Motivational Aspects of Gameplay:
The Roles of Indirect Engagement and Social Presence in Play

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Abstract

Our thesis revolves around how intrinsically motivational incentives can be created by using gameplay elements and features instead of creating motivation with extrinsically mediated rewards. We find problems with achievement systems being too focused on rewarding players extrinsically instead of adding to the increase in motivation along with the gameplay experience. Using theories from the psychology field on motivation we created a foundation from which we started to design a game that creates motivation through its features and mechanics. From the feedback we received on our user testing and interviews, all within an iterative design process, we found that users responded more positively to our suggested improvements concerning the high score list feature in particular, followed by general gameplay features like visual feedback.

From the summarized data we have collected we have noticed that one of the main features people wanted in games was feedback on what and how they were doing, whether it was an action or where their competition was.

Key Words

Intrinsic and Extrinsic Motivation, Achievements, Gameplay, Social Interaction.

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[1.0] Introduction

We consider ourselves avid gamers with a penchant for achievements. From our past experiences, going for certain achievements in games takes a lot of effort. Once reaching the end of a game's life and its achievements, there's a seeming emptiness which gives less meaning once the final goal is reached. That goal can not be pushed and be rewarding again. An inherent problem with the achievement system today is that they are non-repeatable and passive in nature. For something that extends the life of a game it feels counterintuitive that it has an ending as well.

We wanted to explore how motivation could be coerced into the gameplay through the mechanics of a game to create a more sustainable gaming experience.

We begin this paper by zoning in on the weaknesses or problems with achievements as well as identifying some of its strengths that could be used as a basis for our work. Following this we will go through a few theoretical standpoints which we have gathered from theories on motivation in a more general context and apply these to our thinking and our work. We will then explain the methodology used for gathering our feedback and why we think these are important to our research. After methodology is discussed we will follow up with how the iterative design process we go through establishes the grounds from which the prototypes were made, and together with the feedback off the playtesting along with their respective design changes constitute our work. From these findings and observations we will discuss what we learned and through the conclusion what we found out.

[2.0] Background and Problem Statement

Play, an action or behavior that surpasses culture in age and transcends beyond being a thing reserved for human beings alone, exists outside of "ordinary" life for both man and animal. Play is something that is free-willed. In the adult world it is not something that is needed in everyday life, as it is merely something that is done during one's spare time and where the need is summoned from the joy of playing itself (Huizinga, 1949).

When we discuss play in this paper it is in relation to video games. This is also where our research focus revolves. As stated by Huizinga (1949), play is something voluntary, which raises our interest on motivation. Besides playing for the enjoyment that a game can deliver, such as an intriguing story or exciting gameplay, what other types of motivational layers are there in games and can these be built upon to create something that motivates gameplay in a more indirect way?

Most games released today include a system or features called achievements, trophies or badges, depending on which game console is used. In this paper we will refer to them as achievements. These systems function as a reward system for when a player has achieved a certain specified task in a game. The unlocking of an achievement often announces itself with a short chime and a brief pop-up message or image on the screen. Apart from this immediate feedback, the player also receives a score or reward for each unlocked achievement. The scores are then pooled together with the scores from achievements previously unlocked from both the current game and past ones into separate lists.

This is a system that we feel can be used as an example to help improve and create an extra incentive for players to challenge themselves outside their quest for finishing the game. This adds value and meaning to the game experience as a whole. The problem or the limitations as we see it, is the way these systems work today in a static and passive way where they function as a non-repeatable, extrinsic and closed reward. By closed reward it is meant that this exists on the system or profile you used when you unlocked it, where nothing is done with the achievement. As for them being non-repeatable it means that once a player has finished a task and been rewarded the

achievement, it will not be possible to get that reward again even if a player repeats that same task that unlocked the achievement the first time around.

A lot of the joy from playing gets forgotten in the quest for achievements. Even though extrinsic motivation can be a strong motivator for finishing certain tasks or even whole games, we want to step away from using a purely external mediated reward as a main focus for motivation.

Besides being static in their use today they force all types of players to finish the achievements in a game on the same conditions, mostly as a base for comparison to every other player. To collect all the achievements from one game the player has to finish a whole array of achievements which presents another hindrance or problem for a lot of players, namely difficulty. Majority of game achievements have a whole range of difficulty levels to them, ranging from the simplest tasks to ones that could take 50+ hours to finish. This can be really off-putting for a wide range of players, as well as overwhelming, to the extent that these players never focus on the challenge achievements can offer since the goal will seem impossible to attain (Fullerton, 2008:88). But having these kinds of clear set goals that the current achievement system has is something that can inspire further development.

Even though the existing systems lock out a lot of players it is because of practical reasons that the system needs to be as static as it is. Achievements which are not the same for everyone do tend to lose their status due to being easier to attain for some players, though having the same conditions for all players makes for fair competition. The plans to converge achievements to be account-wide instead of per character recently in the game World of Warcraft partially shows the preference to the quality of the achievement. This shows especially in terms of time and effort put in, particularly shown in a thread about shared achievements where a Blizzard employee Vaeflare (2012) confirms that it would be implemented at the highest level and that achievements are really to be experienced once per person instead of per character. Achievements should be designed to reflect the time and effort put in. As achievements typically follow the progression of the game they are scaled in difficulty just like the game. Achievements act in a similar fashion as they are set on rewarding the player and are therefore bound by the game's limits. The observation that games progress from easy to hard seems obvious, though reasons as to why stem in Game Design. As Matt Rix (2012) states in

his talk of level design at Game Developers Conference 2012, levels are about teaching and go from easy to hard giving players the experience they need to both enjoy and have more powerful insights to master things like puzzle solving. This difficulty curve which is implemented is what can easily shut out a player base without proper playtesting and is valid for achievements as a whole as well, not just achievements set when the user reaches a certain progression milestone in the game.

From their inception, achievements mostly focused on extending out into reality or relating what the user sees in a more personal and conscious way (Schell, 2010:13.51). The connection to reality and authenticity of the framework spread both from the games themselves and then into their communities, through the websites or third-party applications which handle them.

The core qualities of the social presence we want to achieve in this new system includes asynchronous play, where there are no direct pressures in terms with the progression of the game. In context with player-based challenges game participants would be able to have scores set for beating, instead of looking up and beating these scores. In addition to this we want to move away from being a reward and motivational system where the greater part of the motivation is triggered extrinsically. These in turn focus on tailoring the experience so that (for example) publications in social feeds are not sent indiscriminately and that the user experiencing this tailored experience knowingly understands the message is meant for only them. Current experiences like this exist but at a more interpersonal level, where a group of the user's friends are notified after they select whom to notify coupled with a custom message.

Our aim is to understand the realm of achievement systems and use it as an example to form something more dynamic and reusable that motivates challenge for players and most importantly, adds a stronger interaction to it. Achievements are an example of something that acts as a motivator that adds extra value to the gameplay experience, but we see opportunity in increasing motivation indirectly that is not simply acting as a reward system, as there are several detriments to achievements being an external motivator. The target audience would be the game designers who understand game experiences or have interests in the interactions of play. Game designers that find less fun from knowing the established achievement system is catered to the more hardcore completist (players who

have refined gaming abilities and want to complete games in their entirety) more than players who are willing to experience more of the game without the benefits of knowing the possibilities of achievements. We want to look for indications that there are other ways of motivating people into play through intrinsic means. Seeing players immersed in the gameplay of a game from our playtests would strengthen our thesis of how we may increase motivation without detracting from the game.

