



GAMIFICATION IN DIGITAL BANKING SERVICES

Lappeenranta–Lahti University of Technology LUT

Master's Program in Industrial Engineering and Management

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Elina Uotila

Examiners: Professor Timo Kärri

University Lecturer Leena Tynninen

ABSTRACT

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Elina Uotila

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The use of gamification has become common in recent years. Gamification aims to guide customer's motivation and behaviour and improve customer experience. Although gamification is widely used, its use in banking services is still limited. The purpose of this thesis is to give comprehensive understanding of the concept of gamification, present the expected benefits and possible challenges of gamification, and to present suggestions how the case company could utilize gamification in the future. The study was conducted for a Finnish bank to support the development of the bank's digital services and to provide concrete development ideas. The work utilizes previous literature on gamification and the semi-structured interview study conducted for the case company.

Gamification improves the customer experience and increases customer engagement. In the banking context, gamification has been studied to have positive effects in the phase of technology adoption. Gamification can also improve customers' financial literacy and knowledge. The most significant challenges are related to the fact that gamification cannot be implemented in the same way to all applications. Each implementation serves a different purpose and customer base, so each gamification implementation is different. Based on the literature and the interview results, gamification can be utilized in banking services, especially in the adoption of a new technology or a service and in the area of saving and investing. Monitoring one's own financial status and setting goals, as well as effective and versatile feedback were highlighted in the results.

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Pelillistämisen, eli pelillisten ominaisuuksien hyödyntäminen digitaalisissa sovelluksissa on noussut yleiseksi viime vuosina. Pelillistämällä pyritään ohjaamaan kuluttajien motivaatiota ja käyttäytymistä sekä parantamaan asiakaskokemusta. Diplomityön tavoitteena on esitellä, mitä pelillistäminen on, tunnistaa pelillistämisen hyötyjä sekä siihen liittyviä mahdollisia haasteita sekä antaa ehdotuksia, miten kohdeyritys voisi hyödyntää pelillistämistä tulevaisuudessa. Työ on toteutettu suomalaiselle pankille ja sen tarkoituksena on toimia tukena pankin digitaalisten palveluiden kehitykselle ja tarjota konkreettisia kehitysideoita. Työssä hyödynnetään olemassa olevaa kirjallisuutta sekä kohdeyritykselle toteutettua puolistrukturoitua haastattelututkimusta.

Aiemman tutkimusnäytön mukaan pelillistäminen parantaa asiakaskokemusta ja lisää asiakkaiden sitoutumista. Pankkikontekstissa pelillistämällä on tutkittu olevan positiivisia vaikutuksia erityisesti teknologian käyttöönottoaiheessa. Pelillistämällä voidaan myös parantaa käyttäjien talouslukutaitoa ja -tietämystä. Merkittävimmät haasteet pelillistämässä liittyvät siihen, ettei pelillistäminen ole sovellettavissa samalla tavalla kaikissa käyttökohteissa. Jokainen toteutus palvelee eri tarkoitusta ja asiakaskuntaan, joten jokainen toteutus on erilainen. Työssä tunnistettiin, että pelillistämistä voidaan hyödyntää pankkipalveluissa uuden teknologian tai palvelun käyttöönottoaiheessa sekä säästämisen ja sijoittamisen osa-alueella. Tuloksissa esille nousivat erityisesti oman talouden ja tavoitteiden seuranta sekä tehokas ja monipuolinen palautteenanto.

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Helsinki, November 2022

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ABBREVIATIONS

GBL	Game-based learning
MDA	Mechanics-Dynamics-Aesthetics Framework for game design
SDT	Self-Determination Theory
MSME	Micro, small or medium-sized enterprise
TAM	Technology Acceptance Model
TRA	Theory of Reasoned Actions
UTAUT	Unified Theory of Acceptance and Use of Technology
UTAUT2	Unified Theory of Acceptance and Use of Technology

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1 Introduction

This chapter defines the research objectives and describes how the research was conducted. First the background for the study is presented, followed by the research objectives and research questions. The limitations, methods used, and the structure of the report are also presented.

1.1 Background

Game design and game elements are increasingly being used in several business contexts to steer consumer motivations towards intrinsically motivated behaviour, and to offer gameful and fun user experiences. This so called ‘gamification’ gained wider attention in the 2010s among businesses and academics. (Hamari 2017) Today, gamification is everyday tool for many business practitioners to deal with digital customers, and one can spot gamification in different fields and applications. In fact, the new generation is expecting websites and applications to act like games. (Tobon et al. 2020, Walsh 2009)

Banks have transformed their business into digital in recent years. The customer expectations for the digital banking services have risen and those services are not only compared between banks but with other sectors as well. Digital native companies provide excellent digital customer experience, and the same experience is expected from banks regardless of the regulations or technical barriers. (Adobe Inc. 2021)

Banks face challenges to gain the digital momentum. Customers are leaking out from traditional banking sector into other industries like fintech or bigtech. Those competitors push traditional banks to develop their existing operations and services to remain competitive. (Accenture 2021; Valverde & Fernández 2020) Another effect caused by the increased use of digital services is the decrease of long-term customers’ commitment and loyalty. While digital solutions bring many benefits such as convenience and ease-of-use,

the relationship between a bank and the customer is not as strong anymore as it was when banking took place face to face. (Rodrigues et al. 2013 a) It is easier to change the service provider in the digital age than before. Although pricing decisively affects the customer's decision making, retaining high-level of trust, and offering great customer experience are crucial for traditional banks to avoid customer migration. (Krasonikolakis et al. 2020). According to Kreger (2020), customers will choose financial service providers that help to ease their lives and provide positive emotions with their products and services.

This thesis studies how gamification can be utilized in digital banking services to increase customer experience and engagement. The thesis combines previous studies about gamification and gathers current research material from banking context. The thesis gives practitioners understanding about the key constructs of gamification design and implementation to digital banking services and gathers examples from the field.

1.2 Research objectives and scope

The aim of this thesis is to give understanding of the concept of gamification, what are the expected benefits of gamification and what are the challenges related to it. In addition, the thesis attempts to provide insight how gamification could be utilized in digital banking services – and more precise, in which areas or processes, and how. The thesis aims to find answers to following research questions presented in the Table 1:

Table 1. Research questions and objectives

Research Question	Objective
1) How does the development of digital (banking) services benefit from gamification?	Understanding how gamification affects motivation and customer behaviour and thus identifying the benefits of gamification.
2) What are the challenges in applying gamification to digital banking services?	Discussing the challenges related to gamification implementation in general and detecting possible challenges related to banking context.
3) Which digital banking services or processes could be gamified? What respective game elements could be used?	Identifying and mapping processes or areas where gamification could be utilized.

The study was conducted as an assignment for a Finnish bank. The purpose of the thesis is to give practitioners insights about gamification and to support the future design and development of the bank's digital services.

1.3 Methods and data

The research methods of this thesis are literature review and interview study. Scientific publications, books and other industry literature were used to compile the literature review. The literature review is built around a few main frameworks which are presented in this chapter.

The theoretical frameworks used in the thesis are the pyramid of gamification elements and the 6D design framework by Werbach & Hunter (2012, 82; 85-86), and the Self-Determination Theory (SDT) developed by Deci & Ryan (2008). There is no commonly agreed set of game elements. The pyramid model by Werbach & Hunter (2012) aims to find a systematic approach to define and categorize the game elements, and therefore this model is used as a one of the main constructs of defining gamification. The gamification design framework – also by Werbach & Hunter (2012) is chosen to be used in the thesis over other gamification design frameworks as it is most referred gamification design framework (Mora et al. 2017; Golrang & Safari 2021).

The Self-Determination Theory is used in the thesis as it is one of the most used frameworks in the current research to explain the effects of gamification on the motivation and engagement (Tobon et al. 2020) – and thus, the user behaviour. Other theories were left out for the sake of focus, clarity, and consistency of the work.

The empirical part of the thesis is carried out as an assignment for a Finnish bank using a semi-structured thematic interview as a research method. The interview results complement the literature review, and the answers to the research questions are compiled from these together.

1.4 Delimitations

Gamification can be applied into various contexts. In this work, gamification is first studied in general level. After that, the work focuses on gamification in the digital banking services. In this work, digital banking services refers to retail banking services for individual customers. In other words, daily banking and wealth management services that can be handled digitally by the customer, for example using Mobile bank, Online Bank, or other online services. Studying the customers who use the gamified services is beyond the scope of the thesis.

The thesis focuses on the gamification at the conceptual level – What it is, and how it affects the user’s motivation and behaviour. The thesis does not take a position on the technical side of gamification development.

Motivation is reviewed from the perspective of the Self-Determination Theory with divides motivational factors in to extrinsic and intrinsic motivating factors. When designing a gamified system, possible demotivating factors should be considered as well. However, demotivating factors are not discussed in more detail in the thesis.

1.5 Structure of the report

The work is divided into two parts: a theoretical and an empirical part. Chapters 2 and 3 constitute the theoretical part of the work. That creates a comprehensive picture of the research topic based on scientific articles, books, and commercial sources. The chapter 2 introduces the main services of a retail bank, backgrounds the current situation in the financial industry and discusses why it is timely to study gamification in the banking context.

Chapter 3 focuses on the gamification and its effects on motivation and customer engagement. This part is structured around the gamification frameworks by Werbach &

Hunter (2012) and Self-Determination Theory by Deci and Ryan (2008). In addition, other empirical studies on gamification are presented to gather comprehensive evidence of the studied effects of gamification. The chapter 3 is the key chapter of the thesis as it integrates gamification with the motivation and engagement theories and presents the existing empirical research data about the psychological and behavioural effects of gamification.

The case company's background and the research method are presented in the chapter 4. The interviews aim to assess the case company's knowledge and current state of exploiting gamification. In addition, the interviews attempt to identify services or processes where gamification could potentially be better exploited in the future. The interview results are discussed in the chapter 5.

Finally, the conclusions and the answers to the research questions are presented in the chapter 6. Also, the limitations, validity of the study, and recommendations for further research are presented in this chapter.

2 Digital banking services

Banks have an important role in society and economy. There are different types of banking depending on bank's activities, customers, or products (Pond 2017, 22). When people think about bank, they usually think about retail bank. Retail banking, also known as personal banking, refers to banking that provides services to individual customers (Majaski 2021). According to Pond (2017, 4) retail banking means "the offering of banking and other financial services to individuals and micro, small or medium-sized enterprises" (MSMEs). The focus of this thesis is on the banking services offered to individual customers. Therefore, retail banking services in this context refer to financial services provided only for individual customers. This chapter introduces the main services of a bank. It is followed by a review of the digital transformation and current competitive situation in the banking industry.

2.1 Retail banking services

Retail banking services usually include checking and savings accounts, banking credentials which usually enable the use of online and mobile bank, debit and credit cards, mortgages and other personal loans and credits. Banks aim to offer comprehensive range of financial services for individuals with a one-stop-shop principal. (Majaski 2021) The Figure 1 summarizes the financial services offered to retail customers.

