Gamification

How gamification can motivate and engage people and what game mechanics are most effective in this process

A Multiple Case Study
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Abstract

This study investigates how gamification can motivate people with the help of game mechanics. This topic is highly relevant, since gamification has proved for some businesses and organisations to be an effective tool to increase people's motivation and engagement.

To provide a starting point and a general understanding of what people are driven by, the well-known psychological Self-Determination Theory is presented, establishing three innate needs that are fundamental to human beings: Competence, Autonomy and Relatedness. A general introduction to gamification is provided with the MDA framework, which is a formal approach to understanding games by decomposing games into the components of Mechanics, Dynamics and Aesthetics. After this comes an outline of the most typical game elements of gamification, namely Points, Badges and Leaderboards. This is followed by a framework used to classify different user types of gamification. Since different game elements motivate different types of users, this framework is very useful in the analysis of this study.

In an effort to identify what game mechanics are most effective on motivation, three real-life cases of gamification are studied: Duolingo, Fitocracy and Vivino. Each of them operates within different areas. Duolingo is a language-learning app, Fitocracy is a workout app/social fitness network and Vivino is an exploration tool for wine enthusiasts. They all use mobile applications as their platform for gamification. Interviews with users of each app are conducted, and the interview participants are asked to take a user type test in order to classify their user type traits. This provides a foundation for finding out what game mechanics works and what does not work for the interview participants and their motivation.

The study concludes with a general suggestion to how gamification can motivate and engage people, followed by a specific identification of the two most effective game mechanics in relation to motivation. Furthermore, recommendations for how the three case companies can improve their gamified systems are provided.
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I. Introduction

This part presents the rationale and background of the chosen subject, the objective of the study and the research questions proposed. The study is narrowed down with the focus/delimitation chapter. This is followed by the terminology being used throughout the thesis, a discussion of who can use the results and an overview of the structure of this thesis.

I.1 Rationale & Background

Gamification has over recent years emerged as a hot buzzword, and has proved for some businesses to be an effective tool to increase user engagement, drive experimentation and improve results. Gamification is being used in a wide range of areas, from education to healthcare and financial services, and large companies like Nike, Deloitte, Samsung and Toyota have all used gamified solutions. Newzoo and GlobalCollect estimated that there were 1.78 billion gamers worldwide as of August 2014 (Statista 2014). Since gamification draws on game elements known from computer and video games, this market is too big to be ignored.

Gamification can broadly be defined as:

“The use of game elements and game-design techniques in non-game contexts”
(Werbach & Hunter 2012)

Or more specifically:

“The use of game mechanics and experience design to digitally engage and motivate people to achieve their goals”
(Burke 2014)

An important aspect of the “non-game context” definition is that it involves real-world business or social impact goals. The players of a gamified system are not there to escape into a fantasy world like they can do in a typical computer game, but to engage with the product, business or objective. The ultimate goal of gamification is to align the business objectives with the player objectives. If implemented well it can be a powerful approach to motivate people to change behaviours, develop skills and drive innovation.
Gartner, the world’s leading information technology research and advisory company, included gamification in their yearly Hype Cycle publication for emerging technologies. The Hype Cycle is Gartner’s prediction of how technology will be adopted over time in a cycle of 5 phases. Below is the Hype Cycle as of July 2014 with the red arrow pointing on the position of gamification (Gartner 2014):

It shows gamification is in the “Trough of Disillusionment” phase. This phase is where interest wanes as experiments and implementations fail to deliver and where producers of the technology may shake out or fail. The investments in this phase will continue, only if the surviving providers improve their products to the satisfaction of early adopters. (Appendix 1)

This is Gartner’s view on where gamification was positioned in 2014. In this thesis we will see some rather successful implementations of gamification, which might indicate that gamification is on its way into the “Slope of Enlightenment” phase. A phase where we see
more instances of how the technology can benefit enterprises as it becomes more widely understood. For a description of all 5 phases of the Hype Cycle, please see Appendix 1.

Today, many businesses with a mobile application (app) as their main product are beginning to understand how gamification can be utilized to engage their users and create a game-like experience. As many people are already used to play games on their mobile device it makes perfect sense for businesses to draw in game elements and create gamified mobile apps to create a more fun and engaging experience. Also, the fact that a mobile app is always nearby and accessible to its user makes it a convenient way for businesses to reach people and a perfect platform for gamification.

My motivation for writing about gamification and how it can motivate people is first of all that I love to play games myself. From video games, board games and card games to all kinds of sports, I simply just love it and feel motivated and engaged every time I play a game. If game elements can be applied to non-game contexts in the form of gamification, and in this way help people become more motivated and engaged, I believe it can be a very strong tool. Imagine a workplace where all employees are highly motivated to do their job, because many of their tasks feel like a fun game. Imagine a university where the students engage in the courses with great effort, because the teaching draws on game elements and creates a whole new and interesting experience. I believe gamification has a great potential and I am sure we will see gamification appear in more areas, industries and markets in the near future. This is why I think more research should be made on what people are motivated by and how gamification can stimulate motivation.
I.II Objective & Research Questions
The scope of the study is to assess the relevance of gamification when it comes to motivating and engaging people, analysing the advantages and disadvantages of the concept.

The research question of the study is:

**How can gamification motivate and engage users of a gamified system, and what game mechanics are most effective?**

To specify the aim of the research question, following sub-questions act to support:

- **What motivates people and to what extent can gamification lead to higher motivation?**
- **What gamification elements are most effective to strengthen motivation and user engagement?**

I.III Delimitations
To delimit my study I will focus on gamified businesses, using a mobile app as their main platform or product. Three different real-world cases of gamified systems have been chosen for my analysis: Duolingo, Fitocracy and Vivino. Each of them operating within different domains. Duolingo is a language-learning app, Fitocracy is a workout app and social fitness network and Vivino is an exploration tool for vine enthusiasts. The selection criteria for choosing these three apps can be read in the methodology section.

The advantage of studying businesses having an app as their main product is that it makes it very convenient and easily accessible for myself, but also for my interview subjects.
I.IV Terminology

Game mechanics / Game elements
These two terms are used interchangeably to describe the specific components or building blocks of a gamification system. Examples on game elements are: Points, badges, leaderboards, levels and competition.

Users
The term “users” or “players” are used to refer to users of a gamified system. It is the ones “playing” the game. The “players” should not be confused with the “Player” user type, as explained in more details in the chapter about user types of gamification.

Interview subjects
The participants of the interviews and the user type tests are referred to as either “interview subjects”, “participants” or “interviewees”.

Competence / Mastery
Competence is one of three innate psychological needs, facilitating the natural process of self-motivation, as defined in the Self-Determination Theory. Mastery is describing the exact same need and is used in a theory on user types of gamification. The two terms are used interchangeably throughout the study. Competence/Mastery is related to being effective in dealing with the external environment, and what matters is the urge to progress and get better at something.

I.V Who can actively use the results?
This study is intended for people, businesses and organisations considering implementing gamification in their processes. However, it is also for those wanting to know more about what gamification is and how it can ignite people’s motivation.
Hopefully this study will give a good understanding of what should be considered when implementing gamification and how the choice of game mechanics used should be dependant on the target group of the organisation, as each game mechanics have different effects on different types of users.
I.VI Structure

This thesis is split into 4 main sections, together consisting of 12 chapters. Additionally there is an “Introduction” section and a “Bibliography” along with an “Appendix”.

Section 1: Theoretical Framework

Chapter 1 – Theories of Motivation: This chapter is an introduction to theories on motivation. The theory of behaviourism is explained, as we go into details of the Self-Determination Theory made famous by Ryan and Deci. This theory focuses on people’s three innate needs: Competence, Autonomy and Relatedness.

Chapter 2 – MDA Framework: Hunicke, LeBlanc and Zubek developed a framework called MDA. This chapter outlines their framework, which is a formal approach to how games can be understood, by decomposing games into three design components: Mechanics, Dynamics and Aesthetics.

Chapter 3 – Gamification Elements: This chapter is a general introduction to the most typical elements of gamification: Points, Badges and Leaderboards. How these game elements can be implemented in different ways and have different functions will be examined.

Chapter 4 – User Types of Gamification: Here we take a look at ways to classify users. As different things motivate different people, it is interesting to learn more about how users can be classified. This makes it easier to know what game elements to apply for different target groups. Bartle’s 4 player types and Marczewski’s 6 user types are put under the loupe.

Section 2: Case Introduction & Methodology

Chapter 5 – Introduction to the Cases: The selection criteria for choosing the 3 cases are presented, and the cases are introduced one by one. It is explained what each case/app is all about and what psychological needs they tap into.

Chapter 6 – Research Foundation & Methodology: This chapter provides the foundation of what was done in the study and why. The philosophy of science behind the research is
introduced and the research strategy and methodology is reviewed. This is followed by an overview of how the data for the study was collected.

**Section 3: Results**

Chapter 7, 8 & 9 – Duolingo, Fitocracy & Vivino: The game elements of the cases are presented followed by the results and analysis of the two quantitative user type tests and qualitative interviews. A partial conclusion sums up the main findings.

**Section 4: Discussion & Conclusion**

Chapter 10 – Discussion: This chapter is a discussion of the results and how these can be related to the topic, the research question and the sub-questions. The results will be challenged by a theory on how framing an activity as a game can have an effect on people. Recommendations to the case companies will be offered, and gamification will be put in perspective with two theories on innovation. This is followed by suggestions to further areas of research.

Chapter 11 – Study Limitations: In this chapter, limitations to the study, given the specific setup, will be discussed.

Chapter 12 – Conclusion: Main points of the thesis are summarised and final conclusions made, answering the research question: “How can gamification motivate and engage users of a gamified system, and what game mechanics are most effective?”
Section 1: Theoretical Framework

In the first section, different theoretical frameworks will be introduced. This is to provide the theoretical base of the study, and to give a general understanding of gamification and how people are motivated. First chapter introduces some theories to motivation. Then we are presented by a formal approach to understanding games. This is followed by an outline of the most typical game elements. At last, the user types of gamification are examined to understand how different users might behave.

1. Theories of Motivation

To find out what game mechanics could be most effective when dealing with gamification, we have to take a look at what motivates us. It can be very individual what people are motivated by, but before we take a look at specific motivations for specific user types, a general introduction to motivation is needed.

1.1 Behaviourism

Psychologists have been studying various behavioural theories for a long time, and the dominant theory in the second half of the twentieth century was known as behaviourism. This theory explained behaviour based on external responses to stimuli. Rewards and punishments were used on animals to reinforce their behaviour. The results of the experiments with animals were transferred to humans and it was suggested that extrinsic motivation or stimuli was the way to encourage and motivate people. The basic idea is: If you do something good you will be rewarded, and if you do something bad you will get a punishment. Systematically applied, this would condition and reinforce responses in anticipation of further rewards or punishments. Against this behaviourist approach to motivation are theories more related to intrinsic motivation, asking what is going on in people’s heads. One of these theories is the famous Self-Determination Theory of Richard Ryan and Edward Deci. (Werbach & Hunter 2012)
1.2 Self-Determination Theory (SDT)

Human beings can be proactive and engaged in what they do, or they can be passive and uncommitted, all depending on the social conditions and the context of the situation. Research conducted by Ryan and Deci (Ryan & Deci 2000) has focused on the social-contextual conditions that facilitate the natural processes of self-motivation, and three innate psychological needs have been identified: Competence, relatedness and autonomy.

**Competence** is related to being effective in dealing with the external environment. Learning how to play tennis, doing a business presentation or writing a book are all examples of competence. What matters is the urge to progress and get better at something.

**Autonomy** comes from within and is your personal need to do what you want and what you think is meaningful to yourself and the values you stand for.

**Relatedness** is the social part, and involves interacting and relating to colleagues, friends and others.

When these needs are satisfied they enhance intrinsic motivation and well-being and when they are undermined they lead to diminished motivation and well-being. According to Ryan and Deci, there is perhaps no single phenomenon that reflects the positive potential of human nature as much as intrinsic motivation, and this is why it is important to understand how intrinsic motivation can be enhanced.

Cognitive evaluation theory (CET), a subtheory to SDT presented by Ryan and Deci, focuses on the fundamental needs for competence and autonomy. The theory argues that social-contextual feedback that contributes toward feelings of competence during action can enhance intrinsic motivation for that action. Accordingly, positive feedback on performance enhances intrinsic motivation and negative feedback on performance diminishes it. CET further argues that feelings of competence will not enhance intrinsic motivation unless accompanied by a sense of autonomy, meaning that people must experience their behaviour as self-determined. A lot of the research on the effects of environmental events on intrinsic motivation has focused on autonomy versus control, and the demonstration that extrinsic
rewards can in fact undermine intrinsic motivation, as it can result in diminished autonomy. Tangible rewards that are contingent by performance can undermine intrinsic motivation, just as threats, deadlines and imposed goals can diminish intrinsic motivation, because they conduce toward an “external perceived locus of causality” (Ryan & Deci 2000), resulting in diminished autonomy. In contrast to tangible rewards, research has found free choice and opportunities for self-direction to enhance intrinsic motivation as it allows people a greater feeling of autonomy.

Autonomy and competence are two important factors for producing varying degrees of intrinsic motivation, but there is also a third factor having an impact and that is relatedness. SDT hypothesizes that intrinsic motivation are more likely to flourish in contexts characterized by a sense of security and relatedness. Ryan and Deci refer to a study that found that when children worked on an interesting task in the presence of an adult stranger who ignored them and did not respond to their initiations, it resulted in a very low level of intrinsic motivation. Most people have probably tried sharing a good idea with a friend, and if this friend ignores you or undermines your idea you will probably feel your intrinsic motivation go down. On the other hand, a friend that really listens to you and gives you positive feedback on your idea can really ignite your intrinsic motivation.

To summarize, SDT focuses on the conditions that support people’s natural activity and curiosity referred to as intrinsic motivation, and contexts supportive of autonomy, competence and relatedness are found to foster this motivation coming from within.
2. MDA Framework

*MDA* is a framework developed by Robin Hunicke, Marc LeBlanc and Robert Zubek. *It is a formal approach to understanding games by decomposing game designs and game artifacts into three design components: Mechanics, Dynamics and Aesthetics.* (Hunicke, LeBlanc & Zubek 2004)

2.1 Aesthetics

The aesthetics of a game are the emotional responses of a player who interacts with the game system. Put more simply, it can be referred to as the aesthetic components that create a player experience. When describing the aesthetics, Hunicke et al. suggest a directed taxonomy, including:

- Sensation: Game as sense-pleasure
- Fantasy: Game as make-believe
- Narrative: Game as drama
- Challenge: Game as obstacle course
- Fellowship: Game as social framework
- Discovery: Game as uncharted territory
- Expression: Game as self-discovery
- Submission: Game as pastime

(Hunicke, LeBlanc & Zubek 2004)

Gamified systems and games in general are often a combination of more than just one aesthetic component. An example is the computer game The Sims; it is a combination of fantasy, expression, discovery and a narrative. Gamified systems can also be educating, and for the purpose of this study, I would like to introduce an extra aesthetic characteristic to the taxonomy list:

- Learning: Game as an educating experience

2.2 Dynamics

Dynamics describe the interaction of the mechanics and player inputs when the game is running. The dynamics work to create the aesthetic experiences we have just been through.
As an example, a sense of fellowship can be created with dynamics encouraging players to follow and share information with friends. Challenges can be created with levels, time pressure or opponent play. Expression can occur from dynamics that support users to leave their own personal touch, like designing their own characters or creating personalised game challenges. Dynamics are the aspects of the gamified system that you cannot directly put into the game, like you can with the mechanics. It is the way the mechanics work together that creates the dynamic.

