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The Psychology Behind Microtransactions –
What psychological processes drive us to spend money on initially free games?

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Abstract

Microtranscations are a recently introduced form of payment allowing users to spend extra money inside of a video game they previously downloaded. A lot of games that use microtransactions are originally free – yet they earn the developers a lot of money. This essay examines the psychological processes that drive consumers to spend money on a product initially labeled as free. Specifically research on the Endowment Effect by Daniel Kahneman (1990), Ego Depletion by Roy Baumeister et al. (1998), and Benign Envy by Niels van de Ven et al (2011) are studied as the main sources explaining why we would be willing to pay for services we could have for free.

With supporting theories from Dan Ariely, Mihaly Csikszentmihalyi, and understanding what makes video games enjoyable in the first place, the effectiveness of microtransactions is examined and addressed. Since we value things we own higher, our mental reserves can easily be sapped by monotonous tasks, and we like to improve ourselves through feelings of benign envy; free-to-play games exploit all of these factors to get people to spend money – humans are easily manipulative creatures, and their cognitive reasoning as well as their sociocultural principles can easily be influenced or abused.

Word Count: 199 Words.

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Introduction

Microtransactions, also known as In-App-Purchases (IAPs) are a new form of business practice within the video game industry. They allow a game developer to sell additional content or services for their product within the game itself. Before their introduction video games were always purchased as a full product, meaning that paying for a game once offered you access to all the content it would ever have. Microtransactions first became popular in 2005 after their introduction on the Xbox 360 video game console, with Microsoft launching the "Xbox Live Marketplace" during November. (Giantbomb, 2013)

The Xbox Live Marketplace allowed developers to distribute additional content for their released game at a small cost for the player. For example, after purchasing a game for its retail price of $60, players were able to buy additional content, such as map packs, for $5. This practice was generally praised as it allowed users to enjoy fresh and new content for an already released game. (Giantbomb, 2013) However, microtransactions became a very controversial topic in late 2009 when Apple allowed free apps and games to include IAPs. This meant that a game available as a free download would give players the option to purchase things directly within the game itself.

Quickly causing a heated discussion, IAPs have become a very looked down upon business practice by the gaming community. There are two key IAP variations in the Apple App Store that caused this discussion; one variant where instead of spending hours collecting items (such as coins) within the game, a player can spend a few dollars for various coin or item packs, thus allowing the player to progress in the game without having to do monotonous and repetitive tasks. The other form is getting rid of a timer. For example if a game forces you to wait five hours for you to be able to go onto the next task, you can spend real money to eliminate the waiting process. (Jonte, n.d.) There are many reasons why this is looked down upon, ranging from eliminating skill based competition - since skill is replaced by amount of money spent - to developing games that very clearly force a player to buy IAPs as the game becomes nearly impossible and very unenjoyably without spending money.

While this practice sounds like it would be unpopular amongst players, it is the contrary. A single Finnish development studio, Supercell, creators of two hit "free"

iPhone and Android games, make $2.4 million a day. (Strauss, 2013) Although the games are free, the players are given the option to spend money at any time to reduce timers needed for upgrades, and to purchase extra in-game currency. The question is though, what drives people to spend money on things they don't need? Spend money on things they will receive regardless if they wait? Many studies have been conducted on understanding why microtransactions are this popular, almost all of them connected by a single topic; social interactions and our need to compare ourselves with other people. Due to the new and unexplored nature of this topic, the majority of sources come from hobbyist Internet websites or psychological studies, which although studied relevant principles and human behaviors, were conducted in the past.

