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Understanding the Role of Gamification in Fostering Literacy
Development and Student Motivation: A Literature Review

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Foreword

I am pleased to introduce this thesis on the topic of gamification. As video games have become a global form of entertainment worldwide, my interest in them led me to discover the concept of gamification. This thesis delves into the effectiveness of gamification within educational settings, a concept that has emerged in response to the growing popularity and development of video games.

The research presented in this thesis holds relevance not only for educators and scholars but also for individuals interested in exploring the potential of video games and gamification in improving motivation, engagement and learning outcomes. The findings and insights gained from this thesis will hopefully contribute to the ongoing discussion on the role of video games and gamification in education.

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This thesis is the culmination of a comprehensive Master's degree program undertaken on a part-time basis at the Faculty of Education and International Studies, Oslo Metropolitan University. Throughout the duration of this academic journey, significant global transformations have unfolded, most notably the unprecedented impact of the Covid-19 pandemic. The emergence and subsequent repercussions of this viral outbreak have not only affected the lives of individuals worldwide but have also brought about profound changes in various aspects of society, including education systems and pedagogical approaches.

To my supervisor, Colin Haines, I am taking this moment to express my deep appreciation and gratitude for the invaluable guidance and support you have given me throughout my journey of completing this thesis. This has been a long journey, with both upsides and downsides. Your warmth and positive energy have been a source of inspiration and motivation. Your unwavering support, humor and kindness have made this experience not only bearable, but enjoyable, and memorable as well. At times, when the workload was wearing me down and I had to work late evenings and early mornings, I sent you an email early in the morning and you replied right away. That's a level commitment by you that I found inspiring.

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I would like to express my deepest appreciation to my dearest brother, Ben, whose firm success and accomplishments have continually inspired me to strive for excellence. Having witnessed your remarkable achievement in completing your Master's degree in law several years ago, I was profoundly motivated to embark on my own academic journey. Your dedication and commitment have served as a constant reminder of the importance of perseverance and the pursuit of higher education. As I pursued this Master's program, I was driven by the desire to match your accomplishments and ensure that I too could contribute to our family's academic legacy. Your ongoing support and encouragement have been

invaluable, and I am grateful for the unwritten competition that has spurred me on to reach my full potential.

Lastly, to my parents, Berit and Ilan, I want to take this opportunity to express my sincere gratitude for your guidance, support, love, and encouragement throughout this journey. Your warmness, happiness, wit, and firm assistance have been instrumental in making this experience a positive and memorable one. You have invested a lot of time to listen to me and my ideas, and to offer thoughtful advice, and your feedback was consistently constructive and insightful. Your guidance in helping me complete my work is invaluable.

Abstract

In recent years, the concept of gamification has gained popularity in education due to its ability to promote student engagement and motivation towards learning activities. This thesis investigates the effectiveness of gamification in enhancing literacy development in educational settings, and explores how it can be integrated into a framework. The study employs a theoretical approach through a literature review to analyze existing research on gamification. The results indicate that while gamification can be effective in promoting motivation and enhancing literacy development, careful consideration must be given to design, planning, individual differences and learning objectives. The thesis concludes with recommendations for future research and the development of gamification for motivation, literacy, and frameworks.

Sammendrag

De siste årene har begrepet gamifisering blitt populært i utdanning på grunn av evnen til å fremme studenters engasjement og motivasjon i læringsaktiviteter. Denne avhandlingen undersøker effektiviteten av gamifisering i å forbedre leseferdigheter i utdanningsmiljøer og utforsker hvordan det kan integreres i en ramme. Studien benytter en teoretisk tilnærming gjennom en litteraturgjennomgang for å analysere eksisterende forskning på gamifisering. Resultatene indikerer at mens gamifisering kan være effektivt for å fremme motivasjon og forbedre språklighet, må det tas hensyn til design, planlegging, individuelle forskjeller og læringsmål. Avhandlingen avsluttes med anbefalinger for fremtidig forskning og utvikling av gamifisering for motivasjon, leseferdigheter og rammer.

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Chapter 1 Introduction

1.1 Background and Purpose

The emergence of new technologies and their widespread implementation in our daily lives is a defining feature of modern society. The development of innovative electrical devices, the expansion of the internet and accessibility to information, and the global reach of social media are just a few examples of the advancements made possible by technology. In accordance with the technological development over the past decades, video games have become an increasingly popular form of entertainment, with the industry bringing in over 25 billion USD in revenue. This amount is more than double the amount of Hollywood's 10.8 billion USD box office sales in 2010 (Granic et al. 2014). Furthermore, 91% of children between ages of 2 and 17 play video games, based on an analysis done in 2011 in the United States of America (Granic et al. 2014).

In Norway, technology has become an inseparable part of young people's upbringing. As per a recent analysis conducted by Statistics Norway (SSB, 2023), 93% of the country's population uses the internet every day. In 2018, a staggering 81% of individuals aged between 9 to 15 played digital games daily, with 37% of them being male and 19% female. Similarly, 57% of individuals aged between 16 to 24 played digital games every day (SSB, 2023). The influence of technology is all-encompassing, and this extends to popular recreational activities such as video gaming, which predominantly appeals to adolescents.

Video games are a form of interactive entertainment that involves player engagement with a virtual world, usually through devices such as computers, consoles, or mobile devices. Video games can be defined as “A game which we play thanks to an audiovisual apparatus, and which can be based on a story.” (Esposito, 2005, s. 2). This definition draws upon established ideas about games, play, interactivity, and narrative (Esposito, 2005). Another definition goes as follows:

X is a videogame iff it is an artefact in a digital visual medium, is intended primarily as an object of entertainment, and is intended to provide such entertainment through the employment of one or both of the following modes of engagement: rulebound gameplay or interactive fiction.

(Tavinor, 2008, s. 12)

Video games can take many forms, from action-packed shooters and adventure games to strategy and simulation games. They often incorporate multimedia elements, including graphics, sound and animation, to create an immersive and engaging experience for players. These games typically offer a range of challenges and obstacles that players must overcome to progress through levels or achieve certain goals (Granic et al. 2014; Esposito, 2008).

The expansive growth of technology is highlighted through video game industry by its increase in revenue from 156 billion USD to 384 billion USD from 2017 to 2023 (Statistia, 2023). Some video games have the power to draw thousands of viewers to live streams and gaming events (Electronic Sports League, 2023). Video gaming has been a huge part of my life, and I am still very interested in both playing video games and in the video game industry. I am amazed by how diverse and capturing different games can be. When playing games, I am astonished by how immersive, intuitive, and emotional some games are. I find it astounding that some games are easy to learn and hard to master. All of these factors combined, with video gaming's growth, popularity, immersion and complexity, I, as an educator, find it mind blowing that video games are not used more as an educational tool for learning. If they are so popular to students outside school, why are video games not used more as educational tools in education?

The popularity of video games stems from a multitude of reasons. Video games can be long and challenging, and players must be able to learn how to play them. If a game is not played, it will not sell, and the company that created it will suffer financially. While game designers could simplify their games to aid in learning, they continue to make them longer and more challenging while introducing new features, yet players still manage to learn and enjoy them. This process is akin to natural selection, where games with effective learning principles sell well and inspire other games to improve on them. Conversely, games that fail to facilitate learning struggle to sell, and their designers will have to seek other employment (Gee, 2003). This highlights how video games foster the development of better game designs that enable players to learn and succeed at complex and challenging tasks.

Video games offer an immersive and engaging experience that allows players to escape reality and enter a virtual world of their choice (Gee, 2003). Games involve human participants who compete or strive towards specific outcomes or goals and are governed by rules (Deterding, Gamification: Toward a Definition, 2011). This form of entertainment can be enjoyed alone

or with others and offers a wide range of genres and themes to cater to different interests and preferences. In addition to entertainment value, many video games offer social features, such as online multiplayer modes, that allow players to connect and play with others around the world. This provides a sense of community and social interaction. Video games also often provide players with a sense of accomplishment and progress as they overcome challenges and achieve goals within the game. These accomplishments are often highlighted in-game with the use of on-screen notifications and pop-ups, such as badges, points, currency, and progression bars to promote and enhance the achievements. This can be highly motivating and rewarding and can lead to a sense of mastery and skill development. Video games can also present the ability to create and explore realistic and detailed virtual worlds, which has become a major draw for many players (Gee, 2003). Finally, video games are now widely accessible across a range of devices and platforms, from consoles to smartphones. This accessibility has made it easier for people to play and enjoy games and has helped to expand the audience for video games.

During the initial stages of writing this thesis, I sought to write about video games and learning, because I found, as mentioned, it odd that video games are not used more in education, in contrast to other mediums of entertainment, such as movies, books and music. However, in my research on video games and its utilization in education, I found that video game design principles have been apparent in educational settings for quite some time, only I was not aware of it. The term used to describe game-like activities and principles outside video games is labelled as *Gamification*.

Gamification is a new concept in educational approach. The aim of this study is to contribute to the growing body of research in gamification and discover evidence about the impact of implementing gamification in classroom instruction. This is based on the research conducted in the field and some of the research gaps that are currently not fully addressed, as will be presented in the following sections. Specifically, this study intends to provide a theoretical background and justification for the use of gamification components/techniques, to enhance literacy development and motivation in education. It is expected that this will facilitate a better understanding of how gamification can be employed in educational settings to increase motivation and foster engagement towards literacy development. Moreover, this study aims to uncover frameworks for gamification to foster the use of gamification in classroom instructions. The purpose of this is to identify effective ways to incorporate gamification

elements and techniques into classroom activities and to provide guidance for educators looking to utilize gamification as a method in their teaching.

1.2 Thesis questions and research questions

On the basis of the research conducted on gamification and the purpose of this study, a thesis question and the following research questions have been formulated:

What key factors can contribute to the effectiveness of gamification in increasing literacy development, and how can gamification be integrated into an educational framework?

To answer this thesis question, these three research questions have been formulated:

1. "What are effective gamification techniques to increase motivation?"
2. "How can gamification enhance literacy development?"
3. "How can gamification be integrated into a framework?"

The selection of this thesis question and these research questions is justified for several reasons. First and as elaborated on previously, the implementation of gamification in education has become increasingly popular, and there is a need to understand the factors that contribute to its effectiveness. The first research question, "What are effective gamification techniques to increase motivation?" is essential to identify the specific techniques that can enhance student motivation in learning. By answering this question, educators can design gamified activities that cater to the specific needs of their students and increase their engagement in the learning process.

The second research question, "Can gamification enhance literacy development?" is crucial in determining the impact of gamification on literacy skills, such as reading comprehension, writing, and critical thinking. As literacy skills are crucial for success in academic and professional settings, understanding the role of gamification in developing these skills can inform the design of effective literacy programs.

Finally, the third research question, "How can gamification be integrated into a framework?" is important to explore the practical implementation of gamification in education. By identifying the key components of an effective gamification framework, educators can design activities that align with learning objectives and promote student engagement. These research

questions are warranted as they provide a comprehensive understanding of the effectiveness of gamification in education, specifically in developing literacy skills. The answers to these questions can inform the design of effective gamified activities and promote student engagement in the learning process.

1.3 Structure of the thesis

The following chapter will provide a theoretical basis for gamification, and define key terms and concepts that will be referenced throughout the thesis. This is done to establish a common understanding of gamification to ensure a coherent discussion around each research question. Moving forward, the next chapter will present the main principles from the Norwegian curriculum and the English subject, which are crucial to the subsequent chapters. These principles will serve as a foundation for the analysis of the later chapters in this thesis. In chapter 4, the methodology and methodical approach for this thesis will be presented and discussed in detail.

In this thesis, each research question is thoughtfully addressed in its own dedicated chapter. This approach is to provide clarity, as well as a basis for an in-depth analysis and discussion around each of the research questions. Chapter 5 will delve into the role of gamification components for motivation, examining how they can be leveraged to engage learners and increase their motivation. Chapter 5 will also discuss the underlying theoretical principles that make gamification an effective tool to increase user behavior. Therefore, a presentation of motivational theory will be presented at the beginning of chapter 5. Chapter 6 will explore gamification's potential for enhancing literacy development, addressing how gamification strategies can be used to create immersive and engaging learning experiences that target literacy. Chapter 7 will examine current gamification frameworks in order to uncover evidence about the implementation of gamification in classroom instruction.

In the final chapter, the main arguments from the previous chapters will be synthesized to provide a comprehensive answer to each research question. This chapter aims to effectively tie together the various threads of the thesis and provide a clear and concise summary of the research findings to ultimately answer the thesis question. Additionally, the limitations of the study and recommendations for future research will be discussed to provide a roadmap for future scholars in this field of study. Finally, final thoughts on the subject of gamification in education will be presented, before a list of references will conclude this thesis.

Chapter 2 Gamification

2.1 What is gamification?

The concept of gamification is fairly new, and the term is widely defined as "the use of game design elements in non-game contexts" (Deterding, Gamification: Toward a Definition, 2011, s. 2). In essence, any game component, element, method, or technique can be integrated and used in a non-game context for it to be classified as gamification (Deterding, Gamification: Toward a Definition, 2011). Gamification involves but is not limited to the incorporation of game-like components like points, badges, leaderboards, and challenges to increase user engagement and motivation. Over the past decade, this approach has been successfully implemented in a range of domains, including education, business, and healthcare (Alonso-Arroyo et al. 2016).

A practical example of gamification is when a smartwatch notifies a user that they have achieved their daily goal of walking 10,000 steps. Another example is within Strava, the mobile healthcare application, which tracks various data connected to exercise and provides feedback in the form of badges, points, and statistics based on the input of the user.

Additionally, the application features a virtual social network where the users can connect and interact with each other for inspiration, competition, and motivation, each to their own needs (Strava, 2023). In the educational domain, Kahoot is another application that utilizes a set of gamification elements in its design. These elements include objectives, avatars, points, and leaderboards. All of these techniques used to motivate, engage and bring people together, are gamification techniques (Deterding, Gamification: Designing for Motivation, 2012).

The potential of video games in education is not a new concept and has been explored by scholars since the 1980s (Deterding, Gamification: Designing for Motivation, 2012). During the early 2000s, "serious games" emerged with the aim to develop games for training, education and influencing people. Serious Games differs from gamification in that serious games are designed with intent to be educational and informative. Gamification takes game elements and implements them in a non-game environment (Dicheva et al. 2014).

Gamification was popularized in the web industry by companies like Foursquare and Nike, that utilized analytics and monetization to cater to individual needs and influence consumers behavior (Deterding, Gamification: Designing for Motivation, 2012).

2.2 Origin of Gamification

The first documented uses of gamification in education dates to 2008, however, gamification did not gain traction in the scholastic domain until 2011 (Deterding, Gamification: Toward a Definition, 2011). Since its origin, gamification has been a hot topic of research in the educational field. From 2010 to 2014 published articles on the use of gamification in education rose from 10 to 50 papers (Alonso-Arroyo et al. 2016). Since its early adoption in research and in practice, gamification has been viewed as a promising tool in enhancing motivation and engagement in education (Dichev & Dicheva, 2017). Gamification has proven to enhance motivation, engagement and general classroom activities and particular learning activities like collaboration, projects, and tests, amongst others (Dichev & Dicheva, 2017; Alonso-Arroyo et al. 2016). However, numerous research gaps have emerged since its infancy in the research development process within the domain of gamification (Dichev & Dicheva, 2017; Rivera & Garden, 2021).

2.3 Research gaps in Gamification

The domain of educational gamification has several research gaps that need to be addressed to better understand its effectiveness and impact. First, there is a need for further research to enhance our comprehension on how game components relate to behavioral and motivational consequences. While the majority of research on gamification indicates promising results with the use of gamification elements, research and results on the consequences of individual gamification components are lacking. This gap has been identified by numerous studies (Dichev & Dicheva, 2017; Rivera & Garden, 2021), highlighting the need for further investigation to gain deeper insights into the relationship between specific game components and their impact on motivation and behavior.

Moreover, the field of gamification lacks a complete theoretical justification for how gamification works (Dichev & Dicheva, 2017). Despite the growing body of research on the topic, there is still much to be understood about the underlying mechanisms that make gamification effective. This highlights a need for further research to develop comprehensive theoretical foundation for understanding the working of gamification in education.

2.4 Definition of terms

Gamification: game design elements used outside of a game environment

(Manzano-León et al. 2021)

Gamification elements: A single game design element, such as points, badges, narrative, leaderboards etc.

(Manzano-León et al. 2021)

Gamification techniques: The use of multiple gamification elements at the same time

(Manzano-León et al. 2021)

Gamified environment: An environment in which gamification is being applied.

(Manzano-León et al. 2021)

Points and badges: These are rewards that users can earn for completing tasks or achieving certain milestones. Points and badges can create a sense of accomplishment and motivate users to continue using the system.

(Manzano-León et al. 2021)

Leaderboards: These are boards which show how many points a user has and what badges he/she has achieved.

(Manzano-León et al. 2021)

Levels and progress bars: These mechanics show users how far they have progressed in the system and what they need to do to reach the next level. They can create a sense of competition and encourage users to strive for higher levels.

(Manzano-León et al. 2021)

Challenges and quests: These mechanics present users with specific tasks or challenges to complete. They can create a sense of purpose and direction and provide users with a clear goal to work towards.

(Manzano-León et al. 2021)

Leaderboards and rankings: These mechanics display users' progress in relation to other users. They can create a sense of competition and encourage users to strive for higher rankings.

(Manzano-León et al. 2021)

Mechanics: Refers to a particular game component, as well as rules and actions of a game that determines how players interact with the game world. This includes the game's objective, challenges, scoring system, and other gameplay elements.

(Hunicke et al. 2004)

Dynamics: Refers to the behavior of the game mechanics when players interact with them. This includes how players respond to challenges and how the game responds to player inputs, leading to emergent gameplay and unique experiences.

(Hunicke et al. 2004)

Aesthetics: Refers to the emotional and psychological responses that players have to the game, including the game's visual design, music, narrative, and overall atmosphere. Aesthetics play a crucial role in engaging players and creating meaningful experiences.

(Hunicke et al. 2004)

MDA: Refers to Mechanics, Dynamics and Aesthetics.

(Hunicke et al. 2004)

Social mechanics: These mechanics allow users to interact with each other, share their progress, and collaborate on tasks. They can create a sense of community and encourage users to stay engaged with the system.

(Manzano-León et al. 2021)

Achievement: The sense of accomplishment and mastery that comes from completing tasks and achieving goals. This dynamic is often associated with points, badges, and levels.

(Manzano-León et al. 2021)

Progression: The feeling of moving forward and making progress towards a goal. This dynamic is often associated with progress bars, quests, and challenges.

(Manzano-León et al. 2021)

Social influence: The impact that other people have on our behavior and emotions. This dynamic is often associated with leaderboards, rankings, and social mechanics.

(Manzano-León et al. 2021)

Feedback: The information that the system provides to users about their performance and progress. This dynamic is often associated with progress bars, points, and badges.

(Manzano-León et al. 2021)

Immersion: The feeling of being fully engaged and absorbed in the experience. This dynamic is often associated with storytelling, aesthetics, and sensory stimuli.

(Manzano-León et al. 2021)

Visual design: The use of color, typography, and graphic elements to create a visually appealing and cohesive experience. This includes the use of branding, icons, and imagery to create a consistent look and feel.

(Salaberry et al. 2021)

Storytelling: The use of narrative and character development to create a sense of purpose and meaning within the system. This includes the use of quests, challenges, and missions to create a sense of progression and purpose.

(Salaberry et al. 2021)

Sound design: The use of music and sound effects to enhance the user experience and create a sense of immersion. This includes the use of ambient soundscapes, notification sounds, and music to create an emotional connection with the system.

(Salaberry et al. 2021)

User interface design: The design of the user interface to be intuitive, easy to use, and aesthetically pleasing. This includes the use of animations, transitions, and feedback to create a seamless and engaging experience.

(Salaberry et al. 2021)

Ranking: Is used for comparison between people who are participating in the gamified activity, often generating a feeling of competition among them.

(Salaberry et al. 2021)

Missions: Are used to guide the user within the system and make it more interesting for her/him.

(Salaberry et al. 2021)

Integration: Is the ability of the system to accommodate an inexperienced user or one who uses the system for the first time.

(Salaberri et al. 2021)

Engagement Loops: Are techniques to keep the user motivated and willing to use the system again.