2.3 Mechanics
The mechanics are the specific components of a game and the various actions, behaviours and control mechanisms given to the player within the game’s context. In this thesis, “mechanics” and “game elements” are used interchangeably to describe the building blocks for gamifying a system. Utilizing them correctly can help build a highly motivational user experience.

To sum up the MDA framework and better understand how the three design components work together in a gamified system, an analogy of a mechanical watch and the components it consists of can help to explain how it works: It consists of many small mechanical parts; crown wheel, balance wheel, hairspring, hour and minute hand, etc., essential for a mechanical watch to be defined as a mechanical watch. These parts interact together dynamically to have the function of a watch and show the time. The size and shape of the watch case, the choice of materials used and the colour of the dial are all examples of aesthetics, designed to create an emotional response. In the same way, the mechanics of gamification is what makes it a gamified system, whereas the way the mechanics work together creates the dynamics. The aesthetics creates the overall user experience.
3. Gamification Elements

Kevin Werbach and Dan Hunter have examined over 100 implementations of gamification (Werbach & Hunter 2012), and they found that most of these systems include the same three elements: Points, badges and leaderboards (PBL). These elements are very typical for gamification systems and can be very effective if used the right way. At the same time these elements also have limitations and it is important to understand their advantages and disadvantages. The dynamics behind how these elements are put to use are fundamental in how the elements will affect different users.

3.1 Points

Points are a simple way to encourage people to act in specific ways by collecting them. For points to be a motivational factor though, there has to be more to it than just the points alone.

Some of the ways points can be used in gamification (Werbach & Hunter 2012):

- Keep score
  - This is the most obvious way to use points. Points can tell you how well you are doing. If you have earned more points than your friend or colleague, it might mean that you have played longer or more successfully than him. Points can also be used to determine progress, by defining levels or objectives with the help of points (e.g. you need 10,000 points to reach level 2 or to unlock a specific feature).

- Determine the win state
  - Points may be used to create a win condition. If you run a competition for a specific period, the winner could be chosen based on the number of points he or she has.

- Create a connection between progression and extrinsic rewards
  - A common way to use points is to offer real-world rewards for people when they reach a certain amount of points. Poker sites often use this approach,
where customers can use points obtained from playing to buy real-world products like poker chip sets or even cars.

- **Provide feedback**
  - A well-designed gamification system gives explicit and frequent feedback, and points can easily serve as a feedback provider. Each point obtained is a small bit of feedback and gives a sense of progression.

- **External display of progress**
  - In an environment where members of the community or workplace can see each other’s scores, points add a competitive element. It shows how well you are doing compared to others and serves as a marker of status.

- **Provide data for the game designer**
  - Points can be a useful tool for the game designer to track and analyse important metrics. How fast are users earning points and how does the scores affect their behaviour?

By understanding how points can be used, they can be implemented in a gamified system in ways that meet the objectives and goals set by the business. If you want to encourage competition, points can be used as scores and you can let users compare their scores with others. If you want to give your users feedback for them to stay interested and motivated, points can be used to make them feel they are progressing, without sharing their scores with others.

### 3.2 Badges

A badge is a visual representation of an achievement, awarded to users who complete specific activities. Badges or trophies are widely used in online gaming today, but have a long history outside of gaming. Military heroes through time have been honoured with medals as a way to show their accomplishments. Judd Antin and Elizabeth F. Churchill suggest that badges can
have five different motivational characteristics, depending on the nature of the activities and the context (Antin & Churchill 2011):

- **Goal Setting**
  - Badges can be used to set goals and challenge users to meet the mark that is set for them. Goal setting is an effective motivator and studies have shown that the most motivating goals are those that are just out of comfortable reach (Ling 2005).

- **Instruction**
  - Badges can provide instruction to new users and users that are stuck, about what type of activities that are possible within a given system. By looking at the badges obtained by other users or a list of badges that can be acquired, users get an understanding of what is possible and what is valued in the system. This can be an important feature of informing and engaging users.

- **Reputation**
  - Badges show what a user cares about, their expertise and past activities and gives a picture of a user’s reputation and experience. Some users might try to acquire specific badges to show others what they are capable of and in this way shape their reputation.

- **Status/Affirmation**
  - Badges can have the function of a virtual status symbol, showing the achievements a user has accomplished. On the assumption that other users will look more favourably upon someone who has acquired a specific badge, some users might be motivated by this. Badges can also provide a personal affirmation by marking important milestones, much like trophies on a shelf.
Group Identification

- Badges can provide a sense of group identification as users who have the same type of badges have also completed some of the same activities. This can create a sense of identity with the group.

The best thing about using badges as an element of a gamified system is that they are very flexible. Different kinds of badges can be awarded for different kinds of activity, and they can be used in contexts both fun and more serious. In supermarkets badges are sometimes used as a recognized symbol of trust, e.g. certifying that a product is organic or allergy friendly with a certified logo/badge. Another example is when you get a diploma after taking an education. A diploma also has the function of a badge, as it represents the activities you have successfully completed. The important thing is to implement badges so it serves the purpose of the specific gamified system of your business.

3.3 Leaderboards

Leaderboards can be a very powerful motivator for users who like to compete, and at the same time it can be really demotivating for users who don’t. A leaderboard gives context to the points and badges and makes users aware of where they stand relative to their peers. If used the right way this can make participants want to gain extra points to move up the ladder. On the other hand, users who are in the bottom of the leaderboard might be demotivated, causing them to stop playing.

To work around these advantages and disadvantages caused by introducing leaderboards, you can introduce leaderboards that are not static. Leaderboards can be created for multiple attributes instead of just one or different leaderboards can be used for each social network. (Werbach & Hunter 2012)

Points, badges and leaderboards together form a useful starting point for creating a gamified system, and PBLs are used to create well-known enterprise features like loyalty programs, customer competitions and credibility systems. However, these elements should not always be relied on alone. For some gamification systems they might not even be the right elements to use. It depends on who the target users are and how they typically behave. It is also
important to note that PBLs are all extrinsic game elements that are contingent to performance and related to extrinsic motivation. As already learned from the Self-Determination Theory, we should aim for people to be intrinsically motivated for the gamified system to be really powerful.

4. User Types of Gamification

To get a better understanding of how people act and interact in gamified environments and how different people are motivated by different things, we take a look at ways of classifying user types. If we know how different users might behave this can help in building more effective gamified designs.

4.1 Bartle’s Four Player Types

Richard Bartle, a British writer and professor, co-created MUD (Multi-User Dungeon), which is a text-based forerunner to today’s MMORPGs (Massive Multiplayer Online Role Playing Games). He has conducted research in the areas of game design and game development and ended up formulating a theory of player personality types (called “Hearts, Clubs, Diamonds, Spades: Players Who Suit MUDs”, which classifies MUD players based on their personal gaming preferences. The MUD players could be broken down into four types of players: Killers, Achievers, Socializers and Explorers (Bartle 1996):

**Killers** are players who live for the competition. Bartle refer to them as “Clubs” as they like to “take it to” their competition. They love when there is an opportunity to compete and like to beat other players.

**Achievers** are known as the “Diamonds”, as they strive to gain rewards, recognition and prestige. They focus on obtaining rewards like points, prizes and material possessions. They also like to compete and enjoy challenges set by either the game or themselves.

**Socializers** love the social aspects of the game, rather than the strategy of the game itself. They are the “Hearts”, because the get enjoyment from interacting and building relationships with others.
**Explorers** are players who like the adventure of discovering new territories, learning about anything new or unknown. They are called the “Spades” because they have a tendency to dig down and uncover things.

Below is a graphical presentation of the four types of players:

![Bartle's User Types](image)

*Fig. 4.1 - Bartle's User Types ("Kyatric" 2013)*

In above illustration of the four player types (Fig. 4.1), the players are positioned in relation to their orientation towards people and the environment and whether they prefer to act or interact. The classifications Bartle did were based on patterns he observed from players found in his MUD games. Even though it is a good way to get a general understanding on how different players have different motivations and preferences, this classification has its limitations when it comes to explaining other gamified systems and situations.

4.2 Marczewski's User Types Hexad

Inspired from the work of Bartle, Andrzej Marczewski has developed a more structured perspective of a user type scheme: The User Types Hexad. This is developed to give
gamification designers a simple and useful framework to identify the types of people using their system. In this model we have six types of users (at a basic level). Four basic intrinsic types: Achiever, Socialiser, Philanthropist and Free Spirit. They are motivated by Relatedness, Autonomy, Mastery and Purpose. Relatedness, Autonomy and Mastery (or Competence) can be related to Ryan and Deci’s motivational factors. The other two user types in the model; Disruptors and Players, have motivations that are less clear. See below image for a visual representation of the six user types and their motivations (Marczewski 2015):

![Image of six user types](image)

**Fig. 4.2 - Marczewski’s User Types Hexad (Marczewski 2015)**

A brief introduction to the six different user types, taken directly from Marczewski’s book, “Even Ninja Monkeys Like to Play” (Marczewski 2015):

**Socialisers** are motivated by Relatedness. They want to interact with others and create social connections.

**Free Spirits** are motivated by Autonomy and self expression. They want to create and explore.

**Achievers** are motivated by Mastery. They are looking to learn new things and improve themselves. They want challenges to overcome.
Philanthropists are motivated by Purpose and Meaning. This group are altruistic, wanting to give to other people and enrich the lives of others in some way with no expectation of reward.

Players are motivated by Rewards. They will do what is needed of them to collect rewards from a system. They are in it for themselves.

Disruptors are motivated by Change. In general they want to disrupt your system, either directly or through other users to force positive or negative change.

Marczewski divides these six user types into three different groups, based on their “willingness” to play or participate. Generally, the more “willing” a user is to play, the more the user can be engaged with extrinsic things such as badges and points. The Players are the ones most willing to play, Disruptors are not willing to play at all, whereas the remaining user types are less willing to play but can be engaged if the system is designed right.

The ideal gamified system is a balanced system for all types of users. The only challenge is that it is quite difficult to design such a system. Marczewski’s suggestion is: “Create a system that appeals to the four basic intrinsic motivations and user types. Make it social, make it meaningful and give people some freedom. Then, integrate a well thought out reward system (points, badges etc.). If you do it this way around, you are not creating a system that relies on the rewards to run. That way, you get the intrinsically motivated people anyway and those that are there for rewards are catered for. It is important to keep in mind that you want more of the intrinsically motivated users if possible. These are the ones who will keep coming back, keep producing content or whatever else they are meant to be doing” (Marczewski 2015).

On the next page is the User Type Hexad again, this time showing supportive elements of the specific user types. The supportive elements are guidelines to which game elements might motivate the different user types (in the square boxes):
With the above illustration, Marczewski wants us to keep in mind that this is only to clarify thinking, as reality is not that black and white. Users will most likely display traits of multiple user types, but usually one or a few user types will dominate more than others. Sometimes it also happens that users change their user type as they get to know the system and change behaviour. Some users can initially be lured by rewards, triggering their extrinsic motivations. The same users might later shift to become intrinsically motivated types, once they realise that there is more to be gained from the system than just points, badges and prices.
Section 2: Case introduction & Methodology

This section will provide a foundation for the whole study. The first chapter introduces the three real-world cases that have been investigated for the purpose of testing the theories already introduced. The case selection criteria will be inspected followed by an introduction to each case. The second chapter lays the methodological foundation of the thesis, introducing the philosophy of science being used along with the study design. It also provides information on how the whole groundwork of the study, namely the data, was collected.

5. Introduction to the cases

To investigate what game mechanics are most effective in motivating and engaging users, three real-world cases of gamified systems will be examined: A wine scanner app called Vivino, an app designed for learning languages named Duolingo and a workout and social network community called Fitocracy. In this chapter, the selection criteria for the cases will be examined and this will be followed by an introduction to the three cases.

5.1 Case selection criteria

Three different real-world cases of gamified systems have been chosen, in order to analyse what the users of these systems are motivated by and what game mechanics work best to engage the users. The three cases are all companies with an app as their main system, but they tap into different areas of our innate psychological needs, as defined by Ryan and Deci in the self-determination theory framework. The companies also make use of different combinations of gamification elements to engage, motivate and satisfy their users.

The reasons to why these specific companies and their apps were chosen:

- The author of this study had prior experience from using the apps and knew that they were using different elements of gamification.
- The apps operate within different areas and tap into different needs
- All three apps have a very high number of users (Duolingo: >100 million users (Duolingo 2015), Vivino >10 million users (Vivino 2015), Fitocracy: >1 million users
(TechCrunch 2013)) making it easier to find people for the interviews and user type tests of this study who are using the apps.

Below is a matrix illustrating the three different companies, their domains and their gamification characteristics:

<table>
<thead>
<tr>
<th>Area/Domain</th>
<th>Duolingo</th>
<th>Fitocracy</th>
<th>Vivino</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language Learning</td>
<td>Social Fitness</td>
<td>Wine Discovery</td>
<td></td>
</tr>
<tr>
<td>Social Fitness</td>
<td>Network</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Network</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Main Psychological Need</th>
<th>Duolingo</th>
<th>Fitocracy</th>
<th>Vivino</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mastery/Competence</td>
<td>Points</td>
<td>Points</td>
<td>Exploration</td>
</tr>
<tr>
<td>Relatedness</td>
<td>Levels</td>
<td>Levels</td>
<td>Badges</td>
</tr>
<tr>
<td>Autonomy</td>
<td>Leaderboards</td>
<td>Social Network</td>
<td>Social Network</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Typical User Type</th>
<th>Duolingo</th>
<th>Fitocracy</th>
<th>Vivino</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achievers</td>
<td></td>
<td>Socialisers</td>
<td>Free Spirits</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gamification Elements</th>
<th>Duolingo</th>
<th>Fitocracy</th>
<th>Vivino</th>
</tr>
</thead>
<tbody>
<tr>
<td>Points</td>
<td></td>
<td></td>
<td>Exploration</td>
</tr>
<tr>
<td>Levels</td>
<td></td>
<td></td>
<td>Badges</td>
</tr>
<tr>
<td>Leaderboards</td>
<td></td>
<td></td>
<td>Social Network</td>
</tr>
</tbody>
</table>

Table 5.1 – Case Selection Criteria, own elaboration

As you can see from table 5.1, the three apps are operating within different domains and tap into different psychological needs. These specific needs all call for certain user types, which in turn makes particular gamification elements more effective than others. However, this matrix is a simplified version of reality, and should only be viewed as an outline of the initial impression received from reviewing the apps. Gamified systems often tap into a combination of different psychological needs, attracting a diverse type of users and the cases analysed in this thesis are no exception. They will now be introduced in more details.
5.2 Duolingo

Duolingo is an app for learning languages and there are multiple languages to choose from. Each bite-sized language lesson includes a variety of speaking, listening, translation and multiple-choice challenges. Points are earned for correct answers and you get instant feedback to see which answers you get correct and how to improve.

