THE DANGERS OF GAMIFICATION
Why We Shouldn't Build a Game Layer on Top of the World

By: Krystle Jiang
June 13, 2011

INTRODUCTION

Game mechanics have been around for thousands of years – the same principles of achievement medals, progression, and status used in World of Warcraft were used in the Ancient Olympic Games. Neither is the idea of gamification, or applying these game mechanics to non-game environments, a new one – businesses have employed appointment dynamics and progression in the form of happy hours and loyalty programs for decades.[1] However, it is only in recent years that gamification has become a hot topic in the business and technology world. Gamification experts like Jesse Schell of Carnegie Mellon University argue that it can revolutionize every aspect of our lives, from influencing buying habits to improving education.

Gamification uses game mechanics to increase engagement, loyalty, and fun in a given environment. These mechanics play on different aspects of human psychology such as attention span, social tendency, and loss aversion, and are all basically different types of rewards. Certain dynamics reward players for performing an action at a predetermined time (i.e. harvest Farmville crops after 2 hours and get points); others control the timing and scarcity of rewards (i.e. leveling up, which gets harder as levels get higher). Essentially, game mechanics are based purely on extrinsic motivators. This is great for commercialization and influencing buying habits, but it can be disastrous for motivating students to want to learn and employees to want to work.

COMMERCIALIZATION

In 2009, there were 27.5 million registered businesses in the US alone.[2] Every one of those businesses is competing for more sales from a finite consumer base. People do not intrinsically want to spend money – they need a push from marketing teams that run advertisements, promotions, and engagement deals such as happy hours and loyalty programs. Gamification takes those deals one step further by introducing social collaboration and competition mechanisms and by tracking every statistic. Traditional loyalty programs emphasize the final reward (i.e. free flights starting at 40,000 miles), leaving fun out of the earning of points and putting it all in the burning. However, with the ubiquity of loyalty programs and increased competition, companies cannot rely on giving away products for free to drive traffic. Gamified loyalty programs focus instead on making the earning process fun, adding in game rewards like achievement badges and levels to increase engagement without extra revenue loss.[3]

Innovative startups that built their business around game mechanics are doing exceptionally well. For example, Groupon's business model is very simple and

easily imitable but because it was an early mover in the space and was able to capitalize on its strong game mechanics and convert those to sales, Groupon generated $713 million in revenue in only its third year of life.[4] Groupon's game mechanics include the countdown timer (people will act and buy more when they think they might lose the deal later – same concept as SALE: TODAY ONLY), the "free lunch" dynamic (where players feel they're getting something for free because someone else already did the work to tip the deal), and bonuses (if your friends buy the deal, you get $10 free).[5] Almost all successful startups have incorporated gamification in some way – LinkedIn uses the progress bar to urge users to complete their profile; Zynga is built on social gaming and expects $1.8 billion in 2011 revenue;[6] and Twitter appeals to humans' desire for social status by prominently displaying users' follower and list counts.[7]

However, gamification is no longer a startup phenomenon. This year, Ford chose to forgo 30 seconds of precious Superbowl ad time in favor of an interactive game a la The Amazing Race in which participants competed in various tasks for the ultimate prize of $100,000 and a brand new car. More than 8.1 million minutes of Ford Focus Rally: America was viewed, yet the campaign cost only a fraction of the traditional $3 million Superbowl spot.[8] More and more companies are converting to game-based marketing tools and are met with great success. The reason is because game mechanics are strong extrinsic psychological motivators (see Appendix A for a great chart) in a domain where there is little to no intrinsic motivation.

EDUCATION
Seth Priebatsch, Chief Ninja at SCVNGR and 22-year-old Princeton dropout, gave a keynote presentation at the 2011 SXSW Interactive Festival titled "The Game Layer On Top Of The World". Seth declared that gamification has huge potential and can fix social problems like our failing education system. Schools are already near-perfect game ecosystems with motivated players (students), challenges (tests), rewards (grades), appointment dynamics (class), status (rankings) and many more game mechanics. Seth argued that school is simply a poorly designed game and that to improve it, we must strengthen the game mechanics;[9] I argue that the fundamental problem with school is not the weak game mechanics, but that it *is* a game. Even without extra gamification, we rely too much on extrinsic motivators and do not focus enough on developing intrinsic motivation.

