

Mali Grimstad

"Player has joined the game"

A text-based interview study on gamers' perception and understanding of learning in video games

Master's thesis in Pedagogy
Supervisor: Daniel Schofield
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Abstract

This study aims to explore how gamers, those who play video- and computer games, perceive and explain their own learning experiences in gaming. James Paul Gee's (2003) theory on learning principles in video games was used as a theoretical approach, together with a brief look into intrinsic motivation and self-determination theory (Deci & Ryan, 2000). This is an attempt to recognize the learning potential within regular made-for-entertainment video games.

To find gamers' perspectives and explanations for their gaming experiences, a text-based interview was made and released as a survey online. The survey consisted mainly of open questions that could be replied to by the informants' discretion, with as much or little text as they wished to share. In the end data was collected from 133 informants from around the world.

Through analyzing the collected data, many of Gee's (2003) learning principles were identified. Subsequently the data was split into 7 categories, with several possessing multiple sub-categories. Of these 7, 3 were presented with Gee's principles. The remaining 4 were presented in shorter fashion and without examples from the informants.

In the discussion video games were found to be good learning environments, in concordance with Gee's (2003) theory. Therefore, games were subsequently discussed as potential educational tools for formal learning. The study also briefly discussed potential drawbacks of video games in general.

At the end, the study was summarized and there was a brief speculation on where research on gaming and gaming practices could go from here.

Sammendrag

Denne studien forsøker å utforske hvordan gamere, folk som spiller videospill, opplever og forklarer sine læringserfaringer innen videospill. James Paul Gees (2003) teori om læringsprinsipper i videospill ble brukt som teoretisk rammeverk, sammen med et kort blikk på indre motivasjon og selvbestemmelsesteori (Deci & Ryan, 2000). Dette i et forsøk på å gjenkjenne mulige læringspotensial innen videospill primært lagd for underholdning.

For å finne gameres perspektiver og forklaringer på deres spillerfaringer, ble det lagd et tekstbasert intervju som siden ble delt som en spørreundersøkelse på nettet. Spørreundersøkelsen inneholdt for det meste åpne spørsmål som fritt kunne besvares av informantene, med så mye eller lite tekst som de selv ønsket å gi. Det ble totalt samlet data fra 133 informanter verden rundt.

Gjennom analysen av data ble mange av Gees (2003) prinsipper identifisert. Dataene ble så delt inn i 7 kategorier, hvor flere hadde underkategorier. Av disse 7 ble 3 presentert med Gees prinsipper. De resterende 4 ble presentert noe kortere og uten eksempler fra informantene.

I diskusjonen ble videospill funnet å være gode læringsmiljø i samsvar med Gees (2003) teori. Videospill ble dermed diskutert som potensielle læringsverktøy innen formell læring. Studien diskuterte også potensielle negative sider ved videospill underveis.

Til slutt ble studien oppsummert, og det ble kort redegjort for mulig videre forskning innen videospill og praksisen rundt fenomenet.

Acknowledgement to the artist

I would like to thank Anne Patitz, also known as Petalann, for her creation of the art that was used on the cover of this study. Publication of the cover art is done with the artists permission.

Preface

Well, finally this master thesis is reaching its conclusion. It has been a long and arduous journey, filled with ups and downs. Starting with my utter disappointment of only receiving 5 informants when I first released the survey. To the joy (and worry) at suddenly having well over 100 the next time I shared it. It's been a rough ride at times, that's for sure.

Video games is none the less, a topic that is near and dear to my heart, so there was no question what I wanted to write about for my masters. My fellow students and many of my professors are undoubtedly very done with hearing me drone on about them. Though, I also like to think I might have swayed some to take a second look.

Taking a critical look at something I already love and knew a lot about has been an interesting endeavor. I've confirmed many suspicions, as well made new and exciting discoveries. My love for video games and their potential has certainly not dwindled. And I am eternally grateful that I have been allowed to continue to dive deeper into this particular topic.

With that I must also extend a big thank you to my many informants who have written to me about their experiences with learning in video games. This study would have been nothing without you, and I am forever thankful for your contribution and your support! (as well as the many inspired text arts left for me in unused answer boxes).