![Image](image.png)

**Fig. 5.1 – Own screen shots of Duolingo**

The main psychological need Duolingo taps into is the need for Mastery/Competence and the urge to progress and get better at something. Duolingo also has elements of Relatedness, as it brings in a social part where you can follow friends and share progress. With this feature it is possible to compare experience points with friends and see the progress on a weekly leaderboard, bringing in a competitive element. Duolingo satisfies the need for Reward with its experience points, leaderboards and “Lingots”. “Lingots” are virtual money obtained by completing lessons, and can be used to buy virtual prizes like outfits for your avatar and bonus language lessons.

With a combination of Mastery, Relatedness and Rewards, Duolingo mainly targets three user types: Achievers, Socialisers and Players.
5.3 Fitocracy

Fitocracy is a fitness game and social network that aims to help users improve their fitness. You can log your workout and keep track on your progress on your own, battle friends to find out who is strongest or get help from experts who can create personal workout and nutritional plans for success.

![Own screen shots of Fitocracy](image)

Fitocracy taps into the psychological need of Relation, as you can follow other “Fitocrats” and get support and motivation by Fitocracy’s inspiring online fitness community. Fellow Fitocrats can encourage you by giving you “props” for a logged workout. There is also a possibility of joining specific teams and groups, which further promotes the social aspect of the network. A competitive element is added with “Duels”, a feature where you can battle your friends in specific exercises. The fitness app also caters to the needs for Reward and Mastery. You earn points for every workout you log and these points make you progress towards “levelling up”, increasing your social status in the community. Badges can be unlocked by completing special achievements and whenever a workout is logged, you can view your progress for specific exercises with interactive charts.

A combination of Relatedness, Rewards and Mastery makes Fitocracy target users having the same traits as the users of Duolingo, but with other degrees of needs for the specific elements.
Vivino has a very simple concept. Take a picture of a wine label and the software will recognize and match the exact product and vintage. As soon as the software has identified the wine you can see its rating, reviews and average price.

Vivino primarily serves the need for Autonomy. Its users generate the wine content on Vivino and the database of wines will grow and improve as more people scan, rate and review wines. Vivino is the perfect exploration tool for wine-lovers as you can find information on the wines you are drinking and dig into the universe of wines. Vivino also satisfies the need for Relatedness, Mastery and Reward. You can follow and be inspired by other Vivino-users to keep track of what they are drinking and how they rate different wines. If you want to learn about specific types of grapes or the process of making wines, you can read some of Vivino’s educational articles and improve your wine knowledge. Rewards in the form of badges and a rank on a leaderboard can be earned by scanning, rating and writing reviews of wines, and the more wines you scan and rate, the better rank you will have on the leaderboard.

The mixture of Autonomy, Relatedness, Mastery and Reward makes Vivino target four types of users: Free spirits, Socialisers, Achievers and Players.
6. Research Foundation & Methodology

This chapter provides the foundation of what was done and why, in order to address the research questions of the study. It is introduced with the Philosophy of Science behind the research, and is followed by a review of the research strategy and methodology. The last part of the chapter gives insight into how the data of this study was collected.

6.1 Philosophy of Science

Philosophy of Science is the foundation, method and implications of science, and can be divided into two broad areas: Epistemology of science and metaphysics of science. The epistemology of science deals with questions related to the justification of claims to scientific knowledge. Philosophers of epistemology are concerned with investigating whether science uncovers truths and whether the interpretation of science results can be affected by prior theoretical expectations. The metaphysics of science is concerned with discussing the features of the natural world described by science, involving questions like whether all events are determined by prior causes and whether there are purposes in nature. To summarize, epistemology is about to what degree we should believe what science tells us, whereas metaphysics is concerned about what the world is like. (Papineau 2002)

In this section the philosophy of science applied to this thesis will be discussed.

6.1.1 An Epistemological Approach

Much of the recent work on epistemology is made in response to the problem of induction. Induction is the process of deciding whether a theory is true, based on a given number of experiments or observations. It has been questioned whether any number of observations or experiments can provide a foundation to establish a theory about the world. Karl Popper introduced us to the idea of falsificationism (Popper 1959). In Popper’s view, science should not be generated on the basis of induction, but rather through a more deductive approach. This approach means that instead of observing and from that create a general theory, we should turn it upside-down. Falsification is the process of creating a theory and then do observations to either falsify the theory or not. Popper does not believe in confirming that a theory is true, but only that you can confirm it is not.
In my research I will be using the epistemological ideas created by Karl Popper. This means that if my observations confirm the patterns of the theory I have used, this does not suggest that new science is created. However, what it will do is provide an increased belief in the already existing theory, as I recognize the likelihood that I have discovered a pattern that fits the theory. On the other hand, if my observations show that the theory I have used is not true, then my theory is falsified or at least my belief in this theory is reduced. It is worth noting that to completely falsify a theory, one must make sure that the results are valid and not biased by other factors, e.g. a poor research design.

6.2 Research Strategy & Methodology
I am investigating gamification, a contemporary phenomenon, and my research question is posed as a “how” question. I am investigating the phenomenon within its real-life context, analysing real-life cases of gamified systems, in which I have no control over behavioural events. My study will rely on multiple sources of evidence, both qualitative and quantitative, converging in a triangulating fashion. As a result, according to Robert K. Yin, a suitable research strategy is a case study – in my case, a multiple-case study, as I am investigating several cases (Yin 2003).

Case studies allow a lot of details to be collected that would not normally be easily obtained by other research designs and the data collected are often richer and of greater depth than with other experimental designs. It is also a good method to challenge theoretical assumptions. It can be hard to generalize from a single case but a multiple-case study has a comparative advantage and makes generalization a bit easier. One of the disadvantages of a (multiple) case study is the possible bias in data collection and interpretation, since it is a single person gathering and analysing the information.

A way of addressing this possible bias in data collection is to combine qualitative and quantitative methods. Since each method has its pros and cons it can be an advantage to combine the two, called methodological triangulation. The concept of triangulation is a technique borrowed from land surveying where the exact distance to a given point can be determined with the convergence of measurement taken from two distinct points. Methodological triangulation is a way of crosschecking data from multiple sources and can
help isolate possible weaknesses in the data collected, increasing the credibility and validity of the results. (Rasmussen & Fischer 2008)

6.3 Data Collection
This thesis relies on data from many different sources. The primary data has been qualitative interviews and quantitative user type tests. Secondary data consisted of literature, articles and Internet sources. The secondary data was the main source for conducting the theoretical framework and the case introduction and methodology section, whereas the primary data provided the base of the results section.

6.3.1 Primary Data
The primary data was collected to support the secondary data and to test the theories presented in the theory framework section. It consisted of qualitative interviews and quantitative user type tests. The qualitative interviews were prepared and conducted as semi-structured interviews with two participants for each case analysed, giving a total of six participants. They were all interviewed face to face and since all participants were from Denmark, the interviews were carried out in Danish. A voice recorder was used to record all interviews. Later the interviews were transcribed and translated. See Appendix 4 for transcription of interviews. Before each interview, the participant was asked to take a quantitative user type test to determine what type of user the participant could be categorised as. The advantage of starting out with the quantitative part before the qualitative interview was that the categorisation of user type helped shape some more specific follow-up questions for the interview, to better determine whether their user type results were in line with how they behaved in reality.

The quantitative user type test is a questionnaire that is available to everyone at: Gamified.uk/UserTypeTest. It is a questionnaire drafted by Markowski with 24 different statements related to behaviour in the context of gamification. The test participant has to answer whether he/she agrees or disagrees with each statement and to what degree. There are five possible answers: “Strongly Agree”, “Agree”, “Neither”, “Disagree” and “Strongly Disagree”. After answering all questions and submitting the answers, a result is given, showing the test participant’s strongest user type/types with an overview of how the
personal traits are distributed among the six different user types. The overview is provided in percentages and as a hexagon diagram, as seen in Appendix 2.

6.3.2 Secondary Data
Before seeking primary data, secondary data was studied to provide a solid ground of theoretical knowledge of gamification. Initially, the secondary data was sought through books and academic articles – books and articles about gamification specifically, but also about the psychology of behaviour and theories on innovation. Gamification is still a relatively new phenomenon, so information also had to be found elsewhere. The Internet was a great additional source of information on gamification, and since much of the information on the Internet gets updated frequently this was a source of new and updated information.

6.3.3 Interview Structure
A qualitative interview offers the opportunity to consider the subjects being interviewed as context-sensitive acting individuals and make them express their personal opinions about different subjects. To make most out of the interview, a semi-structured interview with open-ended questions was conducted. This semi-structured approach has the advantage of allowing new ideas to be brought up during the interview. The open-ended questions are used to avoid simple answers like “yes” and “no”. A semi-structured interview guide was used to ensure that the relevant topics were addressed, while at the same time leaving room for possible new topics to appear during the interview. The interview guide is only meant as a guideline and the questions were not necessarily asked exactly as they appear in the guide. The specific course of each interview and the topics addressed by the interview subjects helped shape the process of the interview and had an influence on which questions were asked. (Rasmussen & Fischer 2008)
The interviews were conducted in Danish, since the interviewed people are all from Denmark. See Appendix 3 for interview guides in both Danish and English.
### 6.3.4 Interview Subjects

The interview subjects were chosen with a convenience method, based on the people I knew were users of the three selected apps. All subjects are people that I know, and they were chosen as they had time for a short user type test followed by an interview. 3-4 people were contacted for each app and asked for an interview. In total, 10 people were contacted and 6 of these had time and wanted to participate in a user type test and an interview.

Below is an overview of the 6 participants and their variables:

<table>
<thead>
<tr>
<th>Name</th>
<th>Age</th>
<th>Generation</th>
<th>Phase of life</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alexander</td>
<td>21</td>
<td>Generation Y</td>
<td>In between studies</td>
</tr>
<tr>
<td>Camilla</td>
<td>27</td>
<td>Generation Y</td>
<td>Early career</td>
</tr>
<tr>
<td>Simon</td>
<td>24</td>
<td>Generation Y</td>
<td>Early career</td>
</tr>
<tr>
<td>Christopher</td>
<td>27</td>
<td>Generation Y</td>
<td>Studying, University</td>
</tr>
<tr>
<td>Kent</td>
<td>55</td>
<td>Baby Boomer</td>
<td>Late career</td>
</tr>
<tr>
<td>Mathies</td>
<td>27</td>
<td>Generation Y</td>
<td>Studying, University</td>
</tr>
</tbody>
</table>

*Table 6.1 – Interview Subjects and variables, own elaboration*

As it appears, the list of participants is a bit unilateral with 5 out of 6 participants being in the age of 21-27, all from the generation known as "Generation Y". There is one outlier who is 55 years old and from the “Baby Boomer” generation. The phase of life they are in differs a bit from participant to participant, since they are either studying, in between studies or working.

Generation Y covers people born from the 1980’s and the year 2000. Generation Y grew up with technology and they have been shaped by the technological revolution that occurred throughout their youth. They are characterised by being online and connected 24/7 and often they are equipped with the latest technology, like smart phones, laptops and tablets. (Talented Heads 2013)

That 5 of the participants are from this generation is not a bad thing, as the cases studied are all using apps for their gamified platforms. Since these participants are used to handle technology they have most likely already come across many of the game elements they are presented for in the three apps and in the interviews. This will hopefully provide a basis for
some useful answers and results of the interviews. Kent, being from the late Baby Boomer generation, adds a bit of nuance to the sample of participants.

The most obvious criticism and maybe also the biggest disadvantage of using convenience sampling, is that the sample is not representative of the entire population. This might lead to differences between the results and the theory. Also, it can be difficult to generalise based on the results, since the sample is not representative of the population as a whole and cannot speak for the entire population.
Section 3: Results

This section provides the results of the data that was collected through interviews and questionnaires. How the data was analysed will be reviewed and the main findings presented. The findings will be related to the theory from section 1.

The three cases (apps) will be examined one by one and the interviewees of each app in the same manner. First, the game elements of the app in question will be summarised to provide an overview of how the app is using gamification. Then we take a look at the interview subject’s gamification user type, illustrated by Marczewski’s User Type Hexad. Their individual User Type Hexad is a result of the user type test taken prior to each interview, as already mentioned in the methodology chapter. After a brief highlight of their individual user type traits, we go through the qualitative interview about their general use of the app in question and their motivations of using the app. Their answers are compared with their user type characteristics and held up against the gamification elements that typically motivate their specific user type, according to the supportive elements illustrated in Fig. 4.3. Following the analysis of the two persons interviewed for each app is a partial conclusion. In this partial conclusion, main points are summed up and if possible, generalisations are made. Ultimately, the goal is to come up with answers to what game mechanics are most effective for the interview participants using the apps.
7. Duolingo

7.1 Game Elements
Duolingo gamifies the way people learn languages and use a lot of gamification elements in the process. Levels are used to give a sense of progression as you finish and move down the list of language lessons and reach checkpoints. Feedback is given with experience points obtained for each time a lesson is completed. The experience points also work as an external display of progress as you can compare the points you have obtained with points of the friends you follow, on a weekly leaderboard. This social possibility of following friends and share progress can encourage competition among friends. After taking a number of lessons you have to go through a test. In this test you only have three lives, symbolised by three hearts, which again gives the player a sense of a game-like experience. Duolingo uses avatars called “Duo’s”, and it is possible to change and customise the attire of the Duo. “Lingots” are earned from playing the language game and these Lingots, having the function of virtual money, can be used to buy and unlock content in the game shop of Duolingo.

7.2 Results
The first subject interviewed about Duolingo, was Alexander. On the right is a graphical presentation of his user type (Fig. 7.1). This was the result that came out after he had taken Marczewski’s user type test, mentioned in the methodology-section. As you can see, Alexander is a combination of Achiever, Player and Socialiser with some Free Spirit traits as well. According to the User Type Hexad showing supportive elements of each user type (Fig. 4.3), Alexander is likely to be motivated by elements like levels/progression, challenges, points, leaderboards and competition.