Seth identified two huge problems with the game of school: a) a lack of engagement (boredom) because of a poorly designed grading system and b) rampant cheating because of misapplied disincentives that cause a lack of game integrity. To motivate engagement, gamification proponents propose a system of progression and experience points to reframe performance in a strictly positive light. A student cannot lose XP and drop a level – instead she would simply not progress to as high a grade. In the traditional system, consistent good work is rewarded with an A and a *magna cum laude* status; in the gamified system, progress is more granular and instantly rewarded with XP. Both employ the game mechanics of levels and status; gamified education simply fine-tunes the

mechanics. However, the fundamental problem in student engagement is from weak intrinsic motivation to study and learn. Gamification is based on principles of extrinsic motivation – students will indeed work harder for the XP and the gold stars as pilot programs have shown, but ultimately gamification will detract from students' intrinsic motivation to learn and will hurt society.

In a 1973 study on motivation, Lepper, Greene, and Nisbett found that children who expected (and were given) a reward of a gold star and a ribbon for drawing pictures spent less time playing with the drawing materials in subsequent observations than children who were assigned to an unexpected reward condition and to children who received no extrinsic reward.[10] Similar studies with college students have shown that people who are not offered a reward will work longer and harder on a given puzzle than people who are offered a reward. Putting energy into solving a puzzle and into learning is intrinsically rewarding. If we externalize those rewards using experience points and focusing on status levels, we risk killing all intrinsic motivation to learn.

Furthermore, rewards themselves are addictive and therefore dangerous in a field like education. Game designers know that rewards are addictive and thus structure the leveling up system so that players are quickly rewarded in the beginning with a few easy level ups. Players quickly become addicted to the desire to level up and will therefore work harder and longer to level up in the future. Russian economist Anton Souvorov describes the addiction to rewards through his principal-agent theory. In offering a reward to do a task (i.e. XP for doing homework or showing up to class), the principal (motivator) signals to the agent (motivatee) that the task in and of itself is undesirable. Otherwise, there would be no need for a reward. Once the student complies and takes the reward, there are two effects: 1) the student will never do homework without a reward again (there goes the intrinsic motivation), and 2) once the initial buzz from the reward dissipates, the benefit from the reward must increase to get the agent to comply again.[11] Unfortunately, as with drugs, there can only be so much addiction one can take before he decides the reward is not worth it. Unlike drugs, however, experience points are not physically addictive (and school certainly is not), so it would be easy for students to jump ship and have no motivation to study.

Education also suffers from cheating, which Seth describes as the result of misapplied disincentives (the threat of an F), which causes a lack of game integrity. Seth argues that this can be remedied by creating a social fabric of gameplay in which players follow an honor code and are self-policing. However, simply creating this social fabric is not enough to stop cheating - take Foursquare for instance. Foursquare is a fundamentally social platform, yet since its inception there has been abundant cheating where users were checking into locations they were not at. Thus in April of 2010, Foursquare retaliated with a "cheater code".[12] However, today there are still many people who exploit loopholes and cheat by creating and checking into fake venues to obtain mayorships and points.[13] In a game, there will always be cheaters. To fully eradicate cheating, the creator must dissolve the game. Neil Davidson, co-founder of Red Gate Software, discovered this solution when he eliminated

commissions as a reward for his salespeople. In sales, rewards are calculated by a structure that consists of the number of sales in a given month, increase in sales over the past month, and various other inputs. Problem is, Davidson found that as soon as salespeople figured out the reward algorithm, no matter how complex or simple, they would exploit the system to earn the biggest commission possible (i.e. underselling one month to show a bigger gain the following month, etc.) Fearing that the commission system was actually hurting his overall sales, Davidson scrapped it altogether and simply paid employees a healthy flat salary - a risky move that indeed turned out to successfully increase total sales.[14] Today, some of the most successful companies operate without a commission structure (i.e. Apple).[15] Similarly, some of the most successful schools operate without grades (i.e. Yale Law School). Instead, YLS focuses on developing students' intrinsic interest in law through ample opportunities for research, clinics, community service, and more.[16] One might argue that the law schools of Yale, Harvard, and Stanford[17] can afford to do away with extrinsic motivators like grades because they have the very best students who are already intrinsically motivated. Even so, if we enhance gamification in our lower level schools, we risk eradicating that intrinsic motivation altogether. Other schools should emulate these thought leaders and similarly focus on expanding intrinsic interest and motivation through opportunities like research, community service, and independent projects. Research shows that students tending towards a more internal locus of control are more academically successful,[18] thus educators should focus on fostering this attitude rather than simply increasing shallow engagement indicators like class attendance rates and experience points.

