motivated by the same thing all the time.
  - Is it the right kind of motivation?
  - Is it enough?

- **Another example: How might you motivate people to buy computers?**
  - Make really good computers
  - Price them affordably
  - Make the retail store experience efficient, quick, easy, display all products in one place to compare them - this is how most computer stores used to work
Apple Store - now the highest-grossing U.S. retail chain - took a different approach:
- We want people to come in, hang around and browse, get familiar with our products - “lounge” experience
- Treats this as an expensive lifestyle purchase.
- Staff of helpers, not just salespeople
- Offer classes, other events to draw people in
- Goal is not to get you out of the store quickly, but to get you to linger - to spend time with the products, think about what you could do with them, and ultimately buy more.
- While this isn’t strictly gamification, it’s a useful thought exercise to creatively consider different ways to motivate users.

5.2: Behaviorism

Broadly speaking, psychology has two major traditions. Both are important to gamification, but are not always well understood.
- **cognitivism** - which looks internally at people’s mental states
- **behaviorism** - looks externally at what people do
  - While we acknowledge things are going on in the brain - emotions, feelings, thoughts, consciousness, etc. - they are not considered when we systematically focus on why people do things and how to get people to do things.
    - Why? Those internal things can’t really be measured.
    - Brain thought of as something that “just works.”
    - “Black box” approach - we can test what goes in (stimuli) and what comes out (the person’s response)
  - Behaviorism’s basic concept: Behavior is influenced through the use of a stimulus (something outside yourself)
    - Initial form was **classical conditioning**, notably associated with Ivan Pavlov’s dog experiment
      - He started with an initial instinctive response - dog salivates when it sees food - then introduced a stimulus (the bell) at the same time.
      - The dog was conditioned to expect food when the bell came, and even salivated when the bell was rung with no food present
    - A more recent form vital to gamification is **operant conditioning**, notably associated with B.F. Skinner in mid-20th century
● Introduces the notion of consequences. The stimulus still influences behavior, but that behavior has consequences - often positive or negative reinforcement.
● As a result of the consequences, you change your behavior - this is called learning.
● Skinner box experiment put an animal in a box with a response lever - pushing that lever dispenses food (or shocks animal via electrified grid floor). Animal comes to associate pushing lever with food (or shock).
  ○ Its real limitations become very apparent when we focus on gamification - we'll discuss that later.
  ○ Over time behaviorism started to lose sway for various reasons, though fundamental experiments are not necessarily wrong.
  ○ It’s still with us today, most notably in the field of behavioral economics -
    ■ Associated with folks like Daniel Kahneman, Amos Tversky, Dan Ariely, Richard Thaler
    ■ Says “Let’s look at what people actually do,” rather than abstract economic theory stating they will always respond perfectly to incentives.
    ■ People make “mistakes” consistently:
      ● Loss aversion - people are more concerned with losses than gains, and will take far more steps to avoid a loss than to achieve a gain of the same value.
      ● Power of defaults - people tend to go with the default option, though in economic theory, it shouldn’t matter if it’s opt-in or opt-out
      ● Confirmation bias - If you think you’re going to get a certain result, you’ll tend to find it.
● Some take-aways for gamification:
  ○ Observation - look at what people actually do
  ○ Feedback loops - When the person involved sees some feedback on their behavior, it tends to produce a response, and that circular process tends to motivate behavior.
  ○ Reinforcement - learning occurs by the reinforcement of stimuli

