



Motivations in Sports and Fitness Gamification

A study to understand what motivates the users of sports and fitness gamification services.

Richard Stålnacke Larsson

Abstract

Sports and fitness is a trending theme in the field of gamification, which in turn is a trending theme in cross media. Underlying the concept of gamification is motivation. Sports and fitness seems to be an area where people have a hard time of motivating themselves in. Even though sports and fitness is popular, most research has been made in other settings. The research that has been made so far on motivation in gamification stands on two different sides on how gamification should be used to motivate users. One advocates the work on the user's external motivation while the other focuses on internal motivation. By asking users of sports and fitness gamification services I seek to find out what motivates them. This thesis shows that by working on the user's external motivation, the internal motivation can increase over time. Based on the findings I suggest a new implication for design in gamification which better suits the area of sports and fitness and will hopefully help gamification designers and researchers alike.

Keywords: Cross Media, Gamification, Motivation, Fitness, Sports

1. Introduction

Gamification is a quite new term and has become a buzzword in cross media today. Zichermann and Cunningham (2011) describes gamification as the process of game-thinking and game mechanics to engage users and solve problems and is described by Deterding et al (2011) as the use of game design elements in non-game contexts. Crawford's (2003) definition of a game is that it is an interactive, goal-oriented activity, with active agents to play against, in which players can interfere with each other. The first documented use of the term "Gamification" dates back to 2008 (Paharia, 2010). Other terms continues to being used and new ones such as "productivity games", "surveillance entertainment", "funware", "playful design", "behavioral games" etc. is starting to appear (Deterding et al., 2011). Games used for serious purpose, called "serious games", dates back to the 20th century, migrating from military uses into education and business (Halter, 2006). Such digital "serious games" can be defined as "any form of interactive computer-based game software for one or multiple players to be used on any platform and that has been developed with the intention to be more than entertainment" (Ritterfield et al., 2009) Today, "gamification" seems to be the most common overall term when describing non-game contexts that use game design elements. Examples of game design elements are scoring systems like points and achievements, and the use of levels and experience points to indicate progression. Though the term is relatively new, the concept has been around with loyalty programs like frequent flyer points etc. These gamification programs can increase the use of a service and change the user behavior, as they are working towards meeting goals to reach external rewards (Zichermann & Cunningham, 2011)

Looking at popular gamification services today, we can see that one of the more common fields in gamification relates to sports and fitness. Nike claims that they got approximately 7 million members in their Nike+ community since their launch in 2006 (Nike), The Nike+ service let users track running activities, earn points and challenge other Nike+ users around the world. Another example is the popular online training community Fitocracy which use points and achievements to motivate their users to exercise more. Their community hit more than 1 million users in March 2013 (Crook, 2013). Even though fitness and sports seems to be a popular theme in gamification, most studies have been made in educational settings. Based on the popularity of sports and fitness in gamification, I find that it this is a relevant field to conduct research in.

Underlying the concept of gamification is motivation. People can be motivated to do something because of internal or external motivation. Internal motivations are those that are driven by our core self, where the person acts because he finds the activity meaningful, even if there is no guaranteed reward. External motivations, on the other hand are driven because the goal will result in external rewards, like cash, social status or achievement points (Zichermann, 2011). Nike+ Running tries to motivate people to stay active. The internal motivation might be to stay active or to run faster etc. and the external motivation might be the point rewards, or the community around it, depending on the user.

There is a disagreement between researchers on how external motivation should be dealt with in gamification services. Nicholson (2012a) claims that external rewards create a negative feeling for the users, while Zichermann and Cunningham (2011) believe that external rewards are a good way to engage users. What we can see is that there are different views on the use of external rewards to motivate users into action. This, together with the raising popularity of sports and fitness in gamification makes it relevant to conduct research in this field. Can external rewards motivate users of gamification services in sports and fitness into action, and, if so, does this have any implications for the design of these gamification services?

1.1 Research question

The aim of this thesis is to find out if external rewards can motivate users of gamification services in sports and fitness, and, if so, this have any implications for the design of these services. Why is this important?

- Fitness and sports is a popular theme in gamification services. Even though it is, few studies have been made on the subject.
- There is a disagreement between researchers on the use of external rewards to motivate users into action.

I believe that more research should be conducted in order to better understand how to design for sports and fitness gamification services. By finding out if external rewards can motivate

users of gamification services in sports and fitness, and if this have any implications for the design, this research will hopefully help researchers in gamification to better understand motivation behind sports and fitness gamification. I also hope that Gamification designers find use of this research to help them create better gamification services. Even though this thesis is focused on gamification within the fields of fitness and sports I think that the results that come out of this research will be useful for other gamification areas as well. To find answers to this question, we must start by examining the related research that has been made so far in gamification and fitness.

2. Related research

Research in gamification shows that there are disagreements on the use of external rewards to motivate users. Nicholson suggests that gamification should have a meaning for the users, Meaningful gamification, which is the use of game design elements to help users find meaning in a non-game context. Rather than just using game mechanics to give points to users as external rewards, meaningful gamification should focus on play to engage. Nicholson (2012b) refer gamification systems that focus on badges, levels and leaderboard, achievements and points as BLAP gamification.