Research focus: How would we create a new dynamic and motivational layer to a game to promote social presence and elicit indirect engagement in play?

[3.0] Purpose

Through playtesting with people whom are familiar with video games, we want to explore what type of motivational incentives we can create and see how people respond to them, which will give game designers chances to induce a high level of motivation to players and spur the motivation on by having a social connection with the system without feeling that they have lost connection to forging the gaming experience.

[4.0] Limitations

We will limit our research by our comparisons of achievement systems of today to increased indirect engagement in play. Choosing to work with the aspect of game mechanics in relation to motivations, the area of research is therefore not too ambitious. We will be limited by focusing on player motivations and attitudes in particular; seeing how they work in a social context. In terms of the prototype we can limit what we develop by trying to find ways in gaming which inspire motivation in play as the directive. Examples of games which do this include many games from the indie game movement. We will take inspiration from games like Trials HD, Braid and Super Meat Boy. These games will be described later in the paper.

[5.0] Theoretical Approach

The scope of the research is to create a new layer of interaction for indirect play in comparison to achievement systems as they are today. By doing this we think we can generate motivation in a way that is positive for gamers.

Drawing from traditional board games, particularly the Eurogames or the German-style board game movement, there are similarities in the interactions between players that increase motivation within the gameplay by adding challenge extrinsically. This includes having players being forced into new situations indirectly and coercing reactions that go beyond the games' parameters. An example of this in the board game The Settlers of Catan is where players are able to barter and haggle for resources in a very open manner. It is up to the player to find ways of convincing others about their economic situation. This is not built into the game, though becomes part of the game as the game has set parameters for dealing with the transactions. The dynamics of the gameplay then shifts between the players involved, in this instance the act of finding compromise, instead of having the outcome depend on any randomization or luck factor. Arguably though as noted by editor and RPG (Role Playing Game) designer Jeff Quick, "the more a game relies on diplomacy, the less

relevant the actual game is" (Quick, 2012). He argues that the game is not fun as it is dependent on diplomacy, as there would definitely be a shortage of resources, and that it encourages players to be mean as their choices will not affect them or their position of winning. From this argumentation and what we know of this board game we can say that cooperative games only stay cooperative as long as each player allows for partnerships to continue for the sake of working towards a common goal.

Much of the approach to indirect engagement of participating players designed in these games come from vastly different mechanics. The importance in having something indirect affecting you during gameplay allows the experience of such games to both transverse the immersion as well as increase chances on more unique experiences between players. Keith Baker's Gloom is an example where players take turns doing storytelling and are able to show progression in the overall game with props or story elements. Again it is encouraged as part and within the game's boundaries to which it completes the game experience in a more unique way with each playthrough.

To be able to shape our reward system we need to identify some key notions of what motivates and (maybe just as important) what demotivates people. We need to find out what motivation is in a more general context and apply this to our field of work. We started off by using select paragraphs from a research paper with the title "Motivation through conscious goal setting", authored by Edwin A. Locke, Ph.D. Locke has published over 290 chapters, notes and articles in peer-reviewed journals, touching the topics around work motivation and job satisfaction among others (Locke, 2012). In this paper the author describes 14 findings on how motivation is affected by having a conscious goal setting in contrast to being motivated through subconscious or by external factors (Locke, 1996:117).

[5.1] Motivation

"Goal setting is most effective when there is feedback showing progress in relation to the goal" (Locke, 1996:120), we find that this finding from Locke (1996) is one that would be important to our system. The author describes how getting progress feedback on your goals actually reinforces

performance. With the progress feedback people often times set personal goals, which for instance could be to beat their own previous high score, or someone else's, as a way of challenging themselves (Locke, 1996:120). This is also supported by Sean Baron (2012), where he states that feedback on a player's progression can support their commitment to the game. The reason for this is in the relation between action and outcome, a player needs to know what and how they are doing (Baron, 2012). From this finding we realize how important it is for the user to be able to track their progress in relation to the challenge given to them by another player. If given the scenario where a player would be given a challenge to beat another player's score on a map yet the same score would not be known beforehand, we do not think there would be strong motivation to keep on pushing, since there would be no knowledge on how obtainable the score is in relation to their skill and motivational level. This is supported by Fullerton (2008) as well, where the author states that challenges needs to be well thought out and balanced to keep players interested. If challenges seem vague or unobtainable players will be frustrated and bored (Fullerton, 2008:88). Would a score be known before accepting a challenge, the person can both see if it is attainable and how they are progressing to overcome the challenge. We both feel that full transparency of the task at hand will be beneficial for the player, and that it is something our system's core will be built around.

"Goals that are both specific and difficult lead to highest performance" (Locke 1996:119). From this finding Locke discusses the importance of having clear goals for the undertaken activity. When a person is asked to "do their best" people tend to not really do their best. This is due to the reason that the goal of what their best is is vague. Even though a person will have an easy time to commit to a challenge when the goals are easy and vague, they could also be interpreted as an incentive for low performance (Locke 1996). The goal also suffers a risk of presenting the problem or task in a way that would confuse a player. If the mission instructions and unsolved problem is not harmonized it could inhibit information processing as well as the interpretation of the goals and rules thus leading to frustration which interrupts the immersion of the game when trying to overcome the objectives (Baron 2012). This statement leads into the realm of commitment. Locke states that the higher a person's commitment level is, the greater performance when the goals are specific and hard

(Locke, 1996:119). We want to develop a system that will invite the player to genuinely commit to their goals, and push their own abilities, and redefine what they perceived as hard. By this we mean that we want it to be a way for players to push themselves, without being forced to undertake an objective that is perceived as an unattainable one since this will frustrate and bore the player (Fullerton, 2008:88). Fullerton (2008) also writes about how players improve throughout games with tasks that were found difficult at the start which now no longer present a challenge. This is an adaptation to the challenges, so by presenting new challenges players would find new motivational urges to continue playing. An example of this in achievements would be the levels of an achievement already existing in achievement systems, or what seem to be different tiers of the same achievement spread into many achievements on the list. It is noted that it is an "emergent feature from a synergized design of multiple achievements" (Hamari, 2011:12). This means that although it exhibits the making of a single achievement which has progression in rank, it really is a group of achievements working together with a common metric of measurement or variable.

Besides having this more general standpoint of motivation the intrinsic and extrinsic theories on motivation are also seen as valuable for a further development of an extra motivational layer. Robert J. Vallerand (1997) sums up the two terms in this following quote:

> *"Over the years, researchers have come to identify two classes of motivated behavior. The first deals with behavior performed for itself, in order to experience pleasure and satisfaction inherent in the activity, and has been called intrinsic motivation. The second, which involves performing behavior in order to achieve some separable goal, such as receiving rewards or avoiding punishment, has been termed extrinsic motivation" (Vallerand, 1997:271)*

Extrinsic motivation is the most common motivator in many people's life's, meaning that most everyday activity is done to attain some external reward, for example working for one's paycheck. This motivational situation is the opposite of intrinsic motivation (Ryan & Deci,

2000:60). Seen from the previously mentioned definition of these classes on motivation the reward system on Playstation3 and Xbox360 are both extrinsic ones, where you get a reward for completing different objectives. This reward comes in the form of a small badge tied to your game profile and it essentially gives you some bragging rights for the tasks you have finished.