5.3: Behaviorism in gamification

Behavioral psychology research has many lessons for gamification:
● Look at what people actually do - they don’t always behave in the way you might think.
  ○ Can uncover certain kinds of actions that may be variable
    ■ Recall speed camera lottery - you might think people wouldn’t slow down unless they got a ticket every time.
    ■ Even regular speed cameras that offer feedback get drivers to slow down about 10 mph in the U.S.
● Focus on feedback
  ○ Essential to vast majority of video games
  ○ Recall LinkedIn progress bar - tells you how far you’ve gotten and suggests a way to get further
    ■ breaks down the problem using small, quantifiable goals
● Consequences can create results because they condition people
  ○ Works based on people learning to associate certain results to what happens in a game or other system
  ○ *FarmVille* - crops “wither” if you don’t water them every so often (differs for each crop)
    ■ This creates an appointment mechanic - people know they have to come back at certain intervals. Users learn to check in as matter of habit.
● Reinforcement through rewards
  ○ Underlies many of the PBL examples of gamification
    ■ MLB.com badges - people see that when they take the action, they get the badge, and that feels rewarding to them - they learn that if they keep doing that, they’ll get more badges.
    ■ There are real problems and limitations to the idea that gamification is like addiction.
  ○ Remember that this is just one of the game mechanics out there.
  ○ But a great many of the lower-level components can or must be linked to rewards
  ○ Why are rewards so powerful?
    ■ Dopamine system - structure in brain associated with pleasure and learning.
      ● brains release and reabsorb the neurotransmitter dopamine based on certain activities, and rewards tend to cause that release - literally like getting a shot of a drug.
Samsung Nation site - you’re surprised when a new badge you just earned pops up.
Does not always work, but when it does, there’s an “ooh” sense in the brain - associating the reward with the activity

5.4: Reward structures

- There are lots of different ways to do rewards, and many different things that can be rewarded
  - Example: Foursquare’s badges - awarded for things like:
    - The 5th, 10th, 25th and 50th check-ins
    - Number of check-ins at a certain type of venue (ie: bars)
    - “Swarms” (flash mobs)

- Creative and effective gamification designs will think expansively about what can be rewarded, what behaviors the designer wants to incentivize and what the options are.

One typology for different categories of rewards is cognitive evaluation theory:

- **tangible vs. intangible rewards**
  - intangible = Foursquare badge; a verbal “good job”
  - tangible = Boy Scout badge; money

- **expected vs. unexpected rewards**
  - expected = we know doing certain things gets us a reward
  - unexpected = suddenly appears; user may not know why. Our brains love surprises, so this type is more interesting

- **contingency**
  - task noncontingent: you’re given the reward no matter what; no action is required. This type is not common in gamification.
  - engagement-contingent: reward requires starting a task.
  - completion-contingent: reward requires finishing a task
    - Example: MLB.com badges required a user to watch an entire game to get the related badges; hence user’s comment that he got mad at a colleague for turning the computer off too soon.
  - performance-contingent: reward requires doing well on the task (unlike the last two)

- Examples: Samsung Nation
  - Cruise badge - for “hanging out” on the site for x amount of time (badge design suggests 10 min.)
intangible
unexpected (at least from user’s perspective - he isn’t aware how much time it takes)
engagement-contingent (just “hanging out,” from user’s perspective)
○ Quest badge - for “hanging out a lot” (spending 30 min.) on the site.
intangible
but expected and completion-contingent, apparently just because it’s called “Quest”?
○ Student’s note - Though I can see this being “expected” because the user has learned he can get badges for time spent on the site, I disagree that giving this badge the title “Quest” makes it a quest and thus completion-contingent.

Some rewards fall under multiple categories.
○ World of Warcraft’s awards for fishing prowess include awards for completion (catching 1,000 fish), performance (Master Angler, for winning a weekly fishing contest), etc.

5.5: Reward schedules
Reward schedules are more about when rewards are offered than what those rewards might be. Studies suggest that rewards’ structuring has a significant impact on the psychological effect they produce.

There are many types - here are the major ones:
○ continuous: there’s an automatic reward each time.
○ fixed-ratio: rewards are given when an activity happens a certain number of times (such as every other time an action is done)
○ fixed-interval: rewarded every so often (like every month)
○ variable: rewards occur on no fixed schedule
○ What interest does gamification take in each?
  ○ Continuous is of least interest in gamification; it’s not really motivating if you “win” every time.
  ○ Fixed-ratio and fixed interval have some psychological value, but the brain tends to pick up on the pattern, dulling the reward. However these are easier to do, since they’re the classic examples of badges, etc. - a defined pattern.
  ○ Variable is of most interest - we love surprises, the different and unexpected.
    ○ stems from our evolution from hunter-gatherers.
Examples from Samsung Nation:
- Quest badge - fixed-interval
- Merit badge (based on number of visits to site) - fixed-ratio

Let's look at some types of variable rewards:
- **competitive vs. noncompetitive:** competitive rewards require winning a contest, getting a certain number of points on a leaderboard, defeating another user in a duel, etc.
- **certain vs. uncertain:** if a reward is contingent on something happening, the reward may be variable in how often that activity happens
  - Or there may be some level of randomness or chance involved
  - Example: MLB.com badges - watching the game isn't enough; the stated action has to occur within that game, too.