Endowment Effect

One of the older studies which was conducted in 1990 that helps explain why IAPs are successful as a business practice from a psychological point of view; Daniel Kahneman studied what is called the "endowment effect", which he explains as "[the] measures of willingness to accept greatly exceed measures to pay." (Kahneman, 1990, p. 1325) To explain this in simpler terms, an individual may value a good higher if it becomes part of the individual's endowment; we value things we own higher than if we didn't own them. This was experimented upon by having two groups of participants. One group was "potential buyers", and one was "potential sellers". They were both given the same object and were asked to value it. The sellers group valued the object higher than the buyers group. (Kahneman, Knetsch, & Thaler, 1990, p. 1328)

Based on this research, bringing the endowment effect into free to play games and purchasing IAPs, we would value an item (game) we possess higher. Therefore if a person was to download a free game which offered IAPs and spent x hours playing it, the game would be his. Due to the dedicated time, the feeling of ownership would grow. Thus, due to the endowment effect he would start to value the game higher, and since the product was free to start off with, the person would be likely to spend y amount of money on the game until he feels the money spent justifies the game's, now higher, value. "Free to play works because it doesn't ask you to value the game until you already feel you own it." (Harris, 2013)

While this is a fair and reasonable business practice relying on the fact that people pay for things they want to own, free to play games used a plethora of other techniques, tricks and strategies to get their players to spend money. One particularly interesting principle is that of "ego depletion" studied by Dr. Roy Baumeister et al in 1998.

Ego Depletion

Experiments done by Dr. Baumeister had participants exert self-control by being placed in a room with a one-way mirror, and told to eat raw radishes instead of "delicious [looking] chocolate chip cookies." (Baumeister, Brtaslavsky, Muraven, & Tice, 1998) Although no one actually bit into the cookie, people got visibly distracted by them and longed to eat them. Afterwards the participants had to engage in a series of problem solving games, with their mental reserves sapped by self-restraint. Compared to a control group that was allowed to eat the cookies, the radish group gave up and quit the puzzles in less than half the time. Similar experiments followed where participants had to suppress smiles while watching comedy, and then see how long they would persist in a word puzzle game. Findings were similar, with the "mental reserves sapped" group giving up on puzzles earlier as compared to the other group. (Madigan, 2012)

This theory very clearly shows why people would spend money on free to play games. Outlined with boring and monotonous tasks such as repeating the same activity over and over again, having to wait for a timer to go down, or having your character walk for a long time in the game world are all chore-like activities, are activities intending to bore the user. Having to do them repeatedly makes us more likely to simply purchase the boost or the helper instead of patiently waiting. "Ego depletion brought about by exerting self control can make us more susceptible to making impulse purchases." (Madigan, 2012) And as we are faced with another 20-minute countdown timer to advance, we might as well pay that one dollar to speed it up. (Saltsman, 2011)

Ego depletion and the endowment effect both work extremely well when these free to play games have multiplayer components, especially leaderboards. These leaderboards are always easily accessible and show the current players ranking out of the grand total, e.g. rank 150,567 out of 343,231. This was always believed to drive players towards being competitive and practicing at a game until they were skilled

enough to compete against the top players for a high-ranking score on the leaderboard. (Dunn, 2012) With IAP laden free to play games however, the factor that moved you to the top of the leaderboard isn't usually skill, but money spent. The success of this practice can easily be explained based on research conducted by Niels van de Ven et al. on benign envy entitled "Why Envy Outperforms Admiration".

Benign Envy

According to the study, there are three different kinds of envy; benign, admiration and malicious envy. It is generally considered a "virtue to admire and a vice to envy" (van de Ven, 2011) - this is due to the fact that admiration is a positive feeling congratulating someone on their success/achievement. Having this in mind means that instead of feeling inspired to compete against a successful player, and do better than they did, we are likely to form a stronger relationship with them. As of 2010 no further study has proven that admiration motivates people to be competitive or do better. Making admiration irrelevant, this leaves us with envy research conducted by Van de Ven et al in 2011 where participants had to comment on the kind of envy they felt and their associations with it. Most participants connected benign envy with improving themselves whilst participants who experienced malicious envy felt tendencies to bring the other person down by degrading them. According to the study, benign envy is more likely to be experienced if the achievements of the other person are deserved, and malicious envy is more likely to be experienced if the achievements of the other person are perceived as undeserved. (van de Ven, Zeelenberg, & Pieters, 2011, pp. 785-786)

