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Bells and Whistles

With an eye on profits, industries turn to aggressive methods of ensuring customer loyalty. How do these tactics affect the consumers?

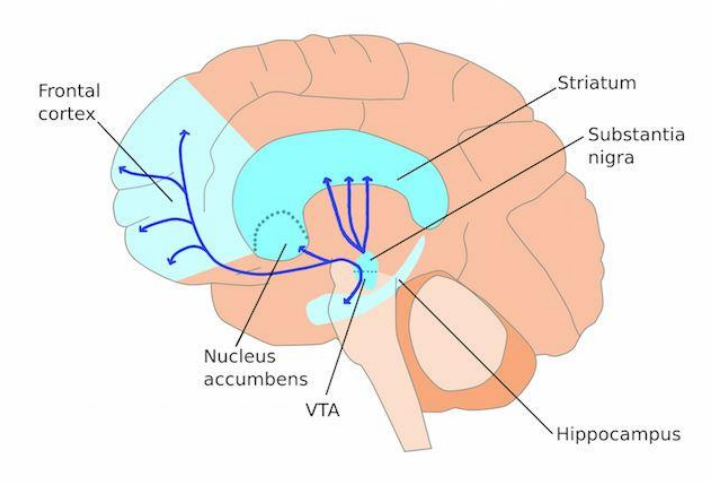
By Chris Korkos

Do we want something, or do we need it? It can be difficult to distinguish the two, considering the arbitrary values that we place on commodities. Marketing trains us to rely on cell phones, computers, internet, and electronic games through social expectations and pervasive advertising. But do we truly need them?

Even beyond the consumer goods which we collectively deem necessary, numerous companies have formed models of behavioral manipulation to keep payers paying. Gambling can lead to loss of self-control, further blurring the line between our desires and needs. Video games use reward and challenge to keep players invested for hours at a time, offering escapism and competition alike. From casinos to more modern technology, the self-destructive behaviors of addiction and abuse are deeply rooted in the ways we play games.

Dope

Addiction arises from more than just needles or morning coffee. The cycle is brought about by a reliance on dopamine, a neurotransmitter released during any pleasurable act or social affirmation. As a result, Dopamine is implicated in both regulating impulse control and learning new behaviors. It is crucial in our development, both early and late. Dopamine is released primarily from the substantia nigra in the midbrain, and travels to the forebrain and striatum – involved in decision making and behavioral reward, respectively. With the right control over the amount of reward someone receives, they can be manipulated to release an excess of dopamine or feel an urge to get the next burst.



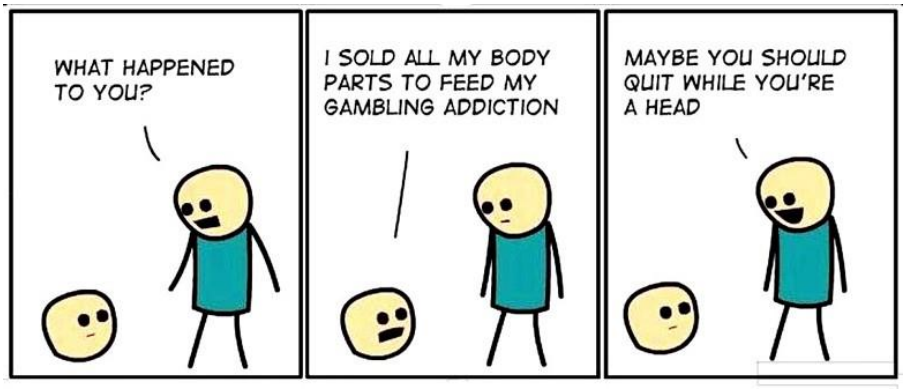
This imbalance, historically, has been industrialized in casinos through gambling and other games of chance. But when younger generations turned to the internet for cheaper and more readily available entertainment, the addiction machine wasn't far behind. Smartphone apps, seductive in their novelty and convenience, captured the public's attention in the early 21st century and began a frenzy of coding and consuming. The games used systems of variable reward and scaling back of reward to increase the user's desire to continue play. To people, the effects could be devastating financially, emotionally, and even physically.