In the interview with Alexander, he was asked about his general use of Duolingo; what he was using the app for and how. He explained that he is using it to learn new languages and that he
is using it as “(...) pastime, because it’s actually quite fun to use” (Appendix 4). The fact that he likes learning fits perfect to his traits as an Achiever, as these user types have an innate need for Mastery and an urge to progress and get better at what they do. He uses the word “pastime” to describe why he uses the app, and if we use the taxonomy of Hunicke et al., he is actually labelling Duolingo as a “Submission” game, suggesting that Submission is his emotional response to playing the language game. I wanted to know exactly what made the app fun to him, and his answer to my question was: “It’s the way the app is structured. It wouldn’t be fun to just sit down and practise grammar. You have to go through different levels and in the end there’s a test and you progress to an even higher level. So it gradually gets more and more tough.” (Appendix 4) This answer fits well to his user type trait as an Achiever. He mentions levels and progression as something that makes it fun and these elements are typical motivators for Achievers.

When asked about his motivation to keep using the app, Alexander found it difficult to tell exactly what motivated him, but explained: “I have always liked when something feels like a game as I think you get more motivated to learn things that way” (Appendix 4). It is interesting that alone the feeling of playing a game for some people can be enough to spark their motivation. He specified what features helped motivate him: “It’s pretty cool that you for example get points for completing a lesson and that you can advance levels” (Appendix 4). Motivation for getting points is typical for Player user types and confirms his Player traits as illustrated in his user type hexad (Fig. 7.1). To find out whether his traits as a Socialiser was evident in his use of Duolingo, he was asked whether he had tried using the social part of the app where you can follow other users and compare points obtained on a leaderboard. To this he surprisingly answered that he had not used this part but just enjoyed playing the game by himself. He gave some suggestions though, to how the app could be improved, and stated that: “It would be fun if it was possible to compete against friends by sending them challenges and if you could then compare your results on a leaderboard” (Appendix 4). He also mentioned a “(...) general possibility of battling your friends” (Appendix 4) as a motivating factor. These suggestions of adding a competitive element and a possibility of battling friends are in line with his characteristic as a Socialiser, and the reference of a leaderboard fits well with his Player trait.
On the left is a user type illustration of Camilla (Fig. 7.2), the second person interviewed about Duolingo. As it appears, Camilla is an Achiever with some Free Spirit and Socialiser characteristics as well. Learning new skills, a structure of levels and progression, challenges and “hard fun” in general will often motivate an Achiever. Camilla might also be motivated by elements that give her a sense of Autonomy and Relatedness, as this would satisfy her Free Spirit and Socialiser traits.

Jumping straight to the interview with Camilla, she explained that she also uses Duolingo to learn new languages, but she is using it the same way as when she is playing games on her mobile phone: “As a fun kind of pastime” (Appendix 4). It seems Duolingo has succeeded in making learning fun with the help of game elements. At least it works for both Alexander and for Camilla who both use Duolingo as fun kind of pastime. The fact that Camilla likes to play the Duolingo language game is no surprise if we take into consideration her user type as an Achiever. Achievers are motivated by “hard fun” which is exactly what Duolingo can be categorised as.

When asked about what specific features of the app help motivate her, Camilla shows some other sides of her user type, with the statement: “I like the fact that you get points for each time you complete a lesson and that you can unlock new lessons” (Appendix 4). Points are related to Rewards and they are a typical motivating factor for Players who simply just love to play.

Looking at Camilla’s result from the user type test (Fig. 7.2), she does not appear to have strong Player type characteristics. Still, her answer to what motivates her indicates that she does in fact have some Player type traits. This is a typical proof of how people often display traits of multiple user types and can be driven by several game elements. That unlockable content also motivates her makes sense, as this is an element that often motivates Free Spirits, which she shows some tendencies towards, looking at her user type hexagon. Camilla elaborates on what motivates her, and tells: “I also think it’s quite fun to see how far you are
compared to your friends and I can sometimes be motivated to play even more if I am behind compared to them” (Appendix 4). This shows that she likes the social and competitive part and demonstrates a need for Relatedness. Again this fits well to the result she got after taking the quantitative user type test. Camilla is asking for the same element as Alexander was, when it comes to how the app could be improved: “It would be pretty fun if you, just like with the game Wordfeud, could challenge your friends” (Appendix 4). Wordfeud is a crossword game where you can battle friends and keep score of who is best, and with Camilla’s suggestion she is asking for that challenge element to be added to Duolingo.

7.3 Partial Conclusion
Overall, the gamification elements Duolingo uses in the process of learning people new languages seem to work very well for our two interview subjects. Duolingo has somehow managed to make learning fun, and both our interview subjects use it as a fun way to kill time, while still learning something. It seems Marczewski’s theory of which game elements work on different user types can be applied to our two interview subjects. Those elements that are supportive to their user type do in fact motivate them. We did have Camilla show some Player type traits that were not perfectly in line with her quantitative test result, but it does not come as a surprise that reality differs a bit from theory. Generally the theory seems well founded.

But can anything general be said about what game mechanics of Duolingo are most effective, i.e. most motivating, to our two people interviewed? Since they both share traits of an Achiever the most obvious answer would be some of the game elements of Duolingo that are supportive of Achievers, namely learning/new skills and levels/progression. Based on their statements in the interviews, especially levels and progression seem to motivate them. They also both mentioned points as a motivating factor, even though Camilla did not show Player type traits in her test result. To conclude, the most effective game mechanics of Duolingo based on above analysis, are levels/progression and points.
8. Fitocracy

8.1 Game Elements

Fitocracy uses gamification as a way to make fitness more fun and motivating. Points and badges are earned for logging workouts and you get a sense of progression as you “level up” once you reach certain point thresholds. You can socialise by following other “Fitocrats” and learn from them, share knowledge with them or encourage them to keep training by giving them “props” for their workouts. There is also a competitive element with the possibility of duelling against fellow “Fitocrats” to see who is best in specific exercises. Fitocracy combines many different gamification mechanics, satisfying a variety of user needs.

8.2 Results

On the right hand side is Simon’s User Type Hexad. His main character trait is a Player, but he also has some Free Spirit, Socialiser and Achiever attributes. Simon will most likely be motivated by rewards like points and badges, but also by Autonomy, Relatedness and Mastery. A Player is the user type who is in general most willing to play and this is a perfect starting point from a gamification perspective. This user type simply just loves to play and is typically very motivated by classic gamification elements.

Simon explains that he uses Fitocracy to log his workout and training sessions. One of the features of the app he uses is to follow friends (other “Fitocrats”) to see how they do their workouts and follow their progress, as this inspires him. Simon has not used the part of the app you have to pay for, where you can get personalised training programs developed by professionals. He elaborates why: “I have been working out for several years and I feel that I know how to do it right. Instead, I use the app to make my own customised workout programs” (Appendix 4). The way Simon uses Fitocracy fits well to his user type profile. To log or register activity is a way for people to document or analyse data and in this case with training and workouts it can give a sense of progression and Mastery, as you will be able to see how you
improve over time. Something an Achiever appreciates. His character trait as a Socialiser is reflected in his need to follow friends and get inspired. Simon’s need for Autonomy is expressed by the way he uses Fitocracy to create customised training programs for himself, showing his creative side and his Free Spirit trait.

Simon was asked about his motivation to use the app, and this is where he reveals his personality as a true Player: “I get very motivated by getting points for each time I register a workout. That is what’s actually making me want to log the session” (Appendix 4). He continues: “You can also obtain different badges for making specific exercises or for completing challenges and that’s also a fun feature and something I have spent time on” (Appendix 4). So he gets motivated by obtaining points and badges, which is very typical to the Player user type. Simon also mentions the fact that you can compare what level you have achieved with the level of your friends, as a motivating factor to log his own workouts. This competitive element of Relatedness that he likes is further expressed with his statement: “(...) it’s quite fun that you can challenge your friends to do the same workout as you and to see if they can complete it as good as you. I like that competitive part” (Appendix 4).

When the question was raised about how Fitocracy could improve their app, Simon suggested that: “(...) it should be made more simple. And maybe it would be better with some different apps covering different needs, instead of one app with too many features. I mean, they both try to be a social network, a workout log and a marketplace for training programs you need to pay for, and it’s just too much” (Appendix 4). This suggestion of improvement is something gamification designers could learn from, as it might sometimes make sense to design a system with gamification elements targeting only some specific user types or needs. So instead of trying to reach as many user types as possible with a lot of different gamification elements, fewer, more user specific elements could be more effective and motivating for the user types targeted.

Overall Simon fits the user type theory of Players spot on, but he also confirms that people often have personalities with a combination of many different user type characteristics. Not only do points and badges motivate him. He also likes competitive elements, challenges, levels/progression and customisation, which is typical for Socialisers, Achievers and Free Spirits.
The next subject interviewed about Fitocracy was Christopher, an Achiever and Player user type showing some Socialiser, Disruptor and Free Spirit traits. A multifaceted person who might be motivated by many different gamification mechanics. Like Simon, Christopher will probably be motivated by Rewards but also by Mastery. Relatedness, Change and Autonomy might also have an effect on his motivation.

Christopher uses Fitocracy in the same way as Simon does. To log his training so he can follow his own progress. He also follows some of his friends but since they rarely use the app, this feature is not used very often. Christopher creates his own training programs with Fitocracy, and like Simon he is not paying for individual programs made by professionals. Customisation of training programs is as mentioned earlier a Free Spirit characteristic, and by looking at Christopher’s User Type Hexad (Fig. 7.4), we can see that this is part of his user type. Christopher is also criticising Fitocracy for having too many features: “It could be more user friendly. I don’t use half of the features available and I think the way you have to log your training is a bit comprehensive and could be made more simple” (Appendix 4). Since they both mention that the app should be made simpler, it seems like an important detail worth noting for gamification designers, as too many features in one system can confuse people, which might eventually lead to them losing interest.

According to Christopher, points are also one of the main reasons for using the app: “You receive points for each time you log a workout and that helps motivating me to use the app. To level up you have to obtain a certain amount of points and it makes you want to try to obtain those points as it gives a sense of progression when you level up” (Appendix 4). That points and progression motivate him is in line with his Achiever/Player user type combination. He also mentions the fact that you can customise your own training program as one of the reasons he uses Fitocracy. He says he would not use the app if you could only choose between predefined training programs. With this in mind, Fitocracy did a good job implementing a feature of
customisation. But maybe Fitocracy could optimise the way points are used, as Christopher suggests: “I think I would be even more motivated to log my workouts if you could use the points you receive to pay for, let’s say professional individual training advise, training programs or to get rebate on training supplements and equipment” (Appendix 4). So even though Christopher happily logs his workouts as the system is now, his suggestion might motivate users who do not always log their workouts to do it more often, if they could use points obtained to buy services or products.

8.3 Partial Conclusion

Generally, the game elements Fitocracy uses to encourage motivation and to create a fun experience for its users work well. Simon is like other typical Player types motivated by points and badges, but he also likes challenges, competition and levels/progression. Christopher mentions points and progression as essential to his motivation. However, both of them criticise the app for having too many features and not being simple enough. It seems like Fitocracy wants to cater for all users needs, but maybe they would benefit from targeting specific user types instead by removing some of the features that their core users do not use.

From the analysis of Simon's and Christopher's use of Fitocracy, there are multiple game elements that seem to have an effect on their motivation, but they have two game elements in common, standing out as being more effective than the others, and that is points and levels/progression.
9. Vivino

9.1 Game Elements
Vivino is a bit different from the other apps analysed, in the way they use gamification to create a game-like experience. The main element of Vivino is exploration. To explore the world of wines with all its nuances and flavours. One of the main reasons for people to scan a wine label is their curiosity to know more about that specific wine. Vivino however also uses some typical gamification elements. The more ratings and reviews you do, the better rank you will get on a national leaderboard. Badges can be earned by completing specific tasks, like scanning a wine from a certain country or rating a wine containing a specific type of grape. You can follow other Vivino users to explore their personal taste and be inspired, and you can comment or “like” their ratings. The way these gamification elements are integrated though, are not as visible to the user as they could be, as we will discover with the interviews of our two Vivino users.

9.2 Results
Kent, a Vivino user and the first one interviewed about his use of the app, has a user type of a Disruptor. Disruptors are motivated by change and as a contrast to Players who are the ones most willing to play, they are the exact opposite and least willing to play – that is if they even want to play. Disruptors can often be motivated by innovation, development and anonymity. Kent, however, also has some Achiever, Socialiser and Free Spirit characteristics, so he might also be motivated by some of the more typical elements of gamification.

Kent uses Vivino as a tool to remember what wines he has been drinking, and as a shortlist for the wines that he likes. He expresses it: “I use the app for wines that I don’t know or taste for the first time – then I scan the wine and I’ll have information of the wine saved in the app”. And
he elaborates: “(...) if I find a wine that I really like, then it’s nice to have it saved in my archive”. (Appendix 4)

Kent rarely uses the social part of the app where you can follow other users and he has not used the app to read general articles about wines. What motivates him to use Vivino is: “That you can see what rating other people have been giving the wine you scan, and that you can store information of wines in the app based on a label you scan (...)” (Appendix 4). His curiosity to find out what other people think of a wine and how good it is regarded to be shows an interest in other people’s voice and how they vote a wine. Voting/voice are elements that are supportive of Disruptors. Kent also rates wines himself and has written a couple of reviews, but explains that he is doing this for his own use to keep track of the wines that he likes. With Kent’s statements it is obvious that Vivino is a practical tool to him. A tool to see the rating of wines and to keep track of the wines he wants to remember. He does not use Vivino to interact with other users and does not care about badges and leaderboards. In other words, he is not that willing to play, which fits his profile as a Disruptor. However, what does not fit his characteristic as a Disruptor is that he has not told us anything indicating that he wants to disrupt the system. Typically, Disruptors want to disrupt the system, either directly or through other users to force a positive or negative change. This shows that Marczewski’s User Type theory should only be used as a guideline as people often have traits of different user types, giving them a complex user type combination.

The next one interviewed about Vivino was Mathies, who is a combination of Achiever and Disruptor. With his traits as an Achiever he should be motivated by Mastery, but since he is also a Disruptor it will be interesting to see how he behaves in his use of Vivino and how willing he is to “play” in Vivino’s system. Will he be motivated by Vivino’s element of learning or will he try to disrupt the system in a positive or negative way?
Mathies uses Vivino to scan wines at home, in supermarkets or at restaurants, to see others’ opinion about the wine. He sometimes uses it in supermarkets as a help to choose the right wine. Unlike Kent, he does not use Vivino for the purpose of storing information of the wines he has been drinking. Mathies only uses the feature of scanning wines to see ratings and reviews, and when asked about whether he contributes to ratings and reviews himself, his response was: "(...) I don’t care about rating and reviewing the wines myself. I never rate wines myself. Probably it’s because I don’t feel I have the skills to do it, and I think it has to be people who know something about wines who rate them for the system to make sense" (Appendix 4). He acknowledges that there would not be any data if all users behaved like him, since the system is based on user-generated content, but as he explains he is very anonymous in his use of the app. Anonymity is one of the supportive elements of Disruptors so his behaviour is in line with this user type trait.