Slot machines as “variable schedule reward machines” (with a tangible reward)
- The variable reward schedule is what makes it addictive.
- A good machine (that’s effective for the casino owner) is tuned to have the reward come up just frequently enough to keep the player from giving up.
- It’s important to note that creating something addictive is NOT always a good thing - it can be dangerous and potentially harmful.

**Module 6: Motivation and psychology, part 2**

**6.1: Limits of behaviorism**

The behaviorist approach has serious limitations and blind spots.
- Back to the speed camera lottery: People tend to slow down when there’s any sign displaying the speed, even when there’s no prize
  - Is it because of the feedback - the driver self-correcting after being made aware that they’re speeding?
  - OR is it because the driver suspects he’s being “watched” by a camera in the sign or a hidden cop, and self-corrects to avoid getting caught and getting a ticket?
    - Punishments are a flip side of rewards
    - In the latter case, there’s no learning leading to a change in behavior - just fear of getting caught.
  - So what does the lottery really change?
- It includes a chance of winning money, even if, on the whole, it's not a great bet.
- A behaviorist might say: People love lotteries, so this approach will work. (And Richard Thaler said exactly this in an op-ed about the speed camera lottery)
- But this leaves a lot out: Why do people love lotteries? What about them is so motivating? To answer those questions, you have to go outside behaviorism into what people think/feel.

- B.F. Skinner’s operant conditioning work has fallen out of favor, though much of today’s work in the fields of feedback and “quantified self” can be seen as part of the same tradition.
  - The notion of modifying behavior through constructed systems of rewards and punishments, based on learning from feedback, scared people. The idea was associated (possibly unfairly) with socialism and fascism.
- Thinking of a person as a “black box” can be at odds with thinking of him as a human being - and a player.

6.2: Dangers of behaviorism

- The potential for abuse and manipulation
  - When you’re designing systems to get people to do things, those things could include things those people don’t want to do.
  - See also: the slot machine.
  - We may be able to design systems that get people “addicted” to virtual rewards - but that doesn’t mean we should, from an ethical standpoint.
  - There’s real danger if players feel they’re being pushed into something they don’t want to do - can bring negative response from users and potentially even the government.
  - It also can mean your company isn’t focused on what it should be focused on: delighting its customers.

- The hedonic treadmill - once you start focusing on giving people rewards to give pleasure, you have to keep doing it.
  - (By “hedonic,” we’re referring to pleasure based on fun - not the common connotation of “hedonism.”)
  - If people learn to respond to the reward, they’ll only respond when the reward is there.
Back to the speed camera lottery: If people only slow down at THAT sign, it’s not going to create a systematic behavior change (unless you put up a whole bunch of signs)

In gamification, if rewards are designed in this way, the designer must keep putting more in.

- As certain rewards get familiar or boring, new, more interesting ones must be devised - more challenging objectives, etc.
- It can become difficult for the designer to keep up.

We know this because of studies of what happens to monkeys’ brains when the dopamine system is activated.

- When monkeys were given a spray of grape juice at certain intervals, their dopamine neurons fired to give them a “chemical high” with each spray.
- But then system was reconfigured to set off a tone 2 seconds before each spray reward. As a result, the dopamine response came not when the spray was given, but when the tone went off. Their brains figured out the pattern.
- What this means is that the dopamine system really isn’t about rewards, but about the anticipation of rewards.