In his paper about a user-centered theoretical framework for meaningful gamification, he explains that the key to meaningful gamification is the integration of user-centered game design elements into non-game contexts. (Nicholson, 2012a) Using external rewards to control behavior creates a negative feeling for the user; therefore it is not user-centered. Meaningful gamification is user-centered. Meaningless gamification is organization-centered. Gamification that rely only upon the BLAP system leading to external rewards that are not related to the underlying activity are only concerned about increasing the organization's interests in the short term. Player-generated content like the ability to let the users set their own goals is a way to make gamification more meaningful for the user. By involving the user with the ability to customize the gamification system, the user can create meaningful game elements and goals that fall in line with their own interests. Deterding (2011) supports this by explaining in a Google Tech Talk how customability in gamification is a practical way to make gamification more meaningful for users. One example of this is *Chore Wars* where the users create quests for the household to complete dull chores. McGonigal (2011) mention many cases where *Chore Wars* improved engagement. In the book *The Participatory Museum* (Simon, 2010) the Nike+ system is presented as an example of how users can create their own achievements and share them with others to meet new people.

Kohn (1999) goes in line with Nicholson, arguing that rewards and punishments are two side of the same coin; while rewards are an easy tool for motivation, better results will come by helping the users make their own decisions without the use of external controlling behavior. (Kohn, 1999). Deci et al (2011) found through 128 studies that examined motivation in educational settings that almost all forms of rewards (except for non-controlling verbal

rewards) reduced internal motivation. The implication is that once gamification provides external motivation, the user's internal motivation decreases. If the organization starts providing external rewards and then decide to stop, they will be worse off than when they started, as users will be less likely to return to the behavior without external rewards. Further exploration of the studies found that if the task were already uninteresting, the reward systems would not reduce internal motivation, since there was none to little motivation from the beginning. (Deci et al., 2011)

Zichermann and Cunningham (2011) on the other hand, claims that external rewards are a good way to engage the users in a product, but they admit that this is only the case if the external reward system is not taken away. A designer don't have time to change the internal motivation of a person, but he can use gamification to provide external motivation which will help that person find internal motivation (Zichermann & Cunningham, 2011). Salen and Zimmerman (2004) say that gamification relates to games, not play; where play is the broader and looser category, different from games. A game is a system where players are defined by rules in an artificial conflict (2004). The narrative structure is generally ignored in gamification because they are "nonfiction" experiences and the gamified system is based on the players and the brands own stories. (Zichermann & Cunningham, 2011) In a study made in an educational setting, it was shown that by using a mobile application with game mechanics like points and challenges, students learned how to navigate in their school and helped them get into the student life. 96% of the students experienced the rewarding system to motivate them to explore the school (*Fitz-Walter et al. 2011*)

Zichermann & Cunningham (2011) identified four different player types in gamification, based on studies on MUD-players (Multi User Dungeon games) by Bartle (1996): Explorers, Achievers, Socializers and Killers. The explorers want to experience as much as possible in a game and they want to proclaim to their community what they have discovered. Achievers want greatness and don't take losses lightly. The problem is to develop a system where everyone can win, and if they don't win they will lose interest. The socializers play games mostly to interact with other people. They do care about winning but the most important part of a game is the sociability. Lastly, the killers resemble the achievers with the distinction that they do not care to only win, but someone else must also lose. Moreover, they want other people to see it and admire and respect them for it. People are not exclusively one or another of these four player types. They have some percentage of each player type. They claim that the Killers are the smallest population of all the player types and that the average person is a socializer. The principal driver for playing a game is to socialize with others. (Zichermann & Cunningham, 2011)

Going outside from the field of gamification; research made in fitness settings show that internal motivation is important for maintaining an activity. Studies made by Frederick & Ryan (1993) shows that runners with a higher internal motivation tends to run more often, feel more competent in their running and be more happy compared to those that had a higher external motivation for running (1993). Brawley & Vallerand (1984) claims that many

people starts to run because of external motives like losing weight and to gain better looks, but that it is not enough for maintaining the running over time. For that, internal motivation is needed (1984). A study made on beginner and expert runners showed that information about progress and social connectedness was important for the beginners motivation, but not for the experts, who found the information and sociability to be interesting but not having any effect on their motivation. (Lundbäck & Renberg, 2005)

2.1. Gamification mechanics

This section will describe the primary elements and rewards behind a gamified system. Zichermann and Cunningham (2011) mention seven primary elements behind a gamified system: points, levels, leaderboards, badges, challenges/quests, onboarding and social engagement loops. We are going to examine the first five of them, which are the primary elements of the gamification services mentioned later on in this paper.

2.1.1 Points

Points are an absolute requirement for all gamified systems, even if those points are never visible to the user. It helps the designer to see how the users are interacting with the system and help them make appropriate adjustments over time. Points could be real, like cash or social status, or game points like experience- or skill points.

2.1.2 Levels

Levels indicate progress. This tells the user how well he/she is doing and where that user is located in the system. They don't have to be used like in traditional video games, but without them there can be no progress. The further the user are going in the system, the higher the difficulty should become to make it more challenging, but not in an linear way because that could make the user to drop out of the game if it becomes too difficult.

2.1.3 Leaderboards

Leaderboards are used to allow users to compare themselves against others and see who is the better one of them. There are two types of leaderboards: the no-disincentive leaderboard which puts the user in the middle of the leaderboard and only a part of the leaderboard is shown; and the infinite leaderboard where all users are shown, but where it can be divided into smaller, separate leaderboards.

2.1.4 Badges

Badges have been used for a long time. The car industry use it to signal status, by showing numbers and letters on the back of the car that explains what kind of engine the car has under the hood and how expensive it is. Badges plays an important role in gamification, which is a powerful tool to encourage users since people have a strong urge to collect things and get rewarded for actions.

2.1.5 Challenges/Quests

Challenges and quests give users meaning to what they do with the service. It makes the service more fun and rewarding. Not every gamification system have an obvious challenge, but by adding challenges somewhere in the system can add depth and meaning.