(Salaberri et al. 2021)

Customization: Allows the user to modify specific items within the game environment according to her/his preferences.

(Salaberri et al. 2021)

Rules: Define how the user should use the system, or which permissions he/she has.

(Salaberri et al. 2021)

Narrative: Is used to guide the user and encourage him/her to act as expected.

(Salaberri et al. 2021)

NPC: Non-playable characters, often serves as guides and friends in video games.

(Gee, 2003)

Chapter 3 The English and Norwegian Classroom

In this chapter, an overview of the Norwegian curriculum, its core values and how it relates to the subject of English will be presented. This section will explore the different aspects of the curriculum such as its aims, objectives, and focus areas. Additionally, we will also take a closer look at the teaching of English in Norwegian schools and the methods employed in differentiated education to cater to the diverse needs of individuals. Moreover, we will examine the different forms of assessment used in Norwegian education practice such as formative and summative assessments. We will discuss the purposes of assessment, how it is conducted, and how it informs the teaching and learning process. Lastly, this chapter will explore some of the commonly used didactic principles in Norwegian education practice, such as the theories that underpin these didactic principles and how they can be applied to enhance the learning experience of students. The Norwegian curriculum provides educators with specific goals to strive for and serves as a basis for all pedagogical and didactical decisions educators make in their profession, which is critical to understand in order to research gamification in relation to education in Norway.

3.1 The Norwegian Curriculum and the English subject

3.1.1 The Norwegian Curriculum

The core curriculum is a part of the education system in Norway that outlines the values, principles, and objectives for primary and secondary education and training. It applies to all levels of education, from primary school to vocational programs in upper secondary education (Utdanningsdirektoratet, 2023). The core curriculum elaborates on the core values and principles outlined in the Education Act and is closely linked to subject curricula. It serves as the foundation for pedagogical practice and collaboration between home and school. The core curriculum applies to all participants in education and training, including teachers, school leaders, and other professionals. The curriculum also applies to Sami schools, which follow a parallel Sami curriculum, and aims to protect and develop the Sami languages, culture, and societal life. The core curriculum is considered a regulation and must be read in light of other relevant provisions governing teaching and training in schools and training establishments (Utdanningsdirektoratet, 2023).

Furthermore, the core curriculum emphasizes the responsibility of schools and training establishments to promote education and all-round development for all participants in primary and secondary education and training. The curriculum provides guidance for teaching and training in different subjects and aims to realize the broad purpose of education and training. The core curriculum is applicable to everyone with a responsibility for teaching and training, including teachers, instructors, assistants, school leaders, school owners, and other professionals in schools and training establishments. The curriculum is the foundation for teacher training and must be read in conjunction with the Education Act and other relevant provisions governing teaching and training in schools and training establishments.

In addition, the core curriculum recognizes the importance of three-party collaboration between the state, employer, and employee associations in developing vocational education and training. The curriculum also highlights the responsibility of schools and training establishments to ensure that the training given is in accordance with the Education Act and the curriculum.

Moreover, the Sami people in Norway have the status of an indigenous people and are entitled to protect and develop their languages, culture, and societal life. The Norwegian Constitution mandates the central authorities to facilitate this, which is also addressed in the Education Act

(Utdanningsdirektoratet, 2023). The core curriculum also applies to the Sami school, which follows a parallel and equal Sami curriculum. The Sami curriculum is applicable in cities that are part of the administrative area for Sami languages. The curriculum ensures access to the rights of pupils to learn the Sami language and culture in schools outside the Sami administrative area.

In summary, the core curriculum in Norway outlines the fundamental values, principles, and objectives for primary and secondary education and training. It applies to all levels of education, including Sami schools, and serves as the foundation for pedagogical practice and collaboration between home and school.

The Purpose of the Education

The objectives clause in the Education Act states:

Education and training in schools and training establishments shall, in collaboration and agreement with the home, open doors to the world and give the pupils and apprentices historical and cultural insight and anchorage.

Education and training shall be based on fundamental values in Christian and humanist heritage and traditions, such as respect for human dignity and nature, and on intellectual freedom, charity, forgiveness, equality and solidarity, values that also appear in different religions and beliefs and are rooted in human rights.

Education and training shall help to increase the knowledge and understanding of the national cultural heritage and our common international cultural traditions.

Education and training shall provide insight into cultural diversity and show respect for the individual's convictions. They are to promote democracy, equality and scientific thinking.

The pupils and apprentices shall develop knowledge, skills and attitudes so that they can master their lives and can take part in working life and society. They shall have the opportunity to be creative, committed and inquisitive.

The pupils and apprentices shall learn to think critically and act ethically and with environmental awareness. They shall have joint responsibility and the right to participate.

Schools and training establishments shall meet the pupils and apprentices with trust, respect and demands, and give them challenges that promote formation and the desire to learn. All forms of discrimination shall be combated.

Section 1-1 of the Education Act (Lovdata, 2023)

Core Values of the Education and Training

According to the government, schools shall base its practice on the values in the objectives clause of the Education Act. The objectives clause outlines the values that serve to unite the Norwegian society and underpin its democratic foundations. These values, drawn from both Christian and humanist traditions, as well as other religions and worldviews, are grounded in the principles of human rights. The education system is expected to actively promote these values, which are of paramount importance to every student's development, competence, and attitudes within the school environment (Utdanningsdirektoratet, 2023). In order to ensure that the best interests of the students are always taken into account, teachers must exercise their professional judgment, especially when there are conflicting interests and views.

The Sami school is mandated to provide education and training based on Sami values and language, as well as culture and societal life. The Sami values align with those in the objectives clause and are vital to the Sami school's educational approach. It is essential to take a holistic-Sami perspective, as well as an indigenous people's perspective, to prioritize both material and immaterial cultural heritage, including traditional knowledge, duodji/duodje/duedtie, and the importance of family relationships.

Principles of Education and all-round development

The objectives clause of Norwegian society is grounded in the principle of human dignity and the recognition that all individuals are equal, regardless of their differences. When teachers demonstrate care for their students and acknowledge each student as an individual, human dignity is affirmed as a fundamental value for both the school and society (Utdanningsdirektoratet, 2023).

The foundation of Norway's constitutional state rests on human rights, which are universal values that apply to all people, regardless of their origin or circumstances (Utdanningsdirektoratet, 2023). The UN Convention on the Rights of the Child also grants children and young people special protection. Education and training must conform to these human rights standards, and students must acquire knowledge about their rights.

Equality and equal rights have been hard-won values throughout history and require constant protection and strengthening. Schools must promote knowledge and attitudes that safeguard these values, treat all students equally, and prevent any form of discrimination. They must also create equal opportunities for students to make independent choices and belong to the

school and society (Utdanningsdirektoratet, 2023). Acknowledgement and appreciation of differences are crucial in this regard.

Human beings are vulnerable and make mistakes. The principles of forgiveness, charity, and solidarity are essential for human growth and development. Each person's beliefs and principles must be respected, and freedom of thought, belief, and expression must be upheld. Students should also contribute to protecting human dignity and reflect on ways to prevent its violation.

3.1.2 The English Subject Curriculum

The Norwegian national curriculum, LK20 outlines the objectives of language learning as both the acquisition of communicative skills and a means to develop students' character and prepare them for further education. Additionally, the subject is expected to broaden students' perspectives by exposing them to diverse cultures within the English-speaking world and facilitating a deeper understanding of themselves and others. According to LK06, the subject should be taught through a variety of media, including multimodal texts and interaction with others, to inspire students' creativity. Language learning encompasses both knowledge about and usage of the language, as well as an understanding of how students themselves learn language and the ability to self-evaluate their progress. The curriculum emphasizes the importance of clear aims and goals, as well as strategies for reaching them and assessing students' progress (Kunnskapsdepartementet, 2020).

This section of the thesis will examine language learning and acquisition, as well as the presentation of the English subject in LK06. The main subject areas, including language learning, oral communication, written communication, culture, society, and literature, will be analyzed, with a particular focus on language learning and communication, literature, and culture and society, including history. This framework will be applied to a analysis of gamification for language learning as an example of the educational benefits that may be gained from English language learning.

Relevance and central values

English is an essential subject in the Norwegian curriculum that contributes to cultural understanding, communication, comprehensive education, and identity development. It is intended to provide students with the fundamental skills to communicate with others, regardless of their cultural or linguistic background, at both local and global levels (Kunnskapsdepartementet, 2020). The subject is designed to assist students in developing

intercultural understanding of various ways of living, thinking, and communicating, while also preparing them for educational and professional settings that demand English language competence in reading, writing, and oral communication.

All subjects are intended to help students comprehend the value system for learning. Through engaging with English, students are expected to become proficient in its use, enabling them to learn, communicate, and connect with others confidently. Knowledge and an exploratory approach to language, communication patterns, lifestyles, ways of thinking, and social conditions can provide new perspectives on the world and oneself. The subject is aimed at enhancing students' understanding that their views of the world are influenced by culture. This can foster curiosity and engagement, promote new ways of interpreting the world, and help prevent prejudice. Students should also recognize that the ability to speak multiple languages is an asset in both school and broader society. The English curriculum and the curriculum for English for students who use sign language are equivalent (Kunnskapsdepartementet, 2020).

Core elements

In academic language, communication refers to the act of creating meaning through language and utilizing language in both formal and informal settings. The aim of English language education is to equip pupils with the appropriate strategies to communicate effectively in diverse situations, using various forms of media and sources (Kunnskapsdepartementet, 2020). From the onset, pupils must be able to utilize and explore the language, as well as express themselves and interact in practical and authentic situations.

Language learning involves developing a comprehensive understanding of English as a system, the ability to use language learning strategies, and language awareness. Pupils must learn how to pronounce phonemes, acquire vocabulary, comprehend word structure, syntax, and text composition to broaden their communication and interaction skills. Language learning also encompasses identifying links between English and other languages known to the pupils and understanding the structure of English.

Language learning primarily occurs when pupils engage with English texts, which are not limited to written materials but also include spoken, printed, digital, graphic, artistic, formal, informal, fictional, factual, contemporary, and historical texts. These texts can contain writing, pictures, audio, drawings, graphs, numbers, and other forms of expression combined to convey a message. Working with these texts in English helps to develop the pupils' knowledge of linguistic and cultural diversity, and insight into the traditions, ways of living,

ways of thinking, and communication patterns of indigenous peoples. By reflecting on, interpreting, and critically assessing different types of English texts, pupils acquire language and knowledge of culture and society. Thus, pupils develop intercultural competence, which enables them to deal with diverse communication patterns, ways of thinking, and ways of living. This competence builds the foundation for seeing their identity and that of others in a multicultural and multilingual context (Kunnskapsdepartementet, 2020).

Interdisciplinary Topics

Within the English subject, the interdisciplinary topic of health and life skills pertains to cultivating the pupils' proficiency in expressing themselves both in written and oral English. This serves as the foundation for articulating their emotions, thoughts, experiences, and viewpoints, offering novel outlooks on varied patterns of communication and ways of thinking, as well as on their own way of life and that of others (Utdanningsdirektoratet, 2023). The ability to handle circumstances that necessitate linguistic and cultural competence may grant the pupils a sense of accomplishment, foster a positive self-concept, and facilitate the development of a secure identity.

Similarly, in the English subject, the interdisciplinary topic of democracy and citizenship aims to assist pupils in fostering an appreciation of the culture-dependent nature of their worldviews. Through the acquisition of English, pupils can communicate with individuals worldwide, irrespective of cultural or linguistic backgrounds, to gain insight into diverse societies and cultures. Such an experience can afford new modes of interpretation, engender curiosity and engagement, and deter prejudice.

Basic Skills

The English subject encompasses various skills that are essential for effective communication. One such skill is oral proficiency in English, which involves creating meaning through the use of spoken language and engaging in conversation. This involves presenting information while adapting the language to suit the purpose, audience, and context. Effective development of oral skills in English requires gradual improvement in accuracy and nuance to effectively communicate on different topics, both formally and informally, to a diverse range of recipients with varied linguistic backgrounds (Utdanningsdirektoratet, 2023).

Writing proficiency in English is another important skill, which involves expressing ideas and opinions in a coherent and appropriate manner in different types of texts, whether on paper or

on digital platforms. This requires planning, formulating, and processing texts that effectively communicate, while also adapting the language to suit the purpose, audience, and context. Writing proficiency progresses from learning basic vocabulary and phrases to creating various types of coherent texts that present viewpoints and knowledge. Moreover, it also involves using different types of sources in a critical and verifiable manner.

Reading in English involves comprehending and reflecting on the content of various types of texts, both on paper and on digital platforms, contributing to reading pleasure and language acquisition. It involves finding information in multimedia texts with competing messages and using reading strategies to comprehend explicit and implicit information. The development of reading skills in English involves moving from experimenting with phonemes, spelling patterns, and syllables to reading varied and complex texts fluently, and critically reflecting on and evaluating various types of texts.

In addition, digital skills in English involve using digital media and resources to strengthen language learning, encounter authentic language models, and interlocutors in English and to acquire relevant knowledge in English (Utdanningsdirektoratet, 2023). This requires the use of digital forms of expression in English, communication with others, and critical and reflective behavior. Developing digital skills in English involves exploring the language, interacting with others, creating texts, and acquiring knowledge by obtaining, exploring, and critically assessing information from diverse English-language sources.

Competence aims

Competence aims in the English subject curriculum presents a list of aims which students are expected to hit at certain point during education. This list outlines the skills and knowledge expected of a pupil in their English language learning in Norway after primary education. These skills include using a variety of language learning strategies and digital resources, using appropriate pronunciation and vocabulary, listening and understanding different variants of English, asking questions and discussing various topics, using knowledge of language syntax and word classes, reading and interpreting various types of texts, assessing the reliability of sources, writing formal and informal texts with coherence, revising one's own work based on feedback and knowledge, and exploring and reflecting on the role of the English language in Norway and the rest of the world, as well as the situation of indigenous peoples and cultural expressions in the English-speaking world (Kunnskapsdepartementet, 2020).

The verbs used in the English competence aims are *use, listen, express, ask, explore, follow, read, interpret, reflect, assess, write, revise, describe, and present* (Utdanningsdirektoratet, 2023). The verbs used in the English competence aims are carefully chosen to describe the specific actions and behaviors that students should be able to demonstrate. These include using English in different contexts, listening and comprehending spoken English, expressing ideas and opinions clearly and coherently, asking questions to clarify meaning, exploring different perspectives and ideas, following instructions and procedures, reading and comprehending various types of texts, interpreting and analyzing language and meaning, reflecting on one's own language use and learning, assessing the quality of written and oral communication, writing and revising texts for different purposes and audiences, describing experiences and events, and presenting information and ideas to others.

By focusing on these specific verbs, the English competence aims provide a clear and measurable framework language learning and development. Teachers and students can use them for guide for setting goals, evaluating progress, and designing effective learning activities that target specific language skills and competencies. The aims also reflect the importance of literacy and communication skills in their modern world, where English has become a global language of commerce, education, and culture.

Formative assessment in relation to the Competence Aims

Formative assessment plays a crucial role in promoting learning and developing competency in a subject. In the context of English education, students in Years 8, 9, and 10 demonstrate and develop competence by communicating with coherence and structure both orally and in writing, while adapting to various audiences and situations. Additionally, they display their proficiency by creating different types of texts that incorporate verifiable information from diverse sources (Utdanningsdirektoratet, 2023).

To enhance pupil participation and foster a desire to learn, teachers are expected to utilize various strategies and learning resources, particularly to develop pupils' reading, oral, and writing skills. Pupils are encouraged to experiment on their own and collaborate with others, recognizing that such activities are essential components of learning a new language. Ongoing dialogue between the teacher and pupils is crucial for monitoring progress and identifying areas for further development. Based on the pupils' demonstrated competencies, they are given the opportunity to reflect on their achievements and further develop their skills with the guidance provided by the teacher. The teacher's role is to provide direction for further

learning and adjust their teaching style to enable pupils to develop their reading, writing, oral, and digital skills in the subject (Utdanningsdirektoratet, 2023).

Assessment of coursework

The final grade awarded to pupils for their coursework in English after completing Year 10 should reflect their overall competency in the subject. To assess such competency, teachers are expected to plan and facilitate a range of activities that enable pupils to demonstrate their understanding, engage in reflective and critical thinking, and showcase their abilities in diverse contexts. The grade assigned to the coursework should, therefore, be a comprehensive evaluation of the pupil's overall proficiency in English, based on the teacher's assessment of their performance across these multiple domains (Utdanningsdirektoratet, 2023).

3.2 Didactics

The education in the Norway is centered around instruction, which is designed to influence students to what is expected in the curriculum. Didactics refers to the teaching of teaching theory and didactics pertains to the use of various method, materials, techniques to facilitate learning in an organized and structured instruction. In summary, it can be argued that didactics pertains to the goals of teaching, the teaching content, and the teaching methods (Lillejord, Manger, & Nordahl, 2012). Teaching is a multifaceted activity, and in order to capture some of its complexity, multiple models have been developed to aid in understanding it. These models typically involve planning, execution, and after-work (Lillejord, Manger, & Nordahl, 2012). Two popularly utilized didactic models are The Didactic Triangle and The Didactic Relationship Model, which comprises of the relationship between student, teacher and teaching material, and goals, content, methods and forms of assessment, respectively (Lillejord, Manger, & Nordahl, 2012).

The Didactic Triangle is a teaching model that represents three essential components of teaching and learning: the teacher, the student, and the subject matter (Lillejord, Manger, & Nordahl, 2012). The teacher plays a vital role as facilitator of the learning material. The way the teacher introduces the subject matter, creates tasks, and monitors the student's progress is crucial in determining whether the student will engage with the material. The Didactic Triangle is a conceptual framework that helps to illustrate how the interaction between the teacher, the student, and the subject matter is necessary for effective teaching and learning to occur. It highlights that effective teaching and learning occur when there is a balance between

the needs and interests of the student, the teacher's instructional approach, and the content of the instruction (Lillejord, Manger, & Nordahl, 2012).

The Didactic Relationship Model can be used to plan, execute, and evaluate instruction, and comprises of, as mentioned, goals, content, methods, and forms of assessment, in addition to student prerequisites and frameworks (Lillejord, Manger, & Nordahl, 2012). Each component of the model is mutually dependent on each other. For instance, when an academic goal is chosen, the methods used in instruction and the content is affected. Additionally, the methods used, and the content must fit the student prerequisites and the ramifications that are available for the educator.

The Didactic Relationship Model is a pedagogical tool that can be utilized to design effective instruction, implement it in the classroom, and assess its outcomes. This model comprises a number of key components, including goals, content, methods, and forms of assessment, in addition to student prerequisites and frameworks. Each of these components is interconnected and interdependent, meaning that changes made to one component can have an impact on the others. For instance, when an academic goal is selected, this decision will have implications for the methods that will be used in instruction, as well as the content that will be taught. Furthermore, the methods that are employed and the content that is covered must align with the student prerequisites and the resources that are available to the educator. This means that the educator must carefully consider the unique needs and abilities of their students when selecting methods and content and must be flexible enough to adapt their approach if necessary.

The Didactic Relationship Model provides a structured approach to planning and implementing instruction and can help educators to design engaging and effective learning experiences that meet the needs of their students. By taking into account all of the different components of the model, educators can ensure that their instruction is well-rounded and that students have the best possible chance of achieving their academic goals.

The Didactic Relationship model and The Didactic Triangle both serve as theoretical frameworks to plan, execute, and evaluate the different components that make up an instruction. Both models recognize the importance of the teacher-student relationship. The Didactic Triangle suggests that effective teaching and learning can only occur when all three elements (the student, the teacher and the subject matter) are present and in harmony (Lillejord, Manger, & Nordahl, 2012), while The Didactic Relationship model encompasses

goals, ramifications and assessment, in addition to student prerequisites, content as well as learning methods (Lillejord, Manger, & Nordahl, 2012).

3.3 Differentiated Education

Differentiated education is a basic principle in Norwegian Education and is enshrined in the Norwegian Education Act. Paragraph 1.3 in the Norwegian Education Act reads as follows:

Education must be adapted to the abilities and aptitudes of the individual pupil, apprentice, candidate for certificate of practice and training candidate.