The question is whether Mathies would change behaviour to start rating and reviewing wines, if the right game elements were applied to encourage him to do so. He was asked directly: "(...) if you received points for each time you scanned and reviewed a wine, and if you were able to use those points to buy wines and other products in a Vivino shop, would it then motivate you to rate and review wines?" (Appendix 4). Mathies answered that he believed such a system would motivate him to actually spend time on rating and reviewing wines.

9.3 Partial Conclusion

The answers from our two interview subjects indicate that Vivino is not utilising all its game elements equally well. Points are not used as a game element at all – at least it is not visible. Users might receive “points” or some kind of score for scanning and rating a wine that contributes to a rank on the national leaderboard, but the points or score received are not visible to the user and cannot be used for anything else than a better rank-score on a leaderboard. Since both interview subjects did not even notice the leaderboard feature (and probably would not care about such a feature, given their user type traits), it is safe to say that the points or score you receive for rating and reviewing wines are not fulfilling their potential as a motivating factor. Mathies actually goes from saying that he does not care about rating and reviewing wines to admitting that the right point-system would motivate him to do it anyway,
showing a potential for Vivino if they start using points as a (visible) game element. Badges are not mentioned either for any of the interview participants.

If rewards like badges and leaderboards are not the motivating factors for our interview subjects, what is it that makes Vivino such a powerful gamification system? The best answer: Their use of elements encouraging people’s intrinsic motivation. People’s self-determined need to explore and find information on specific wines. Vivino lets people unleash their inner need for Autonomy and caters specifically to people’s Free Spirit traits. Since intrinsic motivation is more powerful than extrinsic motivation, Vivino most likely has a strong base of loyal users.

When it comes to what game mechanics of Vivino that are most effective, a single element can be highlighted as the most important: Exploration. Both interviewees use Vivino to find information on wines and to explore ratings and reviews. Kent also uses the app as a way to store information on the wines he comes across, so for him Vivino also has another specific purpose. Considering Mathies’ statement about how Points would motivate him to rate and review wines, this game element could also be an effective game mechanic, if only Vivino had it implemented right.
Section 4: Discussion & Conclusion

In this final section, the results will be discussed and related back to the topic and questions mentioned in the introduction. Recommendations to the case companies will be provided, and gamification will be set in perspective with two theories on innovation. Suggestions to further areas of research will be discussed, followed by a chapter on study limitations and a chapter with final conclusions.

10. Discussion

This chapter is a discussion of the results. What these results can be used for and how they can be related to the topic and the research questions presented in the introduction section will be addressed. The results will be challenged by a theory of framing an activity as a game. Recommendations to the case companies will be offered, based on the results from the interviews. Two innovation theories will help put gamification in a perspective. Finally, suggestions to further areas of research will be presented.

10.1 So What?
The results gave six different user types: an Achiever, a Player, a Disruptor and three users with combinations of user types. These user type categorisations were the results of each interview subject’s user type test, and gave an idea on which user type(s) each subject had as their dominating one(s). Looking on each subject’s User Type Hexad it is clear that they all show traits of multiple user types and this was also evident in the interview results, as each subject had a pattern of behaviour exposing characteristics from multiple user types. At the same time each interview participant’s behavioural pattern was individual in the way the apps were used. Evidently, different people are motivated by different game elements and Marczewski’s theory on user types and the game elements they are motivated by seemed to fit very well on the participants from our interviews. Generally, the participants were motivated by the elements supportive of their respective user types. This has provided basis of an increasing belief in Marczewski’s theory. Since this study is based on an epistemological approach, it can now be concluded that based on the observations made in the results section,
the likelihood that a pattern is discovered fitting the theory of Marczewski’s user types can be recognized. Hence, to use a term from Karl Popper, Marczewski’s theory cannot be falsified.

Looking at the overall pattern of behaviour from the interview participants and how different game elements motivate them, can any generalisations be made? The answer to this is yes, as some game elements seem to have a better effect on motivation than others. For both Duolingo and Fitocracy, levels/progression and points were pointed out as having a positive effect on motivation for the participants. In the case of Vivino it was less clear what game elements were most effective, but the element of exploration was important for both interview subjects. Also, one of the subjects highlighted that points would motivate him to start rating and reviewing wines, indicating that points could also work as an effective game mechanic for Vivino, if only implemented the right way.

10.1.1 Points as a motivating factor

To understand more about how points can work as a motivating factor, let us have a look at how our three cases have integrated the use of points:

Duolingo uses points in multiple ways. The first and most obvious way it uses points is to keep score. This is to tell the player how well he is doing. If the player has earned more points than his friends it means he has played longer or better than them. Duolingo uses experience-points to keep score with the help of its weekly leaderboard. With this leaderboard where Duolingo-friends can see each other’s scores, the points also serve as an external display of progress. Another way Duolingo uses points is with its “Lingots”, where a connection between progression and extrinsic rewards is created. The more language lessons you complete, the more “Lingots” you earn, and this virtual money can be used to buy various rewards in the “Lingot shop”. An additional function points have in Duolingo is that they provide feedback for the player. Each point obtained is a small piece of feedback and gives a sense of progression.

Fitocracy also uses points in more ways than one. Just like Duolingo, points are used to keep score, to provide feedback and as an external display of progress. The way Fitocracy uses points to keep score is a bit different from Duolingo, as Fitocracy also uses points to
determine progress by defining levels with the help of points. A certain amount of points are needed to level up and this might motivate some to log extra workouts just to level up. No connection between progression and extrinsic rewards is created in how Fitocracy uses points.

Points are not visible in any way for Vivino users. There is an external display of progress, in the form of a rank on a national leaderboard, and this rank is most likely based on the number of wine scans, ratings and reviews. The fact that no points are received for user activities in Vivino limits the motivation for users to contribute to Vivino.

One function points can have for all three cases which has not been mentioned, is that they can provide data for the game designer and be a useful tool to track and analyse both behaviour and important metrics. This way points can be used to obtain valuable information on the users of the gamified system. Information that can be used to improve the system and make it more efficient.

Following the short presentation on what different function points have for the three cases, it appears Duolingo uses points in most different ways – maybe also most efficiently. The points in Duolingo were even highlighted as a motivational factor by a user type not showing any Player type traits in her user type test. If a user type who would normally not be motivated by rewards suddenly finds points motivating, you know you are doing something right.

10.1.2 Research & Sub-questions

So, how can gamification motivate and engage users of a gamified system, and what game mechanics are most effective? To answer this research question, let us begin with the first research sub-question: What motivates people and to what extent can gamification lead to a higher degree of motivation?

Generally, people are motivated by the three innate psychological needs defined by Ryan and Deci’s Self-Determination Theory: Competence, relatedness and autonomy. The context of the situation and the personality of the person determine to what extent and to what degree these
three needs are important in relation to motivation. Marczewski builds on the SDT theory and puts it into a context of gamification. His result is a framework of six different user types, each with different traits and different motivations. Marczewski’s theory proved to fit very well on the participants of the user type tests and interviews. Based on the results of the research in this paper, it can be concluded that different player types are motivated by different game elements. People often show traits from multiple different user types, making their characteristics and their motivations complex. Marczewski’s User Type Hexad, showing supportive game elements for each user type in the effort of showing what game elements will typically motivate each type, is a very fair representation of what people are motivated by. Even though the hexad is a simplification, the results from this thesis confirm its usability. To what extent gamification can lead to a higher degree of motivation, depends very much on how willing a person is to play. The more willing a person is to play, the more this person will be motivated by game elements and therefore also gamification. So again, it comes down to what type of user/player a person is. However, in this research we came across a user with Disruptor traits who said points would motivate him to change behaviour and start contributing to the system, suggesting that even user types who normally have a very low willingness to play, might be motivated by gamification.

The next research sub-question goes: What gamification elements are most effective to strengthen motivation and user engagement? As mentioned earlier in this discussion section, levels/progression and points were highlighted as being important motivators for the interview participants of Duolingo and Fitocracy. These game elements are not present in Vivino and with this app it was the element of exploration that seemed most important for the interview participants in regards to motivation. Levels and progression are related to the intrinsic need for Competence and the urge to progress and get better at something. Exploration is also an intrinsic need and is related to Autonomy, a need that comes from within and lets you do what you feel like and express what you stand for. Points on the other hand are related to rewards, and this need is extrinsic. Self-Determination Theory teaches us that intrinsic motivation is more powerful than extrinsic motivation. Hence, the most powerful gamification system is a system where most of the users are intrinsically motivated. Users who are intrinsically motivated are the ones who will keep coming back and actively contribute to the system. The users who are there for the rewards only might leave again once
they lose interest – unless they change behaviour and start becoming intrinsically motivated. The best answer to what game elements are most effective to strengthen motivation and customer engagement are points, when it comes to extrinsic motivation, and levels/progression when it comes to intrinsic motivation. Points are an effective way to lure people in and to affect their behaviour. But if you want them to stay, focus should be on intrinsic game elements, and here levels/progression is very effective. What makes levels so effective is that it gives a sense of progression, which can have a cumulative effect. However, progression can also be added as an element without the use of levels, e.g. with progress bars or other means of showing progress. Hence, the element of levels/progression can be boiled down to the element of progression only. So, for the sake of simplification, let us conclude that the most effective gamification elements when it comes to strengthening motivation and user engagement are points and progression. This conclusion is solely based on the results of this study.

This leads us to an answer of the overall research question: Gamification can motivate and engage users of a gamified system with the help of game mechanics. Applying game elements to a non-game context, to provide a fun and motivating game-like experience, is the essence of gamification. Different game elements have different effects on people, depending on their user types and what motivates them. Based on this research, two game mechanics seem more effective than others, and these are points and progression. Points cater to people’s extrinsic motivation whereas progression satisfies people’s intrinsic motivation.

10.2 Framing an Activity as a Game
To challenge the whole theory of game mechanics and the effects they have on motivation, it would be interesting to find out whether framing an activity as a game can be enough to affect motivation.

Andreas Lieberoth, a professor from Aarhus University, has done a study on this subject. He wanted to answer the question: “What if visually and verbally presenting something as a game is just as important as the game mechanics?” (Lieberoth 2015). So he did an experiment, demonstrating that presenting an activity as a game meant just as much as the game
mechanics behind it. In his controlled experiment, 90 psychology undergrads from Aarhus University were randomly assigned to three experimental groups. All groups were given versions of the same task: To discuss student satisfaction issues by reading issues aloud and having brief discussions around a table of 5-6 peers. The students took turns in reading the issues aloud and facilitating the discussions. After each discussion they had to rate their arguments and the importance of the issue. (Lieberoth 2015)

The three versions of the task went as follows, taken directly from Lieberoth’s article (Lieberoth 2015):

- One group – the control – did this task with the aid of nicely layouted worksheets.
- The second group – gaming – were placed around a colourful game board, and given the questions on large glossy playing cards. The facilitator would get to move their playing piece around the game track based on the ratings given by the group, thus creating a performance-contingent competition with varying outcomes.
- The third group – framing – were seated around the same kind of game boards with the same cards. Only they did not get to move their pawns based on anything in the game – they just moved one square after finishing their turn.

With the help of a device measuring intrinsic motivation (developed by Ryan and Deci and based on their theories of intrinsic motivation), engagement in the three groups was compared. The results demonstrated a significant difference in how game-like the three groups found their activities. The gaming-group found the activity slightly more game-like than the framing-group whereas the control-group found the activity least game-like. However, in terms of intrinsic motivation there was no significant difference between the two groups who had been sitting around game materials. Both groups found the activity more interesting than the control-group. (Lieberoth 2015)

What Lieberoth’s experiment tells us is that if an activity is simply presented as a game, people can be made more intrinsically motivated. Lieberoth mentions how all animals, including humans, are equipped with a “play switch” that can be flipped on and off to demark activities as either serious or fun. Play and fun comes natural to human beings and this
experiment shows that a “play mode” can be triggered by outside factors – in this case the presentation of an activity. (Lieberoth 2015)

Lieberoth criticizes his own results by mentioning how novelty in the framing group might wear off in a study over time, and then good game mechanics could be needed to keep users interested beyond the confined time frame of his experiment. (Lieberoth 2015) It is also worth mentioning that more research on this area is needed in order to strengthen the theory.

10.3 Recommendations to case companies
Based on the results of the interviews conducted, recommendations to the case companies will be provided. It will be suggested how the three apps can be improved, to better motivate and engage their users.

10.3.1 Recommendations to Duolingo
Out of the three apps analysed, Duolingo is probably the one utilising game elements in the most efficient way. Multiple game elements are used to make learning fun, and apparently it works on our interview subjects’ motivations, as they both mentioned Duolingo as “fun”. However, they also both gave the same suggestion to improvement, which was to add an element of challenge. A functionality where friends can challenge each other to compete in the language game. The only competitive element Duolingo has now is their weekly leaderboard that provides insight into who has completed most lessons (i.e. spent most time on the game). Adding a competitive element can encourage some users to become more motivated. What it can also do is discourage users who do not like competition, or users who do not feel that they are good enough to be among the best.

My recommendation to Duolingo is therefore to add a game element of challenge, but let people choose whether they want to challenge each other on effort (time spent or lessons completed) or number of correct answers. This way, users who are still beginners in a language or have a low confidence in their skills, might still be willing to take a challenge if it is a challenge of effort. At the same time, users who love to compete against each other to see who is best are also catered for.
10.3.2 Recommendations to Fitocracy

Fitocracy is an app with many different features. A bit too many is you ask the two participants interviewed in this study. Both interview subjects think the app should be made simpler, as they do not use all the features available. Right now the app is functioning as a workout log, a social fitness network and a marketplace for purchasing training programs. Both interview participants mainly use the part of logging workouts, and even this part is a bit comprehensive and could be made simpler, according to one of the participants.

My recommendation to Fitocracy is to either make a separate app for each area (one workout log app, one social fitness network app and one app with paid training programs), or make the three areas work together in a better way, so Fitocracy users can get an interest for all areas. If the second recommendation is chosen, I suggest that points as a game element are put to better use in an effort to connect the three areas of Fitocracy. One of the interview subjects mentioned that if points received from logging workouts could be used to pay for training programs or to get rebates on stuff related to training, he would be more motivated to log workouts. This is a very good suggestion that Fitocracy should consider, as this would tie together the area of logging workouts with the area of training programs. To also include the social fitness network in the point scheme, points received for contributing with content to the network could be introduced. In this way users might get an interest for more areas of Fitocracy.

10.3.3 Recommendations to Vivino

Vivino is the app from this study using fewest elements of gamification. Still, Vivino has a strong base of loyal users who are motivated to use Vivino as a tool to explore the world of wines. The reason why the element of exploration is so strong is that it relates to intrinsic motivation and the innate need for Autonomy. However, if Vivino wants to encourage more users to rate and review vines, extrinsic elements of gamification should be considered. One of the participants from the interview about Vivino explained how he was not spending time on rating and reviewing the wines he scanned. He indicated that the right point system would motivate him to start rating and reviewing wines. Vivino currently does not use points. They
do have a national leaderboard but it is unclear what the rankings on this leaderboard are based on.