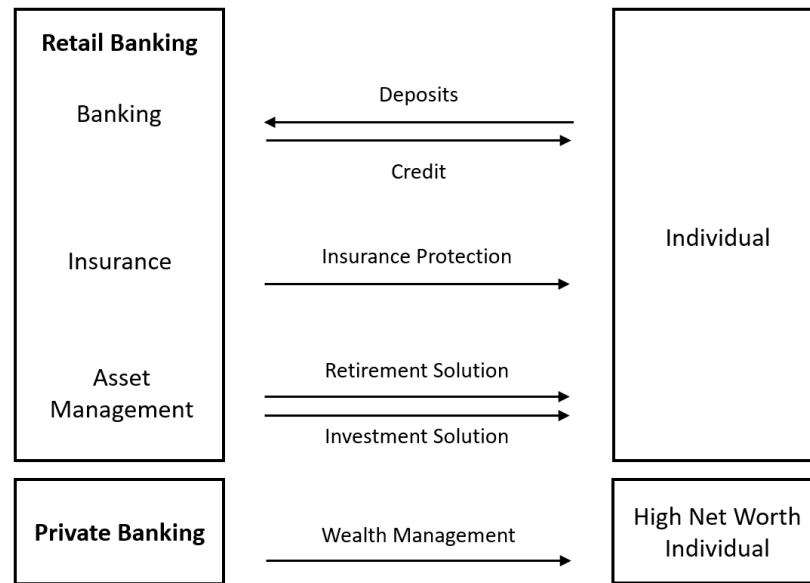


Figure 1. Financial services for individual customers (According Gupta & Tham 2019, 4)

The primary service of a bank is to offer accounts for customers to deposit money (Majaski 2021). Banks also act as payment service providers. Payment service provider acts as an intermediary between the payer and the payee. (Finanssivalvonta 2018a) In Finland, the basic banking services include a payment account and related account management tools such as a debit card, online banking account and credentials, the ability withdraw cash and execute payment transactions. (Finanssivalvonta 2018b)

Most people have a need for financing in some point of life. Banks are important source of credit for individual customers whether it be a mortgage, loan, or a credit card. This funding structure provided by a bank is based on an estimation of the credit worthiness of the customer (Gupta & Tham 2019, 7).

Many banks offer wide range of investing and saving services to their customers. Those with surplus money can deposit their money into savings accounts. This gives the customer chance to earn interest in their money. (Majaski 2021) Banks offer various other investments products such as mutual funds, stocks, exchange-traded funds (ETFs) and other financial instruments.

Private banking is a personalized banking service to individual customers who invest substantial amounts. Traditionally this service is offered for bank's wealthiest customers. The most notable difference between private banking and retail banking is that private banking clients receive customer service on a one-to-one basis. In addition to exclusive investment advisory, private banking goes beyond wealth management to managing and optimizing the customer's entire finance. (Dringa et al. 2009)

In this thesis, digital banking services refer to the retail banking products and services offered by banks, which are available 24/7 on computers, smart phones, tablets and do not require the presence of the customer at the branch. In practice, this means the functionalities available in online bank or mobile bank, as well as other self-services that banks offer, for example, on their website.

2.2 Digitalization in banking

Financial industry has experienced many waves of technological innovation like ATMs, telephone banking, electronic payments and increase use of online banking. Although these innovations have shifted the balance in the financial industry from banks towards markets and specialized players, the overall structure, with banks at its core, has remained quite robust until recent years. (Boot et al. 2021; Philippon 2015)

Digital transformation has been going on in the financial industry for several years now. Banks provide online services to customers through internet or mobile applications (Majaski 2021). Online banking grew substantially in the beginning of 2000 and is now a principal channel for banks to provide products and services (Rogrigues et al. 2017). In addition, the COVID-19 pandemic accelerated the digitalization greatly. Banks have invested and continue to invest and renew their systems, technological infrastructure, and data management. Banks have been encouraging customers to use the online self-service channels to ease the pressure from the telephone and branch services. (Accenture 2019)

The landscape in financial industry has been changing significantly in the recent years. Banks are getting more competitors while new fintech companies are entering the market. Fintech companies are usually considered as start-up companies that offer financial solutions and promote innovation. They affect banks through new and disruptive technologies. At the same time, technology giants – like Google and Amazon – offer financial services to an increasing extend. Those bigtech companies are specialists managing and leveraging large amounts of information and data. They appear to have an advantage in digital financial services, and they are attracting customers with their multi-platform services and data management. (Valverde & Fernández 2020; Zuo et al. 2021) The move towards open banking has in fact lead to the situation where anyone can now offer banking services – whether it be a telecom, ecommerce, or technology company (Gupta & Tham 2019, 29). With all this, customers’ expectations for digital banking services have risen and are often shaped by experiences from other industries, many of which have fewer regulation and technical barriers than banks (Adobe 2021).

Product substitutability is also fairly high in banking. Due to the approximately identical interest rates, fees, etc., banks need to increase the customer value in ways other than pricing. (Ezrokh 2020) Customers expect greater personalization, feedback, and analysis of their spending habits. (Accenture 2019; Adobe 2021) In order to meet the customer expectations for excellent digital customer experience banks need to use new approaches to engage with customers. Gamification could be solution. (Ezrokh 2020; Rahi & Abd Ghani 2018) Ezrokh (2020) presents gamification as the most relevant and largely underestimated method to promote retail banking products and services – especially for young people.

3 Gamification

The term gamification was introduced in the beginning of the century, and it gained wider interest and popularity among academics and business representatives in the 2010s. (Hamari 2017) The idea that people like fun in their lives has led to gamification. Gamification uses the lessons learnt from games – what makes games so motivating and engaging, (Baptista & Oliveira 2017) and implementing the similar motivational pull into the non-game context. Gamification can be viewed as a mean to make utilitarian services into more hedonically oriented ones (Hamari 2013). To build an understanding of what is gamification – the game elements and gamification design process – and how gamification can increase user motivation and engagement constitutes the goal of this chapter. The last part of the chapter focuses on studies related to banking and financial sector and presents the main findings from those studies.

3.1 Defining gamification

Despite the growing numbers of studies on gamification, there is not a single, generally accepted definition for gamification and the gamification literature and study results remain scattered (Baptista & Oliveira 2017). The definitions can be divided to two categories: those ones that emphasize the gamification elements (stimuli) and those that emphasize the evoked response (Tobon et al. 2020).

A commonly used definition for gamification is determined by Deterding et al. (2011) which describes gamification as “the use of game design elements in non-game contexts”. (Deterding et al. 2011; Gatautis et al. 2016; Huotari & Hamari 2017; Mora et al. 2017; Nasirzadeh & Fathian 2020) Werbach & Hunter (2012, 26) on their behalf use the same definition with a small extension: “The use of game elements and game-design techniques in non-game contexts.” Gatautis et al. (2016) base their definition on the previous ones” and generalize the concept of gamification as the “use of mechanics, dynamics and components

of games in everyday situations that are not directly related to games and appear in non-game context”.

Huotari & Hamari (2017) and Hamari et al. (2014) approach the concept from a different perspective. They suggest that the definition for gamification should emphasize more the experiences the gamification attempts to rise rather than focusing on methods. They propose following definition for gamification: “Gamification refers to a process of enhancing a service with affordances for gameful experiences in order to support user’s overall value creation.” In the end, across the literature, regardless of the focus of the gamification definition, the premise has been that gamification can satisfy intrinsic needs of the user and thus lead to autotelic behaviour and activities that are relevant to the gamification target (Xi & Hamari 2019).

Gamification is not a game (Goethe 2019, 16). However, there is no clear definition when an application is a game or “gamified” since the experiences of playing a game or determining what is a game is individual (Deterding et al. 201; Huotari & Hamari 2017) Therefore, it is also difficult to determine what a non-game context is. Yet, the most used determination for gamification states it means “using the game design elements in non-game contexts”. Goethe (2019, 16) state that main purpose of a game is purely to entertain whereas non-game context involves a real-world business or social impact goals (Werbach & Hunter 2012). Deterding et al. (2011) state that non-game contexts could be considered a context where game elements are normally not expected to be used.

Huotari & Hamari (2017) challenge that view by asking that if the existence of a game is such a subjective perception, how does one identify a non-game context? They state that the focus should be on customer/user/player experience rather than defining the context where the gamification is applied. They also disagree with method-centric definitions stating that if the definition of gamification culminates around the set of game design elements, determining whether a system is gamified is defined based on existence of elements characteristic of games in the system. In comparison, they propose that gamification is related to the psychological outcomes rather than specifics of design.

Before the emergence of the concept of gamification, several game-inspired designs have been created, such as serious games, simulation games, and game-based learning (GBL). There are ambiguities about the similarities and differences between them and gamification. (Liu et al. 2017; Nasirzadeh & Fathian 2020) However, the main difference between these fields and gamification is that they are essentially full-fledged games and are often used separately from real-world systems whereas in gamification, the game elements are added to the target system which essentially is not a game (Santhanam et al. 2016).

Researchers highlight slightly different things, why gamification is used and what its benefits are. However, in summary, gamification is used to achieve improvements in customer experience and value creation. Gamification aims to engage the customer and direct the customer to perform desired actions. (Gatautis et al. 2016; Huotari & Hamari 2017; Zichermann & Cunningham 2011) According to Gatautis et al. (2016) and Zichermann & Cunningham (2011), the main purpose of gamification is to drive consumer behaviour – mostly to increase the customer engagement, help customer to solve their problems and encourage them to perform desired actions. Gamification aims to get customers’ attention and increase their involvement and participation. Baptista & Oliveira (2019) summarize that “Gamification seeks to unite functionality and engagement to increase usability, productivity, and satisfaction, to create more enjoyable experiences, to drive behaviours, and to produce positive business impact.” According to Deterding et al. (2011), joy of use, engagement, and improvement of user experience are the predominant reasons to apply gamification. In the end, the behavioural outcomes should not overpower the customer value creation when designing a gamified system. Huotari & Hamari (2017) point out that gamification should not be designed solely to create certain behaviour for then the focus may incorrectly turn to controlling the customer’s behaviour instead of creating value for them.

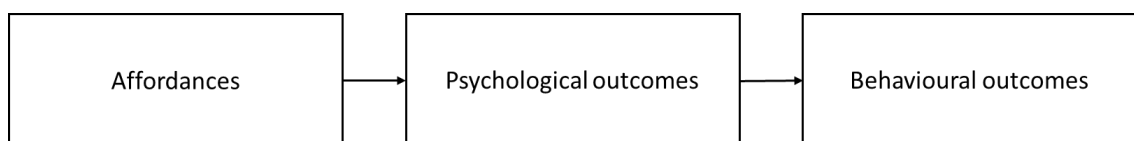


Figure 2. Three levels of gamification (Koivisto & Hamari 2019)

Koivisto & Hamari (2019) state that gamification can be seen to contain three levels (Figure 2). The affordances implemented to a system or a service. The affordances mean the gamification elements and the design that aids to induce the psychological outcomes. The psychological outcomes refer to motivation which consists of competence, autonomy, relatedness or, for example feel of enjoyment and brand engagement. The behavioural outcomes refer to behaviours and actions that are caused by the gamification. That can be increased time used in the service, or better learning results.

3.2 Game elements

As previously described, several studies define that “gamified” systems incorporate game elements in non-game context. What are the game elements then? Werbach & Hunter (2012, 78) compare the use of game elements to building a house. To build a house, one needs small-scale components such as nails and hammer, midlevel concepts such as plumbing, and high-level abstractions such as bathroom or movement flow. Each are elements for a house construction. They do not make a house by themselves but a sum of those components with certain design choices – how they are put together – will make a house.

Classification of the game elements has received quite a little attention and the set of game elements does not seem to be clearly defined. That is also why the game element-centric definition has received criticism. There have been only a few attempts to address the issue of missing classification and typology of the game elements. (Gatautis et al. 2016; Huotari & Hamari 2017) Deterding et. al (2011) agree with the Werbach’s & Hunter’s (2012) idea of game elements stating that game elements could be thought as building blocks or features shared by games – only accepting the elements that are unique or specific to games and found in most games. Game elements should be associated with games and should be found to play an important role in gameplay. However, they address that this approach is heuristic and leaves a lot of room to debate. In addition, there is large variation between different games. Appearance of a certain game element depends largely on the game genre and whether it is a digital or non-digital game.