(Lovdata, 2023)

Differentiated education is an educational approach that aims to tailor teaching and instruction to each individual student's abilities, interests, learning style, and pace (Udir, 2023; Lillejord, Manger, & Nordahl, 2012). It involves differentiating learning activities, teaching methods, and assessment formats to meet the needs and learning pace of each student. For instance, students who have advanced skills can be given more challenging assignments or projects, while those who need more support can be provided with additional resources or activities that align with their level of understanding. Teachers can also differentiate instruction by varying the way they present the material, using different teaching strategies, and providing opportunities for student choice.

Differentiated education is based on the principle that each student is unique and learns in different ways (Lillejord, Manger, & Nordahl, 2012). Therefore, teaching should be adapted to each student's abilities and learning style to increase their engagement and motivation in the learning process. Differentiated education can include various measures, such as task differentiation, choice of learning methods, group work, and individual guidance. Task differentiation involves adapting tasks to the students' level and abilities so that each student can work on tasks that are appropriate and challenging for them. The choice of learning methods may include the use of digital learning tools, practical work, excursions, and various forms of collaborative learning.

Differentiated education may also include various forms of facilitation and adaptation of the school environment, such as the availability of technical equipment and learning resources (Udir, 2023). The goal of differentiated education is to provide each individual student with the best possible conditions for achieving their goals and developing their skills and knowledge (Udir, 2023; Lillejord, Manger, & Nordahl, 2012). By adapting teaching to the

individual needs of the students, the teacher can facilitate increased learning and mastery, while also creating a positive and inclusive learning environment for all students.

3.4 Special education

In Norway, the principle of inclusive education is fundamental in special education. This principle promotes the idea that all students, including those with special needs, have the right to receive education in mainstream schools (Lillejord, Manger, & Nordahl, 2012). Section 5-1 on the right to special education in the Norwegian Education Act reads as follows:

Pupils who either do not or are unable to benefit satisfactorily from ordinary teaching have the right to special education.

In assessing what kind of instruction should be provided, particular emphasis must be placed on the pupil's developmental prospects. The content of the courses offered must be such that the pupil receives adequate benefit from the instruction as a whole in relation to other pupils and in relation to educational objectives that are realistic for the pupil. Pupils who receive special education must have the same total number of teaching hours as other pupils, cf. sections 2-2 and 3-2.

(Lovdata, 2023)

To ensure that students with special needs receive the appropriate education, they are entitled to an Individual Education Plan (IEP) that outlines their goals and the support they require to achieve them. Furthermore, teaching methods, curriculum, and materials used in the classroom are adapted to the learning styles, abilities, and interests of students with special needs. Additionally, special education services, such as support from special education teachers, speech therapy, and occupational therapy, are provided to aid students in achieving their academic goals. The principles of normalization and early intervention are also vital in special education in Norway. The principle of normalization ensures that students with special needs have the opportunity to participate in mainstream education to the greatest extent possible, while the principle of early intervention aims to identify and address any learning or developmental challenges as early as possible. These principles aim to provide an inclusive education system that meets the needs of all students, regardless of their abilities or disabilities.

3.5 Formative and Summative Assessment in the Norwegian curriculum

Assessment is an essential component of the education system, helping to gauge student progress and evaluate learning outcomes (Udir, 2023). There are two general types of assessments: formative and summative. Formative assessments occur before or during teaching and serve to guide teachers in planning and help students identify areas that need more work. Essentially, formative assessments shape teaching (Udir, 2023). The practice of teachers' assessments is among several factors that can impact students' learning. The regulations of the Education Act prescribe certain principles, such as clear objectives and criteria, relevant feedback, guidance for improvement, and student involvement in the assessment process (Udir, 2023). For example, teachers may give a pre-test before introducing a topic to assess what students already know. Or they may give diagnostic tests to identify knowledge gaps and direct teaching to address those gaps. Pretests and diagnostic tests are not graded, which can benefit test-anxious students who get practice without pressure.

Summative assessments, on the other hand, are assessments that are used to evaluate student learning at the end of a unit, course, or program (Woolfolk, 2010). These assessments are typically high-stakes and often have significant consequences, such as determining whether a student passes a class or graduates from a program. Examples of summative assessments include final exams, standardized tests, and end-of-course projects. The difference between formative and summative assessments lies in how the results are applied. Although the same methods can be used for both purposes, formative assessments aim to obtain information about students' learning to better plan teaching. Summative assessments aim to assess final competence and assign grades (Woolfolk, 2010).

Chapter 3 Summary

The Norwegian core curriculum outlines the fundamental values, principles, and objectives for primary and secondary education and training. It applies to all levels of education, including Sami schools, and serves as the foundation for pedagogical practice and collaboration between home and school. The core curriculum emphasizes the responsibility of schools and training establishments to promote education and all-round development for all participants. The Sami school follows a parallel and equal Sami curriculum, and the curriculum recognizes the importance of three-party collaboration between the state, employer, and employee associations in developing vocational education and training. The

objectives clause in the Education Act sets out the purpose of education, the core values, and the principles of education and all-round development. It outlines the values that serve to unite Norwegian society and underpin its democratic foundations. The education system is expected to actively promote these values, which are of paramount importance to every student's development, competence, and attitudes within the school environment.

The Norwegian national curriculum, LK20, emphasizes that learning English contributes to cultural understanding, communication, comprehensive education, and identity development. The curriculum aims to provide students with the skills to communicate with others globally, develop intercultural understanding, and prepare them for educational and professional settings. The core elements of language learning involve developing a comprehensive understanding of English, using language learning strategies, and language awareness. Pupils learn how to communicate effectively in diverse situations and engage with English texts to develop their knowledge of linguistic and cultural diversity. The English subject encompasses various skills that are essential for effective communication, including oral and writing proficiency. The interdisciplinary topics of health and life skills and democracy and citizenship aim to assist pupils in fostering an appreciation of the culture-dependent nature of their worldviews.

The different aspects of education, including didactics, differentiated education, special education and assessment are vital aspects in the Norwegian education program. In Norway, the principle of inclusive education is essential in special education, where students with special needs have the right to receive education in mainstream schools. The Norwegian Education Act outlines the right to special education and emphasizes the need for an Individual Education Plan (IEP) that outlines goals and support required to achieve them.

Didactics refers to the teaching of teaching theory, and it involves various methods, materials, and techniques to facilitate learning (Lillejord, Manger, & Nordahl, 2012). The Didactic Triangle and The Didactic Relationship Model are two popular didactic models used for planning, executing, and evaluating instruction. Differentiated education is an educational approach that aims to tailor teaching to each individual student's abilities, interests, learning style, and pace. It involves adapting learning activities, teaching methods, and assessment formats to meet the needs of each student (Lillejord, Manger, & Nordahl, 2012). Finally, there are two general types of assessments: formative and summative. Formative assessments occur before or during teaching and guide teachers in planning and helping students identify areas

that need more work, while summative assessments occur at the end of a learning period to evaluate students' learning outcomes.

To research gamification in relation to education in Norway, it is crucial to understand that the Norwegian curriculum offers specific goals for educators to aim for, while providing creative freedom and room for personal modification in certain areas. The curriculum serves as the foundation for all pedagogical and didactic decisions educators make in their profession.

Chapter 4 Methodology

In this chapter in the thesis, a comprehensive elaboration is provided regarding the methodology employed for conducting a literature review, accompanied by a detailed demonstration of the selection process adopted for the current investigation. The selection of articles was generated through a model formulated based on extensive exploration of several databases. Additionally, this model explains the standards that were used to decide which articles were eligible to be included in the study and how the boundaries for the study were established. It assures readers that the selection of literature was not arbitrary but was based on a thorough and thoughtful process, ensuring that the final selection of articles included in the study is comprehensive, relevant, and meets the necessary criteria for inclusion.

4.1 Research Design and Method

The etymology of the term "method" can be traced back to the Greek word "methodos", representing a systematic approach toward accomplishing a specific objective (Johannessen et al. 2005). Research is the foundation of scientific knowledge, and to be considered credible, it must adhere to strict rules of systematic, critical, and accurate investigation, ensuring that the knowledge produced can be trusted (Bergander & Johnsen, 2006). In order to select the most appropriate research design, it is essential to understand the options available. One of the most common research designs is the experimental design, which involves the manipulation of an independent variable to measure its effect on a dependent variable. The quasi-experimental design is a variation of the experimental design that does not involve random assignment of participants to groups. Other research designs include cross-sectional studies, which collect data at a single point in time, longitudinal studies, which collect data over an extended period of time, and case studies, which involve an in-depth investigation of a particular phenomenon.

The choice of research design depends on the research question, the type of data required, and the practical constraints of the study (Snyder, 2019). By understanding the various options

available, researchers can determine the best course of study and ensure that the research design selected aligns with the research objectives, thereby enhancing the quality and relevance of the study.

The current chapter aims to delineate the adopted methodological approach and elucidate the rationale for the methodological choices. Given that this literature review encompasses both quantitative and qualitative research articles, a concise overview of the contrasting features of these methodologies will be provided. This comparison aims to enable readers to understand strengths and weaknesses of both methodologies and how they complement each other. Moreover, an appraisal of the task's rigor will also be deemed pertinent. Assessing the study's thoroughness is crucial in determining the research design, data collection, analysis, and interpretation. By assessing these factors, readers can determine the extent to which the study's findings can be relied upon (Snyder, 2019).

4.2 Quantitative versus Qualitative Methods

Within the research world, natural science research techniques have been dominant. This methodology, also called quantitative, follows clear guidelines for how a theory should be tested. In natural science research, when one wants to understand a phenomenon, the process begins by finding a theory that can explain the phenomenon. Based on the theory, a hypothesis is set up that can strengthen or weaken it. The hypothesis is then investigated using one or more experiments designed to test it. The conclusion about whether the theory is strengthened or rejected is based on the statistical results of the experiment. The purpose of the quantitative technique is to find a universal explanation for the observed phenomenon. The theories and experiments should therefore be objective and reproducible. This means that anyone who repeats the experiment under the same conditions should get the same results. Therefore, the selection procedures are emphasized to ensure a statistically representative and sufficiently large sample (Askheim & Grenness, 2008).

As previously mentioned, quantitative techniques have been highly effective in finding universal explanations for phenomena. However, in social sciences such as sociology, education, and psychology, which focus on human behavior and actions, quantitative techniques are not always equally effective. This is because the main goal of research in these fields is to gain a deeper understanding of a phenomenon. To gain insight into how people think and what motivates them, qualitative methods are used. The qualitative research can elaborate on quantitative findings and provide a better understanding of the underlying causes.

Data collection often takes place over a longer period of time, typically in the form of interviews, observations, or focus groups. Unlike quantitative studies, which ideally use large and statistically representative samples, the samples used in qualitative studies are often small, "tailored," and not necessarily representative of any larger population, as conducting highly in-depth studies with a sufficiently representative sample would be problematic. Consequently, when using qualitative methods, there are limited opportunities to draw more general conclusions. Additionally, reproducing the study can be problematic. However, this problem can be partly circumvented by consciously choosing the people to be interviewed (Askheim & Grenness, 2008).

4.3 Choice of method

For this thesis, the thesis question of "What are key factors that contribute to the effectiveness of gamification in increasing literacy motivation, and how can they be integrated into an educational framework?" was formulated. The following research questions were constructed to guide the thesis furthermore:

1. "What are effective gamification techniques to increase motivation?"
2. "Can gamification enhance literacy development?"
3. "How can gamification be integrated into a framework?"

To answer the thesis question and its following research questions, several literature reviews for three different chapters are utilized in this study. More specifically, a separate literature review was conducted for each research question. There are several reasons underlying the choice of utilizing literature review as a method. Conducting empirical studies on both the most effective of gamification techniques to increase motivation and look at literacy development in relation to gamification, as well as examine at how gamification can be integrated into a framework would not be feasible within the apportioned time frame. Additionally, by narrowing down the scope of the study, it is possible to delve deeper into a particular aspect of gamification and produce more in-depth findings. Literature reviews are also useful to in synthesizing existing research and identifying gaps in knowledge, which can inform future research directions (Snyder, 2019).

The present study aims to investigate the effectiveness of gamification in increasing motivation, literacy development and explore how the identified key factors can be integrated into an educational framework. The use of literature reviews provides several advantages,

including a comprehensive overview of the existing research on gamification, motivation and literacy, which can inform the development of a theoretical framework for the study. This approach allows for a rigorous and systematic analysis of the available literature, including identifying and synthesizing key themes, trends, and patterns across studies (Snyder, 2019). Furthermore, literature reviews enable the researcher to critically evaluate the quality and validity of the studies included, ensuring that only high-quality studies are included in the analysis.

To address the research questions, a literature review is conducted in three separate chapters. Chapter three focuses on the conceptualization of gamification elements and gamification techniques and its role in increasing motivation. That chapter will also explore the theoretical foundations of motivation and the key mechanisms underlying gamification's effectiveness in enhancing motivation. Chapter four examines evidence on the factors that contribute to the effectiveness of gamification in increasing literacy development. This chapter will consider a range of gamification techniques and interventions, including feedback, rewards, competition, and social interaction, and try to identify the key factors that contribute to literacy development. The chapter will also analyze the potential limitations of gamification techniques in enhancing literacy development. Chapter five explores the integration of gamification into educational frameworks and the design of gamified educational interventions to enhance literacy development. That chapter will focus on the practical aspects of gamification, such as the design of gamified learning environments, the role of the teacher in facilitating gamified learning, and the assessment of gamified learning outcomes.

By utilizing literature reviews as the primary method of data collection, this study aims to provide a comprehensive and in-depth analysis of the key factors that contribute to the effectiveness of gamification in increasing motivation and literacy development and provide recommendations for the integration of gamification into educational frameworks.

The purpose of the literature review is to provide a thorough understanding of previous studies in the defined problem area, including the methodological approaches used and the conclusions drawn over the last decade. This study's importance lies in contributing to the expanding field of gamification research by providing theoretical and literary evidence on the impact of gamification's implementation in education. As a discipline, gamification requires diverse research perspectives to enhance our understanding of the optimal ways to incorporate

it successfully. For this thesis, articles no more than 10 years old have been selected as inclusion criteria, as this is the standard for literature in a literature review (Støren, 2010). Consequently, a literature review will contribute to an increased understanding of the topic and clarify the foundation upon which to build further research.

4.4 Literature review

In a literature study, the subject of study is the literature itself, while the empirical data consists of what authors have previously researched and written about factual conditions (Støren, 2010). It is proposed that a literature study is a qualitative method in which the researcher systematically reviews, analyzes, and summarizes literature pertaining to a specific topic. This approach allows for the acquisition of relevant data without the need for conducting empirical research. One of the primary advantages of this method is the ability to gather significant amounts of data, process it, and establish consistent assumptions related to the chosen topic in a relatively brief period of time. However, according to Bowen (2009) research endeavors that draw on documentary sources confront certain limitations pertaining to the accessibility of information and the caliber of the text under scrutiny.

Snyder (2019) posits that a literature study can serve various purposes. It can function as a preliminary investigation prior to conducting empirical research, allowing the researcher to acquaint themselves with previous studies and identify potential gaps for formulating theoretical assumptions. In addition, literature reviews are beneficial for researchers to assess theories and/or evidence within a specific area, or to scrutinize the accuracy and validity of a particular theory or competing theories.

Literature reviews are of paramount importance as they form the basis for all types of research (Snyder, 2019). They have the potential to foster the development of knowledge, establish guidelines for policy and practice, and provide substantiation of an effect. Furthermore, when executed effectively, literature reviews can stimulate innovative ideas and orientations for a given field, thus serving as the foundation for future research and theory (Snyder, 2019). Nonetheless, the process of conducting a literature review and assessing its quality can be demanding. Therefore, this thesis presents the search process, inclusion, and exclusion criteria, along with a discussion on the validity and reliability of the study to augment and uplift the research quality. By ensuring research is grounded in high precision, identifying

research gaps, refining hypotheses and research questions, the quality of research can be advanced as a community (Snyder, 2019).

4.5 Search history and information collection

A systematic search strategy must be developed to identify relevant literature. This entails selecting suitable search terms and databases, as well as determining the inclusion and exclusion criteria. These decisions are crucial and ultimately determine the quality and rigor of the review (Snyder, 2019). Search terms are typically words or phrases used to retrieve pertinent articles, books, and reports. These terms should be based on concepts and terminology that are directly related to the research question. Depending on the scope and focus of the review, search terms may be either broad or narrow. Additionally, it may be advantageous to impose further restrictions to the search criteria (Snyder, 2019).

In all forms of research, whether qualitative or quantitative, the principle of verifiability holds significance (Støren, 2010). This implies that any individual should be able to obtain the same findings as a previous researcher by utilizing the same research methodology or search strategies specified in their project (Støren, 2010). By using clear and organized procedures to review articles and all the evidence available, it is possible to reduce any potential bias. This process can ensure that the findings are dependable, and valid conclusions can be drawn, leading to informed decisions (Snyder, 2019). In the next section, we will examine the search process for the data collection of this study. This includes a description of the databases searched, the search terms and their combinations used, and the inclusion and exclusion criteria employed. The search process was carried out in a rigorous and systematic manner to ensure the comprehensiveness and quality of the data obtained.

Databases in connection with the literature search related to this study, the following databases were used:

- Oria
- Google Scholar
-

Search words used included:

- Gamification
- Gamification AND education
- Gamification AND framework

- Gamification AND motivation
- Gamification AND language learning
- Gamification AND Literacy

4.6 Inclusion and exclusion criteria

Inclusion and exclusion criteria refer to the specific characteristics or attributes that are used to select or reject articles for inclusion in a literature review (Snyder, 2019). These criteria are typically defined in advance of the search process and are based on the research questions or objectives of the review. Inclusion criteria are the factors that must be present in an article for it to be considered relevant and useful to the review. Exclusion criteria, on the other hand, are the factors that would cause an article to be excluded from the review, even if it meets some or all of the inclusion criteria. The purpose of these criteria is to ensure that the literature review is focused on the most relevant and high-quality sources of information (Snyder, 2019).

To facilitate the filtering process, inclusion and exclusion criteria have been established for each chapter that conducts a literature review. These criteria are detailed as follows:

For research question 1: “What are effective gamification techniques to increase motivation?”

Inclusion criteria:

- Studies that specifically focus on gamification as a method to enhance learning and motivation in educational contexts
- Studies that involve students of any age, level, or subject area
- Studies that utilize gamification elements such as points, badges, leaderboards, feedback, narrative, rewards, etc.
- Studies that assess the effectiveness of gamification on learning outcomes, engagement or motivation
- Studies that use quantitative, qualitative, or mixed methods to collect and analyze data
- Studies published in English language

Exclusion criteria:

- Studies that do not involve gamification or only mention it briefly as one of many methods

- Studies that only focus on game-based learning or serious games, without incorporating gamification elements
- Studies that only involve the use of educational games without incorporating gamification elements
- Studies that focus on the effects of other methods or technologies without including gamification as a main element
- Studies published in languages other than English

For research question 2: “Can gamification enhance literacy development?”

Inclusion criteria:

- Studies that specifically focus on gamification as a method to enhance learning, motivation and literacy in educational contexts
- Studies that involve students of any age, level, or subject area
- Studies that utilize gamification elements such as points, badges, leaderboards, feedback, narrative, rewards, etc.
- Studies that assess the effectiveness of gamification on learning outcomes, engagement, motivation in relation to language learning and literacy
- Studies that use quantitative, qualitative, or mixed methods to collect and analyze data
- Studies published in English language

Exclusion criteria:

- Studies that do not involve gamification or only mention it briefly as one of many methods
- Studies that only focus on game-based learning or serious games, without incorporating gamification elements
- Studies that only involve the use of educational games without incorporating gamification elements
- Studies that focus on the effects of other methods or technologies without including gamification as a main element
- Studies published in languages other than English

For research question 3: “How can gamification be integrated into a framework?”