2.2 Implication for design

Based on related research in gamification and fitness we can indicate the following implication for design:

- Internal motivation is needed for maintaining a fitness activity.
- If external rewards are given, and then stopped, users will be less likely to return to the same service.
- Allowing the user to be able to customize the service for him/her makes the service more meaningful and raises engagement.
- The principal driver for the average players in gamification is to socialize.

The problem today is that there are two sides with different opinions on the use of external rewards to motivate users:

- External rewards to control behavior create a negative feeling for the user. Once gamification is used to provide external motivation, the internal motivation decreases. Gamification should focus on play.
- External rewards are a good way to engage the user and to help that user increase his/her internal motivation. Gamification should focus on game.

Is a revised implication for design needed? In the methodology section below, I will explain how I intend to confront this problem.

3. Methodology

To find out if a revised implication for design is needed and to find out if external rewards are a good way to motivate users or not, we need to find out what motivates the users to action. This is why I chose to make use of qualitative interviews to help me understand the users of sports and fitness gamification services. (See appendix 2 for the interview script)

Before the interviews were made, a day or two, I asked about what gamification services the participants were using. That gave me some time to analyze the services and prepare my questions for each service. (See appendix 1 for more information about the participants and their backgrounds.) The interviews were either held at the participants own home or through Skype. It was important that the participant felt comfortable during the interview. An interview script were made beforehand with all my questions to make a structure for the interview and help me keep a good flow. An iPhone 5 was used as a voice recorder and sound check tests were done before each interview. I used the voice recorder app on my iPhone 5 during the Skype interviews as well since I couldn't find a free or cheap alternative to record

Skype calls with. After the recordings were made, I uploaded them through iTunes on my computer and transcribed them on a document.

The first question during the interview was if they were interested in technology and if they were playing computer- or video games, and, if so, how often do they play and do achievements-systems affect their gaming? This is important to ask because this shows what kind of player type that person is and how he/she relate to gamification. Achievements are one of the bases for many of the gamification services in the interviews, which show how the participants relate to such external rewards. The second question was how they relate themselves to sports and fitness in general, to see if they used to exercise before they started using their gamification service. This helped me better understand the internal motivation of the users. The rest of the questions followed: How long have they used the services, are they novices or experts? How often do they use the services? All the time or just for some occasions? How important is it that the activities are logged in the gamification service? How important are scores, badges and achievements for the users? Can scores etc. affect how they perform their activities? If there are social functions involved in the service, are they important for the user and how do they affect their activities? Etc.

At first, focus groups were supposed to be used, but since most of the participants were located in different cities I chose to not use that, both because of the distance and the technical constraints of Skype. Since the free version of Skype doesn't support video in group chats that would make it difficult for me to keep track of each participant. Also, the sound volume of each participant would be at different levels, making it hard to record through the iPhone 5. Focus groups also have one strong disadvantage on its own: it can give unnatural results, since participants in the group can be swayed and manipulated by strong participants into giving different answers than they would have given on their own during a individual interview (Saffer, 2010) There are also disadvantages with using Skype in general: in some cases, where the interview person don't have access to a web camera, body language aren't shown, which could give away important information (Elmholdt, 2006). It is hard to say if that had any effects on the results, but it should be in mind.

4. Interview Results

Section 4 starts by introducing the gamification services the participants were using and then showing the results from the interviews.

4.1 The gamification services

This section describes the gamification services that the participants mentioned that they used. (see appendix 3 for pictures):

4.1.1 Nike+ Fuelband

The Nike+ Fuelband is an activity tracker that is worn like a traditional wristband around the wrist. It tracks steps, distance and calories burned and the information is shown on a LED

display. The activity is visualized in NikeFuel points, which is Nike's own tool of measuring overall activity. The Fuelband wristband communicates with the Nike+ community and an iPhone application via Bluetooth, where the user can monitor their progress, compare themselves to others via leaderboards (based on the amount of NikeFuel) and set their own goals. The user can also unlock achievements by gathering enough NikeFuel points and completing Nike Missions. The NikeFuel points are not restricted to Fuelband owners; it is distributed to everyone that uses the Nike+ community and a Nike+ product.

4.1.2 Nike+ Running (iPhone version)

Nike+ Running is also part of the Nike+ ecology but is focused towards running and not activities in general. It is sold as a sportwatch, a sportband or as an application for the iPhone. The version that was used was the iPhone application. It uses the same community as the Fuelband and also gives out FuelPoints, let the users compare themselves to others etc. Worth noting is that during the time the interview participant was using the application, it didn't hand out NikeFuel points but instead counted kilometers and the user rose in levels that way. The reward structure is still the same; the more points, the higher the user climb on the leaderboards.

4.1.3 Fitbit One

The Fitbit One tracker is similar to the Nike+ Fuelband in functionality, but is not worn as a wristband but instead it clips to your clothes, pockets etc. It is part of the Fitbit family, with devices like Fitbit Zip and Fitbit Flex with some differences in form and functionality. The Fitbit One device counts steps, distance, calories burned, stairs climbed and also track sleep as well as working as an alarm clock; by wearing it in the included soft wristband it will wake the user by vibrating when the alarm goes off. It shows daily progress on a small display. It communicates to a computer or smartphone via Bluetooth and the activity can be monitored via the Fitbit Dashboard on either web or the smartphone application. It doesn't have its own measurement like NikeFuel. It divides steps, distance, calories etc. in their own respective goals instead of one overall goal. Achievements are given when the user have reached certain goals, like 500 total stairs climbed etc. The Fitbit Dashboard can also be used to log daily food- and water consumption and weight. There is a community were people can chat about the Fitbit One and the user also has the possibility to upgrade to a premium account, that offers more advanced benchmarking tools.