My recommendation to Vivino is to start using points as a game element. Every time a user scans a wine, rates a wine and writes a review, points should be rewarded. These points should then be used to create a connection between progression and extrinsic rewards, by letting users spend their points obtained to buy real-life wine products or to receive rebates on wines. Also, I recommend making the leaderboard and the badges users can receive more visible and let users know how they can obtain a better rank on the leaderboard. This way, users who like competition and the users who like to chase rewards will be more motivated to produce content to Vivino.

10.4 Gamification in Perspective
To what extent has gamification as an innovation been adopted throughout industries? Have the concepts of gamification become the dominant design for games in a non-game context? These questions will be addressed when we look at gamification in the perspective of two innovation theories.

10.4.1 Diffusion & Adoption of Gamification
Markets adopt innovations to different extent and with different rates. A number of characteristics are found to have an affect on the diffusion of an innovation (Rogers 2003) (Tidd 2006):

- Relative advantage
- Compatibility
- Complexity
- Trialability
- Observability

Relative advantage is the degree to which an innovation is perceived to be better than the product it replaces, or competing products. Typically, the relative advantage is measured in economic terms such as cost or profit, but non-economic factors like satisfaction, convenience
or social prestige can be equally important. In theory, the greater the perceived advantage, the faster the rate of adoption.

Assume that gamification (the innovation) replaces a non-gamified system, to become a gamified system. If gamification is implemented well, the relative advantage can most likely be measured in economic terms by the increase in number of leads, the conversion rate and income generated. Non-economic factors such as how fun and user friendly the gamified system is, will also have an effect on how the system is perceived and how fast it will be adopted. Businesses who implement gamification with success will have no problem seeing the relative advantages.

Compatibility is the degree to which an innovation is perceived to fit with existing skills and practices and with values and norms. For the innovation to be adopted with success it has to be compatible with existing skills, equipment and processes. The adoption process is also affected by the costs of implementing the new innovation, the availability of information about the technology behind it and complementary innovations. However, what can be even more important is how the innovation fits with existing values and norms.

For gamification to be adopted and diffused throughout industries, the concepts of gamification have to be compatible with existing technology, processes, values and norms. Most businesses today have the technology and the skills required to build a gamified solution. They just have to become aware of the potential benefits of gamification, before implementing it into their processes. With over 1.7 billion gamers worldwide (Statista 2014), game-like experiences are becoming the norm, resulting in a high degree of compatibility for gamification.

Complexity is the degree to which an innovation is perceived difficult to understand or use. In general, the simpler an innovation and the easier it is to understand for its potential user, the more rapidly it will be adopted. Innovations requiring the adopter to develop new skills and knowledge take longer time to adapt.
The concepts of gamification are quite easy to understand. Points, badges, leaderboards and other elements of gamification are fairly simple and have a low degree of complexity. What makes gamification a bit more complex is to understand how to implement the elements in a way that engages people, as this requires knowledge of the users you want to engage.

**Trialability** is the degree to which an innovation can be experimented with before a full implementation. An innovation with which you can do trials allows for learning by doing and this provides less uncertainty to potential adopters. Innovations that can be trialled will often be adopted more quickly than those, which cannot. The exception is if the trial reveals undesirable outcomes – then it may reduce the rate of adoption.

With gamification it is possible to do trials, as gamification elements can be added to a system and tested in practise. For digital platforms trials can be made with beta tests and a gamified system can be fine-tuned and improved based on the feedback from its users. Non-digital gamified systems can be tested out as experiments.

**Observability** is the degree to which the results of an innovation are visible to others. If it is easy for others to see the benefits on an innovation it is more likely that it will be adopted.

With the increasing use of big data, it is far easier for businesses to measure the result of their business strategies and the same goes for measuring their implementations of gamification. Results can be monitored with reports and analytical tools, improvements can be made and goals can be set.

On the following page is a summary of the degrees of each characteristic for gamification as an innovation, based on the examination above:
<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relative advantage</td>
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</tr>
<tr>
<td>Compatibility</td>
<td>High</td>
</tr>
<tr>
<td>Complexity</td>
<td>Medium</td>
</tr>
<tr>
<td>Trialability</td>
<td>High</td>
</tr>
<tr>
<td>Observability</td>
<td>High</td>
</tr>
</tbody>
</table>

Table 10.1 – Gamification as an innovation & the degrees of characteristics, own elaboration

A high degree of compatibility, trialability and observability along with a medium degree of relative advantage and complexity should facilitate the whole process of diffusing gamification and adopting the innovation.

The diffusion of an innovation is typically described by Roger's S-shaped logistic curve (Rogers 2003): Initially, the rate of adoption is low and only the so-called “innovators” adopt the innovation. Next to adopt are the “early adopters”, then the “early majority” followed by the “late majority” and as the curve tails off the “laggards” remain.

Gartner’s Hype Cycle follows a somewhat similar pattern and as mentioned in the introduction section, gamification was placed in the “trough of disillusionment” phase back in 2014. This phase can be compared to Roger’s phase of “early adopters”. Now, one year later it seems gamification has diffused even more and will slowly move into Roger’s phase of “early majority”. Similarly, based on the analysis of this whole thesis, it appears gamification has also moved on Gartner’s Hype Cycle, to soon enter the “slope of enlightenment” stage. A stage where more instances of how the technology can benefit businesses have started to crystalize, and the technology has become more widely understood (Appendix 1). Maybe gamification is already in this phase. The thing is that these taxonomies are best used with the benefit of hindsight, so maybe in a few years we can tell that 2015 was the year where gamification was in the “slope of enlightenment” phase.

What is interesting is that Gartner did not even include gamification in this years Hype Cycle publication. This might have been to save space on the diagram and leave room for other new
technologies, or because they will not include gamification again before it moves to the next phase. No matter the reason, I believe gamification is here to stay.

10.4.2 Gamification as Dominant Design

In many industries, the more a technology or innovation is adopted, the more valuable it becomes. With complex technologies there is often increasing returns to adoption in that the more they are used, the more they are improved. If a technology is adopted it can generate revenue that can be used to further develop and refine the technology. As an innovation or technology is used, greater knowledge and understanding of this will build up along the way, which may enable improvements in the innovation or technology and in its applications. Finally, as an innovation becomes more widely adopted, complementary assets are often developed to support the innovation, which can further reinforce the innovation. These effects can result in self-reinforcing mechanisms and can ultimately lead to the innovation or technology becoming a “dominant design”. (Schilling 2010)

A dominant design is: “A single product or process architecture that dominates a product category – usually 50 percent or more of the market. A dominant design is a “de facto standard”, meaning that while it may not be officially enforced or acknowledged, it has become a standard for the industry.” (Schilling 2010)

According to Schilling, there are two primary sources of increasing returns to adoption that can lead to a design becoming dominant, and these are learning effects and network externalities (Schilling 2010):

Learning effects are the effects caused by learning and understanding a technology. The more a technology is used, the more it is developed and the more efficient it becomes. As a technology is adopted, it generates sales revenue. This revenue can be used to reinvest in development of the technology to further improve and refine it. Also, as experience of a technology is accumulated, ways can be found to use the technology more productively and implementation of how the technology is used can be improved. All these positive effects are caused by adopting a technology (or an innovation), and learning about it.
Since gamification is still a relatively new technological concept in its early adoption/early majority phase, the learning effects that have accumulated are limited. If gamification becomes more mainstream, the positive effects caused by learning will develop and improve how gamification is used.

**Network externalities** are also known as positive consumption externalities. A market with network externalities is a market where the value of a good to a user increases with the number of other users of the same or similar good. Some classic examples of markets with network externality effects are those involving physical networks, for example railroads or telecommunications. Railroads are more valuable when the network is expanded and the number of available destinations increased. Similarly, a telephone is not worth much if you do not have anyone to call to. As the number of telephone users increase, the network becomes more valuable. Network externalities can also be found in markets that do not have physical goods.

With gamified systems, a user’s benefit from the system may increase with the number of users of the particular system. This number of users of a particular technology or system is often referred to as its installed base. Gamified systems having social networks as part of their platform, like Fitocracy, are worth less if the installed base is small. More people in a social network means more content and contributions to the network, making it stronger.

Both learning effects and network externalities have increased the returns of adopting gamification to a certain extent. However, gamification is still far from becoming a dominant design and has not yet become the standard of any industries.
10.6 Suggestions to Further Areas of Research

There are not many scientific studies of gamification. It is still a relatively new phenomenon and there are plenty of areas that have not been investigated. Marczewski’s theory on user types and supportive game elements provides a useful framework for gamification designers and people who wish to understand how different user types might react to different game elements. Nevertheless, the theory could benefit from experiments seeking to support or challenge his framework.

Liebroth’s study on how dressing activities as a game can be enough to shift motivation, actually challenges the theories of game mechanics and thereby also Marzewski’s theory. It is very difficult to identify the contribution of individual game mechanics in case studies where multiple game elements exist (this study is an example), and more experiments with thoroughly controlled setups are needed to separate the effects of different game elements.
11. Study Limitations

In this chapter, the limitations of the study and its setup, and how it affects the interpretation of the results, will be addressed.

11.1 Reliability & Validity of Data

When analysing a contemporary phenomenon like gamification, there is a risk to the reliability and validity of the information. New information keeps emerging on the subject in various places as the phenomenon keeps evolving. Furthermore, the information is only seldom related to already existing academic frameworks, making it more difficult to process, arrange and relate the information in order to comprehend it.

A disadvantage with this study being a multiple case study and with case studies in general, is that it is a single investigator gathering all the information. This results in a unilateral view. Also, there is a risk of bias in the interpretation of the results, as the researcher is often affected by what he wants to find in the results – known as the expectation bias.

An advantage with this study being a multiple case study is that the results are based on more than just a single case. This decreases the bias of the results a bit and makes it easier to generalise on the findings.

Another risk of bias to this study is the limitation of time. Since this study was constrained by the time one had to gather information and write the thesis, not all information could be gathered on the subject within this time.

In order to increase the credibility and validity of the data collected for this study, the results were obtained using both quantitative user type tests and qualitative interviews. This methodological way of combining quantitative and qualitative data converging in a triangulating fashion was used to crosscheck the data, thereby increasing the credibility and validity.
11.2 The Sample

The interview subjects were chosen using convenience sampling. This method of choosing participants can cause a sampling bias, since the sample might not be representative for the entire population. Another criticism about using a convenience sample is that generalisations are difficult to make, because the results of the sample cannot speak for the entire population.

In this research however, the results were much in line with the theory. This might be because of the fact that most of the people from our sample are from “Generation Y” – a tech savvy generation who grew up with technology and are used to being connected. This generation is so familiar with online games, and my hypothesis is that much of the theory on gamification stems from samples from this exact generation, since they constitute a very large part of gamers worldwide. If this is true, the sample used in this study might actually to some extent be representative for a larger population. It should be noted though that the small sample size of only 6 participants limits the representativeness of an entire population.
12. Conclusion

Gamification has proved for some organisations to be an effective tool to increase user motivation and engagement, making research on how gamification can best be implemented highly relevant. This final chapter provides a conclusion for the whole study, in the effort of answering the research question: How can gamification motivate and engage users of a gamified system, and what game mechanics are most effective?

This multiple case study is an investigation on how gamification motivates people and what game mechanics are most effective in this process. Three cases of gamification were studied – all three using apps as their platform for gamification. Two people were interviewed for each of the three apps regarding their use of the app, and asked to take Marczewski’s gamification user type test in order to classify their personality traits in the context of gamification. The results gave six different user types: an Achiever, a Player, a Disruptor and three participants with combinations of user types. Common to them all was they shared traits of multiple user types.

The results of the interviews with the six participants clearly show that different people are motivated by different game elements. Marczewski’s theory on user types and his supportive game elements for each type provides a very useful framework for analysing game elements and their effects on different user type’s motivation. In general, the interview participants were motivated by the elements supportive of their individual user types.

It is very difficult to identify the contribution of individual game elements in case studies where multiple game elements exist. However, in this study it can be concluded that some of the game elements seem to have a better effect on motivation than others for the interview participants. Progression and points where emphasised as having the highest effect on motivation for Duolingo and Fitocracy. Vivino does not have elements of progression or points, and with this app it was less clear what game elements were most effective, but the element of exploration was important for both interview subjects’ motivation. Points were actually highlighted by one of the interview participants as an element that would motivate him to start rating and reviewing wines in Vivino, indicating that points could also work as a motivator for Vivino.
People are generally motivated by three innate psychological needs, as defined by Ryan and Deci’s Self-Determination Theory. These needs are Competence, Relatedness and Autonomy. The context of a situation and the user type traits of a person determine which of these needs are most important to motivation and to what degree. Progression is an intrinsic need and is related to people’s innate need for Competence and the desire to get better at something. Points on the other hand are an extrinsic need related to rewards. SDT teaches us that intrinsic motivation is more powerful than extrinsic motivation, meaning that a gamified system with intrinsically motivated users is more powerful. However, the positive effects of points should not be diminished. Points alone are simple to add as a game element, but the dynamics behind how points are used are more complex. The reason why points can be such an effective game mechanic is the way they can be used for multiple purposes. Points can be used to keep score, to determine the win state, to create a connection between progression and extrinsic rewards, to provide feedback, as an external display of progress and to provide data for the game developer. Often points are used in combination with other game elements. Thus, the extrinsic game element of points can in combination with other game elements create dynamics triggering intrinsic motivation. The reason why progression is such a powerful game mechanic is the fact that it satisfies people’s innate need for Competence and provides a sense of advancement. Advancement is key to motivation as most people have a natural need for progression and improvement in whatever they do. The trick is to create a balanced gamified system satisfying the needs of multiple different user types.

This leads us to an answer of this study’s research question of how gamification can motivate and engage users of a gamified system, and what game mechanics are most effective:

Gamification can motivate and engage users of a gamified system with the help of game mechanics, by applying game elements to a non-game context, to create a fun and motivating game-like experience. Different game elements have different effects on people, depending on their user type traits and what motivates them. Based on this research, two game mechanics appear more effective than others, and these are “points” and “progression”. Points cater to people’s extrinsic motivation whereas progression satisfies people’s intrinsic motivation. Used in combination with other game mechanics and with the right dynamics, these game
elements can create a very powerful and motivating experience. It is important though, that the dynamics behind how the elements are used are tailored to the user group the system is targeting.