- Overemphasis on status

  - An overfocus on behavior in gamification can mean a heavy focus on rewards, which are often based around status.
  - Gamification leverages the fact that people love status, even though it’s an intangible reward.
    - It learns from things like frequent flyer or loyalty programs, which emphasize the perks of being on higher tiers.
    - But if you focus on that, you tend to think everyone focuses on status constantly.
    - Not everyone is Tom Stuker (No. 1 flier on United’s Mileage Plus program, with over 10 million miles flown)
  - Status does motivate people - but it doesn’t motivate everyone all the time. By thinking it does, you miss out a lot of other things that motivate people, and other benefits that can be delivered.
6.3: Intrinsic and extrinsic motivation

- **Cognitivism** is the alternative to a behaviorist approach - it focuses on opening up the “black box” to find out what’s going on inside to motivate behavior.
  - If we start to think about what motivates people to behave in a certain way, we need to start distinguishing between different kinds of motivation and rewards.

Two broad categories of rewards/motivation:

- **Intrinsic:** You do the thing for its own sake - not because of any external stimuli, but because you want to. You find it rewarding, engaging, enjoyable, fun, exciting in itself.
  - Example: “I love my job so much I’d do it for free.”
  - Lots of things can produce this type of motivation - it varies for every person, and even for the same person at different points in time.

- **Extrinsic:** You do the thing for some reason other than the thing itself - such as money, fame/fortune, a request from someone you value, etc. It’s about the reward, not about the thing itself.
  - Gabe Zichermann’s SAPS framework - four categories of extrinsic rewards for gamification:
    - **Status** - do things we think will make us “cool”
      - Examples: getting to top of leaderboard; American Express black card
    - **Access** - do things that give us access to something others don’t have
      - Example: a special section of a message board open only to moderators or to those who’ve contributed x number of times
      - Content unlocking in games also has some of this aspect.
    - **Power** - do things that enable you to do new activities
      - Example: message board users with enough points can edit certain posts or create new topics, rather than going through a moderator
    - **Stuff** - do things to get tangible rewards
    - Zichermann makes two claims about this framework:
      - This is a hierarchy - stuff is at the bottom, status at the top. The higher-up levels (such as status) are more advantageous to companies because they’re cheaper and more efficient.
      - It’s also ordered in rank of how powerful these motivators are - and status is the most significant thing that motivates people
Werbach considers this claim questionable - it’s certainly true some of the time, but it’s dangerous to assume it’s the primary motivator.

The fundamental question we have to ask: where do our rewards fit?

- Foursquare badges could be considered extrinsic OR intrinsic rewards. It depends on the context - the system overall, what’s being rewarded, how it’s placed in the system.
  - Maybe I just want a “Mr. Bill” badge on my 4sq profile page because it’s fun.

6.4: How rewards can demotivate

How could a reward demotivate someone who was already motivated to do something?

- **Overjustification effect** - crowding out intrinsic motivators with extrinsic ones, such as rewards
  - Substitution - intrinsic motivation is replaced by the problematic, less effective extrinsic motivation of the rewards.
  - Studies confirm:
    - Creative activities: Kids were told to draw for fun, and later given rewards for drawing (a compliment, a gold star, an actual prize).
      - After a while, rewards were taken away and kids were drawing for fun again - the kids who started out intrinsically motivated weren’t anymore, and their drawings weren’t as good.
      - could apply to a business or enterprise context seeking to encourage “innovation.”
    - Day care pickup in Israel: Facility wanted to motivate perpetually tardy parents to pick up their kids on time, so it instituted a punishment - an extra charge each time one is more than 5 minutes late. Instead, parents began arriving even later.
      - The charge turned what was a social consideration - caring about the kids, social pressure, desire to not inconvenience the day care workers - into an economic exchange. Parents were weighing the charge against the rest of what they had to accomplish, and found it was “worth it” to them to just pay the extra.
    - Blood donation: In the same vein (heh) as the above, people were less likely to give blood when they were paid to do so, rather than encouraged to do so as a civic duty or to help others.
Teacher salaries: Giving merit pay based on student success doesn’t actually produce better results.