4.1.4 Fitocracy

Fitocracy is an online training community that aims to use gamification to help users improve their fitness. It is available on the web and as a mobile application for iPhone and Android. Fitocracy users log their exercise activity by selecting from a collection of activities and then enter details such as how much weight was lifted during strength training or the distance after a jog. Points are awarded based on the estimated fitness benefit of each activity; running for example gives more points than walking. When users reach enough points, they level up. Fitocracy is a social community as much as it is an exercise tool. Users can start following other users, and comment on their exercise sessions and also give them "props": equivalent to "likes" on Facebook. Fitocracy offers their users the ability to create

and join different groups and they also have a forum, as well as articles about training. Fitocracy offers a list of achievements to collect which are focused on barbell/dumbbell exercises, running, swimming and biking (Exercises most users have the possibility to try out) Quests on the other hand, offer points for many different activities. All quests offer different amounts of points depending on the activity and the difficulty. They are divided into three difficulty levels. Some quests requires that the tasks involved should be finished before a certain deadline, or that they all have to be done during the same workout.

4.1.5 Zombies, Run! (iPhone version)

Zombies, Run is marketed as a immersive video game for the iPhone and Android smartphones, where the player acts as a survivor that are trying to escape from zombies. By running in real life, the player runs away from the zombies and also going further into the game's storyline. Running is measured through the phone's built-in accelerometer or GPS. While running, the player collects supplies which is used to expand the player's base. The game records distance, time, pace and calories burned.

4.1.6 Adidas MiCoach (iPhone version)

MiCoach is a training tool developed by Adidas, which is implemented in various devices. In this case, we look at the iPhone version. The user creates an account on the MiCoach homepage, and syncs it to their iPhone, which collects information about running speed, pace, distance, GPS information etc. The user can choose to run in a "free-mode" or run based on a workout schedule that is customized by Adidas based on the user's running experience and goals. The user is rewarded with achievements when certain milestones are reached, like a set distance run.

4.2 Starting using the gamification services:

4 of the participants, except for Person 1 and Person 6 started using their gamification services for a motivational boost. They all wanted to get in better shape but weren't motivated enough to start. Person 1 was more curious about the technology behind the Nike+ Fuelband and started using it because of that. Person 6 didn't think she needed to be motivated but instead she wanted to get her progress visualized in numbers, like how well she is doing while running. She also found that logging data manually was too cumbersome and liked the idea of an artifact that did that automatically for her.

Person 2 found that he had no motivation to exercise from the beginning:

I really hate to exercise and I had explained to my girlfriend many times that I would start if there were only something that could motivate me that were more like a video game, were you would get awards and see yourself progress in levels. To see you progress is very important.

Person 3 was already training at the gym before using Fitocracy but she felt that she needed an extra push:

I felt that I needed a carrot on a stick. To just work out was quite boring, but as soon as you start to get points for doing it and level up, then it becomes more fun. Now I try to work out for longer sessions because I know I will get more points for it, and when I bike [spinning bike] I try to do it faster and on a shorter time, so because of the points I feel that I have become more motivated to do it.

Person 4 started running continuously because of Nike+, and got interested in the achievement-system behind Fitocracy:

I started running when I was around 16, the same year I started with weight training, but I could never keep a schedule of it so I always ended up back at square one. Not until years later I decided to give Nike+ a go, and thanks to that I started taking running seriously. This was not intended from the beginning but instead it was because I bought a pair of Nike shoes that had a pocket inside them for a Nike+ sensor, and so I thought maybe I should give it a try. I loved the idea of gamifying IRL-stuff (in real life).

I don't remember where I heard about Fitocracy; I think I read about it on a social media page or something, but I liked the idea of being given points and achievements for doing stuff that I really wanted to do deep down, but I always lacked willpower and motivation, so I created a user there and started logging my exercises.

Person 5 started to use Zombies, Run last summer when he wanted motivation to get outside and run and thought that the idea of being chased by zombies was fun. He used it together with Adidas MiCoach because he thought that Zombies, Run lacked vital information such as showing a map of where he ran.

4.3 The participants usage of the gamification services:

4.3.1 Nike+ Fuelband:

Person 1 found that he was motivated to walk more often with the Fuelband on, even though he from the beginning didn't buy it to become more motivated. It was important for him to wear it as often as possible to not miss out on some NikeFuel points. He put it on in the morning and took it off in the evening.

He didn't actively try to find opportunities to collect NikeFuel but it helped him skip on more comfortable alternatives like taking the bus or the subway and helped him decide whether to take a walk or not. If there were things he wouldn't have done otherwise, the Fuelband wouldn't have changed his mind. But when he had problems to decide what to do, the Fuelband often made him take a walk when he otherwise was too lazy to do that.

The goals that he set up with the Nike+ Fuelband was important for him to finish, and found that the LED lights on the wristband made his decision to reach those goals easier; it was very motivating to get green lights (green lights means that the goal is complete). He

mentions that he did fail to reach the goals many times, but that it was a good indicator that he needed to walk more:

I had a lifestyle to lay beneath my goal. When I started using the Fuelband I had no training routine and there was barely no movement at all and it was good to see in numbers, that I would get like 5-600 points of my goal that was around 2000, which was very, very little.

He did however lose interest in using it after a while, since he couldn't find use of the data it collected from him:

I wanted to explore it, and when it was explored I was done with it. I could have started making it [wearing it] into a routine but I didn't. It is not enough sophisticated; it is not open enough. I can't make use of the data I collect; I can only get their [Nike's] data. Meaningless animations... I don't know...like if that would be a reward. It is a great first version, but not an optimal one.