The pyramid of the game elements – a model represented by Werbach & Hunter (2012) introduces game elements in a structured way (Figure 3). This concept classifies game elements into three categories 1) game dynamics, 2) game mechanics and 3) game components – organized in decreasing order of abstraction. Since the pyramid model is widely referred in the scientific papers and offers a structured way to determine what game elements are, it will be presented in more detail in this thesis.

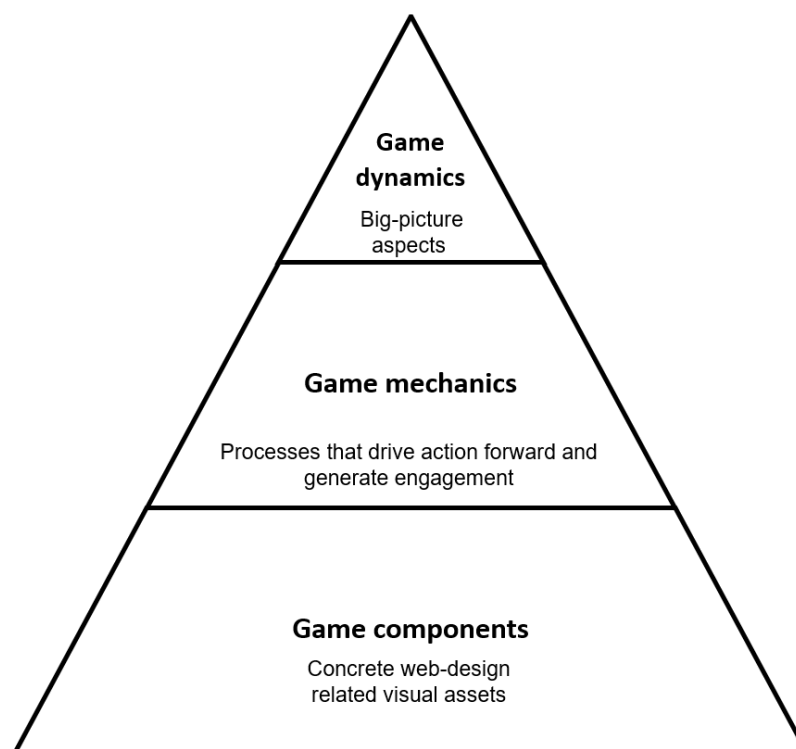


Figure 3. Pyramid model for classifying game elements (Werbach & Hunter 2012, 82)

Game dynamics determine a further scenario of a certain activity that uses gamification. Dynamics are big-picture aspects of the gamified system that should be managed but cannot be directly entered into the system. (Werbach & Hunter 2012, 78-79) Game dynamics are listed in the Table 2.

Table 2. Game Dynamics (Werbach & Hunter 2012, 78)

Game dynamics	Explanation
Constraints	Certain limitations or forced withdrawal or trade-offs
Emotions	Curiosity, competitiveness, frustration, happiness
Narrative	Consistent, continuous, and ongoing storyline
Progression	Player's growth and development
Relationship	Social interactions generating feelings of camaraderie, status, and altruism

Game mechanics are the basic processes that drive action forward and generate engagement. Each mechanics is a way to achieve one or more game dynamics. (Werbach & Hunter 2012, 79-80) Liu, Santhanam & Webster (2017) suggest that game mechanics could be thought of as rules of the game. Game mechanics presented are listed in the Table 3.

Table 3. Game Mechanics (Werbach & Hunter 2012, 79)

Game Mechanics	Explanation
Challenges	Tasks that require effort to solve
Chance	Elements of randomness
Competition	Competition between players or group pf players. Creates a division to winners and losers
Cooperation	Working together to achieve a shared goal
Feedback	Information about how the user is doing
Resource acquisition	Obtaining useful and collectable items
Rewards	Benefits for some action or achievement
Transactions	Trading between players
Turns	Sequential participation
Win states	Objectives that make one player or a group of players the winner

Game components are more concrete and more specific than game dynamics or game mechanics. They are concrete web-design related visual assets. Just like game mechanics ties to a one or more game dynamics, game components tie to one or more higher-level element. (Werbach & Hunter 2012, 80-81) Werbach & Hunter (2012, 80) have identified

fifteen components that they consider to be important for games. Those components are listed in the Table 4.

Table 4. Game Components (According Werbach & Hunter 2012, 80)

Game Components	Explanation
Achievements	Defined objectives
Avatars	Visual representation of a player's character
Badges	Visual representation of achievements
Boss fights	Especially hard challenges at the culmination of a level
Collections	Set of items to accumulate
Combat	A defined battle, typically short-lived
Content unlocking	Aspects available only when player has reached a certain level or objectives
Gifting	Opportunities to share resources with others
Leaderboards	Visual displays of player progressions and achievements
Levels	Defined steps for progression
Points	Numerical representation of progression
Progress bar	Visualization of player's progress
Quests	Predefines challenges with objectives and rewards
Social graphs	Representation of player's social network within the game
Teams	Defined groups working together for a common goal
Virtual goods	Game assets with perceived or real-money value

It is unlikely that all the game elements within any of the three categories are utilized at the same time. Right elements should be chosen carefully and implemented well to serve the specific requirements of a gamified system. (Werbach & Hunter 2012, 81-82) So far, gamification appears to centre around relatively small set of game and design elements (Cermak-Sassenrath 2019). According to Tobon et al. (2020) reward systems and challenges are the most used gamification mechanics with the points, badges, leaderboards and levels being the most used game components (Cermak-Sassenrath 2017; Hamari et al. 2014; Tobon et al. 2020). The prevalence of these game elements is possibly because to those elements are quite easily applied to many existing systems (Mekler et at. 2017).

The literature reports two types of rewarding: symbolic and social. Symbolic rewards could be points that are redeemable for money or products (Tobon et al. 2020). Different customer loyalty or reward programs are good example of gamification where the symbolic reward mechanism is used. These programs aim to increase customer loyalty and engagement – customer does something and receives benefits in return. (Tobon et al. 2020) Perceived value in a loyalty program is a crucial factor to its effectiveness (Koo et al. 2020). It needs to be a good enough deal for the customer to keep the customer engaged. Badges and leaderboards are the most common form of social rewards (Tobon et al. 2020).

Points can be used in many ways, and they provide information for many purposes. A point itself is a tiny bit of feedback for the user. It is a typical way to interpret how the users is doing. In a rewarding system, the number of points can determine when and to whom the reward is given. Points may also determine the win state – assuming the gamified process has one. Points also provide data for the designers and developers and help to analyse metrics about the system, e.g., how fast users are progressing or if they seem to be falling off or get stuck in a certain state of the process. (Werbach & Hunter 2012) Badges are symbolic recognition for users as they reach a certain level in the gamified system. Leaderboards offer social comparison. They contain information about user's performance compared to others. (Tobon et al. 2020)

At last, it should be noted that the taxonomy between different gamification-related studies is inconsistent. While game elements are discussed in many papers, what is meant with the 'game element' varies. In Werbach & Hunter's (2012) model the gamification elements are divided to dynamics, mechanics, and components whereas many studies use different categorization and taxonomy.

3.3 Gamification design

Mechanics-Dynamics-Aesthetics (MDA) framework by Hunicke et al. (2004) is referred in gamification-related literature. This framework attempts to combine game design and

development, game criticism and technical game research by providing a formal approach to understanding games. However, gamification design process differs somewhat from game design, with the former being used to enhance the customer engagement in different non-game contexts, whereas the latter is geared towards pure entertainment of gaming. (Mora et al. 2017)

Various gamification design frameworks have been developed and presented in the literature (Mora et al. 2017). Werbach's & Hunter's gamification design framework – commonly known as 6D is the most popular and referred one (Mora et al. 2017; Golrang & Safari 2021). Werbach & Hunter (2012, 85-86) emphasize the importance of a good design process to make gamification work and to create a gamified system that fulfils both, the emotional aspects (user experience) and the business aspects (measurable and sustainable systems, business goals). They propose six steps or guidelines to remember while designing a gamified system:

- 1) Define business objectives
- 2) Delineate target behaviours
- 3) Describe your players (customers)
- 4) Device activity cycles
- 5) Don't forget the fun
- 6) Deploy the appropriate tools (game elements)

The first step, defining business objectives helps to keep focus on the goal of the gamification – the purpose, why gamification is applied. The goal for gamification might be increasing customer retention or building brand loyalty. After defining the objectives, the target behaviour should be identified - what you want the customers to do and how to measure it. Behaviours and the metrics should be defined together. The target behaviour should promote the business objectives directly or indirectly. The metrics translate the behaviour into quantifiable results. (Werbach & Hunter 2012, 87-90) One should think about what the user wants from the service and support the customer's value creation through the gamification.

It is important to understand who the gamified system is for and what motivates the target customers. One should try to identify the customer's intrinsic and extrinsic motivating factors. The possible demotivating factors should also be considered. (Goethe 2019, 32; Werbach & Hunter 2012, 91-94) Extrinsic motivation occurs when the customer does something for a reward. Extrinsically motivated customers are not necessarily motivated by the action itself but to accomplish a specific outcome. Intrinsic motivation factors are more significant since they have greater influence on customer behaviour than the extrinsic factors. (Gatautis et al. 2016) Intrinsic and extrinsic motivations are discussed more in the chapter 3.4.1

Not all customers are similar. People have different needs, goals, and expectations. One should consider whether the gamified system is targeted only for a one customer segment or if different gamification elements can serve different customer segments. Identifying user personas can help to understand the characteristics, behaviours, goals, and motivations of different target users. (Werbach & Hunter, 2012, 92-93) How to design user personas is beyond the scope of this thesis. However, we will briefly introduce how different users and their preferences and motivational factors have been identified in the gamification research.

Researchers typically use three types of information to assess user's preferences and motivators towards gamified systems, either individually or in combination: 1) demographic information, 2) personality traits and 3) user or player type models. (Nasirzadeh & Fathian 2020) In addition, cultural factors affect user's motivation and how gamification is experienced. For example, the differences between individual and collective cultures have been studied in the gamification context. (Nasirzadeh & Fathian 2020; Oyibo et al 2017)

Demographic differences affecting the user motivation appear to be the most studied in the context of gamification. Studies have shown that demographic differences affect motivation and perceived benefits from gamification. (Baptista & Oliveira 2017; Eisingerich et al. 2019; Koivisto & Hamari 2014) In terms of demographic characteristics, gender and age are often used to personalize gamification systems (Nasirzadeh & Fathian 2020). Orji (2014) showed in her research that in many domains, gender impacts the user behaviour. Some studies show

that women are more motivated by social factors whereas men are more achievement-oriented and get motivated from competition, need for winning and self-improvement (Koivisto & Hamari 2014; Nasirzadeh & Fathian 2020; Williams et al. 2008; 2009) In contrast, a study by Baptista & Oliveira (2017) showed contrary results where social influence was stronger with men than with women. Therefore, one should not make design choices based only on these studies.