I would also like to greatly thank my supervisor, Daniel Schofield. Who has now suffered my endless game chatter twice! The encouragement to research and write about something I love is something I will always carry with me. And the support, excellent advice and patience during this last year has been fundamental to me making it this far.

I must also thank my friends and family (gamers and non-gamers (though I see you playing that mobile game) alike) for all their help and dutifully sharing the survey when I begged them to. A special thank you to my gamer friends who have suffered endlessly as I've contemplated the complexity of games and the community *at* you. I'm glad you are all still willing to sit down and play a game with me.

Thank you all, and game on!

Orkanger, November 2021

Mali Grimstad

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1. Introduction

Video games, love them or hate them, this is clearly an entertainment form that has come to stay. After their introduction in the 70s, video games as an industry has grown into one of the largest of its kind within the entertainment industry (Fossum, 2019). It is by now, as reported by DFC intelligence in the news article site "Gaming bible", to be a pastime for over 3 billion people worldwide (Moore, 2020).

It is an entertainment that interests and engages a wide demographic with gamers being of all genders, ages, and nationalities (Yee, 2006). With such a large userbase, and being such a uniquely put together medium; it was only a matter of time until its uses started to expand beyond that of simple entertainment.

Games have already made their way into several classrooms and other learning facilities. With games such as the *Assassin's creed* series that got its own learner mode based on requests from teachers who were already using the games in their history classes (Ubisoft, 2018). With the arrival of a global pandemic, teachers in the UK and US have also turned to using video games in their digital teaching to engage and connect with students, according to a study founded by G2A.com (2021), an online marketplace for video games and gaming services. G2A.com now has a free-to-access course for teachers to learn how to use video games as learning tools.

1.1 Existing research

While it would seem the learning institutions of the world are starting to take notice of the potential for learning in video games, it has already been relatively established within various fields of research. For example: a study in 1983 that looked into the improvement of hand-eye coordination when playing video games, concluded that people with superior hand-to-eye reflexes likely sought out such activities (Griffith, Voloschin, Gibbs, & Bailey, 1983). The more recent study of improving reflexes and reaction time when playing action games by Spence & Feng (2010) found that such games did appear to improve several reactionary skills in players. Meanwhile, Adachi & Willoughby (2013) found a decent link between playing video games and the development of good (or at the very least tenacious) problem solving skills. The learning and improvement of language skills have been observed by several studies such as Brevik's (2016) findings of boys having better reading skills in English than their native languages due to their gaming activity. Griffiths' (2002) also gave an account of how video games have already been used as tools to teach language to children with special needs.

In addition, it has not escaped researchers that video games inspire great motivation in those who use them. A study in 2006 by Ryan, Rigby, & Przybylski, found that video games seemingly managed to fulfil all three psychological needs as presented in self-determination theory (Deci & Ryan, 2000). Possible ramifications and possibilities of this were later explored by Przybylski, Rigby, & Ryan (2010), resulting in a possible explanation for addiction to video games.

Finally, I will mention that Green & Bavelier (2012) in their study about attentional control development from video games; concluded that only a few genres of games were seemingly able to "teach" the gamer anything. They believed that games such as role-playing games (RPGs) for example, did not hold any learning potential; at least not in ways that could be measured in numbers.

These are but a few studies that have begun to explore the possibilities that might be within video games for a field such as pedagogy.

1.2 Positioning myself as a researcher

I am a player of video games myself, and thus I am already enamored with the world of video games and what they could possibly give beyond pure entertainment. As such, the changing attitude towards digital education and digital learning tools, as well as the findings across the research field has piqued my interest. If we shift focus from what a game is about, as in content, what can we learn from video games? And how?

According to James Paul Gee (2003), games, or 'good games' as he calls them, all possess most - if not all - the aspects needed for a good learning environment. You will always be engaged in learning when you play a game, *what* you learn however might only be useful or of importance to the game itself or others like it. As such, Gee (2003) doesn't explicitly state that games should be used as learning tools, instead claiming that they possess wisdom in how to create good, digital learning tools or indeed good learning environments in general (analog included).