Inclusion criteria:

- Studies that specifically focus on gamification as a method to in education and involves frameworks for integrating gamification in education
- Studies that involve students of any age, level, or subject area
- Studies that utilize gamification elements such as points, badges, leaderboards, feedback, narrative, rewards, etc.
- Studies that use quantitative, qualitative, or mixed methods to collect and analyze data
- Studies published in English language

Exclusion criteria:

- Studies that do not involve frameworks for gamification or only mention it briefly
- Studies that only focus on game-based learning or serious games, without incorporating gamification frameworks
- Studies that only involve the use of educational games without incorporating gamification elements
- Studies that focus on the effects of other methods or technologies without including gamification as a main element
- Studies published in languages other than English

In total, over 30 articles were retrieved from various databases. These articles were then subjected to further evaluation, whereby their abstracts and conclusions were read and assessed. Through this filtering process, it became evident that most articles were not relevant to the selected research questions. Therefore, additional searches were conducted within the reference lists of the most relevant articles, with the aim of gathering further supporting literature and data. Following the literature search, 9 articles specifically addressing the research questions at hand were identified. These studies' research designs are either in the form of empirical studies, case studies or literature reviews. Therefore, the selection consists of qualitative and quantitative articles and studies, thereby offering different perspectives. This is considered advantageous in terms of shedding light on the research question in the best possible manner (Snyder, 2019).

4.7 Reliability

The term "reliability" in research refers to the degree to which comparable findings are produced upon replication of a measurement or investigation under equivalent circumstances. This concept pertains to the consistency and trustworthiness of the outcomes (Gripsrud et al., 2004; Wenstøp, 2003). Given that the present study adopts a literature review approach, the dependability of the research will be contingent on the selection of articles. A preliminary inquiry of the search term "gamification" on Google produces a staggering 46 million hits, rendering it impractical to exhaustively incorporate all pertinent literature on the topic. A further reliability concern in literature reviews pertains to subjectivity, which may arise from personal biases, academic orientations, and research interests, and can influence the article selection process. Moreover, included articles may be open to varied interpretations and emphases.

In order to address potential reliability issues, the current study has made a concerted effort to identify literature that is of central relevance. Additionally, to enhance the rigor and transparency of the search process, the search history is provided, and explicit inclusion and exclusion criteria have been established. These measures have been undertaken to maximize the reproducibility of the study's findings.

4.8 Validity

The two fundamental concepts of research - reliability and validity - are essential in determining the quality of research findings. Reliability denotes the degree to which research results can be replicated and consistently obtained over time. In contrast, validity refers to the degree to which a study measures what it claims to measure. According to Wenstøp (2003), a study is considered valid if it measures precisely what it is intended to measure, and nothing else. The validity of a study can be established by designing it to answer the research question accurately. The research question determines the sample size, and as long as the study's inquiries are answered satisfactorily, the sample size can be considered adequate (Krippendorff, 2013). Bowen (2009) highlights the importance of source documents in analyzing data, indicating that the quality and content of source documents must be taken into account when assessing the reliability and validity of research findings. To ensure the reliability and validity of research findings, researchers must pay close attention to the research design, methodology, and data collection techniques used in their studies.

Chapter 4 Summary

The chapter outlines the methodology used for the literature review and selection process for the study, with the aim of identifying the factors that contribute to the effectiveness of gamification in increasing motivation, literacy development and how gamification can be integrated into an educational framework. The chapter means to explain the rigorous process used to ensure the selection of literature was comprehensive and relevant, and how the selection of the method of a literature review to provide a comprehensive understanding of previous studies. This section also discusses the search history and information collection, databases used, search terms, inclusion and exclusion criteria, and the importance of assessing the study's carefulness. The method of a literature review was chosen because it allows me to acquire relevant data without the need for conducting empirical research, and this study provides a concise overview of the contrasting features of quantitative and qualitative methodologies to enable readers to understand the strengths and weaknesses of both. I conclude that the literature review will contribute to an increased understanding of the topic and clarify the foundation upon which to build further research.

Chapter 5 Motivation in Gamification

Based on the background information presented in chapter 2, gamification is a potentially powerful tool for increasing engagement and motivation in a wide range of contexts, including education, marketing, and healthcare. With the increasing prevalence of digital media, gamification has become an increasingly popular strategy for promoting engagement and motivation in these areas. One of the key factors in the effectiveness of gamification is motivation. Motivation plays a critical role in shaping behavior and influencing the outcomes of gamification efforts. This chapter will explore the role of motivation in gamification in educational settings. Specifically, the chapter will examine motivational theory to explore the underlying factors that contribute to the effectiveness of gamification in increasing motivation. Through an in-depth review of the relevant literature and theory analysis, this chapter aims to provide a comprehensive understanding of the underlying principles of motivation in gamification to help answer research question 1 of “*What are effective gamification techniques to enhance motivation?*”.

5.1 Theory

Motivation can be typically characterized as an intrinsic condition that instigates, guides, and sustains an individual's actions (Woolfolk, 2010). To design effective gamification systems, it is important to have a thorough understanding of motivational theories that underlie human behavior. This chapter aims to provide an overview of various motivational theories and deliberate on their relevance to gamification. Specifically, we will discuss Self-determination theory, which focuses on intrinsic and extrinsic motivation, sociocultural approaches to motivation, humanistic approaches to motivation, behavioral approaches to motivation, cognitive approaches to motivation and self-efficacy theory. Understanding these theories can help designers of gamification systems create more effective and engaging experiences that are tailored to the unique motivational needs of individuals. By providing a comprehensive overview of these theories, this thesis aims to highlight the importance of incorporating motivational principles in the design of gamification systems.

5.1.1 Self-determination theory

The theory of self-determination aims to provide a comprehensive understanding of human personality and motivation, drawing from various psychological theories to explain what drives human behavior (Ryan & Deci, 2000). At its core, the theory assumes that humans have an innate desire to grow and develop. When considering the use of gamification in education, motivation is a key factor to consider. Motivation is what compels individuals to undertake tasks from start to finish, and in self-determination theory, it is discussed in terms of both intrinsic and extrinsic motivation (Sun et al., 2017). Intrinsic and extrinsic motivation are two primary forms of motivation that have been widely researched and discussed in psychology. While both intrinsic and extrinsic motivation can drive behavior, they have distinct underlying factors and consequences.

Intrinsic motivation refers to an individual's inherent interest or enjoyment in an activity, and the pursuit of that activity for its inherent satisfactions (Ryan & Deci, 2000). Intrinsic motivation is driven by factors such as autonomy, competence, and relatedness, which are fundamental psychological needs (Ryan & Deci, 2000). Autonomy refers to the need to have control over one's life and make choices that align with one's values and interests.

Competence refers to the need to feel capable and effective in one's actions and pursuits, while relatedness refers to the need to feel connected to and supported by others. Intrinsic motivation has been associated with various positive outcomes, including greater persistence, creativity, and well-being (Ryan & Deci, 2000). When individuals are intrinsically motivated,

they are more likely to engage in an activity for its own sake, and the satisfaction they derive from the activity serves as a reward.

Extrinsic motivation, in contrast, refers to an individual's motivation to engage in an activity as a means to achieve an external outcome, such as a reward or avoiding a punishment (Ryan & Deci, 2000). Extrinsic motivation can be further categorized into different forms, such as external regulation, introjected regulation, identified regulation, and integrated regulation (Ryan & Deci, 2000). External regulation occurs when individuals are motivated by external rewards or punishments, such as grades or financial incentives, to engage in an activity. Introjected regulation refers to motivation driven by internal pressure or guilt, such as feeling like one "should" engage in an activity. Identified regulation occurs when individuals engage in an activity because they value the outcome or the activity aligns with their goals. Finally, integrated regulation occurs when individuals integrate external values with their own personal values, leading to the activity being perceived as inherently interesting and valuable.

While extrinsic motivation can lead to behavior change, it may also undermine intrinsic motivation (Ryan & Deci, 2000). When individuals are motivated by external rewards, the satisfaction of the activity may become less important, and their focus may shift towards obtaining the reward. This can lead to a decrease in intrinsic motivation and a reduction in the quality of the individual's engagement with the activity. However, individuals who over time integrate external values and behaviors into their own sense of self, making them part of their identity, is a process termed as internalization in the Self-Determination Theory (Woolfolk, 2010). This process explains how individuals can go from being extrinsically motivated to intrinsically motivated.

5.1.2 Sociocultural approaches to motivation

Sociocultural approaches to motivation focus on how cultural and social factors influence individuals' motivation and behavior. According to this approach, motivation is not solely based on individual needs and desires but is also influenced by the cultural and social context in which the individual exists (Woolfolk, 2010). These approaches emphasize the importance of understanding the cultural values, beliefs, and norms that shape individuals' motivations and behaviors. Sociocultural approaches to motivation also highlight the role of socialization in shaping individuals' motivations and behaviors. Children learn cultural values and beliefs from their families, communities, and educational institutions, which in turn influence their goals and motivations as they grow older (Woolfolk, 2010).

Further exploration into the motivational implications of social interaction can be achieved by examining Lev Vygotsky's pedagogical concept of the Zone of Proximal Development (ZPD). This theory is relevant in understanding the immediate psychological development of children, taking into account their emotional and cognitive processes (Woolfolk, 2010). Vygotsky posits the ZPD as the actual development achieved by an individual through independent problem-solving tasks and the subsequent impact of guidance or collaboration with more capable peers. In educational research and practice, ZPD refers to the amount of learning a child can attain independently and the learning they can achieve with support from someone more knowledgeable or experienced (Woolfolk, 2010). To foster optimal learning for pupils, educators must provide experiences and challenges within their ZPD. The process of providing support until the less capable person internalizes skills and knowledge and begins to perform independently is referred to as scaffolding (Woolfolk, 2010). The root of this theory is that collaborative efforts with other learners or peers can impact the motivation of an individual in their journey towards better learning.

The ZPD is significant because it highlights the role of social interaction in cognitive development. Vygotsky believed that learning occurs when individuals engage in social interactions that challenge and stretch their thinking beyond what they could accomplish alone (Woolfolk, 2010). Through collaboration and assistance, learners can gradually increase their understanding and skills, leading to higher levels of cognitive development.

Identity is another notable construct in sociocultural approaches to motivation, as it plays a significant role in shaping individuals' motivation to engage in activities. Sociocultural approaches view identity not as a fixed, internal characteristic of an individual, but rather as a product of their social interactions and cultural context (Gee, 2003; Woolfolk, 2010).

According to sociocultural approaches, individuals' identity is shaped by their interactions with others, including their family, peers, and broader social networks. These interactions provide individuals with cultural scripts, norms, and values that guide their behavior and shape their sense of self. In this sense, identity is seen as a socially constructed phenomenon that is constantly evolving over time (Gee, 2003; Woolfolk, 2010).

Sociocultural approaches also emphasize the role of cultural identity in shaping individuals' motivation to engage in activities. Cultural identity refers to the shared values, beliefs, and practices of a particular cultural group, and it can provide individuals with a sense of belonging and purpose (Woolfolk, 2010). For example, individuals who strongly identify with their cultural heritage may be more motivated to engage in activities that align with their

cultural values and beliefs. Moreover, sociocultural approaches suggest that individuals' identity can influence their motivation to engage in activities that are relevant to their sense of self. For example, individuals who identify strongly with a particular social group or role, such as being a student or an athlete, may be more motivated to engage in activities that are consistent with that identity (Woolfolk, 2010). When designing appropriate instruction for their students, educators can obtain valuable guidelines from these theories.

5.1.3 Behavioral approaches to Motivation

Behavioral approaches to motivation focus on the observable behaviors that individuals display, rather than on internal psychological processes. These approaches emphasize the role of external factors, such as rewards and punishments, in shaping individuals' behavior and motivation (Woolfolk, 2010). One of the key principles of behavioral approaches to motivation is reinforcement. Reinforcement refers to any consequence that follows a behavior and increases the likelihood that the behavior will be repeated. Positive reinforcement involves adding a reward or positive consequence after a behavior, while negative reinforcement involves removing an aversive or negative consequence after a behavior (Woolfolk, 2010). For example, a student who receives praise for doing well on a test may be more motivated to study in the future, while a student who is allowed to skip a homework assignment after completing a difficult task may be more motivated to complete future assignments.

Another principle of behavioral approaches to motivation is punishment. Punishment involves the addition of an aversive or negative consequence after a behavior, with the goal of decreasing the likelihood that the behavior will be repeated (Woolfolk, 2010). For example, a student who is scolded for talking in class may be less likely to talk in the future. Behavioral approaches also emphasize the importance of shaping behavior through successive approximations. This involves breaking down a complex behavior into smaller, more manageable steps, and providing reinforcement for each step along the way (Woolfolk, 2010). This can be particularly effective for complex tasks that may be overwhelming or difficult for individuals to complete on their own.

5.1.4 Humanistic approaches to motivation

Humanistic approaches to motivation emphasize the importance of individual choice, personal growth, and subjective experiences in understanding human behavior and motivation. These approaches focus on the individual's subjective perception of the world and their own

experiences, rather than on external rewards or punishments (Woolfolk, 2010). One key principle of humanistic approaches to motivation is the concept of self-realization. Self-realization refers to the desire of individuals to reach their full potential, to become the best version of themselves. Humanistic theorists argue that individuals are motivated to pursue self-actualization, which is the ultimate goal of human existence. Abraham Maslow is regarded as an highly influential theorist with the domain of humanistic approaches to motivation (Woolfolk, 2010).

Abraham Maslow's hierarchy of needs categorizes human needs into seven levels arranged in a pyramid-shaped hierarchy (Woolfolk, 2010). The basic and fundamental needs such as physiological and safety needs are at the bottom, while self-realization needs that include personal growth and self-fulfillment are at the top. Maslow believed that individuals move from one level of need to the next, starting from the most basic needs. The hierarchy of needs provides an important framework for understanding human motivation and behavior (Woolfolk, 2010).

Another principle of humanistic approaches to motivation is the idea that individuals are motivated by a desire for autonomy, competence, and relatedness (Woolfolk, 2010). Maslow stated that humans have a hierarchy of needs. Autonomy refers to the need for individuals to feel in control of their own lives and to make decisions that reflect their own values and goals (Woolfolk, 2010). Competence refers to the need for individuals to feel capable and effective in their interactions with the world around them. Relatedness refers to the need for individuals to feel connected to others and to have positive relationships with others (Woolfolk, 2010).

Overall, humanistic approaches to motivation emphasize the importance of individual choice, personal growth, and subjective experiences in understanding human behavior and motivation. They suggest that individuals are motivated to pursue self-actualization, autonomy, competence, and relatedness, and that intrinsic motivation is a key driver of human behavior and motivation.

5.1.5 Self-efficacy theory

Self-efficacy, a construct introduced by Albert Bandura, refers to individuals' perception of their ability to accomplish tasks or goals (Tandon, 2017). Individuals with high levels of self-efficacy exhibit a tendency to embrace challenges and develop strategies to surmount obstacles (Ross et al., 2016). The possession of high self-efficacy engenders motivation, enabling individuals to tackle difficult tasks with a sense of purpose and concentration

(Tandon, 2017). When confronted with setbacks or failures, individuals with high self-efficacy tend to approach these as learning opportunities, persistently seeking solutions to overcome the barriers (Tandon, 2017). Self-efficacy is not merely a measure of an individual's proficiency; rather, it is a reflection of their belief in their capacity to learn and acquire new skills (Ross et al., 2016). Furthermore, Bandura's research suggests that the belief in one's ability to learn and accomplish tasks is a better predictor of competence than possessing inherent capabilities (Ross et al. 2016). Self-efficacy empowers individuals to envision what they can achieve, regardless of their current level of expertise or perceptions (Ross et al. 2016). Therefore, self-efficacy, rather than expertise or experience, is a more reliable indicator of potential.

Bandura's Social Cognitive Theory posits that an individual's beliefs, which are perceived as influential over their lives, are indicative of their sense of control (Schunk & DiBenedetto, 2016). If an individual perceives themselves as active agents, rather than passive recipients of others' opinions, they are empowered to take charge and pursue actions that align with their aspirations (Schunk & DiBenedetto, 2016). Self-efficacy lies at the core of Social Cognitive Theory, highlighting the individual's capacity to regulate their actions and achieve their goals (Schunk & DiBenedetto, 2016). Similar to self-determination theory's notion of autonomy, self-efficacy necessitates that the individual take ownership of their circumstances, particularly in educational contexts, to enhance their motivation. In this regard, the instructor plays a pivotal role in cultivating self-efficacy in learners (Schunk & DiBenedetto, 2016). Social-Cognitive Theory underscores that the social context informs individuals' beliefs about themselves, thereby influencing their motivation and self-regulatory skills (Schunk & DiBenedetto, 2016). By altering students' self-perceptions, teachers can facilitate enhanced motivation and self-efficacy, which impact the three factors that constitute the human condition: personal, behavioral, and environmental (Schunk & DiBenedetto, 2016),

5.2 Literature Review

To answer the research question of “What are effective gamification techniques to enhance motivation?”, a selection of three articles has been identified as relevant. These articles illuminate motivation in gamification in various ways, with both similarities and differences, which can help us with ultimately answering the research question at hand.

A study by Kim et al., (2014) state that the current state of research on gamification in education is in its initial stages, with a focus on enhancing the effectiveness of educational

activities through the incorporation of game elements. Despite efforts, several gaps in studies on gamification in education have been identified. In their paper, Kim et al., (2014) address two questions, “how can we make education more interesting?” and “what is the role of gamification in adult learning process?” through a literature review. The second article, titled *The Dark Side of Gamification – An Overview of Negative Effects of Gamification in Education* from 2018 dwells into some of the negative effects of gamification in schooling. The authors conducted a literature review to find out what the negative effects of gamification were. Their selected articles of research were fairly recent at the time, covered different educational subjects and were from a variety of countries. Their research aimed to answer the following two research questions:

1. *What are the negative outcomes related to gamification in education?*
2. *How is the gamified design related to these outcomes?*

(Toda et al. 2018, ss. 3-4)

In their research, the authors recognized four main undesirable effects of gamification, which were categorized as *Loss of Performance, Indifference, Undesired Behavior* and *Declining Effects* (Toda et al. 2018).

The purpose of Manzano-León et al., 's (2021) study was to evaluate the existing evidence on the impact of educational gamification on student motivation and academic performance in the last five years. This examination aimed to analyze gamifications' distribution over time, educational level, variables, and the most commonly utilized game elements, as well as recognize the benefits of its implementation in the classroom. Manzano-León, et al., (2021) used a systematic review utilizing the Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) methodology on three multidisciplinary databases. An extensive search was conducted with inclusion and exclusion criteria on quantitative experimental studies exploring gamification in educational settings, providing up-to-date research information. This review includes fourteen studies that use experimental or quasi-experimental designs. The majority of studies confirm gamification as a valid teaching strategy, with potential to impact academic performance, commitment, and motivation of students. In its conclusion, this study emphasizes the need for further research on the requirements and challenges students face while learning with gamified techniques (Manzano-León, et al., 2021).

5.3 Discussion

There are a lot of gamification techniques to choose from, and depending on the goal, various gamified elements serve different functions. Early research on gamification sought for an examination on what effects a specific gamification technique has on motivation (Kim et al. 2014). More recent research on the matter have provided a clearer picture on this subject, however, any detailed overview has not been established (Manzano-León, et al., 2021). Overall, the majority of studies done on gamification in education have provided favorable results on motivation with utilizing gamification as a method in education. However, as more and more research has been conducted on the matter, more and more nuances have emerged. This section of the thesis discusses both positive and negative effects of gamification in relation to motivational theory, how these effects emerge, and what educators can do to prevent declining effects to better provide desirable results with utilization of gamification.

Initial studies on gamification have found that various gamification techniques have been shown to produce short term, successful results, adhering to extrinsic motivation (Dicheva et al. 2014; Manzano-León, et al. 2021). These techniques often come at the cost of intrinsic motivation in students (Manzano-León, et al., 2021). Manzano-León, et al. (2021) found that gamified elements that only reinforced behaviors with prizes, saw a decline in motivation towards the gamified system over time. Prizes, rewards, badges, and leaderboards often function as incentives and amplifiers because they give immediate feedback and attention as a consequence for someone's actions. These methods are viewed as behavioral approaches to motivation, and often promote external motivation in learners (Woolfolk, 2010). Kim et al. (2014) also note that certain gamified elements are used as intrinsic and extrinsic motivation, and points at "rewards" for completing challenges and tasks as an extrinsic motivation. Manzano-León, et al., (2021) noted that it is widely acknowledged that the utilization of a limited number of gamification components, such as points or badges, may have a diminishing or even adverse impact on the motivation of students. These results coincide with motivational theories that are known to address external motivation (Woolfolk, 2010).