It is shown that age affects how the gamification is perceived (Altmeyer et al. 2018; Baptista & Oliveira 2017; Koivisto & Hamari 2014). It has been shown that technology acceptance and perceived usability which are affected by age play a major role in digital gaming. (Koivisto & Hamari 2014) Therefore, one can conclude that younger people perceive gamified systems more usable than older generations. Zichermann & Linder (2013) also come to similar conclusion by stating that gamification captures and sustains the interest of millennials better than older people. Young people have been more exposed to digital technologies at younger age and have been raised on games. This is called digital division between generations. (Koivisto & Hamari 2014; Zichermann & Linder 2013) Altmeyer et al. (2019) state that widely used gamification elements such as points, badges and leaderboards are meaningless for the elderly people. Birk et al. (2017) add, that with increasing age, preferences and play motive shift from performance to creating more enjoyment and completing a task.

For personality traits, one could use different models to describe different personalities. In their study, Nasirzadeh & Fathian (2020) utilized the widely used “Big-Five” (extraversion, neuroticism, openness, agreeableness, conscientiousness) to determine the preferred game elements for different personalities. Their study presented following results (Table 5):

Table 5. Preferred game elements by Big-Five personality traits (according to Nasirzadeh & Fathian 2020)

Personality Trait	Motivating game elements
Extraversion	Avatars, Leaderboards, Levels, Points
Neuroticism	Countdowns
Openness	Badges, Competition, Social interaction
Agreeableness	Progress, Countdowns, Penalty
Conscientiousness	Epic meaning, Fixed rewards

Additionally, game designers have several models to segment players. One of the best known is by Richard Bartle, a game researcher who has identified four player types: achievers, explorers, socializers, and killers (Table 6) (Werbach & Hunter, 2012, 92-93).

Table 6. Player types (Bartle 1996)

Player type	Motivators
Achievers	<ul style="list-style-type: none"> • Interested in the virtual environment • Invested to reach goals withing the game
Explorers	<ul style="list-style-type: none"> • Prefer the virtual environment over other players • Play using their instincts • Interested in new areas
Socializers	<ul style="list-style-type: none"> • Emphasis on interaction and social features
Killers	<ul style="list-style-type: none"> • Interested to show superiority over other players

One dimension to be considered is also the player lifecycle. A new player starts as a novice. Once they become a regular, they need novelty to keep playing and stick with the activity. Experienced players are the experts. They need challenges that are hard enough to keep them engaged. As games, the gamified system should offer opportunities and activities for all users at different stage. (Werbach & Hunter, 2012, 92-93)

Games are not linear. There might be a levelling system that looks linear but usually the overall system is not that simple. Activity cycles are effective way to model the action of players in the system. User action provokes some activity, which in turn provokes another

action. Social media is a good example of activity cycles. A user does something e.g., uploads a photo, and tags a friend in it. This triggers a notification for the friend who would, most likely to come and act on the photo by liking, commenting, or re-sharing it. This creates yet again notification for the first user. The activity cycle creates engagement around the social media application. There are two kinds of activity cycles: engagement loops and progression stairs. The previous social media example represents an engagement loop. It describes in a micro level what the players do, why they do it and how the system responds. Short and temporary relationships are common in social media context. However, in games, the deep sustained engagement is the goal. That is when the progression stairs come in. Progression stairs show the player's progression and journey in a macro level. (Werbach & Hunter, 2012, 94-95)

According Werbach & Hunter (2012, 95) feedback is the key element in engagement loops (Figure 4). The factor that creates and keeps up the motivation. When a user acts in a gamified system, that produces response from the system – a feedback. Several game components – if not all – can be seen as some form of feedback. Werbach & Hunter underline that thinking in terms of feedback keeps one from overemphasizing specific game component. For example, points are one form of feedback and feedback itself is the element that creates motivation. The importance of feedback is also underscored in many other theories and according to Liu et al. (2017), it is one of the most popular uses of gamification.

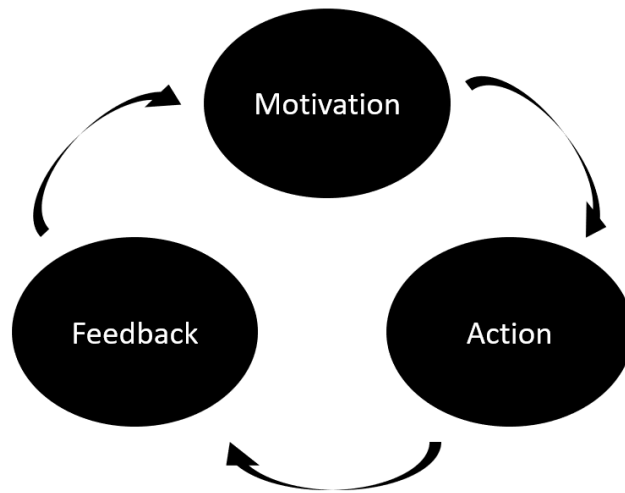


Figure 4. Engagement loop (Werbach & Hunter 2012, 96)

Progression stairs (Figure 5) reflect the changing game environment as the player progresses in the game. This usually means different levels of challenge. Werbach & Hunter (2012, 97) suggest that the progression should not be linear. Instead, there should be short-term and long-term goals for the player. The first latter of the progression stair – the onboarding – should be made ease for the player; simple, guided actions that draw the player into the game. Once the player proceeds, the difficulty should ideally increase on the way. Rest periods are important along the way. Those periods let the player experience satisfaction; the feeling that they have become an expert at some part of the game. The rest period includes smaller engagement loops. In the gamified system, the challenge of moving from a level to the next one should be an action that taxes the player enough to feel the sense of pride when they reach the next level. Werbach & Hunter (2012, 97-98) also suggest adding some randomness to a gamified system since people like surprises. They are a way to escape from what Werbach & Hunter call ‘hedonic treadmill’ – the tendency to take each advance for granted and demand increasingly bigger rewards due boredom.

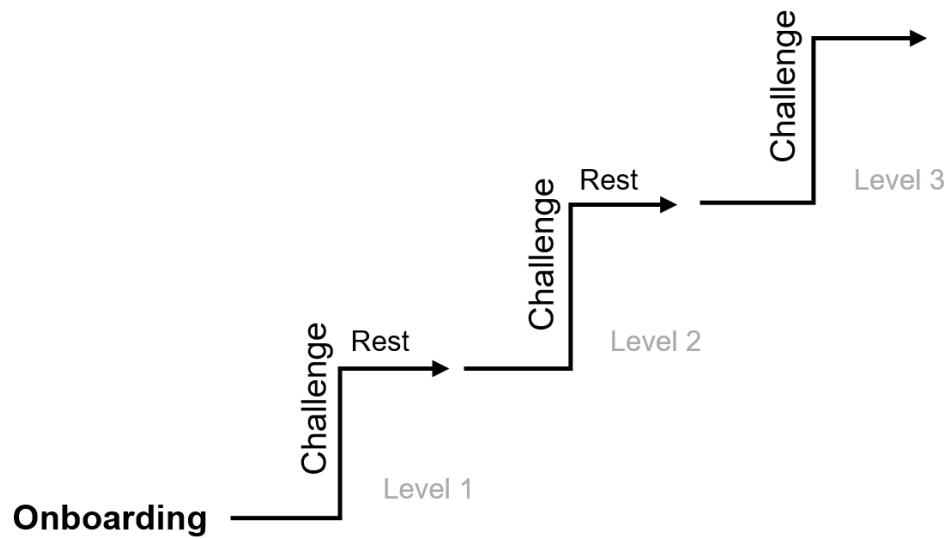


Figure 5. Progression stairs (Werbach & Hunter 2012, 97)

Different activity cycles should be defined for players in different stages of the player lifecycle. Farzan et al. (2008) found that the motivational effects may decrease within time. A beginner might feel excited about the new gameful features, but once the player becomes and expert the interest tends to decline over time. (Koivisto & Hamari, 2014) A study by Koivisto & Hamari (2014) indicated that the novelty effects are stronger the younger the user is. The findings support general beliefs that younger people get bored faster than older users and, that younger users tend to switch services more actively.

When many complex things need to be considered when designing a gamified system, the fun aspect may be forgotten. However, the fun is important aspect since if payers don't perceive the system fun, they won't return using it. If there were no extrinsic rewards offered, would the players still participate voluntarily? (Werbach & Hunter 2012, 99) Huotari & Hamari (2017) also address that player's voluntary commitment and participation in the game is a key element in a game. 'Fun' is not a simple concept and there are many dimensions fun: 1) hard fun which is referred as the pleasure of overcoming challenges, 2) easy fun which is casual enjoyment – a way of blowing out steam without overly taxing yourself, 3) experimental fun which means enjoyment from trying out new experiences and

lastly, 4) social fun that depends on interaction with others, even if competitive. (Werbach & Hunter 2012, 98)

Finally, the suitable game components should be chosen to be applied into the system. The components need to serve the objectives, they need to be suitable for the target audience, and create activity cycles. The components are the elements that pull all game elements and design aspects together and create the overall experience for the players. (Werbach & Hunter 2012, 99)

3.4 Enhancing motivation and engagement through gamification

Engagement means the connection or interaction between a consumer and a product, service, or a task. Factors that stimulate consumer engagement can be divided into intrinsic and extrinsic motivating factors. Gamification uses both, intrinsic and extrinsic motivating factors to increase customer's motivation and engagement into gamified application or service. (Gatautis et al. 2016) This chapter presents through Self-Determination Theory (SDT) how gamification can facilitate user's motivation and engagement.

3.4.1 Intrinsic and extrinsic motivation

SDT is a framework that presents factors that facilitate motivation and psychological wellness. The framework assumes that people are naturally prone to psychological growth and integration, and as a result, toward learning and connecting with others. But these tendencies are not considered automatic. Therefore, they need supportive conditions to be robust. (Ryan & Deci 2020) This chapter presents how gamification can be used to create those conditions.

According to SDT, intrinsic motivation is considered as the main contributor on people's behaviour. Intrinsic motivation refers to doing something because that is inherently

interesting or enjoyable. (Ryan & Deci 2000) Examples of intrinsically motivated behaviours include play, exploration, and activities generated by curiosity. These behaviours don't require external incentives or pressure from others but rather provide their own satisfaction and enjoyment. (Ryan & Deci 2020) According to SDT, there are three primary intrinsic needs that lead to autotelic behaviour i.e., engagement. Those are competence, autonomy, and relatedness. (Ryan & Deci 2000)

The need for *competence* refers to feel of self-control and growth – overcoming challenges and developing one's own skills. (Peng et al. 2012, Ryan & Deci 2020; Xi & Hamari 2019) The need for competence can be satisfied within environments that offer optimal challenges, positive feedback, opportunities for growth and that promote effectiveness. (Ryan & Deci 2000, Ryan & Deci 2020). It explains how in competitive sports, people maintain interest in very repetitive training. Furthermore, encountering and overcoming challenges adjusted to optimal level is pivotal in gameplay and considered a key part of games (Koivisto & Hamari 2019). Xi & Hamari (2019) state that achievement-related gamification features that give user an opportunity to learn new skills, receive feedback and set and achieve clear goals are likely to satisfy the need for competence.

The balance between optimal challenge and the skill required to overcome the challenge creates sense of flow which results in high cognitive absorption and engagement with the task. This state of focused attention is also referred as flow state. To feel the sense of flow, the user needs a certain level of challenge, yet without completely surpassing the user's skill level. In addition to intrinsic motivation, focused attention is strongly related to engagement. (Agarwal & Karahanna 2000; De Canio et al. 2021; Tobon et al. 2020) As the flow state is experienced playing games, and gamification aims to implement the similar motivational pull into the non-game context, the state of flow could also be present in gamification. However, the current research in the gamification field does not reveal whether flow state has been achieved in gamified systems.