The results of the interviews conducted provided the basis for some recommendations to the three case companies. The recommendation to Duolingo is to add a game element of challenge where users can choose to challenge each other on either effort or skills. This was an element that was sought after by both participants who where interviewed. The recommendation to Fitocracy is to either make an app for each of its separate areas in order to simplify the aesthetics and usability, or to connect the three areas in a better way with the help of points as a game element. This recommendation is an attempt to address the interview participants complains about Fitocracy not being simple and user friendly enough. The recommendation to Vivino is to start using points as a game element to motivate users to rate and review wines. The points should then be used to create a connection between progression and extrinsic rewards, by allowing users to use their obtained points to buy real-life wine products or get rebates on wines.

Gamification as a phenomenon, a technology and an innovation is still a relatively new concept and has not yet been adopted to all industries and markets. Yet, more and more businesses have come to understand how gamification can benefit them, as the area of gamification becomes more widely understood. It will be interesting to see if gamification within the coming years can reach Gartner's Hype Cycle’s ”plateau of productivity” phase, where mainstream adoption starts to take off and the applicability and relevance of gamification pays off. To reach this phase, gamification could benefit from more scientific research. Especially research with controlled experimental setups, investigating the separate effects of different game mechanics are needed. These experiments can seek to explain whether some game elements are more effective than others, and whether framing an activity as a game can have the same effect on motivation as specific game mechanics.
II. Bibliography

"Kyatric" 2013, gamedevelopment.tutsplus.com, viewed 10 Sep 2015, 


Gartner 2015, Gartner, viewed Nov. 2015,


III. Appendix

Appendix 1 – Gartner’s Hype Cycle & its 5 phases

Each Hype Cycle drills down into the five key phases of a technology’s life cycle:

**Technology Trigger:** A potential technology breakthrough kicks things off. Early proof-of-concept stories and media interest trigger significant publicity. Often no usable products exist and commercial viability is unproven.

**Peak of Inflated Expectations:** Early publicity produces a number of success stories — often accompanied by scores of failures. Some companies take action; many do not.

**Trough of Disillusionment:** Interest wanes as experiments and implementations fail to deliver. Producers of the technology shake out or fail. Investments continue only if the surviving providers improve their products to the satisfaction of early adopters.

**Slope of Enlightenment:** More instances of how the technology can benefit the enterprise start to crystallize and become more widely understood. Second- and third-generation products appear from technology providers. More enterprises fund pilots; conservative companies remain cautious.

**Plateau of Productivity:** Mainstream adoption starts to take off. Criteria for assessing provider viability are more clearly defined. The technology’s broad market applicability and relevance are clearly paying off.

*Source: Gartner.com (http://www.gartner.com/technology/research/methodologies/hype-cycle.jsp)*
Appendix 2 – User Type Test

User type questionnaire:

Marczewski's User Type Test

Visit the the results so far. - Visit the the old results.

Total responses so far: 2621

1) I don't like being confined by too many rules
   Neither

2) Self expression is very important to me
   Neither

3) Rules are meant to be broken
   Neither

4) I like to volunteer my time to help maintain online communities
   Neither

5) I like to compete to be top of leaderboards
   Neither

6) I am an early adopter of technology
   Neither

7) I would happily donate rewards to help others
   Neither

Source: gamified.uk/usertypetest
Example of a test result:

Your strongest type(s): Disruptor / Socialiser

You show **Disruptor** traits

You show **Player** traits

Your full results;

**Disruptor**: 20%
**Socialiser**: 20%
**Achiever**: 16.36%
**Free Spirit**: 14.55%
**Player**: 14.55%
**Philanthropist**: 14.55%

Source: Example of a test result after submitting answers on gamified.uk/usertypetest
### Appendix 3 – Interview Guides

**Danish Interview Guide:**

<table>
<thead>
<tr>
<th>Emne</th>
<th>Temaer</th>
<th>Spørgsmål</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generel brug</td>
<td>Nuværende rutiner</td>
<td>Hvad bruger du app'en til?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hvordan bruger du app'en?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hvilke funktioner bruger du (giv eksempler på nogle af funktionerne)?</td>
</tr>
<tr>
<td></td>
<td>Fremtidige behov</td>
<td>Hvad ville gøre app'en bedre</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hvilke specifikke funktioner kunne tilføjes for at gøre app'en bedre?</td>
</tr>
<tr>
<td>Motivation</td>
<td>Nuværende rutiner</td>
<td>Hvad motiverer dig til at bruge app'en?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Er der nogle specifikke funktioner i app'en som motiverer dig til at bruge den?</td>
</tr>
<tr>
<td></td>
<td>Fremtidige behov</td>
<td>Hvordan kan app'en gøres bedre for at motivere dig til at blive ved med at bruge den?</td>
</tr>
</tbody>
</table>

*Source: Own elaboration*
#### English Interview Guide:

<table>
<thead>
<tr>
<th>Area</th>
<th>Topic</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>General use</td>
<td>Current routines</td>
<td>What do you use the app for?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>How do you use the app?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>What functions do you use (give examples on some of the functions)?</td>
</tr>
<tr>
<td>Future needs</td>
<td></td>
<td>What would make the app better?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Which specific features could be added to the app to make it better?</td>
</tr>
<tr>
<td>Motivation</td>
<td>Current routines</td>
<td>What motivates you to keep using the app?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Does any specific features of the app motivate you to use it?</td>
</tr>
<tr>
<td>Future needs</td>
<td></td>
<td>How could the app be improved to keep you motivated and engaged?</td>
</tr>
</tbody>
</table>

*Source: Own translation*
Appendix 4 – Transcription of Interviews

Duolingo Interview, Alexander

Generel brug / Generel use

_Hvordan bruger du app'en? / How do you use the app?_

“Jeg bruger den til at lære nye sprog” / “I use it to learn new languages”

_Hvorfor bruger du den? / Why do you use it?_

“Jeg bruger ofte app’en som tidsfordriv, fordi den er faktisk meget sjov at bruge” / “I often use the app as pastime, because it’s actually quite fun to use”

_Hvad er det der gør app’en sjov at bruge? / What makes the app fun to use?_

“Det er måden app’en er opbygget på. Det ville ikke være sjovt bare at side og øve grammatik. Man skal i gennem nogle levels, og til sidst kommer der så en test og man kommer op på et endnu højere niveau. Så det bliver gradvist sværere og sværere.” / “It’s the way the app is structured. It wouldn’t be fun to just sit down and practise grammar. You have to go through different levels and in the end there’s a test and you progress to an even higher level. So it gradually gets more and more tough.”

Motivation / Motivation

_Hvad motiverer dig til at bruge app’en? / What motivates you to keep using the app?_

“Jeg har altid godt kunne lide sådan noget hvor det er ligesom et spil, fordi jeg synes det motiverer en meget mere til at lære noget. Men præcis hvad der motiverer mig til at bruge app’en synes jeg er svært at sige. Nok mest at jeg har haft lyst til at lære et nyt sprog og at det med Duolingo var en ret sjov made at lære på.” / “I have always liked when something feels like a game as I think you get more motivated to learn things that way. However, exactly what motivates me to use the app is difficult to tell. Probably it was because I wanted to start learning a new language and with Duolingo it was a fun way to learn.”
Okay, du synes det er svært at sige hvad der har været din motivation til at bruge app’en, men kan du sige noget om hvilke funktioner i app’en som er med til at motivere dig når du bruger den? / Okay, you think it is difficult to tell what has been your motivation behind using the app, but can you tell something about which features of the app you think motivate you while using it?

“Igen synes jeg at det har meget at gøre med at det føles som et spil. Det er meget fedt at man for eksempel får point for hver lektion og at man ligesom stiger i level.” / “Again, I think it has a lot to do with the fact that it feels like a game. It’s pretty cool that you for example get points for completing a lesson and that you can advance levels.”

Har du brugt den sociale del af app’en, hvor man kan følge andre brugere og sammenligne point på et ugentligt leaderboard? / Have you tried using the social part of the app, where you can follow other users and compare points obtained on a weekly leaderboard?

“Noj har ikke brugt den del af det faktisk. Jeg har bare selv siddet og hygget mig med at spille det.” / “No I haven’t tried that part actually. I have just enjoyed playing it by myself.”

Hvordan kan app’en gøres bedre for at motivere dig til at blive ved med at bruge den? / How could the app be improved to keep you motivated and engaged?

“Det kunne være sjovt hvis der var mulighed for at konkurrere mod venner ved at sende dem udfordringer og man kunne sammenligne resultater på et leaderboard. Det at kunne battle mod sine venner i det hele taget kunne være med til at motivere mig tror jeg.” / “It would be fun if it was possible to compete against friends by sending them challenges and if you could then compare your results on a leaderboard. A general possibility of battling your friends would be a motivating factor for me I think.”
Duolingo Interview, Camilla

Generel brug / General use

*Hvad bruger du app’en til? / What do you use the app for?*

“Jeg bruger den til at lære sprog.” / “I use it to learn languages.”

*Hvordan bruger du den? / How do you use it?*

“Jeg bruger den på samme måde som når jeg spiller spil på min mobil. Som en sjov form for tidsfordriv.” / “I use it the same way as when I’m playing games on my mobile phone. As a fun kind of pastime.”

*Hvilke funktioner bruger du (eksempler på funktioner i Duolingo nævnes) / What features are you using?*

“Jeg bruger mest bare det at spille selv, men følger også nogle venner for at kunne følge med i hvilke sprog de er i gang med at lære, og for at sammenligne hvor langt de er kommet i forhold til mig.” / “I mostly just play the game by myself, but I am also following some friends to be able to see which languages they are trying to learn and to compare how far they are in the process compared to me.”

Motivation / Motivation

*Hvad motiverer dig til at bruge app’en? / What motivates you to use the app?*

“Bruger den jo fordi jeg gerne vil lære et sprog, men også fordi jeg synes den er meget sjov at bruge.” / “I use it because I want to learn a language, but also because I think it’s quite fun to use.”

*Er der nogle specifikke funktioner som gør at du motiveres til at bruge den? / Are there any specific features of the app that motivates you to use it?*

“Jeg kan godt lide at man får point for hver gang man klarer en lektion og at man kan låse op for nye lektioner. Synes også det er meget sjovt at sammenligne hvor langt man er kommet i forhold til ens venner, og kan godt blive motiveret til at spille ekstra meget hvis jeg er bagud i forhold til dem.” / “I like the fact that you get points for each time you complete a lesson and that you can unlock new lessons. I also think it’s quite fun to see how far you are compared to
your friends and I can sometimes be motivated to play even more if I am behind compared to them.”

_Hvordan kunne app’en gøre bedre for at motivere dig til at bruge den i endnu højere grad? /
How could the app be made better to motivate you to use it even more?

“Det kunne være meget sjovt hvis man ligesom med spillet Wordfeud [krydsordspil hvor man udfordrer venner] kunne udfordre sine venner” / “It would be pretty fun if you, just like with the game Wordfeud [crossword game where you battle friends], could challenge your friends.”
Fitocracy Interview, Simon

Generel brug / General use

Hvad bruger du app’en til? / What do you use the app for?

"Jeg bruger app’en til at logge min træning og mine workouts. Når jeg for eksempel er oppe og træne bruger jeg den til at registrere hvilke øvelser jeg tager og hvor meget vægt jeg løfter.” / “I use the app to log my training sessions and my workouts. When I am working out I use it to register the exercises I do and how much weight I lift.”

Hvilke funktioner har du brugt i app’en? Der er f.eks. en funktion hvor man kan følge andre der træner, du kan få lagt træningsprogrammer af en professionel – godt nok mod betaling – du kan lave dine egne skræddersyede programmer og meget andet. / Which functions in the app have you been using? There is for instance a function where you can follow other people who work out, you can get personal training programs made by professionals – this is a function you have to pay for – you can make your own customised training programs and much more.

"En af de funktioner jeg har brugt er at jeg følger venner, så jeg kan se hvordan de træner og følge deres udvikling. Det gør også at man kan blive inspireret synes jeg.” / "One of the features I have been using is to follow friends to see how they do their workouts and follow their progress. You get inspired by this I think.”

Så du har ikke brugt betalingsdelen? (de professionelt udarbejdede træningsprogrammer)/ So you haven’t used the functions you have to pay for (the training programs developed by professionals)?

"Nej har ikke brugt betalingsdelen, og det kunne jeg heller ikke finde på at gøre. Jeg har styrketrænet i mange år og synes jeg har godt styr på hvordan man gør det ordentligt. Jeg bruger i stedet app'en til selv at lave mine egne personlige træningsprogrammer.” / "No I haven’t used that part you have to pay for and I will not use it either. I have been working out for several years and I feel that I know how to do it right. Instead, I have used the app to make my own customised workout programs.”
Motivation / Motivation

Hvad motiverer dig til at bruge app’en generelt? / What motivates you to use the app, in general?

“Det er nok at jeg føler min træning bliver mere effektiv, og at jeg har et bedre overblik over hvad jeg har trænet og hvordan jeg har performet.” / “I feel that my training gets more effective and I get a better overview of what exercises I have done and how I performed.”

Vil du sige at du bruger app’en for at holde dig selv til ilden, eller er det mere for at du kan følge med i din udvikling? / Would you say that you use the app to keep yourself going or is it more to be able to follow your own progress?

“Det er mere det at kunne se min udvikling og fremgang for på den måde at kunne finde frem til hvad jeg muligvis kan gøre anderledes eller bedre.” / “It’s more to be able to follow my own progress and to find out what I can do different or better.”

Er der nogle specifikke funktioner i app’en, som specielt er med til at motivere dig til at bruge den? F.eks. får man jo point for hver workout man logger og man kan dermed stige i level, man kan læse om bestemte øvelser og tilegne sig ny viden om træning og der er mange andre funktioner. / Is there any specific functions in the app that especially motivates you to use it?

Like getting points for a workout you log so you can level-up, the feature where you can read about specific exercises and acquire new knowledge about training or some of the other features?

“Jeg synes det motiverer mig meget at man får point hver gang man registrerer en træning session. Det er i hvert fald med til at få mig til at gide at logge træningen. Også det at man kan sammenligne hvad level man har opnået i forhold til ens venner. Man kan også få nogle bestemte emblemer for at lave nogle specifikke øvelser eller for at klare nogle udfordringer og det er også noget jeg synes er ret sjovt og har brugt en del tid på at klare. Så det motiverer mig kan man sige.” / “I get very motivated by getting points for each time I register a workout. That is what’s actually making me want to log the session. Also the fact that you can compare what level you have achieved with the level of your friends. You can also obtain different badges for making specific exercises or for completing challenges and that’s also a fun feature and something I have spent time on. So you can say that motivates me.”
Hvordan ville app’en kunne gøres bedre for at motivere dig til at bruge den? / How could the app be improved to motivate you even more?

"Jeg synes faktisk at der er lidt for mange funktioner i app’en. Det kan godt føles lidt uoverskueligt det hele med alt det man kan synes jeg og lidt besværligt at bruge." "Actually I think the app has a bit too many features. It can feel a bit confusing and difficult to manage with all those features."

Så den skulle gøres mere simpel måske? / So the app could be made more simple?