Toda, et al. (2018) found that some in some instances, the use of gamification in education could result in negative effects on motivation. Dissatisfying gamified methods consequently led to undesired behaviors in the educational setting. Additionally, students who were dissatisfied with competitive environments and overly challenging tasks, exhibited undesired behaviors. Behaviors such as a decline in the number of tasks, negative attitude, lack of focus on learning, and frustration are reported as undesired behaviors (Toda et al. 2018). These

effects arose on several occasions, due to dissatisfaction with the gamification elements, competitive environments, and overly challenging tasks.

Learners may also exhibit undesired behaviors when the gamification mechanics distract from the learning assessment itself. For instance, learners may become overly focused on earning badges, losing sight of the learning goals and the intrinsic rewards of the learning process. In some cases, learners may also become frustrated when they are unable to earn badges due to challenging tasks (Toda et al. 2018). Therefore, educators must ensure that the gamification mechanics are designed to complement, rather than compete with, the learning assessment.

Other findings from Toda, et al. (2018) reported that declining effects occurred as a consequence of using gamification over a period of time. Most notably and frequently reported gamification elements in these instances were points, badges, and leaderboards (Toda et al. 2018). These elements seemed to produce undesirable results in all main categories Toda, et al., (2018) identified in their study, specifically *Loss of Performance*, *Indifference*, *Undesired Behavior* and *Declining Effects*. Manzano-León, et al., (2021), however, observed through their extensive review of the literature that the implementation of gamification techniques involving immediate rewards is particularly beneficial for students who exhibit lower levels of motivation.

Manzano-León, et al., (2021) further explain that gamified elements such as rewards and badges can be effective when wrapped in a narrative base. “It is assumable that when students, regardless of educational level, have tasks that they consider significant, wrapped in a pleasant narrative for them, they can have greater motivation towards the task and reinforce desirable study habits.” (Manzano-León, et al., 2021, s. 10). Narrative, as a gamification element in conjunction with other gamification elements, has the potential to be a powerful tool to enhance motivation in education, as indicated by these results. The findings from Manzano-León, et al., (2021) and Toda, et al., (2018) are somewhat contradicting, leading us to question if there is more to gamification than the techniques themselves.

Some gamification elements seem to enhance short term motivation towards the gamified systems and hurt intrinsic motivation. These gamified elements are elements that only reinforce student behavior, like badges, leaderboard, points, and rewards (Kim, Yun, & Murwa, 2014; Manzano-León, et al., 2021). Additionally, motivation seem to stagnate when only one or two gamified elements are applied at a time (Manzano-León, et al., 2021). Yet, if used in conjunction with a pleasant narrative, these gamified elements can be effective in

motivating and engaging demotivated students in classroom activities (Manzano-León, et al., 2021). These findings point to a need for a careful and thoughtful selection of gamification elements that are tailored to each student needs during the design process. This principle coincides with principles from the Didactic triangle and the Didactic Relationship Model, which is designed to take student prerequisites in consideration when planning for an instruction.

It is important to note that there is no evidence for any causality between one certain gamification element and behavioral outcomes, either positive or negative consequences of gamification. However, there seem to be a connection between certain principles with the use of gamification, such as excessively challenging tasks, misunderstanding of the rules of the gamified systems and lack of variation within the gamified methods or activity, that can lead to undesired behaviors with gamification. These findings can be explained through considering values connected to some of the motivational theory presented previously. Too challenging tasks can be explained in accordance with self-efficacy theory. If the students lack the belief that they will succeed with the tasks provided by the educator, they will not participate and act in the same way as if they believed they could (Woolfolk, 2010). Moreover, these findings can be seen in light of Vygotsky's Zone of Proximal Development (Woolfolk, 2010). Overly challenging tasks without any support, like pedagogical scaffolding or a peer to assist in the learning process, can harm motivation in certain instances. Variation is a principle in the Norwegian Curriculum within the domain of differentiated learning, which can promote or weaken motivation (Udir.no, 2023).

Additionally, designers must ensure that the gamification mechanics are aligned with the learning assessment and do not distract learners from the learning goals (Toda, Isotani, & Valle, 2018). This requires careful selection and testing of gamification mechanics to ensure that they are appropriate for the intended audience and context. By considering these factors, designers can create gamified educational systems that promote optimal learning outcomes and minimize the risk of negative effects from gamification.

Gamification has also proven to provide long-term satisfying results on motivation. Gamification in physical education can lead to an increase in student participation, especially when determined objectives are present in conjunction with other gamified elements such as points, badges, and achievements, as shown in the study conducted by Manzano-León et al. (2021). A premise was that determined objectives and rewards were present. In this study, two groups were established, a test group and a traditional teaching group. For the students that

received gamification, participation increased, compared to the traditional teaching group. Manzano-León et al. (2021) found that incorporating gamification elements with a pleasant narrative, such as promoting health improvement, appears to be an effective approach. This example can be seen in relation to self-determination theory, in which gamification can promote both intrinsic and extrinsic motivation. Following this example, gamification can contribute to individuals internalizing an external cause, making individuals intrinsically motivating over time (Woolfolk, 2010).

Manzano-León et al. (2021) points out that carefully planned and implemented gamified elements can produce long term, beneficial results. These approaches encourage student interaction, collaboration, and engagement, and has seen to produce longer term, promising results on both student satisfaction, motivation and learning outcomes (Manzano-León, et al., 2021). The most commonly reported gamified elements utilized to appeal to intrinsic motivation are immediate feedback, points and levels, badges, leaderboards in conjunction with events, tasks, roles, choices, competition, and collaboration (Manzano-León, et al., 2021) (Kim et al. 2014). Kim et al. (2014) explain that each gamified element serves its own purpose, and further explain that in order for badges to produce desirable results, tasks or learning activities should have sufficient difficulty for achievement. Educators must strike a balance with the level of challenge tasks should have. Furthermore, points and levels should require challenges to be achieved, with early levels being simple and with a progression system that gets increasingly more challenging as one progresses (Kim et al. 2014). In that way, an educator can differentiate the instruction and activities and provide more support in the process to those in need.

Finding intrinsic motivations that can maintain users' engagement is crucial when creating gamification strategies. This idea is connected to the Self-Determination Theory, which identifies three psychological needs: autonomy, the degree to which an individual's actions stem from their own interests, competence, the sense of capability and accomplishment in performing a task, and relatedness to others, the feeling of connection and belonging with others while performing a task (Manzano-León, et al., 2021). In order to develop a motivating gamification strategy using SDT, it is essential for players to experience a sense of autonomy and control over their actions, as well as a belief in their ability to accomplish the game's tasks. To achieve this objective, gamification designers should take into account the different player types (Manzano-León, et al., 2021).

For educators seeking to implement gamification to increase intrinsic motivation in their classrooms, understanding the theoretical principles presented in sociocultural, cognitive, and humanistic approaches to motivation is key. Various gamification elements can promote intrinsic motivation, such as narrative, events, competition, roles, challenges, badges, and rankings, as highlighted in recent research (Manzano-León et al., 2021). By structuring narrative, events, competition, and challenge to be completed in groups, students can form a sense of team identity, as promoted in sociocultural motivational theory (Woolfolk, 2010). Moreover, collaborative group projects and tasks can activate the Zone of Proximal Development among students and their peers, as well as promote a group identity, as advocated by sociocultural approaches to motivation. Gamification elements like points, rewards, badges and leaderboard can serve as effective amplifiers for wanted behavior, which is a characteristic in behavioristic motivational theories. Additionally, incorporating game mechanics such as points, feedback, and progression can create a sense of accomplishment for students, and encourage them to continue their efforts. However, it is important to note that not all gamification methods work equally well for all students. Thus, educators should consider their students' needs and interests when selecting gamification elements and techniques for their classrooms.

This literature review and discussion on gamification methods reveal that there is a lack of causality between gamification and its motivational effects. The results from Toda et al. (2018) indicate that how gamification is facilitated and implemented is an important factor in gamification. This will be elaborated on in chapter 5 in this thesis. At the same time, it can be beneficial for educators to be familiar with the underlying reasons for why gamification is an effective tool to promote motivation in education. Although the literature reviewed in this chapter only mentions the Self Determination Theory and Self-efficacy Theory explicitly, it is essential to note that several principles from sociocultural, behavioral, and cognitive theories are relevant when utilizing gamification as an educational method.

Chapter 5 Summary

This chapter provides an in-depth exploration of motivational theories and their application in the context of gamification. Three studies were reviewed to answer the first research question, which was focused on identifying effective gamification techniques to enhance motivation. The results of the literature review suggest that gamification can indeed be an effective tool for enhancing motivation in educational settings, and this is supported by several psychological theories on motivation, such as the Self-Determination Theory Vygotsky's

zone of proximal development, as well as behavioral, humanistic and cognitive theories on motivation. These theories are not mentioned explicitly in the presented articles, however, it can be beneficial to have some knowledge of each theory's principles in order to understand and facilitate for a learning environment. It is worth noting that gamification is particularly effective when multiple gamification elements are employed simultaneously. Among the most frequently reported gamification elements are points, badges, and leaderboards, with events, tasks, roles, choices, competition, and collaboration also proving to be effective motivators.

However, it is important to be aware of some pitfalls when utilizing gamification in education. Specifically, research suggests that using less than three gamification elements at a time can actually be detrimental to motivation. Additionally, when instructional design is poor, objectives are unclear, or tasks are overly difficult, gamification can lead to negative outcomes. In all these cases, the lack of preparation in the design process can be attributed as the main culprit.

Therefore, to effectively utilize gamification to enhance motivation, educators must ensure that they design an environment with numerous gamification elements that are integrated in a meaningful way with the learning objectives. Tasks should not be overly challenging, but must provide students with a sense of purpose and progression. The evidence clearly indicates that gamification can be a powerful tool for enhancing motivation, but the key lies in how it is designed and implemented. By taking into account the various gamification elements and design principles that have been shown to be effective, educators can leverage gamification to create an engaging and motivating learning experience for their students.

It is essential to keep in mind that gamification is not a solution for all educational challenges, and it should not replace other effective teaching methods. Educators should use gamification in conjunction with other pedagogical approaches to ensure a comprehensive and effective learning experience. Ultimately, the success of gamification in education depends on how well it is integrated with existing teaching methods and how well it meets the needs and interests of the students.

In conclusion, the findings derived from the literature review suggest that multiple gamification techniques exhibit effectiveness in enhancing motivation. These techniques encompass a wide range of gamification elements, including but not limited to points, badges, goals, narrative, feedback, events, and the preparatory phase. The effectiveness of these elements can be supported by various motivational theories. However, the absence of a clear

causality with the use of gamification techniques suggests the presence of multiple underlying factors that contribute to the success of gamification as a motivation-enhancing method. Specifically, the manner in which these techniques are integrated into instruction and how the instruction is carried out appears to play a significant role. The forthcoming Chapter 7 of this thesis will elaborate on and investigate these factors in further detail.

Chapter 6 Gamification and Literacy development

In this chapter, the aim is to answer the research question of “How can gamification increase literacy development?”. This chapter will present theory on literacy and provide an analysis and presentation of the renowned linguist James Paul Gee’s work. Furthermore, this chapter will provide a literature review of three selected articles and a further discussion to help answer the research question for this chapter.

The development of literacy skills is a vital component of a child's education and has been an ongoing topic of research and discussion for many years (Perry, 2012). In recent times, gamification has emerged as a potentially effective approach to motivate and engage learners in the development of literacy skills. The aim of this chapter is to explore the potential of gamification to enhance literacy development and answer the research question of "How can gamification increase literacy development?". To achieve this goal, the chapter will provide a theoretical background on literacy development, followed by an analysis and presentation of the work of renowned linguist James Paul Gee. Additionally, a literature review of three selected articles will be presented, highlighting the benefits and limitations of gamification in enhancing literacy skills. Finally, the chapter will conclude with a discussion of the findings and implications for future research in the field of gamification and literacy development.

6.1 Theory

6.1.1 Literacy

Traditionally, literacy is defined as the ability to read and write (Gee, 2003), and is outlined as a key skill to measure population’s education in the world (Roser & Ortiz-Ospina, 2016). Historically speaking, the world population has seen a vast development in literacy development the last 200 years, with only 12% of the world population being able to read and write in 1820, to 86% being literate in 2016 (Roser & Ortiz-Ospina, 2016). These statistics, in

accordance with the weight attributed to literacy in the Norwegian curriculum, illustrate the importance of developing literacy as a primary skill in the world today.

Literacy as a term has been expanding and evolving in coordination with the technological development we as a population have experienced over the past decades (Perry, 2012). The term has progressed to encompass new skills and competencies that are necessary for individuals to thrive in this hurriedly transforming landscape. In addition to traditional reading and writing skills, literacy now includes digital literacy, media literacy, visual literacy, and cultural literacy, among others (Perry, 2012; Gee, 2003). According to Perry (2012) these new multiliteracies are termed as *new literacies*, and involves literacy practices that are associated with a rapidly changing social context. The ability to critically analyze and interpret various forms of media, navigate complex digital systems, and communicate effectively through various mediums are all essential components of literacy in today's world. This evolution of literacy has significant implications for education, as it highlights the need for a broader approach to teaching and learning that incorporates these new literacies into the curriculum (Perry, 2012).

The renewed Norwegian curriculum as of 2020 has a greater focus on new literacies in both the general part, as well as braided into the competence aims for the English and the other subjects in school. In the renewed curriculum, in-depth learning and interdisciplinary has received a greater focus, compared to LK06 (Utdanningsdirektoratet, 2023). To develop in-depth learning skills, one must gradually cultivate knowledge and achieve enduring comprehension of concepts, methods, and relationships within and between disciplines. Achieving this requires engaging in self-reflection regarding one's own learning process and effectively applying what has been learned in diverse circumstances, both independently and in cooperation with others, whether those circumstances are familiar or unknown (Utdanningsdirektoratet, 2023). The general part of the Norwegian curriculum is designed to promote a universal approach to education that considers the whole person, not just academic performance (Utdanningsdirektoratet, 2023). It emphasizes the importance of cultivating an understanding and appreciation of different identities and cultures. The curriculum recognizes and celebrates diversity, and promote empathy, respect and inclusiveness towards others. In addition, the curriculum encourages students to pursue self-development and life mastery. This involves acquiring skills and knowledge that will enable them to become productive and fulfilled members of society. Through self-reflection, students can identify strength and areas for improvement and work towards personal growth and self-improvement.

Democracy and participation are also important principles that are emphasized in the general part of the Norwegian curriculum. Students are encouraged to participate in decision-making processes and to engage in democratic practices at school and in their communities. These democratic principles are included in the curriculum to guide educators and provide students with tools for becoming engaged and informed citizens (Utdanningsdirektoratet, 2023). The curriculum also highlights the importance of learning from history to avoid repeating past mistakes. Students are encouraged to develop critical skills and ethical consciousness to examine past events and their consequences, which will help them understand the impact of historical events on contemporary society and to develop a sense of responsibility towards shaping a better future.

In the Norwegian curriculum, the skills needed to develop various competencies are facilitated through the basic skills taught in the curriculum and through specific competence aims from different subjects. Competence is defined in the curriculum as the ability to acquire and apply knowledge and skills to master challenges and solve tasks in familiar and unfamiliar contexts and situations (Utdanningsdirektoratet, 2023). This definition of competence emphasizes the importance of understanding, reflection, and critical thinking (Utdanningsdirektoratet, 2023). It is closely related to the definition of in-depth learning.

Basic skills, such as reading, writing, accounting, oral skills, and digital skills are essential for developing competence. These skills are all applicable under the wide sense of the term "literacy" (Perry, 2012). They are necessary for individuals to effectively acquire and apply knowledge and skills to real-world challenges and tasks. Through the development of competence and basic skills, individuals can become proficient in a variety of domains, such as scientific literacy, digital literacy, and financial literacy. This is critical in today's society, where the demands of the workforce and daily life require individuals to be adaptable and able to tackle complex problems in unfamiliar contexts.

The Norwegian curriculum emphasizes the importance of developing a broad range of skills and competencies to prepare individuals for success in the 21st century. By providing a strong foundation in basic skills and promoting the development of competence, the curriculum aims to prepare individuals to be critical thinkers, problem solvers, and lifelong learners. The competence aims for the English subject includes a wide variety of skills to acquire that goes under multiple literacies. The evolution of literacy holds significant implications for education, necessitating a pedagogical shift that acknowledges and incorporates the emergence of these multiliteracies within the learning environment. As such, educators must

proactively adapt their practices to reflect this new reality by adopting a universal approach to teaching and learning that effectively integrates these diverse literacies into their instructional strategies. The Norwegian curriculum facilitates for a wide use of literacies within the professional renewal of the curriculum as of 2020 (Utdanningsdirektoratet, 2023).

According to Utdanningsdirektoratet (2023), the Norwegian curriculum is conveyed to foster a comprehensive educational approach that takes into account the complete individual, beyond solely academic achievements. This educational approach is applicable to the definition of new literacies presented by Perry (2012). According to Perry (2012), literacy is not just about the ability to read and write but is instead best understood as a set of social practices. These practices are inferred from events that are resolved by written texts. In other words, literacy is not just a technical skill, but instead a set of practices that are shaped by social, cultural, and historical contexts. There are different literacies associated with different domains of life. For instance, scientific literacy, digital literacy, and financial literacy are all different types of literacies that are essential for success in different areas of life. Each type of literacy involves a unique set of skills, knowledge, and practices that are specific to the domain.

Literacy practices are patterned by social institutions and power relationships. Some literacies become more dominant, visible, and influential than others due to power dynamics and social hierarchies. For example, academic literacy is often valued more highly than other types of literacies due to its association with educational institutions and social status. Literacy is historically situated, meaning that it is shaped by historical events, cultural contexts, and societal changes. As an example, changes in technology have led to new forms of literacy such as digital literacy, which have become increasingly important in contemporary society.

According to Perry (2012), literacy practices change over time, and new ones are frequently acquired through processes of informal learning and sense-making. Individuals learn new literacies through everyday experiences. As a result, practices are constantly evolving, and individuals must continue to develop their skills and knowledge to stay current with the changing demands in society. In that sense, the Norwegian curriculum is designed in a way that it serves as general guideline towards healthy values and an ideal, without limiting itself to a certain current constraints.

6.1.2 Video Games, Literacy and Learning

James Paul Gee's book *What Video Games Have to Teach Us About Learning and Literacy* from 2003 delves into the educational possibilities offered by video games. In the book, Gee argues that video games are not simply mindless entertainment, but rather complex systems that require players to learn and master a range of skills in order to progress (Gee, 2003). Gee draws on his background in linguistics and cognitive psychology to analyze how video games engage players and facilitate learning. He also explores how video games can be used in educational contexts to promote literacy and critical thinking skills. The book highlights the ways in which video games encourage players to think creatively, problem-solve, collaborate with others, and develop a sense of agency and ownership over their learning. Gee argues that these skills are not only valuable for success in the digital age, but also for success in a rapidly changing global economy (Gee, 2003). Gee provides interesting views on how video games facilitate literacy acquisition. *What Video Games Have to Teach Us About Learning and Literacy* is an exploration of the educational potential of video games (Gee, 2003).

James Paul Gee (2003) defines literacy in broad terms as the ability to use language and other symbolic systems, such as images, sound, and graphics, in order to engage in socially and culturally meaningful activities. In his view, literacy is not simply a set of skills, but rather a way of being in the world that involves the use of diverse symbolic resources to make meaning and take action. Gee's conception of literacy includes not only traditional print-based literacy, but also a range of other literacies, such as visual literacy, digital literacy, and social and cultural literacy. According to Gee, these various literacies are interrelated and interact with each other in complex ways and are necessary for success in the modern world.

James Paul Gee's theory of Semiotic Domains

James Paul Gee's theory of Semiotic Domains identifies distinct forms of communication, or "semiotic domains" associated with different social practices and activities. Each domain involves specific practices and activities, with communication shaped by social context, and language used as a tool for meaning making. Learning a domain involves acquiring a new way of thinking, with individuals able to participate in multiple domains and transfer skills and knowledge across them as a bricolage (Gee, 2003). The theory emphasizes the interconnectedness of communication, language, and social practices in shaping individuals' understanding of the world and participation in different communities.