Intrinsic motivation is all about enjoying a task without any form of external incentives. It is when a person takes on a task or challenge just for the fun of it with the reward coming from doing that task and the positive experience associated with it (Ryan & Deci 2000:54). We want this to be a player's main motivation when starting up the game they are playing; to derive sheer enjoyment of playing games instead of hunting for an external reward.

[5.2] Social Context

Apart from the interesting and different game mechanics and stories games can offer there is a part of gaming that is growing and getting more important to implement in games, which is some form of social feature. In our own definition this is a feature that gives players ways to communicate with other players through a network. The range of choices to implement some form of social feature varies. One type of implementation used commonly is the use of presence, where there is a live co-operative or PVP (Player Versus Player) setup where players see each other's game avatar in real time in a 3D world, a good example being WoW (World of Warcraft). With this real time and visual social connectivity you get a companion and you get to show off your avatars gear as a bragging right for your accomplishments.

Social features do not have to be as literal as presence; they can provide a more subtle experience yet still offer the same social experience. Let's take the title Demons Souls as an example. Demons Souls is a form of dungeon crawler that mainly focuses on the single player experiences though one of their online features gives you a feeling of not playing alone. When you play Demons Souls while online you will see white ghost-like avatars running, fighting and even maybe dying before you. These are other players playing in the same area as you at the same time. This really

conveys a feeling of not being alone in the challenges ahead. Note that there are other social features in Demons Souls but they demand a more direct engagement as in numerous other games, therefore we will not use these as examples.

These two different ways of creating a social aspect of games can convey the same feeling in the end. When players in WoW were asked what their main appeal of playing games was the majority answered that it was the "social factor". In this same paper it is stated that a lot of players play WoW as a single player game, as in not being in a party or group with other players. The reason for this was that even though the game is built upon the idea of playing together, being connected to servers and seeing other players present as well as reading the chat windows gives the sense of a social presence; an audience. The authors gives this way of playing the expression "alone together" (Ducheneaut, Yee, Nickell, Moore, 2006).

Social presence in gaming comes from players understanding that someone they have interacted with while they were connected online has become important to them afterwards, where they start sharing their experience of the game together. Depending on the game this may come in many forms, though the general occurrences happen once the player associates and attributes data to this other player. Knowing that this data is unique to another's experience of the game gives this data that property. A simple generic example of this is when usernames are unique in a game, and players are able to have a friends list showing which of their added players are online. The association is there and the attribution comes from whatever experiences these players have gone through and perhaps chatted about together. Social presence there is a bit more literal as being online and 'present', giving this experience. Though being able to view other player's data in the game and seeing other foreign data uniquely attributed to other players also gives the experience of social presence while playing, though more as if a reminder that the other players have been there.

[5.3] Examples of Inspirational Games

Figure 5.1: A screenshot of the Xbox version of the game Trials where the ribbon is visible at the top.

Trials HD is a physics-based game of a motorcycle riding through a track with many different possibilities on how to accomplish it in the least amount of time. It relates very much so to an old computer game called Elasto Mania, which typically was the same but in 2D. Other differences were in the more realistic physics, track as well as obstacles and the addition of a more extensive amount of scoring and leaderboard system. One of the features which we felt was clearly expressing an indirect engagement to the gameplay was that it had a progression ribbon at the top of the screen which showed the nearest 'opponent' whom was essentially someone doing the course parallel in time to you to which you felt a stronger feeling of another players presence as well as an invitation to competition. This dynamic created within the game inspires motivation through social presence in that there is now a reason for the player to care about what they score, since they will have to compare it to a score of someone they know. This is very much something we wanted to implement somehow into our prototype for this reason.

Figure 5.2: A screenshot of the game Braid where you see the platform and puzzle elements.

Braid is a platform game which focuses more in telling a story and puzzle-solving while using a game mechanic where the player is able to control time or the timing of the game elements. Each of the levels are divided up into separate areas to which each has a different spin on the physics involved in the game concerning this time-controlling factor. Games similar to this where the player is forced to 'think outside the box' allow for players to talk about the game outside of its gameplay as well as induce some lateral thinking. Even though this game has achievements we feel that the motivation for finishing Braid comes from the well thought out puzzles that challenges the players. Throughout the game the difficulty level gradually increases which keeps the game challenging until the end. The creator of the game Jonathan Blow mentions in the documentary Indie Game (Pajot & Swirsky, 2012:29.55) that there is an importance in details and interesting insights. The dialogue between the developer and player teaches the player to find these unique details and shows these insights which in turn make the game interesting to play. Simply being different than many other games inspires motivation in other ways that do not involve a competitive or cooperative nature.

Figure 5.3: A screenshot of Super Meat Boy, showing the time on the upper left, and Bandage Girl to the right.

Super Meat Boy on the other hand is a platform game which focuses more on being able to get through a level to save your girlfriend, Bandage Girl. The game caters more for the hardcore-type players where you face off against yourself in the replays as it is very likely you will have many deaths before succeeding. The game also has leaderboards and user-made levels which are challenging and entice a lot of competition-like behavior. The goal-setting factors of Super Meat Boy allow for a sense of motivation in combination with the competition. You have different sets of leaderboards, both for an overall comparison of everyone who has ever played and connected online to people in your friend list. There are also different difficulties to the levels being played, where the more difficult version of each levels unlock after beating the best time for that particular level. Unlocking more stages with more access to further levels require the completion of a certain number of levels together with the boss of that stage. The idea of progression together with the ability to set clear goals that further that progression was something we wanted in our eventual design work.

[6.0] Methodology

[6.1] Data Collection

We would be doing qualitative research, where we gather data supporting our theories and establish empirical data from directly observing our user tests. The conference papers specific to academia, news aggregation, forum posts coupled with any blogging platforms will help in this establishment. Fullerton's (2008) book on the playcentric approach will be used as support in our development of the prototypes and eventual product of this paper.

[6.2] Prototypes

We use prototypes to let our users test our design ideas. A prototype can be created in any form, as an example a paper mockup of a future product serves as a prototype for a project, just as well as a more complex prototype in the form of software. The important thing about prototypes is that they allow users to interact with it and therefore give them a chance to experience what the future product could be like and it's uses (Sharp, Roger, Preece, 2007:530). But building prototypes is not solely a way for testers to evaluate but also a way for the designers to reflect on their design choices (Sharp et al. 2007:530).

Lo-fi-prototypes is a common way to start of prototyping a product. The concept of the lo-fi-prototype is to create a prototype that is cheap, simple and produced fast. By having these features to a prototype you are able to make quick modifications to it which is important for a product's early development. Being cheap, easy to make and easy to modify invites for exploration and change of the prototype which also is the main reason for lo-fi-prototyping (Sharp et al. 2007:531).