The Addiction Machine

Casinos are traps for people with more money than self-control. Slot machines coax unsuspecting gamblers with friendly lights and bells. Once inside, they're trapped in a process of behavioral manipulation through variable (or random) reward. Variable reward can be summarized as follows:

> *"a dolphin rewarded with a fishy treat every six jumps will soon become lackadaisical about the five in-between ones; reward it at random, however, and it'll jump vigorously, never knowing which jump will bring fish." (Burkeman, "Get into the habit of random rewards")*

People are given a taste of material gain before being cut off. They begin to crave the dopamine fix, which is far stronger when randomly distributed. These powerful and sporadic releases overcome the negative stimuli associated with losing a bet, and so people are trained to keep pulling a lever in hopes of the positive outcome. They will repeat the losing process until the next reward is delivered, even as their wallets run dry.



Source: "Gambling," Cyanide and Happiness

The slot machines themselves are designed to keep gamblers happy and motivated while they wager away their earnings. Textual reassurances push them onward with words of encouragement. Intermittent lights and bells reinforce negative behaviors with positive reward, giving the players a morale boost and feeling of personal fulfillment with each gamble. Lacking both clocks and windows, time at the casino can only be tracked by those who do it consciously. People who let their guards down, or who simply don't care, will lose hours to the hypnotic drone of the machines' sensory assaults. From a business perspective, this is beneficial because as time played increases, so does money spent. From a human perspective, this is insane because it is statistically unlikely to have a net gain from a casino and because frying one's own brain with hours of overstimulation isn't a healthy pastime.

The transition from older gambling models to the electronic age is most apparent in mobile app development. By 2017, around 2.6 billion smartphones are on track to be shipped worldwide (http://blog.testbirds.com/current-state-mobile-app-industry/). Trends show this scope will only increase as production costs decrease and world populations rise. The app industry, projected to reach an estimated $101 billion net worth by 2020 (http://venturebeat.com/2016/02/10/the-app-economy-could-double-to-101b-by-2020-research-firm-says/), reaches nearly everyone who lives in a first world nation.

Over the years, our mobile obsession opened the door for new addiction models to plant their roots. "Freemium" games, like Clash of Clans or Candy Crush, play off the guidelines set by casino slot machines. The apps are offered as free, but come restricted –

far from a fully playable game. They start with relatively easy controls, which both widen their potential user bases and guarantee users a growing feeling of "expertise" that accompanied experience – thereby boosting morale early on and ensuring later loyalty. The free game is fun enough at first, but becomes tedious or difficult as time goes on. Tedium tends to arise from a lack of in-game resources, and whether they are meant for building or buying, the user is encouraged to buy more. This arbitrary monopoly revolves around "gems" or "gold", or some other euphemism for real money – the layer of separation makes the spending feel less damaging, while at the same time the user gets to buy larger armies and mop up their friends with ease. The social network aspects are significant as well, as the real-world connection increases emotional investment with "bragging rights". This process of scaling back rewards reflects some of the earlier psychological studies:

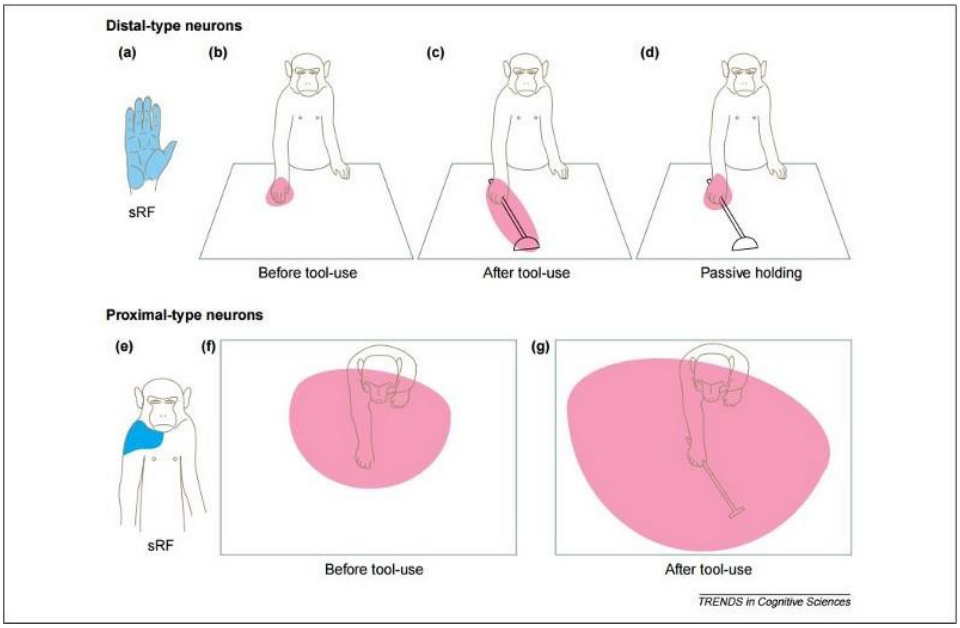
> *"Skinner found that continuous reinforcement in the early stages of training seems to increase the rate of learning. Later, intermittent reinforcement keeps the response going longer and slows extinction." (Theories of Learning in Educational Psychology)*

The freemium model also borrows the sensory overloading of slot machines – each successful click is accompanied by *cha-chings* of new money or the *pops* of fireworks as the game celebrates even the smallest of in-game feats. We feed on praise, and as a result we are convinced that these achievements are essential to feel successful. When we're doing well in the game, we're doing well in life.

Digital Perception

Moving within physical environments, we conceptualize distance, shape, depth, and other necessary factors in order to form a mental image. To do this, physical perceptions are converted to electrical signals in the brain and filtered to remove any unnecessary or seemingly contradictory aspects. The result is a highly selective perception of the world and our place in it.

"Our place" in the world, neurologically, can be surprisingly flexible. The motor cortex is involved in learning complex actions, and implicated in both early and late motor development. Its most unusual capability is proprioception, or the sensation of our own limbs and body in space. Proprioception grants us the awareness of where we might be reaching or walking – not only in physical space, but also in virtual environments.



Research shows that learning to operate within new spaces or with new tools can rewire neurons in our motor cortex to reflect our perception of said tool (Maravita & Iriki, *Tools for the Body*). To brains, the self-image is flexible and can alter to account for new objects in the environment. This can similarly be applied to virtual spaces, from web

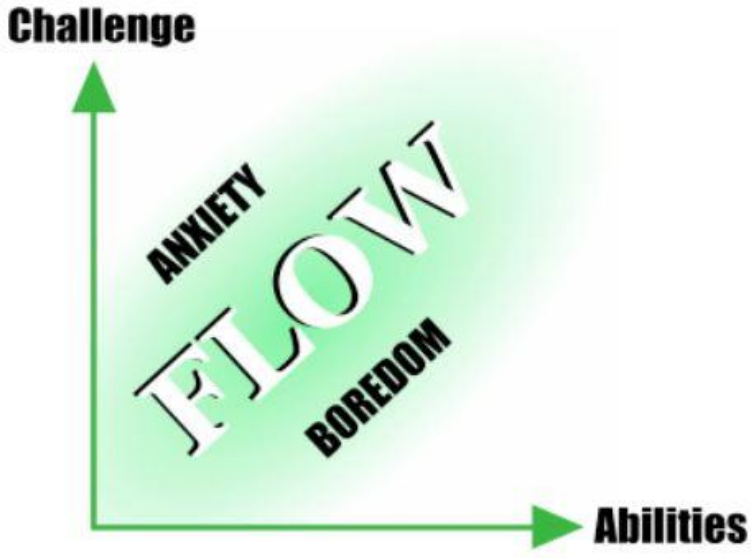
browsers to car or plane simulators. As people learn controls necessary to operate within the space, they begin to translate physical motor action into virtual behavior. After sufficient training, they only need to think about the virtual space to perform the action; the rest flows fluidly and automatically. People skilled at the hardware required for virtual interaction are able to filter the physical actions out of conscious thought.