Person 1 didn't rely on the step and calorie counters, since they showed imprecise values. NikeFuel however is a measure that Nike set up and he felt that he could trust those numbers more; the step counter would show 30 steps, and he had only taken 22, but if the Fuelband would show 3000 points, then there was nothing to compare against. The NikeFuel points were also a counter for the daily goals; not as a currency to earn achievements. He didn't know about Nike Missions, but he doesn't think it would have changed his daily behaviors more than just the Fuelband did.

He claims that his habits have changed for the better, that he feels that he is more active, even though he doesn't wear the Fuelband any longer. What he felt was most important with the Fuelband was that it visualized the data; not that he got points or achievements. He would never sit down and manually write down his activities. He also wish there would have been app support to connect with other gamification services, like *RunKeeper*.

4.3.2 Nike+ Running:

Person 4 claims that the level system made him keep using the service and that it motivated him to maintain his running sessions and that it was important to use it every time he ran. He didn't feel as motivated to run if he didn't have access to the application during the run:

If my phone was charging, or I just couldn't use it at the moment, it felt like it was unnecessary to run because the run session wouldn't be saved anyways. It became better with time when I started to really enjoy running, but in the beginning it felt like I really needed that app.

The need for the application would change with time. After he got more used to running and he felt that he was in a better shape, he started to enjoy running and he would make runs even without the application. He doesn't use it anymore since he barely runs today because

of an injury with his leg. He says that even if he would start running more continuously again, he wouldn't feel the same need for the app since he still enjoy running. But he would still log his run on Fitocracy for points.

The social aspect is nothing he has associated the application with; he barely noticed the community. He found that the levels were motivating enough for him to use the service. After a while, it became important for him to beat his own records, and that was a motivation boost in itself. If he would reach the top level in Nike+ Running he would probably not use it anymore, since he think there are other services more suitable for tracking distance, time etc. What Nike+ Running offered in comparison to them was the scoring system

4.3.3 Fitbit One:

Person 6 that used Fitbit One, similar to Fuelband, also experienced a higher motivation to be more active like Person 1, but the effect didn't last for very long. She found more use of the alarm function:

“When my iPhone would vibrate and tell me that I almost completed my daily goal of steps, I would decide to reach that goal by not going by car or similar. But that was mostly in the beginning. I don't really find that much use of the data it collects. I used to have it on me all the times, but now I leave it at the bed desk most of the time. I like the alarm function; that it wakes me up gently by vibrations instead of a screaming alarm sound.”

Her initial idea with using the Fitbit One was to get data from her time at the gym, but she knew with time that it was pointed more towards walking and running, which made her a bit disappointed. It was also not waterproof which meant that she couldn't track her swimming.

She never set up any own goals, as she didn't know what was a good goal to strive for, but instead used the default goals. She saw that as some sort of measurement for a fit daily goal, set up by an expert in the field, and she tried her best to reach those goals; in the beginning at least. The Fitbit dashboard offers tools for logging food and water consumptions as well as tracking sleep but she wasn't interested in using them. The whole purpose of why she started using the Fitbit One was to avoid having to write down the results of her training. On the question about if achievements and points would motivate her to keep using it she answers:

I would get more motivated if I knew that I almost had reached my daily goal, and the badges I received was fun, in the beginning, because they where mostly the same all the time; “1000 steps, congratulations; 10.000 steps, congratulations again.” It got boring after a while.

She say the she wouldn't stop using the Fitbit One if the achievements disappeared, because they were never the main driver for using it. As long as she gets her data visualized on the small screen she is happy, though she would have found more use of it if it tracked more activities. Even though she doesn't use it that much today, her training behavior hasn't

changed for the worse. She claims that she still visits the gym as often as she did before. She didn't thought much about using the community but saw the Fitbit One as a product that only she were involved with.

4.3.4 Fitocracy:

Person 2,3 and 4 all use Fitocracy after every workout to log their exercises. They don't count all activities as worth logging though. Person 2 and 3 only count longer walks and workouts and Person 4 used to count long walks, but no longer (they give too few points); now he only counts workouts such as weight lifting, running or swimming. They all think that it is motivating to log their exercises. Person 4 claims that logging the data is one of the more motivating parts of doing workouts:

I just want to get home as soon as possible to write down the exercises I've been doing. It's even more important if I have done something extra spectacular, like that time when I ran my first race, because then I know I will get a lot of points and maybe even an achievement unlocked.

Person 4 mentions that the social community is another vital part behind the motivation to log the exercises. Even though the achievements, points and quests are very important for him, he thinks that Fitocracy would feel "empty" without a community that responds to this training. He finds it stimulating to get "props" from other users, but he would never share his activities on other social networks such as Facebook, because that would feel like bragging.

Person 2 doesn't think that the social part is very important for her usage of Fitocracy, but that "props" earned after she have done a hard and difficult workout session can be stimulating. Person 3 is of an opposite opinion regarding the social community. He considers the sociability to be useless for his purposes:

The social community means nothing for me. I feel that workouts are for me, and it should be private. I don't use it to show other users what I'm doing and I don't use it to communicate with other users; it is a tool for my own sake (...) The whole thing that I hate with gyms is that you have to try to be better than the others around you. You can't train with someone else because then you have to lift more than him and... damn, you should work out based on your own conditions. That is why the social part is not for me; I just want to focus on myself.

All the Fitocracy participants understood why some activities gave more points than others but no one changed their planned exercises because of points. Person 3 says that she found new exercises through Fitocracy's list.