Hi-fi prototypes are, in contrast with lo-fi prototypes, a product that is much closer to what the finished product could be (Sharp et al. 2007:535). It is in the hi-fi prototype that the tester can

try out functions the way they might be implemented in a final version. But a hi-fi prototype can sometimes make the testers think that it is the final product and therefore be hesitant to critique it (Saffer 2007:115-116).

We choose using prototypes to evaluate and be able to evolve our design ideas by letting possible future users to use and give their input on our design choices. We developed a lo-fi prototype to start off our design process and then moved on to a hi-fi version. And we took great care to create a hi-fi prototype that is not polished to the extent that our user testers would be reluctant to critique it, but still keep it enjoyable to test. The inputs from the users were very valuable for us in our continuing iterative work on the prototypes as the input serves as the base for each design change.

[6.3] Interviews

From the user testing we garnered feedback by directly interviewing users after they have experienced the prototypes. These interviews were carried out in a semi-structured fashion. Having this type of structure for the interviews allow us to probe the test person for as much information as possible as we can follow up with spontaneous questions to the interviewees . Questions in a semi-structured interview should be as neutral as possible to avoid leading on the interviewee to give the answer expected from interviewer (Sharp et al. 2007:299). Using a semi-structured interview we also had a few basic questions prepared, but as the test person answers we can follow up on their train of thought. It is also suggested giving the test person time to speak and think about their answers (Sharp et al 2007:300). Giving the test persons this open interview condition helps the user to express whether or not the interactions were feasible in the prototype through how satisfied they were and if their input sparks a conversation around this new implementation we can easily follow this input with questions.

We will direct the conversations to attitude-oriented thoughts and behavior. This will include aspirations, avoidance and motivations (Cooper, 2007:66). The main objective is to gauge just how

much motivation is expressed and how it affected their user experience. Questions like how they enjoyed the new implementation, if they rather not retain certain aspects of the experience or if there are any things they would like to add that will make things clearer or improve the overall gameplay or design aesthetic.

[6.4] Usability Testing

In usability testing the makers of a product have a chance of evaluating their product before making a final version. As suggested in the name, when evaluating a product in this manner it is not the users being tested rather the evaluation falls on the users testing the product (Sharp et al. 2007:646). During these test sessions one should observe and talk to the users and write down the inputs and thoughts they have on the tested product. By doing users tests the designers get the chance of using the input of the testers to correct eventual errors in the design (Saffer 2008:118). Saffer (2008) also warns designers not to guide the testers but mainly observe and document, nor should the designers distinguish themselves as such since this can make the testers reluctant to be as open with their thoughts on the design.

Having usability testing done on our prototypes, we consider chances for us to collect invaluable data. The information we collect from the user test serves as the basis for our iterative work on the gameplay. During the test we were wary of how we present our game so there would not be any hesitations from the testers on the critique.

[7.0] The Design Process

[7.1] Conduction of Play Tests

The user tests were mainly conducted in an environment that the testers were familiar with. We could just pack up the lo-fi prototype and visit the tester in their home. A similar approach was made with the two hi-fi prototypes, where we stored the prototype on a memory stick and brought it to the chosen venue of the tester, which mainly was their home. We could then start the game on their computer. We perceived this as a good approach to the tests since the testers would be comfortable in their own home.

During their test session we would observe and take notes based on the tester's reactions and thoughts. To be able to gather as much data as possible the testers were also encouraged to think out loud to give us a chance to take part of their spontaneous thoughts and feelings.

In our user test of the second hi-fi prototype we gave the players two versions of the hi-fi prototype. The first game they got to play was very ascetic in design in an attempt to remove any extra motivational incentives. This first version only gave the player a countdown timer, with the current score not known. There are no apparent goals for a player to reach for and no form of social presence. The subjects were only told the object of the game; to click the heads that appear as fast as possible within the set time frame which was 12 seconds. The short playtime of 12 seconds was set because we wanted the users testing our game to play as many rounds as possible without feeling like it is a huge time investment. After the tester had played both versions we asked them to go back to the version which was scaled down, this was in an attempt to see a change in their gameplay coming from the version with more motivational incentives.

[7.2] The Low-fidelity Prototype

Figure 7.1: A photo of all the game pieces for the low-fidelity prototype/board game Axis of Tower.

For this run we wanted to create a simple dexterity-based board game which allowed openness for discussion as well as the ability to bend the rules. The materials used in making this required mostly paper, cardstock and toilet rolls. We decided that playtesting would be taken in pairs from this prototype, where the players are aware that they would be playing the same game, and are monitored on how they act and react to each other during the playtest session.

A spin top helped make the main mechanic of the game, where it created the time used to build towers out of the cut toilet rolls as high as possible without them tumbling (very much like a version of Jenga, a block stacking board game). The aim is to set the bar for certain stats, and have the next player try to beat them. This goes back and forth until a winner prevails.

What we did first though was allow the players to get used to how the game mechanics worked. To do this we set a standard challenge that the players could attempt to go for and play with. We let them talk out with what they thought concerning the game and if it was “fun” or simple enough to enjoy.

When they were comfortable with how the game was, play then resumed to an expanded form of the game, where players could now start challenging themselves with a goal, and then challenging the other player to attempt to beat it. The game became more free form and the rules for playing were loosely defined, allowing players to try out and experiment what they would like.

[7.3] Evaluation of the Low-fidelity Prototype

First we explained the basic pretext of the game and possible social context for playing.
After the warm-up playthroughs, we told them to throw the rules out the window and attempt to challenge one another.

Initially one of the participants felt that the game itself felt small and needed to be laid out in a larger format. They also voiced that the game would be more fun knowing that there are limitations instead of having to experiment and come up with challenges, for example having the challenges already written out and letting the players pick them from a list. Another suggestion was to have a more visual feedback of the winner and loser together. The indications of either were not clear enough to communicate the state of the game.

The players seem to agree that the game would be fun in certain situations or context, like if they were drunk together with friends and a similar game was on their mobile phone. Another example given was if it had some kind of value in continually playing like a friends list which updated values.

We concluded from the first workshop that the participants did get some inspiration from the prototype, though it did not really increase the levels of motivation to continually play the prototype. The game itself was acceptable but when shown what type of implementations it was going to have there was a bit of skepticism.

The critiquing of the game shifted to the actual system, though the level of interest was low. We discussed what could be improved though. One of the participants at least said that she would use it if it were a mobile application, and if she was drunk with friends, for example. It was hard to

talk passed the lo-fi prototype, but the points brought up were good suggestions for what could be improved.

What we wanted out of creating this board game was to see and gauge user responses when introduced to new game mechanics. It was a fast way to observe what it would be like to experience the effects of indirect engagement in a unique board game catered for dexterity-based play. We did see this through the playtest that the game did inspire the players to talk with each other, even while they competed against each other for a high score. What they talked about was based on techniques. Techniques on how to get the most spin on such a small platform, or remarks on how the spin top should be spun. Although this commentary would have a hard time getting translated into a video game as it is commentary on tangible objects, there is value there which shows the potential of indirect engagements when playing a game.

[7.4] Decisions for the High-fidelity Prototype

Shifting from the lo-fi prototype we felt we could continue in making something dexterity-based and see if we can also implement the social context we wish for the game to have while considering the new medium.