One of the studies conducted by van de Ven et al. to study the two types of envy, had 34 participants split into two conditions: "Change is easy" and "change is difficult". They were told that the experiment was a "study of reading comprehension and explanation". The text both conditions received outlined and detailed the life of a fictitious scientist. In the "change is difficult" condition, the text suggested that the scientist was always meant to be successful. Factors such as being a great, introverted student, born in a family of scientists, etc. were highlighted, whereas in the "change is easy" condition the description of his life highlighted how he struggled to become the successful scientist, e.g. by being born in a poor family. Afterwards, both conditions read through a newspaper article on Hans de Groot, a science student who performed better

in a national student competition than the fictitious scientist from the first text. The two conditions then answered how much benign envy, malicious envy or admiration they felt towards Hans de Groot. Finally they then answered a study that would measure their motivation to do better in university, based on how much extra time they were willing to put into studying next semester. (van de Ven, Zeelenberg, & Pieters, 2011, p. 789)

The results showed clearly that students felt more benign envy towards the superior student in the "change is easy" condition and students in the "change is difficult" condition showed less benign envy. This means that they felt that the success of the superior student in the easy condition was earned, as the fictitious scientist had all the reasons to do well, and yet was beaten. If the fictitious scientist had a lot of obstacles in his way however, and was then beaten by Hans de Groot, less benign envy was felt towards that superior student as it didn't feel "fair". Admiration was slightly stronger in the difficult condition. Malicious envy didn't differ between the two conditions. The students in the easy condition planned to study more in the upcoming semester unlike participants in the difficult condition, which, with one exception, said they wouldn't spend any extra time studying. To summarize the results; this meant that if people think improvement is under their control, they experience more benign envy after being confronted with a "superior" which in terms leads to more motivation. However, if the improvement is considered outside of someone's control, more admiration or malicious envy is felt towards the superior.

This idea ties into free to play games extremely well. NimbleBit's "Tiny Tower" can be explored as an example. It's a free game, which tasks you with building a tower. The tower consists of "bitizens" who house the different floors and earn you in-game credits over time, which you can spend on building more floors to employ more bitizens to earn more money. Since all these tasks require a certain amount of time to pass, you can spend "tower bux" - obtainable at a slow rate in-game or purchasable for real money, to speed up the process. The packs can be purchased for $0.99, $4.99 or $29.99 offering the player 10, 100 or 1,000 tower bux. This is important to mention as it shows the difference in the value; it is clear that the $29.99 offer is clearly the best one, compared to the amount of tower bux you receive per the purchase prices. As Jamie Madigan from 'Psychology of Video Games' called it, it's a "Wait to Play" game, where you "check in on it, stock your shops, then check back in a few hours later to restock again and see if you've accrued enough money to build a new floor." (Madigan, 2011)

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Ignoring the hackers, the leaderboards clearly show the best players – the ones with the highest towers displaying how far people have progressed into the game. This triggers the benign envy; the player sees how many floors their "competitors" have built on the leaderboards and they can see they are "only *x* away!" Since they would need to wait another *y* amount of hours or days until they can build enough floors to overcome them on the leaderboard, the benign envy kicks in, meaning that the players feel this high-score was earned and that they themselves can do better to reach that score. In this case, doing better means spending some extra money on tower bux to speed up the process, thus achieving a higher rank in the charts. Therefore players "improve themselves" because they "know they can" by spending a little money, and climbing up the leaderboards, not only has the player progressed further in the game, but also feels good about their new rank. Repeatedly this thinking process of "I can be higher on the charts, I deserve to be higher on the charts!" gets players to spend real money on a game described as free. This method doesn't only work on NimbleBit's Tiny Tower naturally; there are thousands of free games, which, utilizing the leaderboard and benign envy "trick" players into spending money.