In contemporary times, language is not the sole means of communication deemed essential (Gee, 2003). Rather, visual symbols such as images, symbols, graphs, diagrams, and artifacts have gained significant importance. Consequently, the notion of different types of "visual literacy" becomes essential. For instance, being capable of interpreting the images employed in advertisements is a type of visual literacy. Notably, there are various approaches to interpreting such images, and they are often aligned with the intentions and interests of advertisers. Further, understanding how to interpret interior designs, modernist art, and videos on MTV constitutes other forms of visual literacy (Gee, 2003).

James Paul Gee's Learning and Identity

James Paul Gee's theory of Learning and Identity argues that learning and identity are mutually reinforcing. In this theory, Gee identifies several key principles. First, learning involves the acquisition of identities, which means that individuals develop new ways of thinking, acting, and seeing themselves as they learn and participate in different activities and communities. Second, identities shape learning, as individuals may be more motivated to learn when they see themselves as capable and competent learners. Third, affinity spaces, or online and offline communities centered around a particular interest or activity, are important for learning and identity development. Fourth, learning involves the use of "discourses," which are ways of talking, thinking, and behaving associated with particular social practices and communities. Finally, multiple identities are possible and valuable, as individuals can develop a range of skills and perspectives through participation in different communities and activities. Gee categorizes three identities that students portray: virtual, real and projective. Overall, Gee's theory emphasizes the importance of understanding the interconnectedness of learning and identity and how social and cultural factors shape both.

James Paul Gee presents a theoretical basis for understanding the intricate relationship between individuals' identities and digital media in the context of learning. Gee (2003) provides a discussion around virtual, real, and projective identities and offers a theoretical framework for understanding the complex nature of individuals' identities in relation to digital media and learning. In Gee's (2003) framework, virtual identity is the identity that an individual develops through their interactions with digital environments such as online games, social media, and other virtual spaces. This identity is shaped by the user's experiences with the virtual environment and their interactions with others within that space.

Real identity, on the other hand, refers to the individual's identity in face-to-face interactions with others in the physical world (Gee, 2003). This identity is shaped by the user's personal experiences and relationships in the physical world. Finally, projective identity is the identity that an individual constructs through their engagement with fictional characters or personas in media such as literature, film, and games. This identity is shaped by the user's imagination and the representations of these characters in media.

Gee's (2003) framework posits that these identities are not separate or distinct, but rather interact and shape each other in complex ways. Gee illustrates this phenomenon by elucidating how his virtual character in a video game must possess qualities such as persuasiveness and intelligence to accomplish the game's objectives. He emphasizes that the pressure associated with his actions is primarily attributed to his virtual identity and thus, provides respite to his real identity. A person's virtual identity may influence their real-life behavior, or a projective identity may influence how a person interacts with others in virtual or real spaces. Understanding these identities is essential for comprehending how individuals engage with and learn from digital media (Gee, 2003). Therefore, Gee's framework has important implications for the design of effective and inclusive learning experiences in the digital age.

James Paul Gee's theory of Situated Meaning and Learning

James Paul Gee's theory of Situated Meaning and Learning underlines that learning is always situated in a particular context, and meaning is created through the interaction between individuals and their environment (Gee, 2003). The theory emphasizes several key principles, including the importance of understanding the specific conditions and constraints of a particular context, participation in a community of practice, the use of tools and symbols, the negotiation of meaning, and the ongoing nature of learning (Gee, 2003). In doing so, the theory provides a nuanced understanding of how learning takes place in real-world contexts. These principles emphasize that learning is not just about acquiring knowledge or skills but rather about how individuals interact with their environment and within the social, cultural, and historical context in which they are situated.

For instance, Gee's (2003) theory of situated meaning and learning states that learning heavily relies on users' past experiences, and that past experiences are shaped and formed as new experiences are molded. For instance, Gee (2003) presents a four-step process named: probe, hypothesize, reprobe, rethink cycle, where the player must look and interact within a

virtual world, form a hypothesis about what something in the world must mean, and then reflect and react to what these effects have on the original hypothesis.

James Paul Gee's theory of Telling and Doing

James Paul Gee's theory of Telling and Doing asserts that storytelling is a crucial component of human communication and learning, and that language and action are closely intertwined. Gee identifies several principles that are essential to understanding this relationship, including that storytelling is a fundamental way in which humans make sense of experiences and create shared meanings. Stories help individuals to connect with others, understand different perspectives, and empathize with others. Gee also suggests that storytelling involves the use of narrative and genre, as well as the negotiation of identities and values. Storytelling is viewed as a cultural practice that is influenced by factors such as power, identity, and language use. Gee (2003) further explains that players in games, strive to achieve the objective presented to them, and as they progress, they construct their own narrative and story.

James Paul Gee's theory of Cultural Models

James Paul Gee's theory of Cultural Models highlights the role of culture in shaping how individuals perceive and interpret the world around them. Gee (2003) identifies several key principles, including how cultural models shape perception and interpretation, how cultural models are learned through participation in communities of practice, how cultural models are used to create social identities and hierarchies, and how cultural models can be both helpful and harmful (Gee, 2003). On one hand, cultural models can aid in learning and skill development as an experienced peer or role model. On the other hand, cultural models can lead to stereotypes, biases, and exclusion. Often in games, the player has other non-playable characters (NPCs) to interact with. These NPCs are designed by game developers and act only within the developer's plan, which in some cases, may not be particularly beneficial to the overall applicability, understanding and transferability to real-world contexts.

James Paul Gee's theory of The Social Mind

James Paul Gee's theory of The Social Mind focuses on the relationship between language, social interaction, and learning. In this theory, Gee suggests that language is a tool for social interaction, and that social interaction provides the context and support for learning. For instance, a supportive social environment for learning can provide feedback, guidance, and

opportunities to participate in a community of practice. He also emphasizes that identity is shaped through social interaction, and that power and inequality are embedded in social interaction. Digital technologies, such as online forums, blogs and social media can support social interaction and learning by providing new opportunities for collaboration, communication, and knowledge sharing.

Summary

The evolution of the concept of literacy, which traditionally referred to the ability to read and write, has expanded to include a multitude of literacies, like digital literacy, media literacy, visual literacy, and cultural literacy. These multiliteracies are termed as new literacies (Perry, 2012). The Norwegian curriculum emphasizes the importance of being literate and has updated its approach to teaching and learning to include these new literacies. This evolution has implications for education, as it highlights the need for a broader and more universal approach to teaching and learning that incorporates these new literacies in the instruction. The goal is to better equip individuals to traverse the swiftly changing landscape of the world and to thrive in the digital age.

James Paul Gee's (2003) book is an intricate book that explores what video games can teach us about literacy and learning. Gee argues that video games are an effective tool for learning because they engage players in problem-solving and critical thinking, as well as provide a sense of belonging and identity. This book analyzes how games use a variety of learning principles, such as situated meaning, active learning, social learning and learning by doing. Additionally, Gee (2003) provides intricate analyses on how video games promote literacy skills, such as reading comprehension and critical analysis, by immersing players in complex narratives and worlds. The focus in this book is related to identity, agency, social interaction within a context and communication as ways that video games promote literacy.

6.2 Literature review

The use of gamification in language learning has become an increasingly popular topic in recent years, with several researchers studying its potential benefits in the classroom (Dehghanzadeh et al. 2019). To help explore and examine how gamification can be utilized to increase literacy acquisition, a selection of three studies were deemed appropriate for the literature review for this chapter. In this literature review, we examine three articles that provide a broad overview of the use of gamification in language learning. Flores (2015) focuses on the application of gamification to enhance second language learning and presents a

pedagogical concept that promotes student interaction and collaboration. Dehghanzadeh et al. (2019) conduct a systematic review of the current state of the art regarding the use of gamification in digital environments for learning English as a second language (ESL). Their findings suggest that gamification positively impacts learners' learning experiences and outcomes, but specific gamification elements that are associated with these effects are not identified. Salaberri et al. (2021) present a theoretical framework and initial design decisions for a pedagogical game that emphasizes the cultivation of language and storytelling skills within the context of multiculturalism. The articles reviewed in this literature review provide evidence of the potential benefits of gamification for language learning, and this review aims to build on these findings by exploring the current state of research on this topic.

Flores' (2015) article titled *Using Gamification to Enhance Second Language Learning* provides a comprehensive coverage of multiple facets of language learning. Drawing on language learning theory, motivational theory, and a literature review on gamification, the article covers second language learning methodology and approaches, while also presenting gamification as a pedagogical concept and discussing educational implications for its effective integration as a method (Flores, 2015).

The article provides a detailed analysis of how gamification can enhance second language learning. Flores (2015) argues that gamification can serve as a positive contribution to the learning experience by promoting student interaction and collaboration to solve certain objectives. This is because gamification provides a context that is inherently motivating for learners, which can lead to increased engagement, effort, and persistence. The article also highlights the potential of gamification to foster a more immersive and experiential learning environment, which can help learners to better retain and apply the language knowledge they acquire.

Flores' study provides a valuable contribution to the literature on gamification in second language learning (Flores, 2015). It highlights the potential of gamification as a pedagogical concept that can enhance motivation and engagement in language learning, while also providing practical insights into its implementation in the classroom. The article underscores the importance of considering the unique characteristics of second language learning and the specific needs of learners when designing gamified interventions for language learning.

Dehghanzadeh et al. (2019) conducted a systematic literature review of the current state of the art concerning the employment of gamification in digital environments for learning English as

a second language (ESL). The study aimed to identify the gamification elements that are associated with positive learning outcomes for ESL learners. The researchers analyzed a total of 32 studies that employed gamification in ESL learning, and the results indicated that gamification had a positive impact on learners' learning experiences and outcomes. Specifically, gamification was found to enhance learners' motivation, engagement, and participation, as well as improve their knowledge and skills in English language learning.

The review also highlighted a gap in the literature concerning the specific gamification elements that were associated with these positive effects. The authors noted that none of the studies identified the specific gamification elements that were responsible for the observed improvements in learners' outcomes. This gap in the literature suggests the need for further research to explore the specific design elements and mechanics of gamified interventions that contribute to improved ESL learning outcomes (Dehghanzadeh et al. 2019).

Dehghanzadeh et al.'s study provides constructive insights into the potential of gamification in ESL learning and highlights the need for further research to explore the specific design elements that contribute to its effectiveness. The study also underscores the importance of considering the gamification elements that are most effective in improving ESL learning outcomes in the design of gamified interventions.

Salaberri et al. (2021) conducted a research study that aimed to design a pedagogical game that enhances students' literacy abilities with multimodal texts. The researchers used a design-based research methodology and a user-centered approach to develop the game "Mobeybou in Brazil," which serves as a digital manipulative game that aims to advance young children's literacy skills and cultivate language and storytelling abilities within a multicultural context (Salaberri et al. 2021). The game includes various game elements such as puzzles, narrative elements, and interactive gameplay. The study found that gamification can be an effective tool in enhancing motivation and engagement, which can in turn lead to better learning outcomes. The game was evaluated by a group of primary school children, and the results indicated that the game was well-received and had a positive impact on the children's literacy skills. The study also highlights the importance of considering user needs and preferences when designing gamified interventions for literacy development.

Salaberri et al.'s study provides valuable insights into the design of effective gamified interventions for literacy development (Salaberri et al. 2021). It emphasizes the need for a user-centered approach and the importance of considering both pedagogical and game design

principles when creating these interventions. The study also highlights the potential of gamification as an assistive technique for enhancing motivation and engagement in literacy learning.

There are several commonalities and differences between the three articles analyzed for this section of the thesis. All three focus on the use of gamification in language learning, highlighting its potential benefits in engaging learners and enhancing their motivation and learning outcomes. The text by Flores (2015) provides a general overview of gamification in language learning, while the study by Dehghanzadeh et al. (2019) provides a systematic review of the existing research on gamification and its effectiveness in supporting English language learning. The article by Salaberri et al. (2021) focuses on the development and implementation of a gamified language course in Brazil, emphasizing the role of multimodal literacy in promoting effective learning outcomes.

One commonality across all three texts is the recognition of gamification as a potentially effective tool for language learning. They all highlight the importance of engaging learners through game-like activities and fostering their intrinsic motivation to learn. Moreover, they all acknowledge the potential of gamification in enhancing the learning outcomes of English language learners. Salaberri et al. (2021) argue that games offer a rich and engaging environment that can support the development of a variety of literacies, including visual, digital, and critical literacies. The studies reviewed by Dehghanzadeh et al. (2019) showed that gamification elements such as feedback, points, rewards, challenges, and leaderboards were commonly used to enhance motivation and engagement among second language learners. Moreover, these gamification elements were found to positively impact second language learning outcomes such as vocabulary acquisition, reading comprehension, writing, and speaking skills (Dehghanzadeh et al. , 2019). Flores (2015) argued that gamification can enhance L2 learning by motivating learners to engage more actively in the learning process.

However, the research papers differ in terms of their focus and scope. Flores (2015) provides a broad overview of gamification in language learning, including several language learning principles and motivational theories to verify the use of gamification for language learning. The article delves into the theory of language learning in relation to gamification, as well as presenting empirical evidence to illustrate the benefits of utilizing the method (Flores, 2015). Additionally, Flores's (2015) study offers a comprehensive framework for the implementation of gamification techniques in a language learning environment and proposes a range of applications that harness gamification to enhance language learning. Dehghanzadeh et al.

(2019) focus specifically on gamification in the context of English language learning, while Salaberri et al. (2021) focus on the development and implementation of a gamified language course in Brazil, emphasizing the importance of narrative and multimodal literacy.

While Flores (2015) offers a more comprehensive discussion of the topic, the studies by Dehghanzadeh et al. (2019) and Salaberri et al. (2021) provide more detailed analyses of the effectiveness of gamification in language learning. Dehghanzadeh et al. (2019) use a systematic review to examine the existing research on gamification in language learning and highlight the potential benefits and challenges of its implementation. Salaberri et al. (2021) report on a case study of a gamified language course in Brazil, providing detailed information on its design, implementation, and evaluation. The article provides a theoretical framework for understanding the relationship between gamification and multimodal literacy, drawing on concepts from game studies, multimodal literacy, and second language acquisition (Salaberri et al. 2021). Salaberri et al. (2021) introduce the concept of "gamall" - a combination of gamification and multimodal literacy - as a way to describe the use of games to promote the development of multimodal literacy (Salaberri et al. 2021). Furthermore, Salaberri et al. (2021) argue that gamification can provide a range of benefits for language learners, including increased motivation, engagement, and retention.

Overall, these texts provide valuable insights into the potential benefits and challenges of gamification in language learning and literacy development, as well as the design and implementation of gamified language courses.

6.3 Discussion

Both Flores (2015) and Dehghanzadeh et al., (2019) report that gamification can enhance several aspects of the learning experience, like motivation, engagement, and enjoyment, as well as literacy skills through the use of gamified elements. The most notable gamification elements reported in these research papers are points, badges, leaderboards, levels, narrative, rewards, and progression bars (Salaberri et al. 2021; Dehghanzadeh et al. , 2019; Flores, 2015). These gamified elements are used to promote motivation and are based on different motivational theories, as well as language learning principles (Flores, 2015). The nature of these gamification elements, which contribute to the enhanced learning experience, is that they are designed to be visually appealing and informative for the users (Salaberri et al. 2021; Dehghanzadeh et al. , 2019; Flores, 2015). For instance, badges, leaderboards, rewards, levels etc. all are intended to have a visual design that indicate an achievement and/or progression

towards a goal (Flores, 2015; Salaberri et al. 2021). These elements effectively provide feedback to the student with visual cues and indication on certain tasks (Dehghanzadeh et al. , 2019). Moreover, these principles are in correlation with Gee's (2003) theories of on semiotic design principles, like interrelationships between images, words, and symbols. This interrelationship is labeled as visual literacy, and since the evolvement of technology and the incline in screens in our lives, visual literacy and comprehension is more important than ever before, as also highlighted by Perry (2012). All authors highlight the use of specific objectives, progression, and feedback, in correlation with the visual encouragements that are designed around these components as vital to the success of gamification in education, as backed by Gee's theory and Perry's article (Gee, 2003; Perry, 2012).

According to several of Gee's theories, the principle of gamification can serve as a valueable method to learn and develop literacy. Gee (2003) argues that learning involves the development of new ways of thinking and acting, as well as interacting with social peers to form an identity. Both Flores (2015) and Dehghanzadeh et al., (2019) report results that can draw similarities with this theory. Dehghanzadeh et al., (2019) highlights avatars, collaboration, immediate feedback and the use of narratives as successful gamification elements used in their research. As mentioned previously, avatars can be customized and formed to one's likening, and can serve as a visual representation of the students' level or progress towards a goal.

Narrative can be utilized to propel a story about a goal or task. The way in which narrative is employed in the classroom can sometimes enable students to direct their own story, as seen in Salaberri et al. (2021) and Dehghanzadeh et al. (2019). These instances are related to Gee's (2003) concept of virtual identity, where a person's identity is shaped by the representations they create, either through an avatar or a character in a particular narrative. This approach can help reduce stress and discomfort among students with regard to language learning, as they can assume a character and thus allow themselves to make mistakes during the learning process (Gee, 2003).

Results reported on the design of gamification from the literature review tend to focus on forming a safe environment for students to explore, act and react, without the negative social consequences from failing with language learning (Salaberri et al. 2021; Dehghanzadeh et al. 2019; Flores, 2015). These findings are in accordance with several of Gee's (2003) theories, namely Gee's theory of Learning and Identity and Gee's theory of the social mind. Based on of Gee's principles, these learning environments can make students comfortable with

exploring the language and interact with peers while using the English language. Gee explains that students often take on different identities when conversing and interacting in such environments, which may alleviate some stress in certain individuals.

Flores (2015) and Dehghanzadeh et al. (2019) report some similarities in approach when designing gamified environments. While Salaberri et al. (2021) utilizes a different approach, the principle of designing safe environment where students can discover, act, fail and respond is profound across all the reviewed articles for this thesis. These principles are further elaborated on when incorporating elements of social games in education. Examples of such environments are blogs, narratives and group projects with specific goals and objectives (Dehghanzadeh et al. , 2019; Flores, 2015; Salaberri et al. 2021), and students are intended to interact, collaborate, and communicate with each other to solve certain problems, challenges and objectives while practicing the English language. The utilization of gamification elements to solve objectives in a secure environment while learning English language skills has been identified as a strength in the development of a range literacies, according to Gee's theory and the literature review presented in this chapter of the thesis (Gee, 2003).

While all studies report mostly positive results with the utilization of gamification for language learning, there are some challenges and limitations that need to be addressed. The majority of the publications reviewed by Dehghanzadeh et al. (2019) for their study, utilized self-reported data collection methods, including surveys, interviews, and focus group discussions. Consequently, the findings obtained in their study are primarily based on the perceptions of language learners rather than actual learning outcomes (Dehghanzadeh et al. 2019). In addition, hindrances with the use of technological devices such as PCs, Mac, iPads and Phones often require internet connections and applications to run certain gamification programs, and such hindrances are not reported on in the studies review for their study (Dehghanzadeh et al. 2019). Moreover, working with intrinsic motivation is still a challenge for ESL learners, particularly when the use of extrinsic motivation through reward systems detracts from the main learning objectives and can then lead to tediousness that inhibits progress in the target language (Flores, 2015). Finally, Salaberri et al. (2021) point to the need for developing low-fidelity games that can be tested with students, so that educators can use gamification without a need for excessive time spent on the design of a multimodal application.

Although gamification appears to be a promising method for motivating students across a range of activities, literature supporting its effectiveness for literacy development remains

scarce. Further exploration and development of gamification for literacy acquisition is needed in the research field. Since literacy practices are shaped by social, cultural, and historical contexts and are vital in various domains of life, such as science, finance, and digital technology, this literature review provides promising evidence to support the integration of literacy development in education. This is especially evident in the study done by Salaberri et al. (2021), which covers a game with a pedagogical focus that highlights the development of language and storytelling abilities in the setting of multiculturalism. However, to establish gamification as a reliable method for literacy development, more empirical studies must be conducted. Moreover, as noted by Perry (2012), gamification must also be tested on other types of literacies to determine what is effective in integrating and implementing gamification for literacy development.