The feeling of competence does not create the intrinsic motivation unless it is not accompanied with the sense of *autonomy* (Ryan & Deci 2000). The need for autonomy

means a sense of self-direction and person's own choice to make any actions. When a person has an opportunity to engage with an activity without external control, the sense of autonomy is achieved. It is important that there are valuable and real opportunities to explore in the environment while offering the person freedom to make their choices. (Xi & Hamari 2019; Rigby & Ryan 2011, 40)

Why people are motivated to do some actions is that they are valued by others whom they feel (or would like to feel) connected. (Ryan & Deci 2000) This sense of *relatedness* refers to a feeling of recognition, belonging in a social environment or community, and having social interactions with others (Xi & Hamari 2019; Ryan et al. 2006). Xi & Hamari (2019) suggest that social-related gamification elements support the need for relatedness.

Reward-based gamification system conditions a behaviour by adding game components such as points, badges, levels into the system. This setting stimulates the extrinsic motivation. Extrinsic motivation is present when there is an activity in order to attain some separable outcome. (Ryan & Deci 2000; Tobon et al. 2020) "Extrinsic motivation thus contrasts with intrinsic motivation, which refers to doing an activity simply for the enjoyment of the activity itself, rather than its instrumental value" (Ryan & Deci 2000, 60). Extrinsic motivation usually has a short-term effect on the user behaviour – when the rewarding stops the behaviour stops. (Tobon et al. 2020) According to Werbach & Hunter (2012, 62) extrinsic motivators are not always bad. There will always be tasks that are dull and cannot be intrinsically enjoyable. Extrinsic motivators help to encourage people boring activities.

Understanding the target users' motivational factors and matching the right type of motivators with the right users is important for creating the engagement – and making the gamification effective. (Bayuok & Altobello 2019) As discussed in the Chapter 3.3, demographic information, personality traits, user or player type models and player lifecycle can be used to analyse the target users and their motivators (Nasirzadeh & Fathian 2020; Werbach & Hunter, 2012, 92-93).

3.4.2 From motivation to engagement

According to Demangeot & Broderick (2016), engagement describes customer's experience of active connection or participation with certain object such as a brand, company, website, or an online community. According to Gatautis et al. (2021, 103), consumer engagement is typically analysed from multidimensional perspective. They present consumer engagement as a combination of cognitive, emotional, and behavioural aspects which eventually lead to higher level of engagement which we call brand engagement (Figure 6).

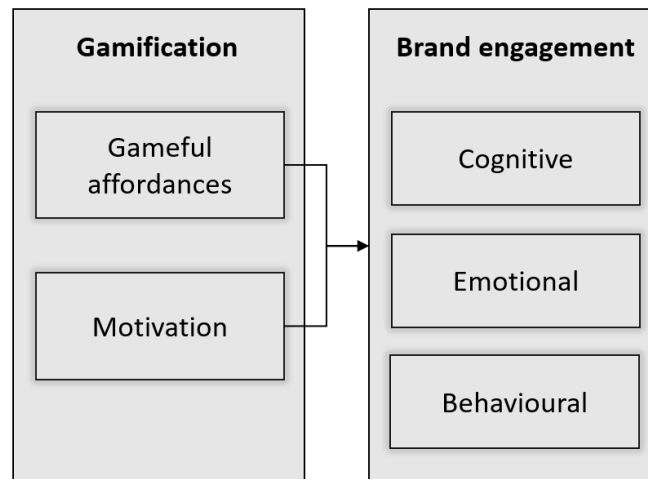


Figure 6. Gamification and consumer engagement (Gatautis et al. 2021, 101)

Cognitive dimension reflects customer's concentration and involvement with a certain object. (Gatautis et al. 2021, 104) *Emotional dimension* – a hedonic dimension of customer engagement – reflects the feeling caused by the engagement, like satisfaction and other positive emotions. (Abdul-Ghani et al. 2011; Gatautis et al. 2021, 204) Emotional dimension of consumer engagement leads to commitment. *Behavioural dimension* emphasizes the activity and the effort, energy and time devoted for it by the customer.

If gamification helps the customer achieve their objectives, it is likely that the customer will be committed and engaged with the service in the future as well. (Eisingerich et al. 2019)

This in turn, creates a trust and engagement towards the company – brand which is consequence of consumer engagement. (Gatautis et al. 2021, 103) It is a long-term-relationship with the brand and is developed through higher levels of satisfaction. According to Vivek (2009) and Vivek et al. (2014), brand engagement is composed mainly of emotional, cognitive, and social engagement. High brand engagement can be manifested in many ways, such as brand loyalty, word-of-mouth, and resistance to negative information about the brand. (Hsu & Chen 2018) According to existing studies, gamification positively affects brand engagement (Berger et al. 2017; Gatautis et al. 2016 b; Harwood & Garry, 2015, Robson et al 2016).

3.5 Overview of empirical research on gamification

In 2010s, the popularity of gamification has grown and so has the research on the subject. Education, health, and crowdsourcing are the most common contexts of research and points, badges, and leaderboards the most used game elements in the gamification research. The results in general shift toward positive results about the effects and benefits of gamification. However, the gamification lacks coherent research models and consistency. (Koivisto & Hamari 2019) This chapter reviews the existing empirical research on the psychological and behavioural effects of gamification. A comprehensive study review by Koivisto & Hamari (2019) is used to summarize the results of existing empirical studies on gamification. In the end of the chapter, the shortcomings of current research are discussed.

Koivisto & Hamari (2019) analysed a large set (N=273) of gamification studies reporting empirical data about gamification effects. These studies varied in terms of data gathering, methods, sample sizes and research durations. Most common method of data collection was surveys and questionnaires with either numerical or open-ended questions in which the data was analysed either qualitatively or quantitatively. The second most common method of data collection was a system implementation or a prototype with some form of usage data. Experimental settings and interview methods were also popular. The outcomes of the studies reviewed were divided to psychological (N=138) and behavioural outcomes (N=166). The results are presented in the Table 7.

Table 7. Results of the empirical studies according to Koivisto & Hamari (2019)

Psychological outcomes (N=138)	Psychological outcomes were quite specific to a system and thus do not provide possibility for generalization.	
Behavioural outcomes (N=66)	Positive results	28,7 %
	Mixed with positive	47,0 %
	Null or equally positive and negative	18,2 %
	Mixed with negative	3,0 %
	Negative results	3,0 %

The analysis of psychological outcomes showed that gamification research is concentrated on studying how gamification implementation are perceived and experienced as systems, whether they are enjoyable, useful and whether the users feel motivated to use the systems. In addition, enjoyment of and experiences of fun were the second most studied psychological outcome studied in the papers. Furthermore, psychological aspects according to the theories on technology acceptance and adoption (perceived usefulness, perceived effectiveness, ease of use, effort required) were frequently analysed. (Koivisto & Hamari 2019) The psychological outcomes of the empirical studies were vast, and outcomes were often measured with specific measurements developed for a particular study. The analysis by Koivisto & Hamari (2019) showed that psychological outcomes of the 138 papers were quite specific to a system and thus do not provide possibility for generalization.

The papers that concentrated on the behavioural outcomes studied interaction with a system, or a specific performance-metric (such as participation, speed/time, number of contributions, grade/academic performance, points gained or quality of contributions). Time-related variables were the most frequently analysed. In addition, measurements of the amount and quality of contributions to a system were common. From the 273 papers, 166 studied behavioural outcomes. However, only 66 experimental quantitative studies with tested hypotheses were analysed by Koivisto & Hamari since those studies could show clear results. From this group, positive research findings were reported in 28.7% of the papers. Clear majority showed mixed results. The mixed results were categorized as ‘Mixed with positive’, ‘Null or equal positive and negative’ or ‘Mixed with negative’, depending on whether most of tests had produced positive or negative results. Based on this, predominantly positive results could be found in 47,0% of the 66 controlled experimental studies.

Completely negative results were reported in only two of set of the 66 studies. (Koivisto & Hamari 2019)

Although several studies indicate that gamification influences customer behaviour, there is some limitations and challenges in the research about gamification and implementing gamification in practical level. As previously mentioned, the definition of gamification is not commonly agreed, and it is often unclear what can be included in the set of game elements. It is also unclear which psychological effect a particular game element has on a user and how it interacts with other game elements. (Cermak-Sassenrath 2019)

Current research on gamification suffers from some methodological limitations such as controlled experiments and systematic empirical studies. (Cermak-Sassenrath 2019; Hamari et al. 2014; Hamari 2017; Xi & Hamari 2019) Findings concerning the effectiveness of gamification are mostly positive, but some studies show mixed results. Seaborn & Fels (2015) state that more research is needed to determine whether the results are significant and reproducible (Cermak-Sassenrath 2019).

Many studies also test combination of multiple game elements and different gamification elements have not been separately controlled. Therefore, it is difficult to determine the effectiveness of a particular game element. (Cermak-Sassenrath 2019; Hamari 2017) However, some studies have addressed this shortcoming and look at individual gamification elements and their effects (see e.g., Mekler et al. 2017). These studies provide valuable information about the effects of specific elements and their relationship. (Koivisto & Hamari 2019) In fact, in their study, Mekler et al. (2017) found that points, levels, and leaderboards did not significantly affect competence or intrinsic motivation. Instead, they functioned as extrinsic motivators that increased performance quantity significantly. However, according to Koivisto & Hamari (2019), those results are not universally applicable. Yet, they give support for making design choices.

Moreover, future studies should focus on analysing the impact of gamification before and after the implementation. Another stream of research should include long-term study on customer behaviour to understand how gamification is perceived over a longer period (Chauhan et al. 2021) and to study the novelty effects customers may experience over time.

3.6 Gamification in context of digital banking services

In the banking sector, gamification offers ways to increase customer loyalty and stimulate excitement towards financial operations (Rodrigues et al. 2013 a). This chapter presents gamification studies related to banking and financial sector and combines the main findings of those studies.

The impact of gamification has been studied in the banking sector in different research settings. Although, research has been done, it is somewhat inconsistent (Baptista & Oliveira 2017). The Appendix 1 lists the studies that were reviewed for this thesis. Studies were selected for the review using the following criteria:

- The gamified application is related to the banking domain only
- The paper presents sufficient data for the interpretation of research findings

Most of the studies were carried out as survey, studying how gamification affects the intention to use a certain service (online banking, mobile bank, etc.). Those studies utilized the theories of technology acceptance and adoption: the Technology Acceptance Model (TAM), Theory of Reasoned Actions (TRA) or Unified Theory of Acceptance and Use of Technology, (UTAUT, UTAUT2) or other similar models. Those models measure the user's intention to use a certain technology or a service. While the study review by Koivisto & Hamari (2019) presented in the chapter 3.5 resulted mixed results on gamification effects, the use of gamification in banking shows quite impressive results.

People typically oppose change, and this also applies to the banking industry. Using engaging and user-centric technologies can make the customer switch to other ways of doing banking. (Chauhan et al. 2021) The use of mobile devices has grown explosively in recent years. There is a wide range of mobile applications from utilitarian to fully hedonic. (Baptista & Oliveira 2017; Negahban & Chung 2014) Most mobile banking services are not designed to be fun or entertaining but transactional with economic, rational, and practical functionalities (Martínez-López et al. 2014; Baptista & Oliveira 2017) such as transfer money, check balance, pay bills, and manage investments and savings. According to Bayuk & Altobello (2019), banking applications often do not have components such as processes or social elements that would increase customer engagement, enjoyment, or motivation.