The adjustment into making the hi-fi prototype came from wanting to make a video game that reflects one property of gameplay which inspires motivation. The reason why we wanted to only focus on one property is partially due to the time constraint of the project, though also through a need to distill the game into core mechanics and to add something that one can say is a motivational facet of the game. This is also not an uncommon reflection of what the independent game community sees in what makes a game today. In a blog post about the twenty-third event of Ludum Dare (Standke, 2012), it has been noted that there is a natural tendency to be minimalistic in a game and that there is a "certain suspense when the whole game mechanic is reduced to one active opportunity for action". Ludum Dare is an online event where collaborations in creating games circling around an announced theme and set of rules take place. From the observation one can argue

that this twist where a game mechanic is simplified or reduced to an opportunity may be what players find interesting in a game. It is with this thought we decided that a part of our prototype will use that observation. The reason why we chose to do a clicking game instead of any other game stems from making a simple game with this special mechanism and it was also much easier to prototype with consideration to how much time we had.

The hi-fi prototype's game title is Aquavasion Smack which in large is a reference to the graphical style and genre of the game. The word "aquavasion" is a portmanteau of the words "aquatic" and "invasion". The word "smack" was chosen to hint to the player that the game will circle around that certain action, and prepares the player on what to expect in-game. The location setting is in an underwater world where an abundance of these creatures appear and stay until the player 'smacks' them with their mallet or hammer (the cursor). This environment was chosen as we did not want an environment that would be too abstract for the player to relate to or too bland, rigid and structured that players would have only one strategy of competing. What that means is giving the player more freedoms in how and where they position their mouse instead of having an 'optimal area' where the player must have their mouse in order to score the most points. Why we chose water over (for example) air is that movements in water allows for more free-form motion and floating characteristic that suspends the disbelief of the player to accept that these creatures are solid and living, and that they still may appear above, below, towards or away from the player without physical limitations. For our prototype which centers around how well a user can react and their hand-to-eye coordination we decided it would excite the player more knowing that the environment is open like an ocean or other body of water and not constrained like a conventional Whac-a-Mole game. The original arcade machines had a total of five holes where moles would pop up. Many derivatives were made where there were more holes (and less), though the constraints of physical and mechanical properties of the machines did not allow the moles to appear just anywhere.

The appearance of the creatures was taken into consideration as well. In the initial prototype they were just colored circles which the player would click to remove. Upon further thought and some logic, we felt it necessary that the player would associate with this 'pest' on a more personal

level if they looked like they deserved being in trouble and wanted to get hit. So we added some eyes, a mouth and a personal feature which would distinguish one from another. To exaggerate their expressions helped get us what we wanted to go for. It would make it seem like they made funny faces to the player, and the player with their hammer would want to click on them.

In terms of narration we found that the premise the game is based upon is enough to keep the player interested. Not all games need a story, even if they help connect to the player at a personal level. The problem with a narrative is that they are linear. The have a beginning and an ending. The game has a hard time repeating itself without changing with every playthrough. This is true with the exception of games that randomly generate their levels, for example. That is how we felt when we discussed what we wanted out of the game with ourselves.

[7.5] The High-fidelity Prototype

This initial version was tested on two pairs of people who tested the game individually. This prototype had a timer implemented that counted down from 15 seconds, where the timer was shown in the middle top part of the screen as well as one indicator following the mouse cursor. Having the timer at two places was done to give the players an easy and quick way to see their remaining time without having to waste valuable playtime looking to see how much time was left.

The same implementation as for the timer was done for the score counter, the testers can see their score at the top left corner or just looking at their cursor as it is trailing it just as the timer. The score shown by the cursor differentiated itself from the timer by being color coded. The color of the score near the cursor turns green when you beat the topmost score on the high score list, which is generated per-session.

The high scores are updated after every played round, and it is after each of the rounds that the players get to type in their name which will then be added to the high score list. A basic and expected function to high score lists, but we also thought this would strengthen and solidify the motivation of our test players. By seeing their name on the list we hoped to get them to replay the

game to try and beat their own score. High score lists are commonplace in games and we choose to implement it for several reasons. It gives players a goal to aim for, as they play more rounds they can see how they have progressed overall and sharing a high score list with friends will also give that notion of presence.

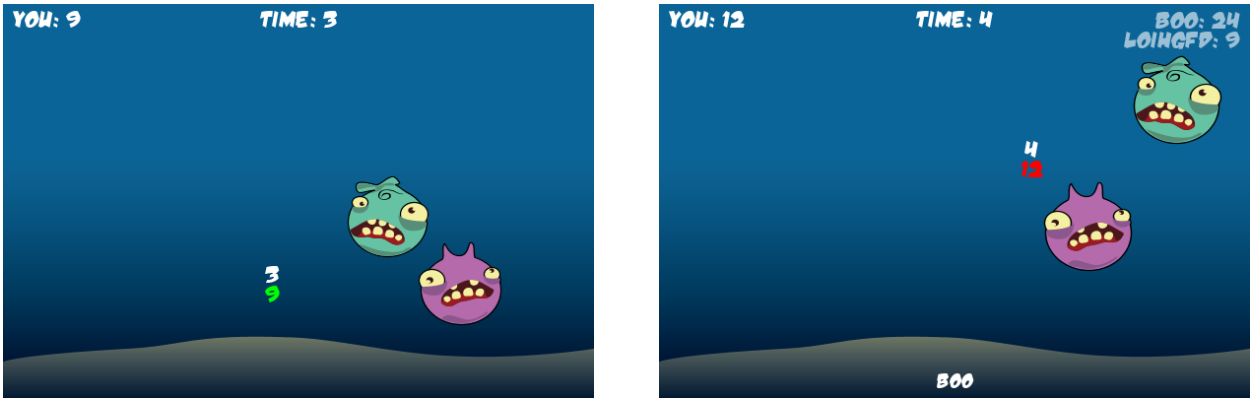

Figure 7.2: Screenshots of Aquavasion Smack. Note the cursor has a red score after 'BOO' scores 24.

[7.6] Evaluation & Design Changes of the High-fidelity Prototype

The time module that followed the cursor was perceived as confusing. They were uncertain to what it actually meant, to what the numbers were. They did not make the connection that the top number following the cursor was a countdown timer. One of the testers first thought that timer had something to do with the scores, that maybe it counted down from each click. There was an assumption from some of the testers that it could be a timer, though it was not as obvious as it should be.

The color-coding on the scores that followed the cursor was appreciated, but there was some confusion as to why the score had to follow the cursor and it was seen as visual clutter that was intrusive on the gameplay. They did like the change in the color, and that there was feedback present when reaching the high score list. Most players agreed that this feedback should be related in another and more direct way.

The high score list of this version was not persistent and was reset each time the game was played. Having a high score list was something that all the playtesters felt was needed, and something that kept them constantly motivated. They really felt that they wanted their high scores to stay so that they know that their name would be seen by others. Knowing that the name would be seen by others would be a big motivator, and seeing others on the list allows for a more competitive kind of play.

In a more general context the testers requested more feedback from the game for reaching certain points, entering the high score list and on how they were doing compared to the other players.