"Ja den skulle gøres mere simpel. Og så skulle der måske hellere være flere forskellige apps som kunne dække de forskellige behov, i stedet for en app med alt for mange funktioner. Altså de vil jo både være et socialt netværk, en træningslog og en markedsplads for træningsprogrammer man skal betale for, og det er bare for meget." / "Yes, it should be made more simple. And maybe it would be better with some different apps covering different needs, instead of one app with too many features. I mean, they both try to be a social network, a workout log and a marketplace for training programs you need to pay for, and it’s just too much."

Hvis man kigger på spil-delen af app’en, synes du så der er noget specielt der kunne tilføjes for at gøre det hele bedre? / If you take a look at the game part of the app, do you think there is anything that could be added to improve it?

"Altså det er meget sjovt det med at man kan udfordre sine venner til at tage samme workout som en selv, og at man så kan se om de kan gennemføre det på samme niveau og sådan. Det synes jeg er ret sjovt at der er lidt konkurrence i det der. Ellers synes jeg der er de elementer der skal være for at lave det sjovt, der er bare for mange funktioner." / "Well, it’s quite fun that you can challenge your friends to do the same workout as you and to see if they can complete it as good as you. I like that competitive part. Otherwise I think the app has those game elements needed to make it fun, there are just too many functionalities."
**Fitocracy Interview, Christopher**

**Generel brug / General use**

_Hvad bruger du app'en til? / How do you use the app?_

"Jeg bruger den til at logge min træning, så jeg kan holde styr på min fremgang." / "I use it to log my training so I can follow my progress"

_Hvilke funktioner i app'en bruger du? Følger du andre "Fitocrats", betaler du for at få lagt træningsprogrammer og bruger du app'en til at blive klogere på din træning? / What features in the app are you using? Do you follow other "Fitocrats", do you pay for personalised training programs and do you use the app to learn about fitness?_

"Jeg følger nogle venner for at kunne følge lidt med i deres udvikling, men de bruger ikke app'en ret meget. Har ikke betalt for træningsprogrammer men i stedet lavet mine egne, og bruger egentlig udelukkende funktionen med at registrere hvad jeg har trænet." / "I follow some friends to be able to follow their progress, but they don't use the app that much. I haven't paid for training programs but develop my own programs instead, and I actually only use the feature of logging what training exercises I have done."

_Hvad ville gøre app'en bedre? / What would make the app better?_

"Den kunne godt være lidt mere brugervenlig. Jeg bruger ikke halvdelen af de funktioner der er, og synes at måden man registrerer sin træning på er lidt omfattende, hvor det hele godt kunne gøres mere simpelt." / "It could be more user friendly. I don't use half of the features available and I think the way you have to log your training is a bit comprehensive and could be made more simple."

_Hvilke specifikke funktioner kunne tilføjes for at gøre app'en bedre? / Which specific functions could be added to the app to make it better?_

"Som sagt synes jeg hellere at app'en skulle gøres mere enkel, så i stedet for at tilføje funktioner burde der næsten fjernes nogle." / "As already mentioned I rather think the app should be made more simple, so instead of adding new features some features should be removed."
**Motivation / Motivation**

*Hvad motiverer dig til at bruge app’en? / What motivates you to keep using the app?*

"Man får point for hver gang man logger en workout, og det er med til at motivere mig til at bruge app’en. For at kunne stige i level skal man optjene et hvis antal point, og det gør at man har lyst til at optjene pointene fordi det giver en følelse af fremgang når man går en level op.” / "You receive points for each time you log a workout and that helps motivating me to use the app. To level up you have to obtain a certain amount of points and it makes you want to try to obtain those points as it gives a sense of progression when you level up.”

*Er der nogle specifikke funktioner i app’en som motiverer dig til at bruge den? / Does any specific features of the app motivate you to use it?*

"Det at man kan tilrettelægge sit eget træningsprogram er klart med til at jeg overhovedet gider bruge app’en. Hvis man kun kunne vælge mellem allerede udviklede træningsprogrammer ville jeg nok ikke bruge app’en. Ellers er det specielt det at man får point for sin træning og på den måde føler man bliver belønnet, samtidig med at man oplever en følelse af fremgang.” / "The fact that you can customise your own training program is clearly contributing to why I even bother using the app. If you could only choose between predefined training programs I probably wouldn’t use the app. Other than that I get motivated by the part where you get points for your workout and in that way feel you get rewarded while at the same time you get a sense of progress.”

*Hvordan kan app’en gøres bedre for at motiverere dig til at blive ved med at bruge den? / How could the app be improved to keep you motivated and engaged?*

"Jeg tror jeg ville være endnu mere motiveret til at logge mine workouts, hvis man kunne bruge de point man får til at betale for eksempelvis professionelle personlige træningsråd, træningsprogrammer eller til at få rabatter på træningssupplenter og udstyr.” / “I think I would be even more motivated to log my workouts if you could use the points you receive to pay for, let’s say professional individual training advise, training programs or to get rebate on training supplements and equipment.”
Vivino Interview, Kent

Generel brug / General use

Hvad bruger du Vivino til? / What do you use Vivino for?

"Jeg bruger primært Vivino som et redskab til at huske hvilke vine jeg har drukket og som en huskeliste til vine som jeg synes er gode." / "I primarily use Vivino as a tool to remember what wines I have been drinking and as a short list for the wines I like."

Og hvordan bruger du app’en? / And how do you use the app?

"Jeg bruger app’en på den måde at hvis det er vine jeg ikke kender, eller smager første gang – Så scanner jeg vinen, og så har jeg jo information om vinen gemt i app’en.” / ”I use the app for wines that I don’t know or taste for the first time – then I scan the wine and I’ll have information of the wine saved in the app.”

Så du bruger scannings-funktionen? Men er det så fordi du er interesseret i at finde ud af hvilken rating vinen har, for at se gennemsnitsprisen eller som du siger mest for at huske på hvilke vin du har drukket, hvor og hvornår? / So you use the scan feature? But is it then because you are interested in finding out what rating the wine has, to see the average price or is it mostly like you mention, to be able to remember what wine you have been drinking, when and where?

"Ja det er mest til eget brug. Det er ikke så meget hvad den koster andre steder, det er jeg ret ligeglad med. Det er mere et spørgsmål om, at hvis jeg har fundet en vin jeg rigtig godt kan lide, er det rart at have den gemt i mit arkiv.” / ”Yes it’s mostly for my own use. It’s not so much what price I can get it for elsewhere, as I don’t really care about that. It’s more a question of if I find a wine that I really like, then it’s nice to have it saved in my archive.”

Hvilke funktioner bruger du i app’en? (der gives eksempler på funktionerne)/ What features in the app do you use? (Examples of features are given)

"Funktionen med at følge andre har jeg kun brugt meget lidt. Har ikke brugt det med at læse artikler om vin generelt og det med badges og leaderboards har jeg slet ikke lagt mærke til – ikke at jeg ville gå op i det.” / “The feature where you can follow other users I have only used very little. I haven’t used it to read articles about wine in general and the feature with badges and leaderboards I haven’t even noticed – not that I would care about it.”
Har du nogle forslag til hvad der kunne gøre app’en bedre? Specifikke funktioner? / Do you have any suggestions as to what could be improved? Any specific features?
“En personlig prioriteringsliste måske. Altså en form for rangliste man selv kan lave over de vin man har drukket.” / “A personal priority list maybe. You know, a sort of ranking list, you can create yourself, of the wines you have been drinking.”

Motivation / Motivation

Hvad har motiveret dig til at bruge app’en? / What have motivated you to use the app?
“At jeg synes det er spændende at se hvad andre mennesker har givet den vin man scanner i rating, og det at man kan lagre vine i app’en, på baggrund af en etiket man scanner, det synes jeg faktisk er ret smart.” / “That you can see what rating other people have been giving the wine you scan, and that you can store information of wines in the app based on a label you scan, that is actually quite cool.”

Rater du selv nogle af de vine du scanner? / Do you rate some of the wines you scan yourself?
“Ja det gør jeg, og har også skrevet et par reviews, men det er mest til eget brug så jeg kan holde styr på hvad jeg synes om.” / “Yes I do, and I’ve also written a couple of reviews but it’s mostly for my own use so I can keep track on what I like.”

Er der nogle specifikke funktioner i app’en som har motiveret dig til at bruge den? (eksempel på nogle af de gamification elementer Vivino bruger) / Is there any specific features of the app that has motivated you to use it? (examples of some of the gamification elements used by Vivino)
“Nej der må jeg erkende at det har ikke ansporet mig.” / “No, I must admit that it has not stimulated me.”

Hvordan synes du app’en kunne gøres bedre for måske at motivere dig til at bruge den? / How do you think the app could be improved to better motivate you to use it?
“Det kunne være interessant hvis app’en kunne finde ud af at fortælle mig hvor jeg kan købe en bestemt vin jeg scanner. Altså konkrete tilbud på vine.” / “It would be interesting if the app could tell me where to buy the specific wines that I scan. You know, specific wine offers.”
Vivino Interview, Mathies

Generel brug / General use

_Hvordan bruger du app'en? / How do you use the app?_

"Jeg bruger den egentlig bare til at scanne vin, enten i supermarkedet, derhjemme eller hvis man drikker en vin på en restaurant. Til lige sådan for sjov at se hvad andre har sagt om den. I supermarkedet kan jeg finde på at bruge den som hjælp til at udvælge en vin. Hvis man kan få en vin som har fået en høj rating, så kan jeg godt finde på at vælge ud fra det." / “I actually just use it to scan wines, either when I am in the supermarket, at home or if I am drinking wine at a restaurant. I use it for fun, to see others’ opinion about the wine. In the supermarket I sometimes use it as a help to choose a wine. If you can get a wine with a high Vivino rating I sometimes choose based on this.”

_Er det meget det læse anmeldelser og ratings du er interesseret i, er det den gennemsnitlige pris der også vises, eller er det det hele? / Are you mostly interested in reading reviews and ratings, is it the average price of the wine it also shows, or is it a bit of everything?_

“Det er meget afhængigt at situationen vil jeg sige.” / “It depends on the situation I would say.”

_Hvilke funktioner bruger du i app'en? Er det kun det at scanne, eller er du også interessert i det leaderboard de har og læser du for eksempel artikler om vine i app'en? / Which features of the app are you using? Is it only the scanning-part or are you also interested in the leaderboard they have and do you for example read articles about wine in the app?_

"Jeg bruger kun funktionen med at scanne vine og se ratings og anmeldelser. Jeg har ikke kigget så meget på hvad app’en ellers kan. Det er mest det at få noget info. Jeg går ikke op i selv at være en der rater og anmelder. Jeg rater aldrig vine selv. Nok mest fordi jeg ikke føler jeg har kompentencerne til det, og tænker lidt at det helst skal være folk der ved noget om det som rater, for at systemet giver mening. Det skal være folk der ved hvad de snakker om.” / “I only use the function of scanning wines to see ratings and reviews. I haven’t really checked out what else I can do with the app. It’s mostly just to get information of wines. I don’t care about rating and reviewing the wines myself. I never rate wines myself. Probably it’s because I don’t feel I have the skills to do it, and I think it has to be people who know something about}
wines who rate them for the system to make sense. It has to be people who know what they are talking about."

*Ja hele systemet er jo bruger-genereret og er skabt af brugernes reviews. Der ville ikke være noget data hvis ingen gad at anmelde.* / *Yes, the whole system is based on user-generated content and created by the users reviews. There wouldn’t be any data if no one wanted to make reviews.*

"Nej det er rigtigt. Så i princippet kan man sige at jeg jo også burde anmelde for at bidrage til det hele, men på en eller anden måde tænker jeg når jeg ser andres anmeldelser, at jeg godt kunne tænke mig at det var folk som vidste lidt mere om det de anmelder, så kvaliteten var bedre. Så jeg er meget anonym kan man sige i min brug af app’en." / "No, that’s true. So in principle you could say that I should also make reviews to contribute to the system, but when I see other people’s reviews I somehow think that I would like if it was actually people who knew a bit more about what they were reviewing so the quality was better. So I am very anonymous you can say, in the way I use the app."

**Motivation / Motivation**

*Hvad kunne motivere dig til at anmelde/rate en vin? Hvad kunne Vivino gøre anderledes eller bedre? / What would motivate you to review/rate a wine? What could Vivino do different or better?*

"Jeg kunne godt forestille mig, at hvis de på en eller anden måde havde et reward-system, som man kunne bruge til at få en gratis vin en gang i mellem eller noget i den stil, at det måske kunne motivere mig til at rate og anmelde vine. Eller nogle konkurrencer. Men generelt er konkurrencer ikke noget jeg deltager så meget i, og det er faktisk også sjældent at jeg bidrager med noget i social-media-sammenhænge. På de sociale medier holder jeg mig normalt som tilskuer." / "I think if they had some kind of reward system that you could use to receive a free wine once in a while or something like that, it might motivate me to rate and review wines. Or some competitions. But generally I don't participate in competitions that much, and it actually also rarely happens that I contribute with anything in relation to social media. On social media networks I usually just act as a spectator."
Så hvis man fik point for hver gang man havde scannet og anmeldt en vin, og man kunne bruge de point man fik til at købe vin og andet i en Vivino-shop, ville det så motivere dig til at rate og anmelde vine? / So if you received points for each time you scanned and reviewed a wine, and if you were able to use those points to buy wines and other products in a Vivino shop, would it then motivate you to rate and review wines?

"Ja det tror jeg det ville. Kan i hvert fald godt se det attraktive ved sådan et system og kunne også godt forestille mig at det ville lokke mig til at gide at bruge tid på at rate og anmelde vine." / “Yes, I believe so. I can at least see that a system like that would be attractive and I can also imagine that it would entice me to spend the time on rating and reviewing wines:”

Så du bruger egentlig mest app’en til at finde information om de vine du skal til at drikke eller er ved at overveje at købe? / So you actually mostly just use the app to find information about the wines you are about to drink or are about to buy?

"Ja, men app’en bliver ofte også brugt som en sjov ting i sociale sammenhænge, når man er sammen med venner der har medbragt vin. Så kan man lige scanne den og se hvor god eller dårlig den vin de har med er, og have en sjov snak omkring det.” / “Yes, but the app is often also used as a fun gimmick in social contexts when you’re together with friends who have brought wine. Then you can scan it to see how good or bad it is and have a fun little conversation about that.”

Hvad med de artikler Vivino også har omkring vine og alt hvad der har med vin at gøre. Er det noget du kunne finde interessant og værd at læse? / What about the articles Vivino also has about wine and everything related to wine. Is that something you could find interesting and worth reading?

"Ja jeg kunne godt finde det interessant at læse lidt generelt om vine, processer og typer af vine. For at lære noget om vine og blive klogere på det hele.” / “Yes I could find it interesting to read some general stuff about wines, processes or types of wine. To learn something about wines and become wiser about it all.”