A study by Baptista & Oliveira (2017) indicate that mobile banking customers use the application whenever they have a need – e.g., to transfer money or pay bills – but those actions derivate no pleasure, positive emotions, or personal satisfaction. When the respondents of the study were asked about potential impact of gamification such as points or rewards (i.e., fee reductions or credit for positive financial behaviour) the responses showed that using the gamified mobile bank could be more fun and enjoyable. The study showed strong relationship between gamification and the intention to use mobile banking service; customers have higher intention to use the service if hedonic elements which increase fun and enjoyment, are used.

Studies by Rodriques et al. (2013 a; 2014; 2016; 2017) all show that gamification had a positive impact on the ease of use and the intention to use a new technology. The studies indicate that gamification motivates the customers to use online banking. Rahi & Ghani (2018) studied gamified online banking system and showed that gamification makes the online banking more enjoyable. In addition, they stated that to get benefits from rewarding system, the intention to adopt and the intention to recommend the system to others will increase.

People that are financially most vulnerable (e.g., younger, low educated, from low socioeconomic backgrounds) are less likely to receive financial education and are less likely

to spend time and effort understanding the information and its implications. (Bayuk & Altobello, 2019) Yang (2020) identified three problem areas related to personal saving which were missing savings goals, inapt social information, and lack of knowledge.

Gamification can be used to educate customers and research shows that it improves customers' financial literacy. (Chauhan et al. 2021; Rodriques et al. 2016; Rodriques et al. 2017) Rodriques et al. (2016) suggest that customers' financial literacy can be improved e.g., using help-avatars and graphical and interactive information such as alerts. There are examples of banks developing games aimed at teaching people how to manage their money. These gamification efforts can arouse the interest of individuals to learn more about financial planning and well-being. (Neuroprofiler 2021)

Bayuok & Altobello (2019) studied the effect of the gamification on financial well-being and motivation to save. They studied two groups, people with experience using a money-saving or other financial mobile app, and people without previous experience using a financial app, and how their financial well-being, financial knowledge and thoughts towards gamification differed. The group that had no financial app experience rated two gamification features significantly more important compared to the group that had financial app experience: 1) the ability to receive feedback or coaching on progress towards financial goals and 2) interactive learning exercises regarding savings and finance. Conversely, people who had financial app experience rated social features significantly higher; 1) the ability to share financial achievements and 2) the ability to see a leaderboard or a scorecard within a group finance challenge. These results indicated that the people who don't have previous experience from financial apps, value the features focused on teaching and feedback, and the people that have financial app experience give greater emphasis on features that show their own progress relative to others. (Bayuk & Altobello, 2019)

In the study of Rodriques et al. (2013 b) a mutual fund application in which customer can perform financial operations such as buy and sell funds was gamified. The gamified system included game design, new graphic interface with digital animation, virtual assistant, ratings, and prizes. The idea of the application was to mimic a football team where mutual funds

were the players, portfolio was the team, and the customer was the team manager. The gamified application resulted higher customer participation with 16% increase in visits. Additionally, Rodriques et al. (2017) state that gamification can encourage customer to use online banking more which in the end conducts more transactions. However, the increased number of transactions was not studied in their research, so it remains a hypothesis.

Rewarding mechanism can be used to increase the repeated visits and thus increase the financial activity of customers (Chauhan et al. 2021; Rodriques et al. 2016). Gamification elements are useful to visualize the savings goals with progress bars for instance (Bayouk & Altobello 2019). However, according to Chauhan et al. (2021), much of the gamification implementation in the banking industry is limited to collecting reward points. Nasirzadeh & Fathian (2020) studied different gamification elements on bank customers. Their results showed that younger people are more motivated by earning points and badges than older people. This is aligned with the earlier statement by Altmeyer et al. (2019) that points, badges, and leaderboards are meaningless for the elderly people.

According to the studies presented in the Appendix 1, gamification is instrumental at the time of adoption of technology. The studies indicate that gamification should be used, for example, when customers are presented with a new technology or a service. Current research on gamification in the banking industry is mainly focusing on the use of gamification while adoption of technology. The future research should focus on the impact of gamification in a different stage of technology use and in on different constructs such as customer experience, customer satisfactions and customer loyalty. (Chauhan et al. 2021) In addition, current research on gamification in the banking is mostly conducted in the online banking context. Since mobile bank is increasingly used as a primary channel to do banking, the future research should concentrate on gamification applied in this area.

3.7 Challenges in gamification

Gamification has received some criticism – some say it is just a buzzword. This chapter discusses the criticism related to gamification, as well as the challenges related to its implementation. Practitioners should especially consider these challenges to avoid the possible failure of the gamification implementation. A summary of the gamification-related challenges is presented below in the Table 8. Each topic is discussed later in this chapter.

Table 8. Challenges related to gamification

Challenge	Explanation
Complexity of the gamification design	Games are complex and thus difficult to transfer holistically to other environments. Implementing the right kind of motivational pull in addition to business aspects.
Subjective nature of gamification	Different motivators and preferences for different people
Using the simple gamification elements instead of designing user-centric processes	Only using points, badges, leaderboards, not focusing on processes and creating interaction with the system.
Bringing up undesired behaviours	E.g., increased social comparison
Implementation in a way that suits the business and the brand	E.g., idea of games in the banking context could cause uncertainty in some customers

Gamification design is challenging for three main reasons: 1) games are complex and thus difficult to transfer holistically to other environments, 2) gamification involves motivational information system design. This requires understanding of motivation psychology, and 3) the goal of gamification is often to affect customer behaviour. This adds another layer to the scope of gamification design. (Koivisto & Hamari 2019) Zichermann (2011) judges the intention to appeal to specific intrinsic motivational factor in gamification as there is so much variation between individuals and what is intrinsically motivating to them. It is clear, that there is no one solution that could fit for everyone and for every situation since gamification is very subjective by its nature. (Basten 2017) How an individual perceives gamification depends on the nature of the activity, the contextual factors involved, the specific situation where the system is being used and individual's own personal and demographic characteristics. (Koivisto & Hamari 2019) Companies should consider which kind of personalities and characteristics its customers represent and choose the used gamification elements and methods accordingly (Basten 2017).

One of the pitfalls that may lead to an unsuccessful attempt to implement gamification is to use the simple game elements such as points, badges or leaderboards and not focus on the subtle details or consider other gamification elements to be used. (Goethe 2019, 28; Hamari et al. 2014) While points and badges can motivate some people to do certain actions, gamification, Goethe (2019, 29) argue that many gamification attempts fail due to missing the point of engaging the customer. It is important to design user-centric processes that facilitate the users' motivations and keep them interacting with the system (Koivisto & Hamari 2019; Nasirzadeh & Fathian 2020) In gamification research, many of the gamification implementations are carried out without personalized features or tailored approach which, according to Nasirzadeh & Fathian (2020) can be considered one main reason why gamification might fail.

Cermak-Sassenrath (2019) notes that not all gamification effects are desirable. Increased competition is one possible negative outcome from gamification. Hanus & Fox (2015) identify increased social comparison and competition as potential area of concern. The features that are intended to encourage users to self-improvement and enhance their performance by creating a competitive environment can also decrease users' motivations. A user may feel dejected and unmotivated if they are not able to surpass or keep up with their fellows. (Cermak-Sassenrath 2019).

In banking context, gamification must be implemented with care. The banking industry needs to understand the consequences of adding gamification to their services to avoid any disadvantages of gamification. (Chauhan et al. 2021) Banks have important role as a holder of money, and they are guided by rules and regulation. Customers' perception of games may be contradictory to what they expect from banks. And combining these two, very different worlds might cause uncertainty for the customer.

Critics say that gamification is a buzzword. However, gamification can offer means to help if it is used carefully as a supporting feature rather than building processes exclusively on gamified processes. (Basten 2017)

4 Research design

This chapter presents the empirical part of the thesis. The material to be utilized in the empirical part of this thesis has been collected through a semi-structured thematic interview. The empirical part of the work has been carried out as an assignment for a Finnish bank and wealth manager. The case company background is presented in the chapter 4.1 and the implementation of the interviews is discussed more in the chapter 4.2.

The aim of the empirical part of the thesis is to compare the theoretical part and real-life practises and knowledge. Empirical part of the thesis complements the literature review on the research questions two (2) and three (3).

4.1 Case company background

The case company is a Finnish bank, wealth manager and life-insurer. The company offers banking and financial services to retail, corporate and institutional customers with the retail segment being the largest one. The company employs about 900 people around Finland (29.1.2022).

Wealth management is at the heart of the company's strategy. The company aims to grow especially in the wealth management side and acquire new customers who want to grow their wealth. The company's vision is to be the most desirable asset manager for retail and corporate customers in Finland.

Offering a great customer experience is important strategic goal for the company. Renewed service model emphasizes the importance of efficient and comprehensive digital services that supports cross-selling. The company has developed its digital services in recent years with a fast phase. However, since the customer expectations are high, services need to be developed continuously. In addition, comprehensive digital services enable more efficient

operations and use of resources, as the customer can be directed to digital self-services. To become the best asset manager, the company's digital services need to support this vision in the best possible way. To be the first choice of a customer, the supporting digital services must also be at the forefront of the industry. The purpose of this thesis is to bring new perspectives on how traditional services could be enhanced with gamification.

4.2 Research method and interviewees

The material of the empirical part is collected through semi-structured thematic interviews. In a semi-structured thematic interview, the topic of the interview is agreed in advance, but the formulation and order of the interview questions may vary (Ruusuvuori, Tiittula & Aaltonen 2005). This research method was chosen for the thesis as it allows the question setting to be modified to suit the background of the interviewee. Yet, the common structure for the interviews allows generation of comparable data. Interpreting questions were asked during the interviews. The body of the interview is presented in Appendix 2.

The main themes of the interviews were 1) understanding the background of the interviewees, 2) understanding the current state of the case company when it comes to gamification, 3) identifying possible development areas and processes where gamification could be utilized, and 4) identifying possible challenges related to gamification. The background questions included questions about the background of the interviewees and their knowledge of gamification. Next, the questions about the current state were presented which included questions about the current state of the gamification utilization in the case company and what the interviewees think about the digital services of the bank – what the customer's motivations are to use the services and do those services create the psychological outcomes that the gamification aims at. After that, the interviewees were asked to identify areas and processes in which gamification could be utilized and do they feel that gamification could be suitable for the case company. This set of questions aimed to gather insights and data for the research question number two (2). Lastly, possible challenges were asked which aimed to gather insights for the research question number three (3).

There were total of five interviewees, and they all work in different positions in the case company. The interviewees and their main responsibilities are presenter in the Table 9. The interviews were carried out during February and March 2022 remotely via Microsoft Teams. The interview questions were sent to the interviews in advance.

Table 9. Interviewees

Title	Responsibilities
Senior Service Designer	Planning and designing the digital services. Gathering knowledge from the company stakeholders and customers. Based on that, drawing user interfaces, and designing functionalities.
Senior UX and UI Designer	Responsible for the needs of stakeholders throughout the company related to user interface and user experience design. Responsible for the visual look of the digital channels.
Product Owner for online bank and web applications	Responsible for online bank, online payment and web forms and applications. Coordinating future development items and creating roadmap with other stakeholders.
Product Owner for mobile applications	Responsible for business and development strategy for mobile solutions. Providing development items for the development teams and providing the biggest possible value to the customers and other stakeholders.
Head of Digital Services	Team leader for the Digital Channels and Solutions team. High-level responsibility of digital channels and tools; mobile applications, online banking, self-services, chatbot, and automation.

First, the interviewees were asked background questions about their responsibilities and knowledge about gamification (Table 9 and Appendix 2). In addition, they were asked about their background related to gaming and playing any sort of digital games since it was assumed that previous experience of playing games might have effect on person's preconisation's about gamification. Someone with positive experiences from gaming and playing games may have more positive attitudes towards gamification than some with no background in playing games. All the interviewees had played digital games (with mobile phone, computer, or console games) either in the past or still do.