We took a look at how our inspired games showed scores and time. In general this type of data 'hugged' the screen (See figures 5.1-5.3 for examples, where the player is informed as unobtrusively as possible). Conforming to this kind of aesthetic, we would have to move the data we want to show the player accordingly. The high score list is still something new here, though from our user testing the way it was introduced was readily accepted. It helped that their game objects spawned on top of the list and that the list's opacity is reduced by about half so that the text is not as disturbing. It was here we also added the sounds of the creatures 'hiccupping' when getting hit with the hammer for the added feedback that was needed and also so the player would enjoy hitting the creatures. Simple music was added to allow the player to imagine some form of rhythm in the game so they do not need to look at the timer constantly. We also felt that the timer made graphical instead would allow the player to think of the time left more visually, "I have a lot more time left" or "I have this much more time left" or "Time is running out and I have very little time left" instead of knowing exactly how much time is left.

Design changes for hi-fi prototype 2

Make the high scores persistent

Remove score and time following cursor and present them in more clear way

Add better feedback to the gameplay

[7.7] Second High-fidelity Prototype

This version was tested on a group of five people which tested the games individually. The test consisted of the players first trying out our very feature poor and scaled down version of the game. The scaled down version only consisted of a timer that counted down with numbers and after your round you were presented the score you got. This was all done in an attempt to remove motivational aspects of the game for us to get a good comparison between the two versions and how much effort was put in to each of the games.

The other version the test subject were presented to was a more feature rich version of the game. This time several features were designed to promote motivation in the game. The biggest motivational feature consisted of a high score list. The high score list function deviates somewhat from how high score lists more commonly are used as this list was updated live while the test person were playing the game so they could see how they progressed up the high scores in real time. The high score list now also functions as a strong social entity by having the names of people who played the game before saved into the high score list. For the first player the high score list was rigged with a few fake names to keep the evaluation as consistent as possible.

The player also got to type in their name after they played their round, just as in the first hi-fi prototype.

We also implemented a more graphic countdown timer which was done for the purpose of gathering data on what type of timer people preferred and why, since we thought having a built in timer is a basic feature for this type of game that people playing it would expect. It was also implemented as a way of getting the test players to engage in the game at the best of their ability by giving them a clear view on how they had to perform in the time span given and always being able to see how much time they have left to achieve rank one on the high score list.

To further illustrate for the test players on how they were doing and what they should aim for besides the high score list we simply typed out in red what score to beat together with your current

score to the left of the screen. When the player beat the minimum score the text changed from red to green in an attempt to graphically as well as literally show the players that something positive happened.

Figure 7.3: Two different versions of Aquavasion Smack. The version to the right was used as a control in our tests.

[7.8] Second Evaluation & Design Changes of the High-fidelity Prototype

This version of our hi-fi prototype was done to get a thorough evaluation on the motivational aspects of the game. This version had features implemented that were based both of the input of our first hi-fi prototype as well as game functionalities created based on the theories of motivation as a basis.

The thing that stood out with this high score list is the way it works, and this was noted by all of the players and was highly appreciated by all the testers. They all thought this live high score list was the thing that really motivated to continue to push on and get a higher score. The live feature of the high score list is very successful in terms of motivation as all the testers responded positive to it and liked the way their score climbed up the list.

Even though the test was carried out individually some of the testers knew each other from before and when they recognized a name on the list they were spurred on even more. Those two who recognized some of the names really tried to push themselves to pass them on the high score list, one test player even started to jokingly ask if the high scores were stored in a separate editable file so he

could edit himself in when he couldn't beat a score. There was virtually no confusion regarding the high score list's functionality, which probably could be because of how common high score lists are in games.

The time indication divided the testers in opinion. When asked what they thought of the two different ways of presenting time some preferred the graphical version while some would like to have both the graphical and the textual version. Majority thought that the timer counting down with numbers was a bit stressful, but that was not seen as something negative since they experienced the game as high paced and did not mind getting a bit stressed to add to their performance. It was the consensus among the players that the graphic time indicator gave a faster overview on how much time was left in relation to how long they had played.

The score indicator in the top left corner of the game window was usually noted by the test subjects when they had played the game at least one round. The indicator was then noted as something that would change sometime during the game, but it was not always clear why it changed. After a few testers was asked about it they said that they noticed that the color changed and the change in color was an indicator that something positive happened. We somewhat anticipated that this indicator might not be the first thing for players to notice since both the graphic time indicator and high score list was visually intrusive. We believe the indicator still is valid and a good way to show off that a first hurdle to enter the high score list has been overcome. Can the indicator give a stronger feedback when the score it presents has been reached we think its use will be more appreciated.

Concerning the more general gameplay several of the test subjects asked about bonuses in game, as an example, get bonus points or bonus time when clicking the same colored head five times in row, or a feature of that sort. This has been up for discussion during the development of the game but was not prioritized. Hearing how many of the testers that missed some kind of bonus feature during their gameplay there will be some bonus implementation for the next prototype. In terms of motivation we think that these bonuses can be used as sub-goals for players to reach while hunting

for a placement on the high score list, players can use this type of feature to set smaller goals in the quest for high scores.

Here we had to find ways of adding even more feedback to the gameplay. We felt that the purest form for the countdown timer to take would be a combination of both textual and graphical as the playtesters seemed to want either, but sometimes not the other. Some compromise has to take place. From what is requested and in order for the bonus feature to be experienced as fun, and so that the game does not go on indefinitely without any challenge, some kind of dynamism has to be introduced into the gameplay. What is nice about this direction we took is that now the game will have a larger motivational drive when players figure out just what the bonus time feature does and does not do.

Design changes for hi-fi prototype 3

Add a number based countdown timer on top of the current graphical one

Add some form of extra feedback to the score indicator

Add some form of reward system during the game, i.e. get bonus time or bonus points for clicking a certain random object that appears during the game session.

[7.9] Third High-fidelity Prototype - Final Iteration

This version of the game we still choose to call prototype, but it is the final iteration for this project. This version has some small changes compared to the former prototype, but based on the feedback on our features some really positive changes were made for this version.

One of the more game altering additions to the game was made in this version by adding a bonus feature. It consists of a head holding a +5 sign which pops up the last three seconds of the game. Clicking it extends the game time yet rewards the player with no points. A bonus feature in some form was requested and missed by a majority of the testers. A hidden quality introduced together with this bonus timer, that players will realize when they play this game, is that it is the last

three seconds minus a penalty of 100 milliseconds for every time the player has extended the game time. The catch here is that while the bonus creature is up the other creatures get extra score points. So the player has to divide their remaining time of these last seconds or milliseconds into clicking these before finally extending the game time.

The score indicator that is located in the top left corner that changes color once a player reaches a certain score went through some minor changes as well. It basically works the same but gives better feedback to the player when the indicated score is reached by giving off a sound.

Changes were also made to the time indicator we implemented so both the graphic and text-based timer is present at the same time using the same screen space. We choose to do this since our testers didn't state a preference for one or the other. The graphic counter is in the same place but now has the text based one on top of it. This was done to let the users see exactly how much time they have left as well as giving them the quick overview that the graphical timer could give.

[8.0] Discussion and Analysis

In this paper we aimed to research on how intrinsic motivation could be created in video games by focusing on using gameplay elements and features instead of creating motivation with extrinsically mediated rewards.