This is an important factor in addiction because it makes actions more automatic – we spend less time thinking about the required steps and can lose ourselves in the games more easily. This allows adept players to enter a trance-like state defined in the context of gaming as *flow*.

Go with the Flow

As with reward and dopamine, flow is crucial to some important behaviors. However, it can just as quickly become a tool for entrapping people in addictive and harmful activities.

The concept of flow was coined by Mihaly Csikszentmihalyi (wow, my fingers need a break) while attempting to explain human happiness. He believed that fulfillment came from immersion in some activity – gaming or otherwise – that



could temporarily remove its user from their world. To achieve this, the player must find a balance between their own capabilities and the challenge offered by the activity. A task too demanding or too easy could lead to frustration or tedium respectively. However,

> *"human beings have tolerance; there is a fuzzy safe zone where the activity is not too challenging or too boring, and psychic entropies like anxiety and boredom would not occur" (Chen 5).*

Ultimately, "If a game meets all the core elements of Flow, any content could become rewarding, any premise might become engaging" (Chen, 9). It isn't a singular quality of a game that hooks players and leads to addiction, but rather the broader model of gameplay and system of reward. This allows for a degree of simplicity in more addictive games; any features that don't contribute to the reward cycle aren't necessary to its core gameplay.

Flow can be mimicked by non-challenging games through a process of random reward. Slot machines offer little challenge with variable reward. This simulates the process of working hard towards a goal, as many unsuccessful attempts may eventually result in a win. The burst of adrenaline and satisfaction is similar to finally beating that tough boss or reaching the end of the game, and it similarly inspires the player to continue – even at the additional cost of money and time. Gambling, freemium games, and even leveling-based video games tend to create an illusion of expertise in which more time or money spent will increase the chances of victory.

Games that properly utilize flow combine environment, gameplay, sensory stimuli, and challenge to create a compelling game world. This leads to real investment from the player, as opposed to the reward system utilized by addiction machines.

As part of his Interactive Media thesis, Jenova Chen created the game *Flow*. In *Flow*, the player controls a microbial organism that must eat others to gain energy and grow. As they grow, they must find bigger organisms, some of which will fight back. The game is designed to utilize challenge to hook the player; rather than random, the reward is granted given the player works hard enough. In this way, the game uses Csikszentmihalyi's philosophy of challenge vs. skill to invest the player in the game. Playing *Flow*, I began to relish the contest and took risks to eat bigger game. As my microbe became bigger and stronger, I felt a need to continue and test myself further. I certainly felt an addiction, in the broadest sense of the word. But it was deeper than that of the games of chance I had played in the past – *I* was the one winning, not the dice.

The Escape from Escape

Cottonwood, located in Tuscon, Arizona, is one of many rehabilitation centers operating throughout the nation. As in similar facilities, the Cottonwood staff treats chemical dependency, shopping addiction, sexual addiction, depression, anxiety, and grief. But in

addition to these, a page of their site is dedicated to video game addiction. The page references the large number of patients who seek treatment for addiction to games and technology – most notably, Massive Multiplayer Online games like World of Warcraft. It briefly discusses the steps that Cottonwood takes to rehabilitate them. Regardless of the medium, all patients undergo analysis on the severity of their situations. They are organized into groups led by professional therapists, where they can learn to cope with the compulsiveness they've been trained into and adapt to being away from technology.

"Every treatment is personalized," says the name-withholding Admissions coordinator over the phone. "But the patients do have some consistent qualities. Underlying issues, unaddressed trauma, social anxiety and inability – there's a lot of social anxiety and depression common with gaming addiction."

I ask about the variety of game-addicted people found at the facility, and she continues, "There's no exact medium or game they're addicted to. It could be anywhere from computer games to console games to internet to phone. There are definitely trends in terms of symptoms, but that's about it."