All the interviewees were somehow familiar with gamification and could define it somewhat similarly as it is described in the thesis. However, it was noted that simulation games were thought as gamification by some of the interviewees. After the interviewees knowledge about gamification was asked, they were given a summary about gamification according to the literature review of this thesis. This ensured that later in the interview the interviewee and the interviewer were discussing about same thing.

The results of the interviews were treated confidentially, and therefore the results will be presented anonymously in the next chapter. This ensured that the interviewees could present their thoughts and ideas as openly as possible.

5 Interview results and analysis

This chapter presents the results of the interview study and answers the research questions one (1) and two (2). The case company's current state regarding the use of gamification and the development of digital banking services is presented in the chapter 5.1. Interviewees identified several possible processes and areas where gamification could be utilized in a better way were identified. Those are presented in the chapter 5.2. Finally, the views of the interviewees on the challenges of utilizing gamification are presented in the chapter 5.3.

5.1 Current state of utilizing gamification in digital banking service

All the interviewees agreed that the design and the development of new functionalities in the bank has been functionality driven – either by requirements coming from the business stakeholders or based on regulations. Therefore, the new functionalities are developed on a point-by-point basis rather than as a coherent system. That makes the implementation of gamification difficult since services and customer journeys are not considered on high level or planned as a whole. The development of new functionalities focuses on the customer being able to perform an action or a process as a self-service. However, the design process has not considered gamification as a part of customer journeys or how to create added value for the customer in addition to the basic transactional functionalities.

The design aims at ease; that the customer can do things easily from the start to an end. Some gamification elements – such as giving feedback – can be found the user interface design, even though those elements have not been consciously thought of as gamification. The goal is that banking matters would be handled quickly and understandably. Information should be provided on possible error situation. In addition, the development of Mobile Bank in particular, has sought to provide the customer accurate information for example about the actual prices of services. According to one interviewee, accurate information increases the trust and thus engagement towards the bank. However, no consideration has been given in design or development to get the customer hooked or to return to make some actions.

In addition to giving feedback, two processes or areas were identified where gamification has been used or which could be interpreted as gamification: Wealth path and personalized marketing messages. Wealth path is a service in online bank in which the customer can start monthly fund saving subscription. The service has an onboarding flow to start investing. In addition, the customer can set themselves a savings target. However, the service was not found to be sufficient for following the investment progression. Three of the interviewees raised targeted marketing as something that could be thought as gamification – *“reacting to the customers situation and trying to be smart.”* Messages are displayed in online bank and in mobile bank. Messages are targeted to a specific customer group. For example, fund saving is advertised on pay days when the customer’s financial situation is expected to be at its best.

As a conclusion, the utilization of gamification is very limited in the bank’s digital services. *“There may have been thoughts or ideas, but when you start implementing or planning, the resources are never enough to create something so complex”*. However, according to one of the interviewees, the shift to more customer-centric design has been done and gamification is now on the table more than before. Possible game elements are taken as a part of the design process from now on.

Four of the five interviewees estimated that the bank’s digital services do not create a sense of fun. Especially, the online bank was seen to lack features to increase the enjoyment. The mobile bank was considered more user friendly from the user interface part and thus might be more enjoyable to use. Many noted that following your money or completing some actions might create a sense of enjoyment even without specifically promoting any fun elements intentionally. *“I cannot say yes or no since fun is a scale. It might be fun for the customer to see one’s own money or to see stock market to go up. If a customer can make some action easily, that might also be considered some level of fun. That might be also considered as normal and expected service. It depends, what the customer is expecting, and to which service they are comparing our application.”* It was also questioned whether banking services should be fun at all.

5.2 Processes to be gamified

Several areas and processes emerged in the interviews where gamification was seen as a good way to improve the digital services. A summary of the ideas raised in the interviews has been compiled to Table 10.

Table 10. Interview summary: Ideas for gamification

Gamification	Ideas how to implement
Goal setting and achievements	<ul style="list-style-type: none"> • Setting targets • Following one's own goals and the progress towards the goal • Feedback on you progress and encouragement when you reach the goal
Feedback	<ul style="list-style-type: none"> • Statistics and facts • Charts, progress bars • Tips • Reminders • "On this month you saved more than last month" • "A Spotify wrapped": the year of your economy
Relationship and social comparison	<ul style="list-style-type: none"> • Showing customers information about others with same profile • "On this month you saved more than your peers in the same city"
Progression	<ul style="list-style-type: none"> • Onboarding flow
Rewarding	<ul style="list-style-type: none"> • Earning rewards from card usage • When opening more services, the bank could give the customer something in return, such as reduced price.
Visualizations	<ul style="list-style-type: none"> • Visualization of service packages: what products you have and what you do not yet have.
Chance	<ul style="list-style-type: none"> • Free trials to lower the threshold to try a service or a product
Fun elements	<ul style="list-style-type: none"> • Funny visual elements
Dummy portfolio	<ul style="list-style-type: none"> • Let customers play with sandbox. Learn and start the journey to investing.

All the interviewees saw the biggest opportunities for gamification utilization in the savings and investment section. Setting saving or investment goals, following the progress and different forms of feedback were brought up by all the interviewees. Social comparison was brought up by three of the interviewees: to give the customer information about how they position in relation to others. All the interviewees thought that the feedback on savings and investments should be developed, through variety of verbal, numeral, and visual means.

Also, customer onboarding was seen as a good process for gamification – e.g., how to lower the threshold to make the first fund purchase and guide the customer into the world of investing.

One of the interviewee's raised the idea that the bank's digital services would not only be a place to handle banking matter but to be a window to understand one's own financial situation. They said the bank could take advantage of a similar concept to the Spotify Wrapped – “the year of your economy”. The feature would raise you to think what you are like as a bank customer. The customer may not think about it so much in everyday activities but when this kind of holistic information were presented to a customer, they could have new “aha” experiences. A wrap-up could visualize the activity and present suggestions and tips to the customer. The interviewee added that such concept could also be introduced from the perspective of sustainability: to provide feedback on the customer's consumption behaviour, and for example, the CO² emissions it causes. All in all, the importance of good and timely feedback was highlighted by all the interviewees. Other interviewee adds that *“in general, the customer should feel that the bank knows about you and cares about you. This is achieved by bringing information to the customer.”*

Two of the interviewees noted that especially daily banking services is an entity to which you necessarily do not want to bring anything more than the basic functionalities. Services such as payments and checking the balance should be quick and easy. *“Of course, some gamification can be brought to this area as well, but I don't see it being the one that needs to be focused on.”*

One interviewee noted that if the customer engagement is measured as the time spend on the service, that might not be something what the bank even wants to increase. *“If you can do something easily and quickly, that increases more engagement towards the bank instead that you would spend five minutes doing a simple action. For me, I feel that the trust is the most important engagement generator. Whatever service should generate trust towards the bank and feeling that the bank can provide good service for you.”* Other interviewee adds that before implementing gamification, the basics should be in order; the customer should feel

that the service is working, and the customer journeys are working. After that, the services could be “spiced up” with gamification.

All the interviewees saw that gamification is a good tool for a bank to enhance the bank’s digital services. At the same time, all interviewees thought that gamification should be implemented very subtly respecting the bank’s decorum, brand image and tone of voice. Bank’s operations are based on trust, so the gamification should be implemented with this in mind, and the services should not be made too game-like.

5.3 Challenges related to gamification

Interviews sought to identify gamification-related challenges. Following challenges listed in the Table 11 were identified:

Table 11. Interview summary: Gamification-related challenges

Challenge	Explanation
Design – how to implement the bank appropriately?	How to design the gamification for a bank so that services do not feel too much like a game. Respecting the bank’s brand image.
Design effort	Gamification requires a lot of design effort
Foundation for gamification	Building the capabilities for gamification. The basic customer processes must work
Regulation	Regulation sets certain boundaries within which the bank must operate. Regulation limits how gamification can be exploited.
Suitable customer group	Customers who expect the bank to operate in the traditional way, such as older customers.
Marketing the gamification internally	Marketing the gamification within the organization. Presumptions of what gamification is and whether it can be implemented in banking services.

As discussed in the previous chapter, the interviewees emphasized the importance of design work and the bank’s image as a decorous and trustworthy actor. It should therefore be considered carefully what gamification elements are appropriate for the bank to use. It was noted that bank has a variety of different customers, and that gamification might be good for

some and not for others. Customers – especially elderly ones – who are not used to seeing game elements might consider gamification as unnecessary or even inappropriate.

Another challenge identified regard to this by three of the interviewees was that gamification design takes a lot of resources. They also noted that to develop gamification, a certain level of maturity should be first met. By that the interviewees meant functioning digital services and customer journeys. *“No matter how engaging the service is, but if the customer can’t find it, for example, it won’t work”*.

One of the interviewees saw the promotion of gamification within the organization as a challenge. They felt that bank as an organization is not ready for the term “gamification” as it may sound too radical for some people. They felt it would be worthwhile to use a different term.

Bank’s activities are largely regulated. Regulation was seen as a challenge and a limiting factor. For example, bank cannot recommend investment products to anyone without appropriate preliminary assessments. Tips and personalized content could be seen as a recommendation and therefore those gamification elements cannot be utilized. In addition, personal data should be used with extreme caution. Thus, different social elements and functionalities such as social comparison could be quite difficult to implement compliant to regulations.

In the end it was noted that gamification should not cause extra effort for customers. Banking processes should be able to be handled quickly and with minimal customer effort. Gamification should not make the processes more complicated.

6 Conclusions

Digitalization and a tight competition in the financial industry has created pressure for banks to create outstanding digital services to stay relevant for customers and to meet customer expectations. This thesis presents gamification as a tool and a design guideline for banks to enhance their digital services.

The thesis was built of two distinct parts: the literature review and the empirical part. The literature review was also divided to two parts. First, the main functions of a bank and the current state of the financial industry in terms of digitalization and a competition were presented as the background for the thesis. Second, the concept of gamification was presented using three theoretical frameworks: the pyramid model by Werbach & Hunter (2012), the 6D design model for gamification by Werbach & Hunter (2012) and the Self-Determination Theory by Deci & Ryan (2008). The pyramid model was used in this thesis to present the game elements in a structured way. The model classifies game elements into three categories 1) game dynamics, 2) game mechanics and 3) game components – organized in decreasing order of abstraction. The 6D design framework then tied the game elements into a design process. The Self-Determination Theory was used to explain the effects of gamification on the motivation and engagement. The literature review also compiled the current empirical research on gamification to offer the reader an understanding of the studied empirical effects of gamification. Finally, the possible criticism and challenges related to gamification were acknowledged.

The second part of the work consisted of an interview study conducted for a Finnish bank and wealth manager. In this section, the case company's background, the interview structure, and the results of the interviews were presented.

This chapter presents the findings of the thesis and the relevant conclusions drawn from the literature review and the interview study. First, the research questions are answered. Secondly, a discussion about the findings is presented and their practical contribution is

analysed. Finally, the limitations, validity of the study, and recommendations for further research are presented.

6.1 Answering the research questions

This study aimed to give a comprehensive understanding of the concept of gamification, what are the expected benefits of implementing gamification and what are the possible challenges related to it. The thesis gives practitioners understanding about the key constructs of gamification design and thus strives to support the future development of digital banking services.

1) How does the development of digital (banking) services benefit from gamification?