Achievements and quests however, affected the activities of Person 3 and 4. Person 4 plans his workouts according to the requirements of a certain achievement and tries to clear as many quests as possible. He claims that he has tried many new exercises because of the

quest-system. Person 3 says that she doesn't chase achievements, but if there is an exercise that offers an achievement and she has the possibility to complete it, she will try to. Because of earlier injuries, Person 2 doesn't feel the same urge to clear quests and get achievements; he finds them motivating but he knows his own limits well enough to not try to get them "too early".

Person 2, 3 and 4 all said that they probably wouldn't stop doing their fitness activities if the service went down. They would however quit using the service if there were no more rewards to receive.

4.3.5 Zombies, Run together with Adidas MiCoach:

Person 5 found out that there was a story involved in Zombies, Run and that kept him even more motivated to keep running to get further into the story:

Every time I went out and ran I started the app, because there was a story in it as well. The longer you ran, the further you got into the story. That made you more motivated to keep running. I didn't reach the end of the story however, because autumn came and it got cold so I stopped running (laughing).

He used the application every time he was running. If he couldn't use the application for any reasons, he would not run. He felt that he needed to run, but he also needed the external motivation from the application. There were some sessions that he wouldn't run, even if the zombies were close to him; if he felt that he was too tired, he wouldn't push himself to escape them. If he couldn't use the application, like if the battery on his iPhone would be depleted, he would not find motivation to go out and run. He would though try to go out and run if he couldn't use the application for a couple of days. If he would unlock everything and there were no more external rewards to earn, he says that he would most probably search for a new gamification app.

He didn't mind the lack of a social network. He thought that the application worked well as a single-player experience. He would never log the data manually cause he think that is too much of a hazzle and he is not interested in seeing how fast he's running. Why he is using MiCoach in parallel with Zombies, Run is because he wanted to see how far and where he had run, something Zombies, Run didn't show him, and because it did that automatically. He didn't find use for the customized workouts in MiCoach but instead just used the "Free walking"-mode to gain data from the run.

5. Discussion

Based on the results from the interviews I find several subjects that are interesting to discuss in relation to today's implication for design.

5.1 Internal and External Motivation

Research in fitness showed that internal motivation is needed to maintain a fitness activity. It also showed that many people start because of external motivation. All the participants except Person 1 started because of external motivation. They needed information about their progress to get motivated to exercise. When Person 5 stopped using *Zombies, Run* he did fewer runs, which goes in line with Brawley & Vallerand's (1984) claim that internal motivation is needed to maintain an activity. 2,3 and 4 claim that they probably wouldn't quit doing their exercises if the service was not available any more, but it doesn't mean that they wouldn't have exercised fewer times. Person 4, however, did maintain his running without using the Nike+ Running app. Even though Nike+ Running provided him with external rewards in form of level progression, his internal motivation wasn't reduced.

Person 1 found the green lights very stimulating when clearing his goals and claimed that he became more active after having used the Nike+ Fuelband. Person 6 noticed some increase in motivation when she was externally rewarded and didn't see any changes in her motivation to exercise when she stopped wearing her Fitbit One, thus her internal motivation wasn't reduced after she was "exposed" to external rewards. Only Person 5 did show intentions of reduced internal motivation. What most participants were sure about was that if the external reward system were stopped, they wouldn't continue using the services. Person 6 wouldn't stop because of lack of achievements but she wanted the visualized data, which is an external reward in itself.

5.2 Sociability

Zichermann and Cunningham (2011) mentioned that the most important driver for the average person in gamification was to socialize with other people. These interviews had two exceptions: Person 2 didn't show any kind of interest for sociability, and Person 3 didn't find the social network of Fitocracy to be the most important driver. They might not be your average player but what is interesting is that Person 2 likes to play MMO-games, which are very social games and Person 3 enjoy playing video games when she is able to play with someone else. Whether sociability is important or not seems to be contextual and might not fit into this field. Person 4 found the sociability important for his usage of Fitocracy, but not with Nike+ Running. Could the design of Fitocracy have made the social aspect important in that case, where "props" are used as a sort of point currency? Nike+ Running doesn't use "props" but works together with other social networks, which we can assume that he didn't use because he didn't post Fitocracy activities to Facebook. Person 5 and 6 used services where there were none (*Zombies, Run*) to little community involved (*Fitbit One*). Person 5 thought that his service worked good as a single-player application and Person 6 didn't use the community function (which didn't really seem to important for the use of the *Fitbit One*).

5.3 Customization

Nicholson (2012a) claimed that customization gave the services more meaning to the users. In the case of Fuelband, Person 1 was able to set his own goals but expressed disappointment with how he couldn't use the collected data in the way he wanted to. A more open interface

would allow for higher customization. Person 6 which used the Fitbit One didn't make use of the possibility to set her own goals. She rather used set goals since she thought that was the optimal goals for better health. Person 5 never set any goals with MiCoach; he only used it to measure data and Person 4 didn't set any goals, he would just run to gather kilometers so that he could increase in levels. They didn't need the possibility to customize the service to make it meaningful for them.

5.4 Other discussion areas

Person 5 used MiCoach together with Zombies, Run because it lacked the functionality that MiCoach offered. Are story and play not enough? Person 1 observed the lack of app support to combine with the Nike+ Fuelband. Do users want the added functionality of more "advanced" tools?

The participants that used Nike+ Fuelband, Fitbit One and Adidas MiCoach; Person 1, 6 and 5, said that they wouldn't log the data manually if the application didn't do it automatically. Now, these applications measure things that would be unrealistic for someone to do on their own, like counting each step they've taken etc. which would be a hassle for anyone, but what is interesting is that it shows a behavior that is different from the users of Fitocracy, who enjoyed the process of writing down the exercises they've been doing during the day. If this process would be automatic (unlikely for weight lifting though) would it be considered positive for making the data collection easier or negative since it eliminates a process that the participants enjoy to do?