According to the Admissions Director's observations, the patients at Cottonwood almost unanimously demonstrate anxiety and social awkwardness. This is more a result of

gaming addiction than its cause. Many also feel ashamed and embarrassed – there is a stigma that addiction to technology is a lack of self-control, and those afflicted simply need to get over it. It isn't seen as tragic or unhealthy like drug addiction, but rather as a character flaw. As a result patients tend to be admitted after interventions from friends and family, and struggle to find comfort during the program.

***Terms and Conditions**

"I don't like the term 'addiction'," says Professor Carl McKinney of UC San Diego's Communication Department. Professor McKinney grew up playing Pong, riding the wave of arcades, and keeping up with the latest home consoles of the 70s and 80s. As he observed these trends of technology, he gained a vested interest and pushed himself to code them. In grad school McKinney began studying gaming after researching virtual environments such as Facebook, World of Warcraft, and Second Life. The social context turned casual fun into massive communal experiences, and he was struck by how much time and energy people were willing to invest to better their avatars within these simulated worlds.

Citing his own observations and studies, McKinney took a firm stance on what actually defines a behavior as addiction. While any compulsive, enjoyable act can be described as addictive, "compulsions don't always lead to dependency or abuse." Compulsions are controlling desires that we acquire in response to dopaminergic reward for a certain behavior. Some of these may lead to dependency – the physical or chemical need to continue, even increase use. Dependency complicates the analysis of an addiction by blurring the line between use and abuse. The professor is dependent on coffee – though

he asserts that he doesn't abuse it, he tends to struggle most mornings before his first cup. He also exercises compulsively, enjoying the rush of dopamine and feeling of self-improvement; of course, he doesn't go through withdrawals when he stops. He considers neither of these addictions because he doesn't abuse them. "Abuse is the tricky thing to nail down, because it's subjective. If we believe in individual liberty, then only the person with a compulsive dependency can decide that they are abusing because abuse is measured by how the compulsion impacts that person's life."

Regarding game design's effects on compulsion or addiction, McKinney references Nir Eyal – business author and founder of two startups in the Silicon Valley. Eyal's writing focuses on the building of habit-forming products, and outlines the core component of addictive products as "a circuit that triggers an emotional need, and then offers a quick and easy action that is variably rewarded so that players will invest not just time but emotional energy that keeps them coming back for the next trigger." Though all games use this concept, McKinney expressed specific interest in "so-called casual games" that can balance minimal emotional investment with minimal return – in this way the hours spent getting rewards from Clash of Clans feel more like addiction than the hours spent to finish a quest in World of Warcraft.

When people experience flow in games, it is the frequency and attainability of the goal that influence how addicting the flow feels. Though all goals in play – whether easy or difficult – are ultimately arbitrary, the latter appears more meaningful simply because it is achieved less often.

Want and Need

Digital games and smartphones are still newcomers in society, and it will inevitably take time for people to adjust to them on a broader scale. One of the roadblocks that people will, and already do, face during this transition is the desire to disappear into them. Life can be difficult, ugly, depressing, but games propose an escape. To some they offer easy reward and arbitrary fulfillment. To others games give a competitive rush that sweeps away worries and problems. To others still, they bring to life worlds of adventure, intrigue, and possible impossibilities. Play is a device as powerful and complex and old as our imaginations, but it blurs the lines between real and make-believe. Live within it for too long, and you will forget the meaningful and the necessary.

Sources

- Andrea Gudmunsdottir, "The Current State of the App Industry," *Testbirds*, http://blog.testbirds.com/current-state-mobile-app-industry/, March 21, 2014.

- Dean Takahashi, "The app economy could double to $101 billion by 2020," *VentureBeat*, http://venturebeat.com/2016/02/10/the-app-economy-could-double-to-101b-by-2020-research-firm-says/, February 10, 2016.

- Jenova Chen, Flow in Games, November 28, 2006.

- "Review: Go with the flOw," PushSquare, December 8, 2013, http://www.pushsquare.com/reviews/ps4/flow.

- "Video Game Addiction Treatment," Cottonwood Tuscon, accessed December 1, 2016, https://www.cottonwooddetucson.com/video-game-addiction.