If education is indeed a game that is failing us, then enhancing the sophistication of the game mechanics is not the solution. To solve the problem, we must disable the game and construct a system aimed to magnify intrinsic motivation.

WORK
When asked the question, "What would make you really happy?", people think they want to win the lottery so that they can retire and live on a beach forever. However, psychologist Mihaly Csikszentmihalyi found that people are actually happiest when they are in a state of "flow", or complete concentration in the activity at hand. For flow to exist the activity must be challenging and the person's skill level must be high.[19] In other words, all people really want is work that they love. Similar to education, the danger in gamifying work is that people already have, or should have, strong intrinsic motivation for work.

Gamification can stifle creativity. In a test devised by psychologist Karl Duncker in the 1930s, subjects are given a candle, a box full of tacks, and a book of matches (see appendix B for a graphic of the problem and solution). The problem is to fix the candle to the wall so that when lit, the wax does not drip on the table. The solution requires some creativity – people must overcome "functional fixedness" and realize that the box for the tacks is not just to hold the tacks, but can also be emptied and used as a platform for the candle. Most people will try a few things before figuring this out eventually. In the 1960s, psychologist Sam Glucksberg decided to test the effect of incentives on participants' solving speed

and found that contrary to expectations, the incentivized group actually took an average of 3.5 minutes *longer* than the control group. Since then, considerable research has been conducted on the effects of incentives on creativity and regardless of the field (art or science), extrinsic motivators are found to decrease creativity.[20] Great companies are built on innovation, which stems from creativity. Employees who are motivated by game mechanics like achievement badges and status symbols will be uncreative and non-innovative employees.

Additionally, the process of gamification is entirely top-down. There is a game design team that creates the rules of the game and while they may be social, the framework of how the game is policed must still be written. However, many of the most useful innovations are bottom-up – they are employees' own pet projects that weren't assigned by the boss. For instance, Google gives its engineers "20% time" to work on whatever projects they wish, which has produced great innovations including Gmail and AdSense.[21] Employees are not motivated to work on such projects by the possibility of reward (which is not a focus of Google's at all), but by the fact that the work itself is intrinsically rewarding.

However, gamification is not all bad for the workplace. Not all tasks are interesting nor do they all seem to relate to innovation. In fact, many workers would say that most of their tasks do not. All companies should make it a point to increase workers' satisfaction with their tasks, but it is a fact that must be some necessary and boring projects. These, and only these, are what should be gamified.

Arrow Electronics, a New York-based electronics component provider, realized that much of its customer account managers were not familiar with supply-chain logistics. To amend this, Arrow hired BrandGames to custom design a videogame to teach its employees this necessary knowledge. The game was simply a tool to quickly train employees – it was not used as a metric for performance or pay.[22] Games can be a great tool to quickly teach employees certain skill sets and to guide employees through orientation – in other words, they can be highly effective in areas in which employees have no intrinsic desire to spend time in. However, companies must take care to keep these games and their game mechanics separate from the culture of the company. Company culture should be based around a collective desire to innovate, where motivation to work hard comes from within, not from a shallow desire for status or achievement.

CONCLUSION
Gamification is the future of business. Consumer engagement teams will replace marketing teams and we will continue to see loyalty programs similar to Ford's The Amazing Race game replace expensive advertisements. However, gamification must not be allowed to permeate other industries like education and work because it will wreak havoc on intrinsic motivation, the backbone of innovation.
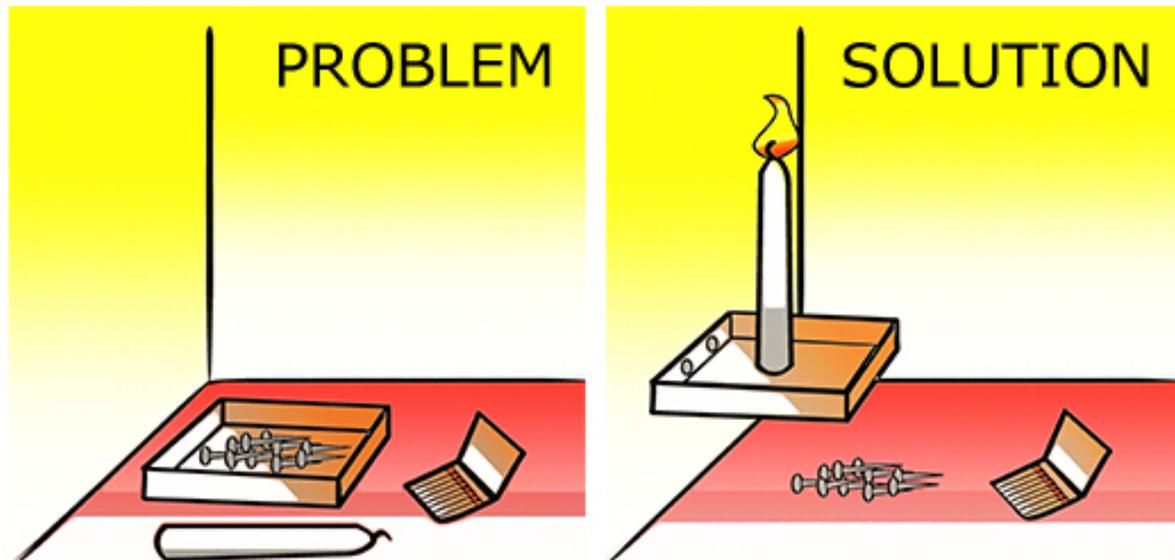
APPENDICES