It is with all this in mind that I set off on a journey to look into just how gamers (people who play video games) learn from video games (if they learn at all). And are gamers (or at the very least could they become) aware that they are learning while playing video games? Gee (2003) in his book mainly goes off of his own ideas and thoughts while playing video games, and while I as a gamer also recognize a lot of what he writes about games and their learning environments, will others?

1.3 Research question

With the introduction in mind, the main research question is as follows:

"How do gamers perceive and explain their learning experiences in games?"

Games here are understood as video and computer games of various kinds, and gamers as the people who play these games. In addition to trying to answer this research question, I will also discuss the potential of using video games as educational tools in formal learning. Formal learning being understood as learning done within an institution where there will be a form of certification or assessment at the end of the learning process.

This is of course a rather open research question and thus needs some limitation or this thesis would be much too long. There are a myriad of ways to both look into this problem and angles to approach it. I have here chosen to use Gee's (2003) book "What Video Games have to Teach us about Learning and Literacy" as a starting point from which I will attempt to see if other gamers also recognize the learning potential in games as it is recognized by Gee in his book. This will be presented in part 2 – Theoretical approach.

I have also chosen to include motivational theories, primarily the self-determination theory, as that theory could also potentially help translate what it is about gaming that is so captivating. In addition to how it could, potentially, be translated into a viable learning tool for formal learning.

To answer the research question, I have chosen to do a qualitative study with a "written interview" of gamers of various ages and backgrounds. In practice I sent out a collection of open-ended questions on various social media such as Facebook and Tumblr, and requested gamers to please respond. This in turn means that my study has a global setting as it is not connected to one national context. Indeed, the global aspect of gaming is held as one of its strengths as it seems to erase and lessen differences in things such as culture, age and socioeconomic background (Granic, Lobel, & Engels,

2014). Thus, it was deemed preferable for this study to adopt the global approach. This will be further discussed in part 3.

Finally, I have already mentioned how I, the researcher, am a gamer. This makes me an *insider* within the phenomenon I wish to study, which has both its benefits and challenges. All of which I will get into detail in part 3 as it is an important aspect of being transparent and increase this study's reliability.

1.4 Defining learning

At the top though, what do I mean by learning? There are many a definition of what learning is and what it does to the individual (Säljö, 1979). Depending on your experience with learning and your ability to reflect learning can, according to Säljö, go from deceptively easy to describe (or taken for granted) to something that is more complex and dependent on context. It's truly a matter of perspective and really, which school of thought the researcher subscribes to. Through my own experiences with video games and the social nature surrounding it, my definition of learning and how it comes to be finds its companion in sociocultural theory (SCT). SCT sees learning as a process happening both within the individual, as well as around it in form of social interaction (John-Steiner & Mahn, 1996). The development of skills and attainment of knowledge is a joint effort between people as it were, in various forms and shapes. And it is subsequently internalized by the learner as skill, knowledge or behavior (John-Steiner & Mahn, 1996)

This understanding of learning also allows for the understanding that learning happens, for a lack of better words, all the time. As in, you do not stop learning once you leave school. This further puts forth the premise that behavior, thoughts and ideas and development thereof all count as learning. This understanding fits well with the definition of informal learning as presented by UNESCO (2009). In UNESCO's (2009) report on adult learning and education, 3 forms of learning are defined.

Formal learning is as already mentioned, organized, and held within some form of training or education institution (schools, academies etc.). There are set learning goals and there is a conscious intent to learn by the learner. And there is a form of certification or proof of learning at the end of it.

Non-formal learning on the other hand, while possessing almost all the same criteria as formal learning, does not need to happen within an institution and there is no certification. Examples of this could be learning a language by oneself or engaging in hobbies requiring skill and knowledge to perform.

Finally, we have *informal learning*. UNESCO (2009) describes this as happening in everyday life during leisure activities or time spent with others. There is no structuring of the learning, as it is with the other two, and the learner does not always have the intent to learn.