6. Conclusion

In this thesis I have made an empirical study with qualitative interviews to find out if external rewards motivate users to see if this have any implications for the design. The results from the interviews show that the implication for design needs to be revised. It showed that even though some users stopped using their services, their internal motivation for fitness wasn't reduced but instead increased. This shows that by working on external motivation, the user's internal motivation can be increased. By motivating a user to action with external rewards, the internal motivation can be changed with time if the user finds the activity interesting during that time. This goes in line with Zichermann & Cunningham's claim that a designer doesn't have time to change the internal motivation but that gamification can be used to provide external motivation which will help that person find internal motivation (2011). What is important is that there are enough external rewards to keep the user in the system until the internal motivation is high enough to maintain fitness. The fitness and sports gamification services in this thesis focuses on the user's external motivation by offering rewards such as points, badges and achievements, and it seems to be one of the more important drivers for the users. The possibility to customize the service was sought after by some, but the rest just followed the rules set by the service. What works best is hard to establish based on the answers that the results brought. Sociability didn't seem to be the most important factor for the users. Only one person explained that the social network

was important and that because it helped him get feedback on his progression. The visualization of progression is what seems to be the most important driver for the users.

Based on the findings from the interviews I suggest the following implication for design:

- External rewards are a good way to engage the user and to help that user increase his/her internal motivation. If external rewards are given, and then stopped, users will be less likely to return to the same service but their internal motivation isn't necessarily reduced.
- The principal driver for the average players in gamification is not to socialize; it is to see themselves progress by seeing their progression visualized with external rewards like points, levels, achievements and badges.
- Internal motivation is needed for maintaining a fitness activity, but the users' external motivation can be enough to create an internal motivation with time.
- Allowing the user to be able to customize the service for him/her to make the service more meaningful and more engaging is very individual. Some prefer to be told what they should do; others want to have full control.

This new implication for design will hopefully make the design of sports and fitness gamification systems easier, and to be food for thought in other areas in gamification as well.

6.1 Future research

I claim that even more research should be put into gamification in general, since fitness and sports can't stand for all the gamification services out there. The findings in this thesis show that the current implication for design doesn't cover all the areas of gamification, and neither does the revised one. This revised implication for design should not be seen as a final statement about gamification in sports and fitness but rather be seen as a stepping stone for more research in this subject. As pointed out earlier; most research has been made in educational settings. The research in gamification needs to span out to reach other areas as well, where motivation is an important driver for users call to action.

There is still much work to do in the field of fitness and sports in gamification. There are still questions about how customization in these gamification services should be handled. None of the interview participants played any sports (except from running); also, no one was doing fitness at an elite level. It would have been interesting to see how more active persons use gamification in their exercises; persons with higher internal motivation for exercising. This could help designers create meaningful gamification services for already motivated people in sports and fitness. Hopefully, the results from this research could act as food for thought when doing more research in this field, and help gamification designers to create more meaningful gamification services.

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Participants

Person 1

Male

Age: 25-30

Service: Nike+ Fuelband

Use of service: 4-5 months (doesn't use it today)

Is interested in technology, and know about the term gamification since he works with UX. He is into video games, and call himself a gamer but he doesn't find enough free time to play any, except for some games on his iPhone. He likes to level up in games and find that very rewarding. Take daily walks, mostly between home and work but he doesn't participate in any sports.

Person 2

Male

Age: 27

Service: Fitocracy

Use of service: 2 weeks

Is very much into video games and technology; he spend around 40-hours a week on video games; mostly MMO-games (massive multiplayer online) He finds achievements in video-games motivating, but sometimes not, depending on what type of game it is. He used to go to the gym, but because of injuries he have chose to stop. He is planning to start with water gymnastics because of that. He walks daily and he is jogging sometimes. Play no sports.

Person 3

Female

Age: 20

Service: Fitocracy

Use of service: 1 1/2 month

She is interested in technology and video games but she doesn't play that much now as she used to do because she haven't found any fun games. When she plays video games she want to play with someone else. She is a "completionist"; she wants to obtain "100%" in the video games she plays. Is quite active in fitness; she works out a couple of times per week at the gym. She easily gets bored with doing the same workout routines and therefor she tries out new exercises for variety. Doesn't attend any sports.

Person 4

Male

Age: 25

Services: Fitocracy, Nike+ Running

Use of service: Fitocracy: 1 year (had a long break between); Nike+ Running: 2 years (when he used to run).

He is interested in both video games and technology, but it tends to be more about the technology these days than the games. Considers himself to be too busy for playing games today but would like to get enough free time to start playing a “really good game”. He claims that an achievement-system makes him more motivated to complete a video game than without one. He used to run a couple of times per week but got unmotivated when he injured one of his legs. Goes to the gym sometimes, more less than often. Doesn't play any sports.

Person 5

Male

Age: 26

Services: Zombies, Run and Adidas MiCoach

Use of service: Zombies, Run: around 3 months together with MiCoach (he doesn't use them anymore)

Considers himself to be a gamer; he plays 5-7 days a week, at least 2 hours a day, and is also interested in technology. Wants to get more active and goes out running sometimes. He finds achievement-systems in games to be a fun bonus, but he doesn't plan his gaming in order to earn them. Used to play American Football when he was younger, but today he doesn't play any sports.