To involve a player competitively, the developers need to put a lot of work into the framework and design of the game to make sure it makes the player want to stay inside the virtual world. "Immersion" is one of the most important factors in any game, whether free or not. It's the agent, which brings in high review scores and leaves players satisfied with their purchase or downloads. (Beattie, 2013)

Flow Theory and Immersion

The "Flow" Theory is a very large part of this immersion factor. Developed by Mihaly Csikszentmihalyi, described as the world's leading researcher on positive psychology. ("Mihaly Csikszentmihalyi - Thinker," 2000) His Flow Theory, although aimed at all parts of everyday life, is something gamers are very familiar with. Flow Theory is the idea of being so involved in an activity that nothing else matters, that the enjoyment of the activity puts someone in the state of bliss so they continue with that activity. This naturally is what game developers strive to achieve when working on a game, to immerse a person so much that they are in a state of "flowing" through it, immersed either in the experience or in the virtual world presented to them. (Konda,

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2012) Although no direct research has been conducted on the Flow Theory and how it affects spending money in free to play games, a specific part of the Flow Theory has been used repeatedly in games, known as the "Flow Zone". The Flow Zone as described by Csikszentmihalyi himself, involves an activity reaching a balance between the challenge and the abilities of the participant. If the challenge is higher than the skill level, the activity becomes overwhelming and provokes anxiety. If the challenge is too low however, it provokes boredom. Naturally this is similar in games, if a game is too easy it becomes boring, if a game is too challenging it becomes frustrating, with the two ultimately leading the player to stop playing. And if someone's not playing the game, they are not monetarily supporting the developers. Therefore the Flow Theory is becoming a major part in game design, especially with a recent design milestone, a game titled "flOw". Designed by Jenova Chen and Nicholas Clark, the game was meant to be an interactive explanation of the Flow Theory. Upon its free downloadable release, the game was downloaded over 100,000 times in the first two weeks, and went onto being played over 3.5 million times in 2008, two years after its initial release. The game tasks the player with controlling a snake-like creature underwater as it eats smaller creatures and grows. The more the creature grows the higher the chance of encountering other more dangerous creatures that will eat segments of the player's creature. The player can never die, lose or win the game, and so the experience continues. This ties back to the previous point of the experience never being too challenging or too hard, thus keeping the player interested and playing. (Chen, 2006)

Implementing the Flow Theory into games with IAPs is from a design standpoint a difficult task, because any form of involvement with the real world takes the players out of their immersion into a virtual world unrelated to anything that goes on beyond the screen. A recent game that had success with this however was Infinity Blade, developed by Chair and published by Epic Games. Surprisingly, in its first year after release when gaming on iPhones and iPads had a smaller audience, Infinity Blade made over $30 million (Yin-Poole, 2012), making it the most profitable franchise for the publisher. Epic Games is one of the most famous game publishers in the world, so the news that a small tablet game turned into their biggest profit shocked the game industry. Although it is initially paid, with a price of $6.99, the game includes IAPs and uses several of the previously discussed psychological tricks to get players involved in the game, and therefore more likely to spend money. Infinity Blade has a huge list of items you can equip your character with. You don't need to be at any certain level to use

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the items, so the only preventing factor from using them is the in-game currency. The currency is obtained after every in game battle, which determines most of the game. The further you progress in the game, the more currency drops. Your character's strength however, depends mostly on the equipped items, and so the grind continues. As part of its brilliant design, Infinity Blade allows you to see all the possible items and compare them to your current ones even if you don't have the amount of currency you need. So you always know how close or far away you are from obtaining an upgrade that will make you better. Aside from that, the game features leaderboards and achievements. By enabling the player to see the items that he could obtain if he had *x* amount of credits, and being a fingerswipe away from purchasing this *x* amount of credits, players are a lot more likely to spend the money. The immersion and flow of the game in terms of difficulty, challenge and novelty trigger the initial thought, the benign envy drives it forward, and the fact that the player would alternatively spend another 3-4 hours playing the game to earn enough credits is enough to push the player towards their purchase. In this example, all the previously mentioned psychological processes and factors accumulate to drive the player towards a purchase.