1.5 Paper disposition

To answer the research question "*How do gamers perceive and explain their learning experience in games*" this paper is structured into 6 parts. Each part will touch upon a unique part of the work that went into this paper, both the theoretical and practical parts. Most of these chapters will do a brief presentation of the content that follows.

Part 2 will deal with the theoretical approach this study takes, as well as clarify some terminology from the world of gaming to the uninitiated.

Part 3 presents the methodological work done with this research project. Both the methodological choices made, discussion of ethics and quality of the study. As well as my role as a researcher and an insider in the phenomenon (gaming).

Part 4 will "introduce" the informants and present the results of the research. As well as the analyzation effort in concordance with the theoretical approach shown in part 2.

Part 5 is where I will discuss the overreaching findings, and also discuss the potential video games have as educational tools for formal learning.

Finally, in part 6 I will do a summary of the paper as a whole, as well as discuss potential future research.

2. Theoretical approach

In this chapter I go through theories I have deemed useful in answering my research question "How do gamers perceive and explain their learning experience in games?". I will also define 'video games' and 'gamers', and clarify some of the 'gamer lingo' as it is at times used throughout this paper by both me and certainly the informants. I start by accounting for the world of video games, which is largely based on my knowledge of the phenomenon and general community. Subsequently I will move onto Gee's (2003) theory, where I will group principles together and link them to educational theory terms for both my ease and others who might not be familiar with the linguistic area of academia. Then I will account for motivational theory, specifically *self-efficacy theory*.

2.2 The World of Video Games

Video games have been around for several decades already, with the first proper game coming out in the 60s (History.Com, 2019). From there video games became properly mainstream in the 70s and 80s through the introduction of home consoles. Since then, this media has changed and developed rapidly both in terms of technology, how they are perceived and the players themselves (History.Com, 2019). In this chapter I will clarify some terms from the gaming world, as well as link it up to the term *play*.

2.1.1 The video game lingo

Gaming is an umbrella term for any and all play of a game using either the computer or a console that can be either stationary or handheld (Gee, 2003). A *gamer* is the person who play these games. Whether or not a person playing phone games only can be called a gamer is a debate that this paper does not intend to take. I will however acknowledge that mobile games have changed greatly and have become more complex and involved, becoming more like computer- and video games. Ultimately however, one can play computer- and video games and still not see themselves as a gamer. Meaning being a gamer is subjective and something one would normally choose to identify as.

A gamer isn't just a gamer however, there are a multitude of variations depending on what genres of games one prefers and how one likes to play. First is the question of play alone or with others, so called *singleplayer* or *multiplayer* games. Singleplayer games tend to be a lot more story-driven no matter the type of genre, whereas multiplayer plays into the social aspect of things and tend to be either driven by cooperation or competition (Harteveld & Bekebrede, 2011).

Next is the topic of *game genres*, and as they are many and plentiful, I will only give a brief presentation. These categories are of course the same used by the informants to identify their own preferences in gaming. Genres in gaming function in a lot of the same

way as genres in books and movies, it tells you something about the content of the game. At least in terms of how it is played and arranged. As genres are so plentiful and many of them tend to overlap in one way or another, I have chosen to present them in a table with 4 “categories”. *Genre* will name the genre in question, the *focus* category presents the recognized core essence of the genre. The *gameplay* category gives a brief look into what is fundamental to the play of such games, and finally the *example* category gives example of games fitting into the given category. This table is of my own make, and stems from both the facet analysis of video game genres (Lee, Karlova, Clarke, Thornton, & Perti, 2014) and my own experience with games. It is by no means an exhaustive list as there are many hybrid genres and sub-genres out there. And the facet analysis is an encouraged read if one would like to know more of the complexity and multi-faceted information dimensions present within video games (Lee et al., 2014). Think of this table as more of a general overview of the broader genres, some of which were not brought up in the presented facet analysis by Lee et al. (2014).