While some studies, including those by Flores (2015), Dehghanzadeh et al. (2019) and Salaberri et al. (2021), have provided evidence of the effectiveness of gamification in developing certain literacy skills such as vocabulary expansion, collaboration, and identity development, there is still much potential for further development. The current literature review for this chapter highlights the need to explore the full potential of gamification in literacy development, based on the theory presented on literacy and Gee's theory (Perry, 2012; Gee, 2003). According to Gee (2003), video games can develop literacy in multiple ways and within multiple literacies in a way that gamification, at the time, has not. Additionally, the literature review suggests that the potential of gamification in developing critical thinking and skills that are transferable to other domains of life is not yet fully explored. The Norwegian curriculum emphasizes the importance of in-depth learning across all theoretical subjects in school, but the current research only scratches the surface. Therefore, it is essential for educators and researchers to design and test more elaborate gamification experiences that focus on in-depth learning skills such as analysis, critical thinking, self-assessment, values, and a sense of judgment to explore the full potential of gamification in relation to literacy development.

Chapter 6 Summary

According to results from the theory analysis and literature review presented in this chapter, gamification appears to be a viable method to increase literacy development. The Norwegian curriculum provides educators with guidelines and support towards using a variety of methods in order to teach students literacy skills in several domains in life. The implementation of gamification in the ESL classroom amplifies the acquisition of literacy skills such as writing,

reading, and speaking skills, while fostering collaboration and interaction among students (Flores, 2015). Gamification is shown to produce promising results in developing multiliteracies within the domain of history, culture, and digital domains, as presented by Salaberri et al. (2021). In short, gamification methods that amplify and enhance specific objectives, progression, and feedback within a safe environment, provides motivational learning environments for students (Salaberri et al. 2021; Flores, 2015; Dehghanzadeh et al. , 2019).

However, despite the benefits that gamification seems to provide, there are some caveats with the method. First, there is no one-size-fits-all with gamification, and gamification has a wide range of space in its scope and design, meaning that gamification is a complex method with many ways of utilizing it. Therefore, there is a lot of room to “fail” for designers and educators. Gamification needs to be integrated with careful care to both promote literacy and foster student’s needs, both academically, socially, and psychologically. Additionally, the empirical evidence on gamification to increase motivation towards literacy is still scarce and their needs to be conducted more empirical studies on gamification in relation to literacy motivation in order for gamification to be seen as a reliable method of use for literacy development. Additionally, gamification as a method needs to be tested on other types of literacies, as discussed by Perry (2012), in order to establish what works in the process of integrating and implementing gamification. However, when the instruction is presented in a clear and meaningful way, in a safe space, in accordance with the right gamification elements, gamification can be a highly motivating and effective tool for the students to acquire literary skills.

While some studies have shown evidence of the effectiveness of gamification in developing certain literacy skills, there is still room for exploration. The chapter emphasizes the need to explore the full potential of gamification in literacy development, particularly in critical thinking and skills transferable to other domains of life. The Norwegian curriculum emphasizes in-depth learning, but the current research only scratches the surface in this domain. Therefore, educators and researchers need to design and test more elaborate gamification experiences that focus on in-depth learning skills to explore the full potential of gamification in relation to literacy development.

Chapter 7 Gamification Frameworks

This chapter consists of three parts. First, it will present theory on game design and gamification with a focus on frameworks for gamification. Secondly, it will present the findings on gamification frameworks from the literature review. Finally, there will be a discussion juxtaposing theory and findings. This approach deviates from the previous two chapters in that the results and discussion section in this chapter will come one after the other, in contrast to the two previous chapters, where results and discussion occurred simultaneously. This consideration was made on the basis of making the chapter as transparent as possible. The theory analysis and literature review go into the details of what the researchers have done, while the discussion section looks at the commonalities and deviations between them. The goal of this chapter is to answer the 3rd research question of: “How can gamification be integrated into a framework?”.

7.1 Theory

Theory on gamification frameworks is somewhat scarce at the moment, due to the infancy of gamification (Kim et al. 2014). Consequently, several gamification applications and frameworks use game design theory to design gamification environments for learning (Priscilla & Sérgio, 2019) . Therefore, an exploration of both gamification theories and game design theories are included in the theory section for gamification frameworks. Specifically, I consider gamification theories presented by Kapp (2012) and Landers (2015), before considering game design theories put forward by Hunicke et al., (2004)

Managing the Gamification Design Process (Kapp, 2012)

Kapp’s (2012) approach to design gamification models is an intricate one. The author tackles gamification in a wide sense of the term, meaning that his approach to designing gamification is not limited to a teaching-learning environment. However, this thesis will focus on the gamification design model meant for learning. The model from Kapp (2012) presents a structured and sequenced process for crafting instructional materials that encompasses five distinct and interrelated stages, namely: analysis, design, development, implementation, and evaluation. These phases are semi-discrete in nature and collectively guide the creation of effective and efficient gamified educational content (Kapp, 2012).

During the analysis phase, the nature of the material to be acquired is taken into consideration, including the determination of whether it pertains to declarative or problem-solving knowledge. Additionally, learners' preexisting skills and dispositions, as well as the technological resources available for the delivery of the instructional solution, are examined. The design phase of instructional development involves the creation of behavioral objectives, which are usually expressed in measurable language, using the syntax "the learner will be able to identify..." (Kapp, 2012). Appropriate instructional strategies and gamification elements are then chosen, which may include the use of examples and non-examples. Assessment items are aligned with the behavioral objectives to ensure that learning outcomes are effectively evaluated (Kapp, 2012).

During the development phase, the lesson is created, which includes the addition of gamification elements, essential resources, the creation of interface items, or the utilization of pre-existing templates. Additionally, the integration of visual and auditory media to complement the instruction is carried out. The instruction is periodically subjected to a formative evaluation process, and if necessary, the process might revert to the design phase or incorporate the changes directly into the development phase (Kapp, 2012).

The subsequent phase is the implementation phase. The implementation phase entails the actual deployment of the instruction to the learners. During the implementation phase, the educator is responsible for ensuring that the instruction is compatible with the appropriate gamification elements, and that students have a clear understanding of how to solve the objectives at hand (Kapp, 2012).

The evaluation process is ongoing throughout the instructional module and can be categorized into two types. The formative evaluation is conducted during the design and development stages, where the instructional materials are reviewed, feedback is provided, and changes are made accordingly. The summative evaluation is carried out at the end of the implementation phase to determine the effectiveness and utility of the instruction through an assessment (Kapp, 2012).

Kapp's (2003) approach to design gamification efforts does not deviate much from traditional lesson design principles like the one found with the didactic relationship model. The didactic relationship model serves as a pedagogical model that aids in the planning and assessment of instructional strategies. The didactic relationship model emphasizes six essential factors that are vital to successful teaching, namely learning prerequisites, framework factors, content,

goals, learning activities, and assessment (Lillejord, Manger, & Nordahl, 2012). This model recognizes the interdependence of these factors and their mutual influence on each other (Lillejord, Manger, & Nordahl, 2012). Kapp (2012) makes the claim that gamification serves to enhance already established instruction, and an educator should choose gamification elements based on what outcomes he/she designs for the students. He also points out that gamification design requires a great deal of planning and testing before implementing it in practice (Kapp, 2012).

Theory of Gamified Learning (Landers, 2015)

Landers (2015) proposed a theory of gamified learning that aims to connect the theoretical similarities between serious games and gamification and explain how gamification can influence learning. According to Landers (2015), gamification is growing rapidly in various fields, including business and education, but over 80% of gamification adopters fail due to inadequate design. Studies on gamification have shown that typical gamification components, like points, levels, and badges, can be helpful in some learning scenarios but detrimental in others (Landers, 2015). Landers (2015) ultimately intends to create a psychological theory of gamified learning to explore why these consequences may arise in a gamified learning environment. Serious games and gamification are closely linked together and rely on the same elements to function, however, serious games are designed to instruct and teach players certain things, while gamification is used to influence learning-related behavior (Landers, 2015). Landers (2015) theory of gamified learning proposes that gamification can affect learning by strengthening the relationship between instructional design quality and outcomes, or by directly influencing learning.

The foundation of Landers (2015) theory of gamified learning is based on two processes: a mediating process and a moderating process. In both cases, gamification is aimed at influencing a learning-related attitude or behavior. The effect of this behavior or attitude on outcomes, however, varies based on the type of the idea or subject being taught (Landers, 2015). Moderation is used to encourage a behavior that enhances learning outcomes by improving pre-existing instruction. For instance, adding a narrative to a lesson plan can increase student motivation, but its effectiveness depends on the quality of instruction. In this case, the ultimate impact of the motivational increase depends on the effectiveness of the instruction (Landers, 2015).

In contrast, gamification that involves mediation occurs when an instructional designer aims to promote a behavior or attitude that will enhance the learning outcomes directly. For example, the same narrative could be utilized to increase the time students spend with course material outside of class, thereby leading to a direct increase in learning. Effective gamified learning may involve one or both of these processes, each of which requires distinct research designs and analytical strategies to support them. This mediational approach is the most applied strategy in gamification (Landers, 2015). Landers (2015) theory of gamified learning does not propose a step-by-step framework for gamification like proposed by Kapp (2012), however, Landers theory presents two specific notions for designing a gamified environment for education.

MDA: A Formal Approach to Game Design and Game Research (Hunicke, LeBlanc, & Zubek, 2004)

The MDA framework constitutes a structured method for comprehending games, aiming to establish a connection between game design, development, criticism, and technical research in the field of gaming. As mentioned in the previous chapter on motivation, MDA stands for Mechanics, Dynamics, and Aesthetics in video game design. The implementation of this methodology is believed to enhance the iterative procedures of game developers, scholars, and researchers, thereby facilitating the analysis, dissection, and creation of diverse game designs and artifacts (Hunicke, LeBlanc, & Zubek, 2004). As such, the MDA approach holds potential for streamlining and enhancing game development and research processes and holds promise for advancing the field of game studies (Hunicke, LeBlanc, & Zubek, 2004). The MDA Framework has served as a basis for several studies on gamification the last decade (Manzano-León, et al., 2021; Mora, Riera, Gonzalez, & Arnedo-Moreno, 2015; Priscilla & Sérgio, 2019; Rivera & Garden, 2021; Dichev & Dicheva, 2017).

Aesthetics

Aesthetics in game design involve the artistic and sensory aspects that contribute to the emotional impact, immersion, and overall experience of a game, and can also affect its gameplay mechanics and usability. It encompasses various elements, including graphics, sound design, music, visual effects, animation, and storytelling (Hunicke, LeBlanc, & Zubek, 2004). According to Hunicke, LeBlanc and Zubec (2004), these aspects are often referred to the elements in a game that make a player feel a certain way, for instance, a game can be described as “fun”. However, Hunicke, LeBlanc and Zubec’s (2004) objective in defining the

aesthetics of a game is to distance themselves from the usage of simplistic terminology such as "fun" and "gameplay" and, instead, adopt a lexicon that is more precise and focused. Examples are: "Game as a sense-pleasure" or "Game as drama" (Hunicke, LeBlanc, & Zubek, 2004). Deliberating on the aesthetic elements that engender unique player experiences is considerably more informative (Hunicke, LeBlanc, & Zubek, 2004).

Dynamics

Dynamics in game design refer to the interactive and emergent behaviors that result from the rules, mechanics, and systems that make up a game. Mechanics can be designing choices such as rewards for exploring the game world, time pressure and challenges (Hunicke, LeBlanc, & Zubek, 2004). They are often complex and designed to create challenges and opportunities for players, while also providing a unique and engaging experience. Similar to aesthetics, Hunicke, LeBlanc and Zubec's (2004) discourse concerning dynamics strive to maintain a high degree of concreteness. Constructing models that forecast and depict gameplay dynamics may enable the designers to circumvent certain design obstacles (Hunicke, LeBlanc, & Zubek, 2004).

Mechanics

Mechanics pertain to the diverse range of actions, behaviors, and control mechanisms that are available to the player within the context of a game. Along with the game's content, which encompasses levels, assets, and related components, mechanics serve to reinforce the game's overall gameplay dynamics (Hunicke, LeBlanc, & Zubek, 2004). Illustratively, the mechanics that feature in card games comprise actions such as shuffling, trick-taking, and betting. These mechanics, in turn, can give rise to gameplay dynamics such as bluffing (Hunicke, LeBlanc, & Zubek, 2004).

7.2 Literature Review

As reported on in previous chapters, gamification can serve as an effective tool to enhance several aspects of education, like motivation, student engagement and learning outcome (Kim, Yun, & Murwa, 2014; Manzano-León, et al., 2021; Alonso-Arroyo, Méndez-Ibáñez, & Martí-Parreño, 2016). Gamification as an educational method to enhance learning and learning aspects, has seen a vast global expansion in the educational sector over the last 10 years (Priscilla & Sérgio, 2019) (Dichev & Dicheva, 2017). However, to this day, a significant research gap exists in the literature regarding how gamification affects student engagement

and facilitates learning (Rivera & Garden, 2021). For instance, questions on which gamified method or combination leads to a certain desired outcome, like improved self-regulation, is still unanswered (Rivera & Garden, 2021). Additionally, incorporating game design principles into different educational contexts seems to be a challenging task, with no available practical guidelines on how to achieve it cohesively and effectively (Dichev & Dicheva, 2017). Furthermore, most implementations of gamification fail due to poor design and preparation (Landers, 2015) (Toda, Isotani, & Valle, 2018). Therefore, there is a need for a systematic framework for gamification in education to help educators secure the desired outcomes with the use of gamification in education (Rivera & Garden, 2021) (Dichev & Dicheva, 2017).

Student engagement has emerged as a political and economic priority in the contemporary Higher Education (HE) landscape in the United Kingdom and beyond, with the aim of ensuring student satisfaction and favorable results (Rivera & Garden, 2021). As a consequence, Rivera and Garden (2021) set out to bridge the gap between theory and practice and provide a framework for gamification in education to help secure the desired outcomes of gamification for future adopters. They used Richard N. Lander's article titled "*Developing a Theory of Gamified Learning: Linking Serious Games and Gamification of Learning*" from 2015 as a theoretical basis for their development of a framework for gamification. By emphasizing game characteristics, Leander's paper unites the study of serious games and gamification and puts forth a psychological theory of gamified learning, which centers on modifying behavior (Rivera & Garden, 2021). Since Leander's article focuses on behavioral change, Rivera and Garden (2021) included another article to base their research on, namely Kahu's Student Engagement Framework, which focuses more on social cognitive psychology (Rivera & Garden, 2021). Rivera and Garden's (2021) article aims to establish connections between Landers' Theory of Gamified Learning and Kahu's Student Engagement Framework and systematically demonstrated links between the two, using the shared perspective of social cognitive psychology (Rivera & Garden, 2021). Ultimately, the authors have developed a framework for gamification titled "*Gamification for Student Engagement Framework*" (Rivera & Garden, 2021).

Other studies on design frameworks for gamification include a comparative study of design frameworks for gamification by Garone and Nesteriuk (2019) and Mora, Riera, González and Arnedo-Moreno's (2015) literature review of gamification design frameworks. Garone and Nesteriuk's (2019) objective in their study was to explore design frameworks applicable to gamification in education and learning, with the aim of analyzing project stages and

identifying similarities and differences in design methodologies. Mora, Riera, González and Arnedo-Moreno (2015) saw an incline in interest on the topic of gamification, and found that many gamification-based solutions fail due to lack of a sharp and conventional design process. These results correlate with findings in a previous chapter in this thesis, looking into why gamification fails to engage and motivate students in the classroom (Toda, Isotani, & Valle, 2018).

Both Mora, Riera, González and Arnedo-Moreno (2015) and Garone and Nesteriuk (2019) conducted literature reviews for the purpose of their studies. The primary objectives of Mora, Riera, González and Arnedo-Moreno's (2015) research are multifaceted. Firstly, a comprehensive survey of the gamification design process was conducted. Secondly, the interrelationship between gamification and game design processes was scrutinized. Thirdly, the gamification design frameworks currently in existence was identified and categorized according to their principal characteristics. The distinctive contribution of their research lies in the critical evaluation of the inadequacies and the principles that have not been implemented, which could result in failure (Mora, Riera, Gonzalez, & Arnedo-Moreno, 2015). Garone and Nesteriuk (2019) set out to compare design frameworks for gamification and find commonalities and deviations. Consequently, this research presents a compilation of gamification design frameworks that have been selected based on the review of existing literature (Priscilla & Sérgio, 2019).

Based off of the three studies being analyzed for this thesis, we have a few approaches with both similarities and differences. Each article tackles gamification frameworks, but they also differ in some areas. These areas will be explored in the next two sections. In the upcoming section, results from the literature review will be presented. In the next section, findings from the literature review will be discussed in relation to theory, and similarities and differences will be presented and discussed.

Gamification for Student Engagement Framework

Rivera and Garden (2021) review the use of gamification in education as a way to enhance student motivation and learning outcomes. While there is some evidence to suggest that gamification can improve engagement, there is still uncertainty about how it affects student learning (Rivera & Garden, 2021). To address this gap in the literature, the authors propose a new Gamification for Student Engagement Framework, which provides a systematic way to design gamified learning experiences based on desired student engagement and outcomes.

The authors argue that this framework could improve not only learning outcomes but also student satisfaction and well-being and could be used to gather empirical evidence about the effectiveness of gamification in education. By demonstrating systematic links between Leander's Theory of Gamified Learning and Kahu's Student Engagement Framework, Rivera and Garden (2021) produced a series of testable propositions. The propositions were as follows:

1. *Gamification is a process through which student engagement states, not solely behaviours and attitudes can be modified to support the achievement of learning outcomes.*
2. *The achievement of learning outcomes can be a measurable consequence of the state of student engagement which spans affective, cognitive and behavioural domains.*
3. *It is possible to select game attributes appropriate to support the achievement of specific learning objectives categorised into the three domains of learning: cognitive, affective and psychomotor*
4. *It is possible to select a game attribute for employment in a gamification strategy by identifying the psychological domain shared between the learning outcome/educational objective and the desired, modifying the student experience of engagement*

(Rivera & Garden, 2021, s. 8)

The steps delineated in the figure above are designed to be followed by a practitioner in accordance with a suggested process. The process of enhancing student engagement in learning begins with selecting a crucial aspect of the subject matter to emphasize, which may involve assessing knowledge or presenting students with challenges (Rivera & Garden, 2021). The next step involves determining a method for engaging students to promote learning. For instance, if the topic pertains to knowledge organization, encouraging students to engage in critical thinking may be an effective approach (Rivera & Garden, 2021). Subsequently, it is essential to consider how to support the chosen method of engagement with a game attribute, that promotes social interaction. Lastly, designing a task that integrates the selected game attribute is crucial for improving the engagement method. While an existing game that uses the attribute may serve as a reference point, modifications should be made to align the task with the learning objectives (Rivera & Garden, 2021).

Rivera and Garden (2021) discuss how researchers can test whether using certain game features can help students learn better. Researchers can ask questions like "What happens when we use game feature A (like social interaction) to change engagement state B (like how the students feel about the subject)?" and use existing ways of measuring student engagement to gather data. They can also ask "Does using game feature X (like social interaction) help students achieve learning outcome Y (like organizing knowledge)?" (Rivera & Garden, 2021).

Additionally, the article emphasizes that the framework can be used to identify the measurable consequences of using game attributes to change engagement states, such as improvements in learning outcomes. The framework can also be used to categorize reported outcomes into cognitive, behavioral, and affective components (Rivera & Garden, 2021). The ultimate goal of using this framework is to test the proposition that game attributes can positively affect engagement states and learning outcomes. If the research shows that game attributes can improve engagement and learning outcomes, then educators can use this information to create more effective educational games (Rivera & Garden, 2021).

The authors discuss using game elements like points, badges, levels, leader boards, and progress bars in educational contexts to make learning more engaging. These game elements are easy to implement and familiar to educators because they are like traditional ways of assessing students (Rivera & Garden, 2021). The authors state that breaking down learning tasks into smaller parts that can be measured is best for using game elements to make learning more fun. However, the paragraph also notes that there are many other game elements that could be used in education, and more research is needed to see how they affect student engagement and outcomes (Rivera & Garden, 2021). This framework emphasizes the importance of considering the effectiveness of a gamification intervention beyond just the achievement of learning outcomes. Other consequences of engagement, such as student well-being and satisfaction, in addition to deeper game elements like action language, environment, and human interaction are not commonly used in gamification and education literature, should also be taken into account (Rivera & Garden, 2021).