Impulse Purchases, the "FREE!" Effect and Individuality

The sequel to Infinity Blade even utilized a strategy known as Impulse Purchases, which relied on presenting you items and "sales" trying to trigger a sudden, impulsive purchase. They achieve this by showing the player more powerful items than the one in possession with a direct link to complete a purchase when doing mundane tasks within the game such as browsing the menus, waiting during loading screens, or waiting to restart. Arguably this breaks immersion, but the previously mentioned theories all prove to be strong enough for an impulsive purchase to take place. (Konda, 2012)

Another factor that can contribute to this impulsive purchase is the value held for the product. Dan Ariely, a professor of psychology and behavioral economics studied the "FREE!" effect with several experiments - the most famous one being the tattoo experiment. The experiment relied on a tattoo parlor that was offering free tattoos, and to see whether people would be tempted to permanently ink their body, just because of the free price tag. During 5 hours, 76 people signed up for a free tattoo. The average age

was 26, ranging from 18 to 47. Interestingly there were 9 people who didn't know what tattoo to get, or where to place it, but they "had to have one regardless". Out of all the 76 people, 68 percent never thought of having a tattoo before, until they heard it would be offered for free. (Ariely, 2010)

Dan Ariely states that we are always tempted by the word free, one of the contributing factors, he says, is "[figuring] out how much something is worth…" which leads back to the value point. If a game is really good, and the player is having a lot of fun with it, spending several hours on it a day, he is more likely to spend money on it as his value of the game increases. He realizes that games usually cost money, therefore having x amount of hours spent enjoying a particular free game he almost feels guilty that he didn't pay for it. This increases the pressure on the previously mentioned factors, making it more likely for the player to spend money on a free product, justifying it by the fact that they are supporting the developer.

The last important factor to consider is the individuality of each player and their character. In online games a virtual avatar is similar to a person in real life. They all have different names, wear different outfits, specialize in different skills, etc. The only item that can be sold without directly affecting the game is outfits. The importance of outfits in video games was proven by the free to play game "League of Legends". The game has two different purchasable categories; new characters and "skins" which give a unique look to each player character, averaging at a cost of $15.00. This brings the company estimated revenue of over $150 million a year. (Wijnen, 2013) Although they don't change how a game is played, the player feels more unique and involved in the game, as his character looks different than it normally would, which is very attractive to the player. (Drain, 2011) In games that have no leaderboard, or no specific end goal, individualization of a character can make all the difference. Players who have a skin attached to their player are generally viewed as more professional and interested in the game and it's community. (TouchArcade)

Conclusion

Several years ago, the focus of video game psychology was on addictiveness to ensure a longer "play-life" for a product. Recently this has switched to a more monetary focused research, as publishers and developers take human psychology as an area for exploitation and money production. Although the hardcore gaming public is against the free to play business model, it has proven very profitable for publishers which use the model, especially implemented in more casual or phone games. From an estimate of 1,000,000 applications on the App Store (Costello, 2013) the top 4 highest grossing apps as of the 3rd November 2013 are all free. Thus meaning that the top 4 most money producing apps do so via micro-transactions. This can be taken as evidence for how effective and influential the psychological processes can be – the endowment effect, the depletion of ones ego, using benign envy and achieving a Flow Zone are being researched and taken into consideration when developing new games due to their effectiveness as proven by the studies – although the studies have all been conducted before the introduction of microtransactions, their principles apply to the free video game market, portraying and explaining the cognitive and social processes which fuel and, to a certain extent, rationalize spending of money on free products.

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