2.1.2 Table of video game genres

Genre	Focus	Gameplay	Examples
Action	Reaction Time	Testing of skill	Grand Theft Auto, God of War
Adventure	Storytelling	Solving problems and mystery	Unwritten tales, Dreamfall
Action-Adventure	Hybrid genre	Testing of skill and solving problems	Uncharted, Assassin’s Creed, Dishonored
Horror	Horror Narrative	Varying	Silent Hill, Amnesia
Platform	Reaction Time	Moving through levels with designed challenges	Super Mario, Castlevania
Puzzle	Problem solving	Logical thinking, pattern recognition	The Room, Myst
Massive Multiplayer Online (MMO)	Multiple Players playing online	Varying	World Of Warcraft (MMORPG), Call of Duty (MMOACTION)
Role Play Game (RPG)	Storytelling and control of character choices	Create your own character and/or influence character choices through story	Witcher, Dragon Age, Skyrim, Mass Effect
Shooter	Reaction time	Defeat the enemy with firearms	Doom, space invaders
Simulation	Simulating real life or professions	Resource management	Stardew valley, Truck Simulator, The Sims
Sports	Reaction time and test of skill	Playing sports virtually	FIFA, SSX
Strategy	Planning and resource management	Defeating opponents/reaching goal through resource use	Oxygen not included, Gwent, Tower defense
Survival	Player put in survival situation	Exploring and gathering/managing resources	The Forest, Stranded Deep, Don’t Starve

2.1.3 Video Games and the act of play

The act of *play*, as in children playing, is nothing new to pedagogy. On the contrary it is gaining traction and interest and not without reason. Play is recognized as integral to child development (Ginsburg, 2007), as it allows children to use their creativity while developing an array of basic skills such as motor functions, speech and their cognitive faculties. Play is generally defined as an activity done for the activity's sake, where the activity itself is much more important than any perceived goal with the activity if there even is one (Smith & Pellegrini, 2008).

And while learning through play is recognized, at least for children, there is an idea that education should not become "too much play" (Roussou, 2004), as education is after all not supposed to be entertainment. Ginsburg (2007) marks this removal from play and heightened insistence of "structured activity", while not downright harmful to a child's development, does steal away the joy of discovery and hampers the development of creative exploration and problem solving. Ginsburg (2007) stresses the need for a balancing act of play and structured activities. This sentiment is echoed by Smith and Pellegrini (2008) which stresses the importance of free play, but also that adults need to take part in children's play to at the very least stay involved in children's lives.

So where do video games fit into all of this? Video games are already recognized as a form of play (Roussou, 2004) and those developing games make heavy use of the concepts of *childlike wonder*, *exploration* and *play* when developing this form of entertainment. Roussou (2004) remarks upon how education has attempted to take elements from games to enrich and interest children in the classroom, but with rather lackluster results. It's worth noting here however, that it is not the elements of play that has been taken as the lesson from games, but rather their goal-oriented nature and reward systems. Roussou (2007) however hints to the nature of interactivity, engagement and learning present in gaming, and their awakening of intrinsic motivation as key elements instead. All of which strongly resembles aspects of play.

2.2 What video Games have to teach us about Learning and Literacy – James Paul Gee

Gee (2003) uses a lot of terminology from linguistics in his theory about video games and learning. From the perspective of someone from pedagogy it would therefore seem that there is an air of sociocultural learning theory over it all. That is at least how I have chosen to interpret many, yet not all, of his principles. The goal in this chapter is to account for Gee's principles, divided by me into groups that could potentially be recognized within various domains of pedagogy or educational theory. While the focus will be on Gee's principles, I will draw comparisons to applicable theories about learning and development. All of Gee's principles will be attached in the appendix (Appendix 4).

2.2.1 Gee's definition of good learning: Active, Critical Learning and expanded literacy

In the beginning of his book, Gee (2003) brings up five principles he calls "general principles for good learning". He further calls good learning active and critical, thus spawning *the first principle*. Gee stresses the importance of the learner actually participating in the learning experience, instead of just taking it in. Meaning Gee is, from the get-go opposed to the very traditional manner of teaching with a teacher giving a lecture the students silently listen to; also called passive learning by Gee. This is by no means unknown to those from a pedagogic standpoint either. The critical aspect of

learning is Gee's belief in reflexive practices. Reflexive practices here meaning the ability to think about and reflect about one's own learning in a subject and about ones learning process.