Researchers state that gamification improves customer experience, value creation and customer engagement, and thus direct the customer to perform desired actions and produce positive business impact. (Baptista & Oliveira 2019; Gatautis et al. 2016; Huotari & Hamari 2017; Zichermann & Cunningham 2011) The potential of gamification lies in the restructuring of the activities with gameful affordances and game elements (Koivisto & Hamari 2019). Gamification aims to create a similar motivational pull to non-game contexts as in games. This means appealing to intrinsic motivation (Ryan & Deci 2000; Xi & Hamari 2019). When a customer is intrinsically motivated, they are in active connection i.e., engaged with the system or a service they are using.

To support the statements of the benefits of gamification, this thesis combined the existing empirical research on psychological and behavioural effects of gamification. An analysis by Koivisto & Hamari (2019) was used for that. The studies on psychological outcomes were mostly interested in how gamification is perceived and whether the users feel motivated by the gamified system. The behavioural outcomes studied the interactions between a user and the system or some specific performance metric. The review of the psychological outcomes did not give generalizable results. However, the behavioural outcomes leaned strongly

towards positive findings with 28,7% showing positive results and 47,0% showing predominantly positive results (N=66). This indicates that gamification does lead to positive results such as increased engagement and quality of contributions.

In the banking context, the empirical research showed that gamification has positive effects in phase of a technology adoption and increasing the visits to banking websites (Chauhan et al. 2021; Rodriques et al. 2016). Studies also showed that gamification improves financial literacy and customers' saving habits (Chauhan et al. 2021).

2) *What are the challenges in applying gamification to digital banking services?*

Most significant challenges are related to the complexity of gamification. Games are complex systems and thus it is difficult to create the similar motivational pull in other environments than games. In addition, to create the motivational pull, one needs to appeal the customer's intrinsic motivation which is personal for everyone. There is no single solution that suits everyone and every situation. Customer's perception of gamification depends on the activity, the contextual factors involved, the specific use case where the gamified system is being used and the customer's own personal characteristics. (Basten 2017; Chauhan et al. 2021; Koivisto & Hamari 2019; Zichermann 2011;) Due to the complexity of gamification design, the interviewees estimated that it takes a lot of design resources and planning to make gamification effective.

According to the literature, main reasons for the failed gamification attempts is the use of simple game elements instead of designing user-centric processes that facilitate the users' motivations (Goethe 2019, 28; Hamari et al. 2014) and lack of personalization (Nasirzadeh & Fathian 2020).

In the interviews and in the literature (Chauhan et al. 2021), it was mentioned that gamification in banking services should be quite subtle as banks are generally perceived as

companies to be taken seriously. One of the interviewees also noted that the idea of gamification might be difficult to market internally within the case company, as the term “game” can be too radical for some. Therefore, it was suggested that instead of gamification, it would be better could talk about increasing customer engagement and customer-oriented design. Two of the interviewees also raised that some maturity level should be met before a company should consider using gamification.

When it comes to banking industry, the strict regulation was seen as challenge by both, the literature (Chauhan et al. 2021), and the interviewees. Therefore, gamification elements such as social comparisons, and personalized tips may be difficult to implement in banking services.

3) *Which digital banking services or processes could be gamified? What respective game elements could be used?*

Banking services are more need than impulse driven (Krasnikolakis et al. 2020). Gamification can be used to make these utilitarian services more hedonically oriented (Hamari 2013). Gamification can be applied to banking context to motivate, drive engagement, and improve user experience. The Table 12 compiles all the gamification elements and features that were brought up in this thesis by either the literature review or the interview study.

Table 12. Gamification ideas for banking based on the literature and the interview study

Gamification	Ideas how to implement
Goal setting and achievements	<ul style="list-style-type: none"> • Setting targets and goals • Following one's own goals and the progress towards the goal • Feedback on you progress and encouragement when you reach the goal
Feedback	<ul style="list-style-type: none"> • Statistics and facts • Charts, progress bars • Tips, reminders, and alerts • Help-avatars • "On this month you saved more than last month" • "A Spotify wrapped": the year of your economy
Relationship and social comparison	<ul style="list-style-type: none"> • Showing customers information about others with same profile • "On this month you saved more than your peers in the same city" • Sharing your savings achievements
Progression	<ul style="list-style-type: none"> • Onboarding flow
Rewarding	<ul style="list-style-type: none"> • Rewarding systems, e.g., earning rewards from card usage • When opening more services, the bank could give the customer something in return, such as reduced price.
Visualizations	<ul style="list-style-type: none"> • Visualization of service packages: what products you have and what you do not yet have.
Chance	<ul style="list-style-type: none"> • Free trials to lower the threshold to try a service or a product
Fun elements	<ul style="list-style-type: none"> • Funny visual elements • Animations
Other	<ul style="list-style-type: none"> • Let customers play with sandbox. Learn and start the journey to investing. • Interactive learning exercises

When looking at the literature, gamification implementations in the banking sector been studied in a few areas. The acceptance of a new technology i.e., onboarding, and the area of saving and investing stood out the most clearly from the literature. According to the literature, gamification can increase customer's financial literacy with increased information and feedback for example, by using help avatars and tips. Goal setting, following the progression and social functionalities e.g., sharing savings achievements and social comparison were also raised in the literature. According to the literature, the use of reward mechanism is commonly used in the banking services.

The interviewees found the area of savings and investing to be the most potential for gamification. However, many of the ideas were also applicable to the area of daily banking,

especially for monitoring, visualizing, and increasing the knowledge of customer's consumption. The interviewees emphasized the importance of feedback in different forms. In the interview, versatile and effective feedback, goal setting and monitoring one's own finance emerged as the most important features.

6.2 Discussion

The purpose of this thesis is to support the development of the bank's digital services. The study aimed to give a comprehensive understanding about gamification and how it could possibly be used in the bank's services. Gamification has been studied quite extensively and it can be spotted in various today's digital applications, such as social media applications. Although gamification is no longer a new concept, there are still quite few practical implementations in the banking services.

In the interview survey conducted for the case company, it was noticed that the interviewees saw room for improvement in the bank's digital services. Some development areas being customer journeys, lack of feedback and following one's progression and financial state. In addition, it was estimated that the bank's services do not create sense of fun. Therefore, gamification could work as a tool to improve the current digital services.

The difference between the interview and the research literature was that the most common game elements (points, badges, leaderboards, rewards) were often used in the research settings, while these were hardly brought up in the interviews. Instead, it was emphasized that gamification in banking services should be implemented in such a way that the most game-like components are not used so that the service does not feel too game-like. Instead, feedback, information-sharing and customer journeys were emphasized.

For practitioners of the case company, it is recommended that the results of this thesis are reviewed. The case company should further analyse their processes and consider which gamification elements could be used. It is also recommended that the company involves the

steps of the 6D design framework in their design process. Gamification implementation can be started little by little and good guidelines for development and design can be extracted from gamification.

6.3 Limitations and future research

This thesis focuses on the gamification on the conceptual level and aims to give insights for the future development of digital banking services. The thesis comprises knowledge from the literature and from the experts of the banking field. However, the results for the third research question cannot be exploited directly for the services of other banks since each implementation serves a different purpose and a different customer base.

It is difficult to define precisely what gamification is. For example, feedback is one game element and essential in the gamification design (Werbach & Hunter 2012). However, is the feedback itself enough to create the motivational pull that gamification aims for, and is it enough to make the application “gamified”? The lack of clear definition causes challenges especially to the scientific research. When an exact definition cannot be made, the research on the subject varies and does not offer opportunities for generalization. Thus, it is difficult to draw conclusion whether credible research evidence has been obtained about the benefits of gamification since the research settings vary from one another.

Most gamification studies test combination of game elements and different game elements have not been separately controlled. The studies use different game elements in different research settings, so often the results of the studies are not comparable. Future studies should focus on the effects of specific elements and their relationship. Future studies should analyse the impact of gamification before and after an implementation and use qualitative, usage-based data. Also, long-term studies should be conducted to understand the possible novelty effects. In banking context, more studies should be carried out in mobile banking context since it is increasingly used as a primary channel to do banking.

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Appendix 1. Summary of empirical gamification-related studies in the banking context

Source	Research objective	Context	Method	Findings
Baptista & Oliveira (2017)	Impact on the acceptance of mobile banking services.	Mobile bank	Quantitative survey based on UTAUT2 model. n=326	Positive
Bayuk & Altobello (2019)	Exploring potential benefits of gamification for financial well-being and motivation to save money.	Mobile banking and saving apps	Survey: Consumers' self-assessment of their financial situation and financial knowledge, questions about objective financial knowledge and question about gamification (n=194). Cronbach alpha, t-test, ANOVA	Relative to experience
Nasirzadeh & Fathian (2020)	Study of preferred game elements in different segments based on demographic and personality traits	Several banking services	Survey (n=412). Correlation analysis	Relative of game elements
Rahi & Ghani (2018)	The role of UTAUT, DOI, perceived technology security and game elements in internet banking adoption	Online banking	Survey (n=398)	Positive
Rodrigues et al. (2013 a)	Acceptance of a gamified e-banking application.	Online bank: mutual funds management application	Survey based on TRA and TAM (n=183).	Positive
Rodrigues et al. (2013 b)	How to develop financial application with game features?	Online bank: mutual funds management application called Futebank	Gathering feedback using discussion groups (n=28). Presenting quantitative business results from the use of the gamified application.	Positive
Rodrigues et al. (2014)	How gamification can influence the customer use of e-banking system – emphasis on the web design.	Online banking	Survey based on TRA, TAM and UTAUT (n=219).	Positive
Rodrigues et al. (2016)	How gamification and social cues influence bank customers to use gamified e-business applications	Online banking	Survey based on TAM (n=183)	Positive
Rodrigues et al. (2017)	How does the web game design influence the behavior of e-banking users?	Online banking	Quantitative survey (n=219)	Positive.

Appendix 2. Interview Structure

Background questions

1. What is your title?
2. How long have you been working at the company?
3. What are your main responsibilities? Could you briefly describe what you do?
4. What is your education background?

Knowledge and experience related gamification

5. Do you play digital games of any kind?
 - If yes, what games and why?
6. How would you define gamification? Could you briefly describe what it is according to your knowledge?
7. What in your opinion, are the desired outcomes of gamification?
8. Do you have own experiences of gamified applications or services?
 - If yes, do you recall any that comes to mind as a special user experience?

The interviewee is given a summary what gamification is based on the thesis' literature review.

Motivation, engagement, and behavioural goals

9. In your opinion, why this company's customers use the Mobile Bank or Online Bank?
10. What kind of user behaviour you would like to promote more in the company's Mobile Bank or online bank? What do you want customers to do in mobile bank or online bank?
11. Do you believe using the company's mobile bank or online bank creates a sense of enjoyment or fun for the user?

Company's use of gamification

12. If any, what methods or features are used in the company's mobile bank or online bank to increase customer engagement?
13. Has gamification been considered when new features or processes have been designed and/or developed to mobile bank or online bank?
 - If yes, to which features / processes?
14. What kind of gamification elements there are in the company's mobile bank or online bank, if any?
 - Which game elements and in which features or processes?

Processes and functions to be gamified

15. If you think of the company's mobile bank and online tbank, do you find areas where gamification (such as rewarding, points, challenges, levels, social interaction, social comparison) could be applied?
 - If yes, which processes or features?
16. Do you see that gamification could fit to company's digital banking services?
 - If no, why?
17. How would the users of the company's mobile bank or online bank feel about gamified services?

Challenges

18. If any, do you see problems or challenges related to use of gamification in the company's digital services?
 - If yes, which kind of problems or challenges?
19. Open question: Related to the topic, what else comes to mind?