Considerations regarding the above studies:

- They generally focused on “interesting” tasks - tasks that require some creativity, that some people have some reason to want to do.
  - No task is inherently “interesting” or “boring,” but those involving some level of creativity tend to start off with a baseline level of “interest” from most people.

Reward types do matter:

- Tangible rewards tend to involve the highest levels of demotivation
- Unexpected rewards have significantly less demotivating effect - they arise after the thing was done with intrinsic motivation.
- Performance-contingent rewards can go both ways - if the focus is on completion rather than level of accomplishment, it can demotivate. But if the reward is purely informational - “Good job” - it recognizes the performance and there’s not the same effect.

6.5: Self-determination theory

Starting in the 1970s, psychologists Ed Deci and Richard Ryan of U of Rochester developed basis for self-determination theory - a comprehensive theory of human motivation that shows people aren’t necessarily motivated by rewards.

- The motivational spectrum
  - At one end is amotivation - no motivation one way or the other; total indifference to the activity.
  - At the other end is intrinsic motivation - you do the thing because you love it, because it’s rewarding in and of itself. This is the strongest form of motivation.
In between, there’s the broad category of extrinsic motivators, in a spectrum from most external to most internal.

- **external regulation** - you’re only doing something because someone tells you to; you really don’t want to do it or are indifferent.
  - No perceived locus of control.
- **interjection** - taking external motivators and making them our own by appropriating others’ perspective.
  - Typically where we’d find status - “I don’t really want to do this thing, but I’ll do it to gain status, which will make people value me more.”
- **identification** - having taken external motivators and made them our own; you see value in the activity, as opposed to seeing how others value it.
  - “I don’t really enjoy learning math, but I can see that knowing something about it is important to success, so I’ll do it.”
- **integration** - complete internal alignment between my goals and the activity.
  - Maybe something like exercise - I want to do it to reach my goals, but it’s still not “fun” for me.

**Takeaway for gamification**
- All of these may be relevant to a gamified system
- The ideal is that people want to do the thing for its own sake, but that’s not always realistic.
- Goal is to use the different kinds of motivation appropriately for the situation and push toward more intrinsic motivators in general.
  - Has to be authentic - can’t trick people into wanting to do something.

**What does it take to make something intrinsically motivating?**
- Self-determination theory suggests that when these three factors are present, an activity will be worthwhile to people in and of itself.
  - **competence** - sense of ability, that something is being achieved within the activity - solving a challenge, surmounting an obstacle, etc.
  - **autonomy** - the feeling of being in control - I’m the one making meaningful choices.
  - **relatedness** - connecting the activity to something beyond yourself
    - could be doing something because it saves energy
    - or because you want to help out your company
• social interaction is an element of relatedness often seen in games.
  ○ Example: Fitocracy - site that encourages people to work out and get in shape
    ■ Uses traditional PBL game elements, but in a sophisticated way focused more on intrinsic motivation.
• Competence: Focuses on making the user feel good about taking on a challenge.
  ○ “Level up” announcement/badge is secondary to “Congratulations! You earned … “
  ○ Other affirmations: The level up announcement says “You’re awesome,” and user must “acknowledge” this to move on to the next screen by clicking an “I’m Awesome” button.
  ○ You’re not just leveling up in the abstract sense - you’re getting into better shape, feel like you’re achieving/mastering something
  ○ You’re encouraged to share workouts with Facebook/Twitter friends
• Autonomy: Giving users options fosters a sense of control.
  ○ Can choose your interests
  ○ Can custom-build sets of challenges based on types of workouts you want to do (including both group and individual workouts)
  ○ Those choices are reflected in the potential quests the site offers to you
• Relatedness: Very strong social element
  ○ “Better with friends!” - encourages you to recruit friends, suggests others on the site you might befriend
  ○ Suggests groups with shared interests, such as types of workouts
  ○ Recommended reading on self-determination theory:
    ■ Drive: The Surprising Truth About What Motivates Us by Daniel H. Pink (a popularization of the theory as applied to business)
    ■ Glued to Games: How Video Games Draw Us In and Hold Us Spellbound by Scott Rigby and Richard Ryan