Our perspective of what Interaction Design means and entails for this paper is the understanding and allowance of making technology accessible for the user; making technology more human for human needs and their (eventual) appropriation into societal demands when finding new uses. We take a look into the field of Game Studies, grounding our findings first with *Homo Ludens*. We also bring in a bit from the field of Psychology as we understand what creates motivation and what processes (such as goal setting) affect it. This paper is very much more of an academic approach with attempts to figure out if it is possible for game designers to inspire motivation without resorting to gimmicks like achievements.

Using our prototype in which we created elements based on theories on motivation, we could try these ideas out. One of these theories was based off of Locke (1996), who argued the importance of having progress feedback in relation to a goal. This argument was tested through our high score list where testers could see where their scores were while playing. Most of our testers started aiming for the highest score on the list. If they could not reach this particular score they set themselves a new goal to which they tried to reach which was attainable to them, which in turn spurred on their motivation. By being able to set a score themselves that they could be pleased with created further motivation. Fullerton (2008) and her statement on how unobtainable goals can bore and frustrate a player really came into light through this. Would the game have presented a challenge for the users in the form of an achievement where the goal would be to reach the top on the high score list a majority of our tester would probably be frustrated, but now they had the chance on setting their own goals based on their abilities. Though the high score list was appreciated we realize it is not optimal in its function and if the high score list could cater to a more individual level it would probably improve further. An example could be if the high score list would been tailored for each

individual testers abilities, if so a higher level of motivation could have been reached. We can not take goal setting to such an abstract level though, as we have observed in our lo-fi prototype. The extended play of that board game did not yield much in the form of play and the open exploration the player gets destroys the kind of conflicts experienced from games where the boundaries are clearly set and there is a limit to the rules. Of course this could depend on just who we playtest, as different types of players might have given us a more varied result, though we suspect that in general players want to set little goals that are an inherent part of the play in the game.

From the second revision of the hi-fi prototype we start implementing a more specific and unique gameplay characteristic. Focusing now on the high score list and making it live so that the player can see where they are while they play goes beyond the paradigm of having a high score list separate to the gameplay. Traditionally and because of how it can not be accomplished visually as it is a lot of text, high score lists were what appeared after the game was over. Back when classic arcades were what localized high score lists became important to breaking world records for, which you see in the documentary The King of Kong (Gordon, 2007), much of the focus was simply to beat the top score. Arguably the documentary has a bit of a distorted view as some of the events and the relationships portrayed in it are a bit skewed for the entertainment value, as the director has later conceded. Though the player motivations in the games they play are what we are taking up here. We saw through our findings on goal setting that non-hardcore players can set lower goals if the goal is too high, and that all players appreciate seeing their progression upwards on the high score list.

During our comparable testing during prototype 2 when we asked a user tester to go back to the scaled down version of the game the tester actually scored two points higher than he gotten in any of the versions before. In this situation the strength of having a semi-structured interview style showed itself. We started to ask questions on how it felt setting a personal high score compared to the fully featured one. The answer revolved around it feeling rather pointless hitting a personal best in the scaled down version, even though the test person got some satisfaction from reaching this personal high score. The tester then, on his own volition, started the fully featured version and set

out to get on the high score list with that score. The importance of having goals and even better, attainable goals set out has proved important.

Due to the limited amount of time we had well into the project, we were forced to concentrate on the data we had from user testing. Our target audience, which was the game designers, had to be forgone as we had no time to garner and then process their feedback. This would also have to go through one more iteration of our design to implement their suggestions and see what would improve our paper regarding our attempts of understanding motivations in gameplay. What we have done though, was take what we could from interviews that involved such developers. We especially were interested in what the developers from our inspired games have had to say, particularly for the games Braid and Super Meat Boy. During the course of this project we also made it a point to play through most of these games and assess for ourselves what it is we are experiencing, confirming if what we experience is also what we went for when designing our hi-fi prototype.

Game Design in the independent scene is not easily defined. It is a de facto rhetoric that for every insight that is found absolutely true in game development that there is a game or two which goes against and defies that very logic. The definition for what makes a game is quite fuzzy at the moment, especially with the discussions going around about how games are art and how anything can be a game (and not just with gamification). Two concepts have emerged recently and seem very true for most games, and that is the concept of 'flow' popularized by Jenova Chen and the concept of 'juice' first introduced in a Gamasutra article about prototyping games. As Chen (2006) describes in his thesis, the origin of this idea of flow was first noted by psychology professor Mihaly Csikszentmihalyi. As we understand it, flow is a state where players become immersed in the gameplay and are in tune and fully focused with what is going on. The relationship between the challenges of the game to the player's abilities defines how well flow is established; leading players to anxiety if the challenge is too high and others to boredom if their ability exceeds the challenges presented (Chen, 2006). Many things affect flow in a game and specified in Steve Swink's book Game Feel a lot comprise of mechanics, responses such as sound, the context or how people perceive things and the use of metaphors among other indications. These indicators link to the concept of

'juice' as well. The definition of 'juice' is the addition of aesthetic and visually pleasing elements into the gameplay where the player can get a maximum amount of feedback with minimal input (Gray et al., 2005). These concepts help game developers ease into making a game, as they tap into what many players look for in games. The prototype we produced from our work tries to emphasize one game mechanic, and through what these concepts give to us as developers, we do eventually add these types of things in our iterations. Features like the addition of sounds, the way the characters look and even how players experience time are all part of these concepts. A game without these added considerations will not feel like a game, and players would not feel like it is natural to play either.

This is an opinion of course, but gamification and achievements in games in their extrinsic qualities are not as integral to the gameplay of a game as they could be. This is why we could attempt to compare them to how motivation can be created from within a game, as achievements create motivations from outside a game, though in the form of a metagame, which is to say, a game on top of the game. In Super Meat Boy for example, achievements are only worthy and are attained through a lot of progression in the game. This means to say that users have no need to regard achievements other than milestones of said progression, and therefore do not need to think about them. The player engagement is towards the structure that makes up the achievements rather than something from the game. That is not to say that the same achievements have no merit, as they are then used as a way to show off to others which does constitute as a form of indirect engagement.

Summing up the data from the user tests there was a clear pattern on what increased motivation in the testers, which was feedback. Giving the players feedback through the countdown timer, score indicator which had its own goal to meet or seeing their name climbing towards the top position on the high score list there was always a positive response to it which seemed to spark their motivation. Had the goal been something one only could reach once as in achievements today there would most likely be a high level of motivation until it is attained, if attainable for the player. But, once achieved there would be no purpose to push oneself again. This speaks for focusing on creating motivation through mechanics and features in games.