A Comparative Study of Design Frameworks

Priscilla and Sérgio (2019) conducted a literature review with the aim to contribute to the field of education by presenting a comparative study of various gamification design frameworks for learning. Their goal was to identify similarities and differences among them the reviewed studies, and to expand technical and practical knowledge in education and to provide greater

clarity on different approaches. For their research Priscilla and Sérgio (2019) conducted a comparative study of gamification design frameworks in education. Their objective was to identify similarities and differences in order to enhance technical and practical knowledge for educational purposes.

Priscilla and Sérgio (2019) found that there are two types of gamifications: structural gamification and content gamification. Structural gamification applies game design elements to motivate a learner through an instructional content without changing the content. Examples are clear goals, rewards for achievements, progression system and status, challenge, and feedback. The concept of content gamification involves incorporating game-like elements or activities into instructional content. To achieve this goal, various elements can be utilized, such as storytelling and narrative; challenges that stimulate curiosity and encourage exploration; characters and avatars; interactivity, feedback, and the freedom to make mistakes. Each of these game elements are intended to affect students' intrinsic or extrinsic motivation. Results show that most frameworks focus on structural gamification, rather than content gamification (Priscilla & Sérgio, 2019).

For the framework comparison, Priscilla & Sérgio (2019) identified the aforementioned design phases, including pre-production, production and post-production phases. The different phases are further divided into subsections. The pre-production phase includes "comprehension" and "design", production includes "development" and "application", and finally, the post production phase includes "evaluation".

Pre-production phase

Comprehension is a design step that involves analyzing the context, user profile, and technology to identify design needs. It includes context characterization, identifying objectives with questions like "what?", "who?", "why?", and "how?", data analysis, and information gathering. Design is the process of defining the concept and creating the gamification design by determining the desired behaviors through game design elements. This includes inserting content, selecting game elements, defining desired behaviors, characteristics of games, instructional content, and planning. To achieve this, designers ask "what?" and "how?" questions to define elements of challenge, fantasy, and curiosity. They also gather information and operate the design.

Production phase

Development is the stage where the gamified system is produced and the game design elements are implemented. This can also involve applying these elements to an existing learning system. This stage is observed by the use of terms like implementation, development, and operation. Application is the step where the gamified system is used by students. This step is verified by tracking activity and observing the implementation and operation of the system.

Post production phase

Evaluation is the phase where the learning outcomes from the gamification use are verified. This phase is noted by the use of terms like evaluating outcomes, assessment, and adaptation.

Regarding the design phases in the gamification process, the results show that efforts are primarily focused on the pre-production phase, particularly during the design stage. The most significant gaps were identified in the production and post-production phases, with insufficient attention given to the application and evaluation procedures. Priscilla and Sérgio's (2019) literature review concludes that gamification in education and learning can be implemented using various approaches and methods. Ultimately, the responsibility for designing a gamification model that aligns with the learning context and user profile falls to the designer in collaboration with teachers and tutors. Such a model should aim to engage and assist students in reducing frustration during the learning process by recognizing their efforts through the use of available elements within the gamified system.

A Literature Review of Gamification Design Frameworks

Mora, et al., (2015) found that gamification was gaining a lot of hype in the field of research, however, many gamification solutions fail because they are often developed impulsively or by combining various game elements without a well-defined and structured design process. Conversely, at the time of the authors' research, several gamification design frameworks existed. Mora, et al., (2015) provided an up-to-date overview found through a literature review of gamification design processes that exist at the time of research. Mora et al., (2015) used these three research questions as a basis for their study:

Q1: Which gamification design frameworks are available now in the literature and which are their main features?

Q2: Do the gamification frameworks inherit game design principles for their development?

Q3: What design considerations are not being applied, or only to a lesser extent, by the gamification designers?

(Mora, Riera, Gonzalez, & Arnedo-Moreno, 2015, s. 4)

Based off their research questions, they found results which the authors categorized in two main sectors: *Generic Framework* and *Business-Specific Frameworks* (Mora, Riera, Gonzalez, & Arnedo-Moreno, 2015). Generic frameworks are designed and applicable to a wide spectrum of settings, while business-specific frameworks are tailored to a business context (Mora, Riera, Gonzalez, & Arnedo-Moreno, 2015). This thesis will focus on the findings from the generic frameworks from this study, due to the aim of this thesis.

To summarize and evaluate the research questions, Mora et al., (2015) compiled a preliminary list of 19 game design items from the literature. These items have been grouped into five categories for better organization and analysis. The list of important design elements is clustered into Economic, Logic, Measurement, Psychology, and Interaction (Mora, Riera, Gonzalez, & Arnedo-Moreno, 2015). Under the Economic category, the list includes objectives, viability, risk, return on investment, and stakeholders. Most notably for our purpose in this thesis are objectives, viability, and risk. Objectives represent specific goals, while viability pertains to evaluating the potential of applying gamification or rejecting it. Risk refers to the probability or threat of negative occurrences (Mora, Riera, Gonzalez, & Arnedo-Moreno, 2015).

The Logic category, meanwhile, involves four elements: Loop, End game/Epic win, On-boarding, and Rules. Loop pertains to the game mechanics that, when combined with reinforcement and feedback, engage players in key system actions. End game/Epic win refers to the pre-established end of game or victory in the system, usually pushing players to the limits of their abilities. On-boarding involves the way of starting new participants, while Rules are the regulations prescribed by the designer (Mora, Riera, Gonzalez, & Arnedo-Moreno, 2015).

Under the Measurement category, the list comprises Metrics and Analytics, which pertain to the standards and algorithms used to measure efficiency, performance, progress, process, or quality. The Psychology category, on the other hand, includes Fun, Motivation, Social, Desired behaviors, and Ethics. These elements refer to the enjoyment or playfulness, the behavior that causes a person to want to repeat an action, the interaction between players, the expected response of players after the interaction, and the systematizing, defending, and

recommending concepts of right and wrong conducts, respectively (Mora, Riera, Gonzalez, & Arnedo-Moreno, 2015). Lastly, the Interaction category covers Narrative, UI/UX, and Technology, which respectively refer to the story and context created by designers, everything designed into the gamified system, and the use or need of a software component for development (Mora, Riera, Gonzalez, & Arnedo-Moreno, 2015).

7.3 Discussion

While the analysis of the theory and the conduction of the literature review has been quite detailed, a step back approach is done in the discussion section in this chapter. For instance, which gamification techniques/elements to use, will not be discussed in this section, since an elaborate discussion on gamification elements have been conducted in chapter 3 of this thesis. The reason for this choice is due to the nature of a framework, where several key components work and affect each other.

Results from the literature review shows that there a few ways to integrate gamification in education into a framework. The common census is that a framework has several key components that should be included when designing a gamified lesson, like analysis, design, implementation, feedback. These components depend on each other in various degrees and are essential components when integrating gamification in education.

Analysis

In the initial phase of designing a gamification environment, several factors are considered. According to Toda, et al., (2019) these factors include goals for the lesson, type of knowledge to be acquired, learners' existing skills and attitudes, and the technological tools available for applying gamification. These results are similar to Kapp's (2012) propositions during initial phases when designing gamification for educational purposes. According to Mora et al. (2015), the majority of frameworks prioritize Human-Focused Design Principles, wherein the person serves as the primary objective of the design (Mora, Riera, Gonzalez, & Arnedo-Moreno, 2015). These results correlate to Hunicke et al.,'s (2004) game design theory, as well as Priscilla & Sérgio's (2019) first step of their pre-production phase, where a designer has set a goal to enhance student motivation and engagement, and then gathers information on the students participating to identify the design needs. Landers (2015) also underlines the importance of analyzing students' psychological and academic needs, as significant disparities in learning can arise due to divergent learner attitudes and behaviors. These steps correlates

with differentiated instruction, which is a fundamental corner stone in the Norwegian Education act (Lillejord, Manger, & Nordahl, 2012).

The practice of differentiated instruction applies to students of all ages, including pupils, apprentices, apprentice candidates, and adult learners (Utdanningsdirektoratet, 2023). The concept of differentiated instruction entails incorporating a range of learning resources, activities, environments, and modes of assessment to ensure that each learner receives optimal benefits from the education program. Lillejord et al., (2012) stresses the need for equitable opportunities for all students, regardless of their backgrounds, and highlights the teacher's crucial role in facilitating a training program that caters to the unique needs of individual students and collective interests of the community. The curricula are designed to allow for modifications and adjustments (Utdanningsdirektoratet, 2023), which is also a principle in game design theories (Hunicke, LeBlanc, & Zubek, 2004) and with gamification design principles (Landers, 2015; Priscilla & Sérgio, 2019; Mora, Riera, Gonzalez, & Arnedo-Moreno, 2015; Kapp, 2012; Rivera & Garden, 2021).

When preparing for behavioral objectives and desired outcomes, goals are formulated. Several studies highlight the importance of using a precise language when formulating a goal (Kapp, 2012) (Hunicke, LeBlanc, & Zubek, 2004), typically following the syntax "the learner will be able to identify..." (Kapp, 2012). Using precise language to determine certain goals, outcomes or desired behaviors are also highlighted in Rivera and Garden's (2021) and Priscilla and Sérgio's (2019) research and by Hunicke et al.,(2004). Rivera and Garden (2021) heavily focus on that the user of their framework will be able to test the individual components of gamification, and for that the designer needs to use concise language to find causality between the different elements being tested.

Design

Instruction refers to the process of delivering information, knowledge, and skills to students through various teaching methods and strategies (Priscilla & Sérgio, 2019). According to both theory and the literature analyzed, planning for an effective instruction on both the objectives, goals, rules etc. for the gamified session, is essential for gamification to be successful.

Landers (2015) emphasizes the importance of an effective instruction when using gamification in a classroom. These results compare to the findings from Toda et al., (2018), which was discussed in the third chapter of this thesis on how poor instruction was one of the main reasons for why gamification fail in education. Instruction is a large subject and covers a

lot of aspects of classroom leadership. Agreeing with Priscilla & Sérgio's (2019) results, planning an effective instruction and defining desired behaviors should also be done during the design phase.

A lot of effort during the design phase goes into what kind of gamification elements a teacher can use to promote the desired outcomes (Hunicke, LeBlanc, & Zubek, 2004; Kapp, 2012; Landers, 2015; Rivera & Garden, 2021). Based on Landers' (2015) theory, which gamification elements one chooses to use and how they are used, affects student's time on task and engagement with the course material, and are essential components in gamification that needs attention in order to promote wanted learning outcomes. Gamification elements are explored in detail in chapter 3 in this thesis.

Implementation

Data on the implementation of gamification into the classroom itself, does not seem to receive much attention in theory (Kapp, 2012; Priscilla & Sérgio, 2019). The reason for this could be the elaborate focus on the planning and designing stage. However, as a class leader, it is valuable to track the student activity and carefully observe the implementation of the gamified system in action (Priscilla & Sérgio, 2019). Mora et al. (2015) encourages gamification adopters to use metrics and analytics in their sessions to measure processes and performances in various categories. This can be done in various ways and on various sub-topics like gamification efficiency, students' performance, as well as students' psychological needs. The important principle is to track and measure elements for adjustments and future use. This is also supported by Kapp (2012), which suggests gamification users to keep a living design document, which can serve as a foundation for further development. Additionally, the educator is responsible for ensuring that the educational and gamified systems work as they should in the classroom (Kapp, 2012).

Evaluation

According to the theory analyzed and results from the literature review, a lot of effort should go into evaluating the process of gamification. As mentioned in Kapp's (2012) section, there are two evaluation processes to consider. One is during the design and development process, where material should be assessed, and feedback provided from other peers/teachers. This feature is supported by Hunicke, LeBlanc and Zubek's (2004) MDA theory, where game developers have the possibility to play test and then fine tune the experience before releasing the product to the public, based on the feedback provided along the development cycle. The

other form of evaluation from Kapp (2012), is a summative evaluation, where feedback from students is collected and analyzed after the session has been completed (Kapp, 2012). This is supported by Landers (2015), Mora et al., (2015), and especially in Rivera and Garden's (2021) framework, which focuses heavily on testing how each element affects another, which serves as a mean to alter the gamified experience for future implementations. Not all teachers may have the time to test their methods prior to the lesson, however, results indicate that one should strive to collect feedback during the design phase from other teachers or co-workers.

Chapter 7 Summary

Based on the discussion provided, the assumption is that integrating gamification into education requires a framework that includes several key components such as analysis, design, implementation, and evaluation. Analysis involves setting goals, analyzing students' psychological and academic needs, and identifying design needs. Design involves effective instruction and defining desired behaviors, as well as deciding on which gamification elements to use. Implementation involves carefully observing the implementation of the gamified system in action and ensuring that the educational and gamified systems work as they should. Evaluation involves assessing the materials during the design and development process and collecting feedback from students after the session has been completed. Each of these components that make up a framework for gamification, requires elaborate knowledge by the user and time to plan and design a gamified environment for it to be effective.

These frameworks for gamification are, in general, quite comprehensive in detail and entail much more than how to implement and use gamification for educational purposes. Moreover, they share a lot of the same principles found in traditional frameworks for designing instruction, like with the didactic relationship model. Game design and gamification theory can help educators by providing fundamental principles to reflect around when using these gamification frameworks. Landers (2015) states that "... although one might claim that they learned from a game, it would generally not be valid to say that they learned from gamification." (Landers, 2015, s. 8). Landers (2015) points out that gamification serves as a method to enhance behavior and attitude towards learning, and underlines that gamification is not the instruction itself. Accordingly, educators are encouraged to focus heavily on which behavioral outcomes are beneficial to promote time spent on tasks and select gamification methods best suited to reach these goals. Overall, the success of gamification in education

depends on the effectiveness of the framework used and how well the key components are implemented.

Chapter 8 Conclusion, limitations and Future research

8.1 Conclusion

This thesis aimed to identify key factors that can contribute to the effectiveness of gamification in increasing literacy development and provide insight into how gamification can be integrated into an educational framework. To help attain this goal, a set of three research questions were formulated.

1. “What are effective gamification techniques to increase motivation?”
2. “How can gamification enhance literacy development?”
3. “How can gamification be integrated into a framework?”

Through an in-depth exploration of various theories and three literature reviews, the research questions were answered.

The effective use of gamification techniques involves the integration of at least three gamification elements with the learning objectives. Furthermore, gamification should not try to replace other effective teaching methods but rather be used in conjunction with already established instruction and teaching methods for a comprehensive and effective learning experience. Furthermore, the literature review highlights gamification elements such as objectives, challenges, and a progression system as awarding. The literature review confirms that gamification can be a successful method for enhancing motivation in education, a finding that is supported by various motivational theories. Analyzing motivational theory can provide insight into the underlying psychological factors at play in a gamified environment. It is important to note that ineffective implementation, such as poor instructional design, unclear objectives, and overly difficult tasks, can lead to negative outcomes. Therefore, the importance of effective implementation cannot be overstated.

Gamification can enhance literacy development by creating a safe and engaging learning environment that promotes critical thinking, problem-solving and creativity. Collaboration and interactivity among students can also be fostered, enhancing communication skills, social

skills, and understanding literacy concepts, such as social, historical, and cultural values. This is most evident in Salaberri et al. (2021)'s study. Clear objectives and progression are also crucial for the success of gamification, aligning with learning objectives and providing a clear path for students to progress through various levels of difficulty to stay motivated and achieve learning goals.

The integration of gamification into educational contexts necessitates a comprehensive framework that encompasses several key components, including analysis, design, implementation, and evaluation. To create an effective gamified learning environment, educators need to invest considerable planning efforts, knowledge, and time. Such frameworks share similarities with traditional instructional design frameworks, and game design theory can provide educators with fundamental principles to consider when incorporating gamification in their teaching practices. A critical component of game design involves constant testing and reiterating based on user evaluation (Hunicke, LeBlanc, & Zubek, 2004), which educators should do to enhance their own gamification practices. Moreover, both game design and education require that the focus be on the player or student, and the instruction should be designed around their social, psychological, and academic needs and in relation to learning objectives. These principles coincide with philosophies found in The Didactic Triangle and The Didactic Relationship model, which are commonly used frameworks for instruction in Norwegian education (Lillejord, Manger, & Nordahl, 2012).

The purpose of this thesis has been to look at key factors that contribute to the effectiveness of gamification in increasing literacy development, and to examine how gamification can be integrated into an educational framework. Key factors that make gamification effective is its methods to enhance certain learning environments and use game-based elements as tools to promote certain behaviors with efficient design principles that students seem to find motivating. These methods are best used on already effective classroom instruction. The development of literacy with gamification shows a lot of promise. Gamification can enhance literacy development by promoting collaboration, interactivity and engagement while using certain game-design elements, such as narrative, points, goals, progression, and achievements. Integrating gamification into education requires a comprehensive framework, similar to traditional instructional design frameworks, and should be designed around the social, psychological, and academic needs of the students and in relation to learning objectives. Both

game design and education should focus on the player or student, and instruction should be designed around their needs and learning objectives.

8.2 Limitations and Future Research

One significant limitation of this thesis lies in the selection of literature. The selection of literature in the thesis may have left out some significant studies or ideas related to gamification. Gamification is a multifaceted concept that has been extensively explored in numerous fields, such as psychology, education, marketing, and game design, among others. The literature on gamification encompasses a broad range of topics, including its theoretical foundations, its practical applications, and its impact on behavior and motivation. Despite the considerable amount of literature on gamification, it would be impossible to cover all aspects in a single study. This thesis aimed to cover the most relevant and influential literature on gamification that could contribute to the study's objectives. Therefore, it is essential to note that the thesis's findings are limited to the literature reviewed and may not represent the entirety of the gamification phenomenon.

It is also important to consider that the selected literature may have inherent biases and limitations. Therefore, the interpretation of the findings and the extent to which they can be generalized should be considered with caution. Future research should aim to expand the scope of the literature review and incorporate a more diverse range of theories and perspectives to gain a more comprehensive understanding of gamification's effectiveness in enhancing motivation and develop literacy skills.

While the Norwegian curriculum emphasizes literacy development and in-depth learning, the current research only provides a superficial understanding of gamification. Although, some studies have demonstrated the efficacy of gamification in enhancing certain literacy skills, further exploration is needed. It is important to investigate the full potential of gamification in promoting literacy, especially in fostering critical thinking and skills transferable to other domains of life. Hence, educators and researchers must develop and evaluate more sophisticated gamification experiences that concentrate on in-depth learning skills to unlock gamification's full potential for literacy development.

While the literature review provides a foundation for understanding the effectiveness of gamification, there are research gaps in this study. The absence of a clear causality with the use of gamification techniques suggests the presence of multiple underlying factors that contribute to its success. These findings coincide with previous research done on gamification

(Manzano-León, et al., 2021). Based on the conclusion, scholars should focus on investigating these underlying factors in greater detail to gain a more comprehensive understanding of the relationship between gamification and motivation in education.

Additionally, research on gamification and literacy development is still scarce. According to Gee (2003), video games hold much learning potential that is not fully extracted through gamification. This thesis suggests that future research should explore the combined use of technology tools and game design to fully leverage the potential of gamification in education. A collaborative effort between game designers and educators is necessary to determine the most effective ways to incorporate gamification and to establish whether it is a viable educational strategy. Moreover, future research should focus on identifying age-appropriate tools and concepts. Unlike simply using basic gamification elements in educational practice, game design creates an immersive atmosphere that informs social interaction, objectives, and how to proceed. Therefore, game design is crucial in making gamification enjoyable, engaging, and effective in learning and education.

8.3 Final thoughts

This study contributes to the existing body of scholarship on gamification which is a growing field in necessitation of an expansion in knowledge. In doing so, this study supplements the existing knowledge base and point to additional areas for future research. However, it is important to emphasize that in relation to video games, gamification has only scratched the surface as to what can be drawn from and achieved in comparison to these video games (Gee, 2003). There are many more components within the domain of video games that can enhance the mechanics, dynamics, and aesthetics in education. Potentially, a complex AI system can tailor a learning experience to individual needs based on the input of the student, which is common video game characteristic in video games. This feature is present with the use of cookies on selected websites nowadays. With this method, students could get even more effective and precise differentiated learning experiences.

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