(A)

Figure 1 illustrates the interaction of basic human desires and game play. The green dots signify the primary desire a particular game mechanic fulfills, and the blue dots show the other areas that it affects.

Source: http://www.bunchball.com/gamification/gamification101.pdf

(B)

Source: http://news.medill.northwestern.edu/chicago/news.aspx?id=141091

ENDNOTES

[1] *History of Loyalty Programs.* <http://www.frequentflier.com/ffp-005.htm>

[2] *U.S. Small Business Administration: FAQs.* <http://web.sba.gov/faqs/faqindex.cfm?areaID=24>

[3] *Gamification 101: An Introduction to the Use of Game Dynamics to Influence Behavior.* October 2010, Bunchball, Inc. <http://www.bunchball.com/gamification/gamification101.pdf>

[4] Business Insider, *Groupon Files For $750 Million IPO; Lost $413 Million In 2010.* <http://www.businessinsider.com/groupon-files-for-ipo-2011-6>

[5] <www.groupon.com>

[6] Forbes Blog, *Zynga reveals Profit and Revenues as it Looks to Raise $500 Million.* <http://blogs.forbes.com/afontevecchia/2011/03/02/zynga-reveals-profit-and-revenues-as-it-looks-to-raise-500-million/>

[7] Margaret Wallace: *The Gamification of Everything.* <http://www.slideshare.net/MargaretWallace/the-gamification-ofeverything >

[8] Gamified Loyalty, *Big Brands Get Into the Game.* <http://www.gamifiedloyalty.com/big-brands-get-into-the-game/>

[9] Seth Priebatsch: *The Game Layer On Top Of The World.* <http://www.slideshare.net/chiefninja1/sxsw-keynote-the-game-layer-on-top-of-the-world>

[10] Lepper, M.R., Greene, D. & Nisbett, R.E. (1973) Undermining children's intrinsic interest with extrinsic rewards: A test of the overjustification hypothesis. *Journal of Personality and Social Psychology,* 28(1), pp. 129-137.

[11] Anton Souvarov, *Addiction to Rewards.* April 2003. <http://www.cemfi.es/research/conferences/ewm/Anton/addict_new6.pdf>

[12] <http://blog.foursquare.com/2010/04/07/503822143/>

[13] <http://ciaoenrico.com/2011/01/23/great-foursquare-cheats/>

[14] Daniel H. Pink, *Drive: The Surprising Truth About What Motivates Us* (New York: Riverhead Books, 2009), 182-183.

[15] <http://www.ifoapplestore.com/stores/hiring.html>

[16] <http://www.law.yale.edu/academics/7749.htm>

[17] <http://www.insidehighered.com/news/2008/06/02/stanford>

[18] Lauridsen, K. (editor) and Whyte, C.B. (1980). An Integrated counseling and Learning Assistance Center.New Directions Sourcebook. Jossey-Bass, Inc.

[19] Csikszentmihalyi, M. (1990). *Flow: The Psychology of Optimal Experience.* New York: Harper and Row.

[20] Pink, 40-42

[21] Bharat Mediratta as told to Julie Beck. *The Google Way: Give Engineers Room.* New York Times, October 21, 2007. <http://www.nytimes.com/2007/10/21/jobs/21pre.html>

[22] Forbes, *When Playing Videogames At Work Makes Dollars And Sense.* Oliver Chiang, August 2010. <http://www.forbes.com/2010/08/09/microsoft-workplace-training-technology-videogames.html>