What we encountered a lot of problems with, and what we will have to address in the future when we are to bring this up to game developers is figuring out how to quantify motivation. Motivation inspired from gaming is not easy to make into consistent data. It would depend on the game and what it is that will be implemented. It is the reason why playtesting is absolutely necessary as the feedback taken from these sessions dictate how a game designer is to respond and what it is they need to revise in a future build. What we can do to help facilitate the gathering of this kind of data is to make a configurable tool that helps visualize the positive and negative feedback that has been given. The reason for only taking whether or not the feedback was positive or negative into account is that feedback from the player may be quantifiable as long as the developer sets up the proper parameters for judging where feedback from the playtesting would find itself. We did not take this up so much in the paper as this insight was more visceral in how we performed taking on this challenge ourselves. When we worked out whether feedback was positive or negative we took several things into account. These criteria included how many times we remembered our test users playing, or how long they played, or whether or not they enjoyed playing and played over a certain number of times. We suppose that we could have included our thoughts though it became more of a feeling. This relates to experience that other game designers have when developing their work, where they have a deeper understanding of the flow of a game to such an extent that they know what limitations to impose on the game. An example of this is expressed when Tommy Refenes of Super Meat Boy describes why the game mechanics are the way they are, where Meat Boy defies physics in exchange to giving the player more control to things like wall jumping or traversing the air (Pajot & Swirsky, 2012).

In our theoretical approach we mention generating motivation in a way that is positive to gamers. One of the characteristics of the achievement system is that it is kind of a metagame of the game it is connected to, and as some games it sometimes has achievements which are from progression or extended amounts of play which exist to motivate players in completing the game to the fullest extent. On a personal level these types of achievements detract from the game and sometimes they even make a game less fun. On this topic Jonathon Blow describes where game

designers, when dealing with the definition of fun, reasons out that the underlying motive lies in "why people play the game" and "what designers are trying to make" (Bales, 2012). Along with stating this Blow also states that when making a game and putting value into a game, there is no need for artificial achievements to string the value of the game along as you are keeping your audience interested from what is in the game itself. This supports our thesis very much so, both in how achievements contribute to the gameplay but also the flaw of the achievement system in its involvement of what makes a game motivating from extended play and how inherent value from the game itself is what adds positively to the notion of play in games.

[9.0] Conclusion and Further Research

Seen from the definition of extrinsic motivation we see achievements as a purely extrinsic reward system, yet we believe that the core of its system is to create motivation by giving players goals and progress indications towards them. Using the core idea of driving motivation through something goal-oriented it is possible to create a system that uses the strengths of the current system of achievements but without the boundaries and limitations that we see as flaws. These limitations and boundaries include being unable to repeat the goal and the passiveness and lack of dynamism in achievements.

For further studies on the topic of creating motivation in video games we think there are a lot of interesting data to be collected by having a more diverse group of user testers. What would people with no previous experience expect, and would their motivation be triggered in the same manner as people with experience from video gaming? Would different age groups respond the same?

Other researching areas outside of the video gaming realm may be the research on educational motivations where, for example, students may find setting their own goals which they find attainable in order to motivate their literacy. Perhaps this research would also help in the realm of researching better techniques in goal setting within sports.

In the realm of Game Studies our work may contribute in findings that involve understanding the effects of implementing game mechanics explicitly to provoke specific reactions, and how to go improving them. Much of Game Studies research revolves around an understanding of the how and the why, and it might be beneficial if the focus were to be redirected at some point to an understanding of today's gaming developer's and their audience instead of the society and culture revolving around the communication between the two. For game developers wishing to find ways of extending play, especially through motivational means, discerning helpful feedback when trying to quantify any feedback is sometimes a tricky problem.

Using the methods of user testing and semi-structured interviews is the most optimal way to research this type of research area. There might be some value in having fleshed out questionnaires,

though we are doubtful they would be able to yield the more interesting results, observations and conversations as with the playtesting. Playing the part of being developers on top of going through the design process is not as simple as we have anticipated. We were certain that by the end of our final iteration that we would have what we would deem a 'working prototype' and not a 'complete game experience', though between the times of our user tests and evaluations there was a lot of implementation issues. We constrained ourselves to improving one aspect of the game and it both benefited and created problems to our cause. It was clear that feedback would lapse into figuring out just how we may increase motivations in play for just this one mechanic, though the game should not suffer in all other aspects because of that. We mention the concepts of 'juice' and 'flow' in the Discussion section. For improving just one mechanic these concepts proved to be more difficult to implement without enhancing the experience as a whole. This is critical to Game Design but not for what we intended to accomplish. In the end there was a slight compromise so that it was still a simple game, but also a game which could pass as enjoyable.

User tests were orchestrated with the understanding of it being a dialogue between the developer and the player. Our interviews helped us understand what the players thought, though we set up what we thought was natural in terms of how the game would be played. The first iteration was mostly to understand what possibilities the game has and therefore playing the game a number of times if possible was desired. The second iteration called for a 'control' version so the players could differentiate and see if there was a significant difference. It seems that when developers are looking for specific feedback the conditions for the playtest would have to be different in order to gather consistent data.

From our user testing and interviews with the playtesters we were able to draw out a response which led to indirect engagement from a feature we implemented, and the social presence was there in the form of the high score list. Asynchronous play here was a non-issue and playtesters happily found ways to set their own goals with the influence of their own scores or their opponents. We were able to only focus on one or two of Locke's 14 motivational axioms, though this establishes enough foundation to base more work on.

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[11.0] Appendix

[11.1] Further Game Information

Braid video game found at http://braid-game.com/.

Demon's Souls video game found at http://www.demons-souls.com/.

Settlers of Catan board game found at http://www.catan.com/.

Super Meat Boy video game found at http://supermeatboy.com/.

Trials HD video game found at http://marketplace.xbox.com/en-US/Product/Trials-HD/66acd000-77fe-1000-9115-d8025841095a.

World of Warcraft video game found at http://www.worldofwarcraft.com.

[11.2] Rules for the Low-fidelity Prototype

Axis of Tower Rules

Aim: The players compete for the highest amount of points. This is the sum of Tower Levels, the Line measurement, and the Zone Hits.

Turns: Each turn starts and ends with the spinning top. If the first attempt fails without proper spin, the player may try a second attempt. A proper spin is when the top spins on it's needle without the sides touching the surface over 1 second.

Turns end when the top falls out or stops spinning.

Tower Levels: Stack each level one at a time and on top of each other. It is allowed to hold a level in each hand at a time.

the Line - 10mm: This is the distance measurement of the top's needle to the Line. The score is the measurement - 10mm.

Zone Hits: When the top's needle stops inside the little circles, the player gets awarded 1 point.

Expanded Play: These are just base rules. Typically players may play 3 rounds where the best scores win for each round. Players can make up their own challenges though. An example would be Axis of

Tower Golf. Players do 9 rounds and their total is the final score. Another example would be to build the highest tower in 2-3 turns.

[11.3] Gestalt

The final prototype would have our own mockup of what a system might look like and how it would work or several examples of how an increase of indirect engagement causes an increase of motivation in gameplay.

> Interview questions...
> What are your thoughts?
> Would you play this again with the new system?
> Was there anything you found difficult in the game?
> Was there anything difficult about the system?
> How do you feel about using this system if it were a final product?

[11.4] Technical Details for the Hi-fi Prototype

We used the Processing programming environment for our work and further iterations thereof. It is an ideal platform to prototype quickly on with which we are both familiar with. It is also free and open source so anyone reading this paper may download and look at our source code supplied by the link below (or on compact disc if that has been provided with the printed form). More details about Processing may be found at http://www.processing.org.

Our prototype along with the source code is found online at http://evnh.com/ASmack/.