Person 6

Female

Age: 33

Service: Fitbit One

Use of Service: Around 1 month

She is not very interested in video games, except for some iPhone games that she is playing when she is bored. Doesn't consider technology to be one of her interest, but she uses many technical devices throughout her day (her iPhone, iPad and the Fitbit One) and have no problem with learning how to use new technology. She is very concerned about her body, and tries to hit the gym as often as possible. When she is not at the gym she goes for a swim at the local bathhouse. She doesn't play any sports.

Interview Script

This is a very basic interview script, focusing on the most vital questions. Other questions did come up during the interviews.

Do you play any video games?

- If so, how often do you play in a week?
- Do these games have any achievement-systems?
- Are achievements important for you?

What gamification services do you use, or did use?

- When did you start to use the service?
- What was the main reason behind the service?
- How often would you use the service and when?

What is the main reason for using the service today? (If using it)

- Have the use changed since the start?

What activities are you performing today? (with or without the service)

- Have the service made you try out new activities?
- Would you perform the activities without getting rewards for it?

How do rewards such as scores, levels and achievements affect your training?

How often do you use the service to log/save the activities you are performing?

- Do you log/save everything or just certain activities?
- Do you log/save directly after the activity is performed, or later?
- How important is it that your performed activity is logged/saved?

How important is it to reach your goals? (gamification with set goals)

- How does it affect your training if you do not reach your goals?
- How often do you fail to reach your goals?

(If there is a social community involved) How do the social network affect your use?

If the service doesn't work, how does that affect your training?

- If the service would stop offering external rewards, how do you think that would affect your training, and use of the service?



Figure 1 - Nike+ Fuelband with iPhone application.
Source: Nike



Figure 2 - Nike+ Running App in various models
Source: Nike



Figure 3 - Fitbit One showing numbers of step taken.
Source: Fitbit

Sam87 Tracked a Workout for 1,045 pts 27 May, 2013

Dips - Triceps Version:

- 8 reps (+21 pts)
- 7 reps (+18 pts)
- 6 reps (+15 pts)
- 4 reps (+9 pts)
- 2 reps (+4 pts)

Close-Grip EZ Bar Curl:

- 9.1 kg x 12 reps (+17 pts)
- 13.6 kg x 10 reps (+18 pts)
- 18.1 kg x 4 reps (+15 pts)
- ★ 18.1 kg x 4 reps (+15 pts)
- 13.6 kg x 8 reps (+18 pts)

Lying Barbell Triceps Extension ("Skullcrusher"):

- 9.1 kg x 12 reps (+17 pts)
- 9.1 kg x 12 reps (+17 pts)
- 13.6 kg x 7 reps (+17 pts)
- 13.6 kg x 6 reps (+16 pts)
- 9.1 kg x 12 reps (+17 pts)

Figure 4 - Fitocracy, showing the activity of one member
Source: Fitocracy



Figure 5 - Zombies, Run!
Source: Six to Start

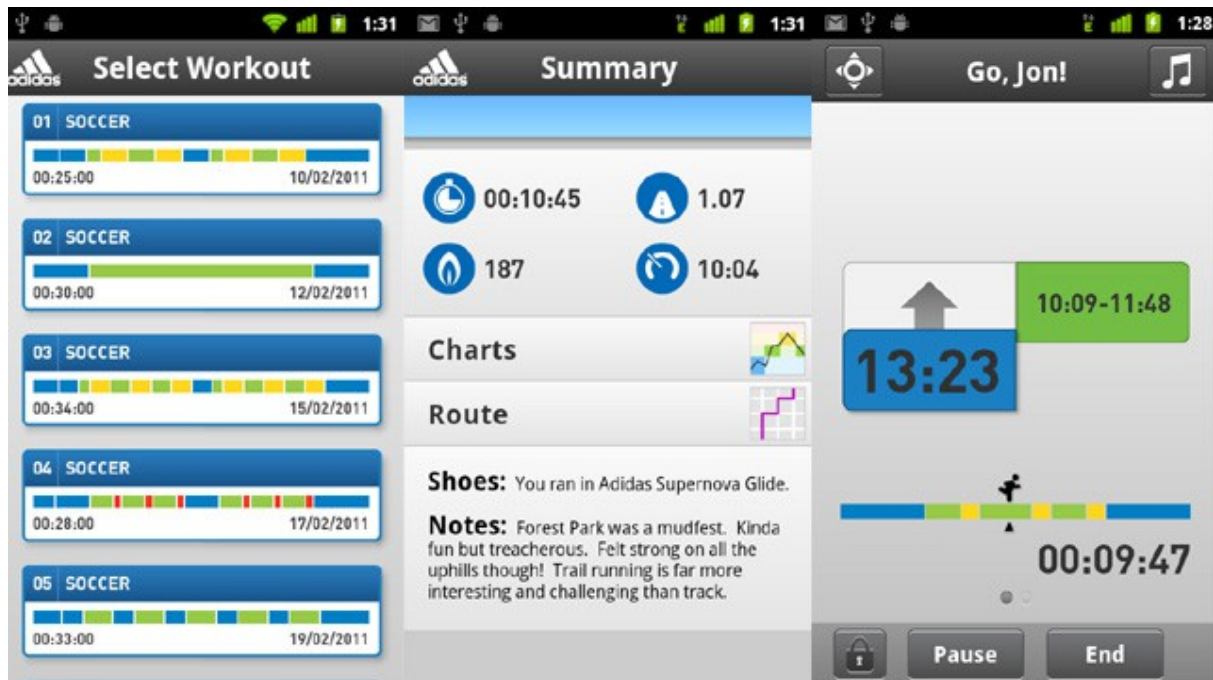


Figure 6 - Various screens in the MiCoach smartphone application
Source: Gizmodo