Further, Gee (2003) asks the readers to remove themselves from a traditional view of literacy (the ability to read and write, traditionally). Instead of literacy being a simple matter of decoding and using text (I.e., writing), *being literate* is to be understood both in a much broader sense and is also dependent on the context the "literate" exists in. Gee points out that texts today are usually not just texts, they are *multimodal*, as in they are compiled by an array of different mediums such as text, sound, pictures etc. All of which we are still expected to make sense of just as we did pure text. Being fully literate also depends on if you are able to recognize and make use of cultural norms, as for example, symbols will vary from culture to culture. Gee calls these expanded arenas of where literacy takes place "semiotic domains", and they are simply put a field of activities with a collection of specific values, thoughts and actions to perform. The understanding of how a "semiotic domain" is put together and how it relates to other such domains is the *second* learning principle. With the *third* being the "design principle", the understanding and appreciation of a domain's design. Or said differently: the understanding of the norms and proper conduct of the community connected to the semiotic domain (external design), and the content within the domain itself (internal design). This all is closely related to the *fourth* principle which simply states more clearly the social aspect in the semiotic domains, and further stresses that many domains are interconnected or relate to one another. And that there should be a mastery of such domains and the ability to interact with and participate in the community. This interconnectedness is further stressed with the *fifth* principle which overlaps with near all the already mentioned principles.

I find that these principles carry similarities to both *Bloom's revised taxonomy of learning* (Kratwohl, 2002). This taxonomy was created with the intended use to create good curriculum goals that foster more than simple regurgitation of factual knowledge in schools, however it also functions well as an example of what pedagogy thinks should be in the perhaps subjective opinion of what exactly "good learning" is.

Bloom's revised taxonomy	
1. Remember	Facts and recognition
2. Understand	Explain, Compare, interpret
3. Utilize	Knowledge is put to practical use
4. Analyze	See connections and connect to something bigger
5. Evaluate	Use the knowledge to evaluate the knowledge. Can now be critical of the knowledge.
6. Create	Use knowledge to create something new.

As here illustrated by the table, there is a lot of similarities to Gee's (2003) five first principles of good learning. One could perhaps say however that Gee also focuses on

bringing in the social context in his foundation for “good learning”, which I again link to a sociocultural understanding or perhaps preference in learning.

And finally, these general principles are also to be found within video games. Video games are a cluster of semiotic domains, where each genre and sub-genre possesses its own semiotic domain. The community here are the people playing the games, who may or may not recognize themselves as gamers. These gamers all recognize what the trademarks of “their” domain is, what the general values and ways to think about the games are. And always in games there is some form of basic learning happening, if nothing else during the tutorial phase when you learn how to play the game. This also extends to the reflective learning principles, as many games have evaluation as a crucial part of the actual gameplay. For if you fail - should you simply give up, call it a day, because this game is too hard? Not really. Many gamers will instead usually be encouraged to stop and evaluate their progress and tactics to find new solutions.

2.2.2 Sociocultural theory and Gee’s principles

I have already touched upon how Gee (2003) seems to carry something that to me resembles sociocultural theory (Henceforth SCT). This study therefore takes a SCT understanding of what learning is, that learning is both a cognitive and a social process that happens through contact with others and culture (John-Steiner & Mahn, 1996).

Within SCT one can see pieces of both *social learning theory*, or so-called observational learning (Bandura & Walters, 1977) and the *learning-by-doing principles* that has long shaped understanding of how one learns (Reese, 2011). I bring them to attention simply due to the very nature of video games as both an activity and a very visual practice. It would therefore feel remiss not to at least mention them specifically, even though they can in a sense be seen in SCT as well. Social learning theory presents learning as something social, done by observing actions and consequences done and experienced by others (Bandura & Walters, 1977). Social learning theory is however focused on behavior, whereas SCT looks more towards cognitive growth through social interaction and the use of language (Mahn, 1996). In addition, Sociocultural learning theories seem to take a more learner-based approach than most others (Wang, 2007) when it comes to learning. I find this to be very on par with what Gee (2003) discusses in his book and his rejection of what he calls passive learning, thus SCT in general seem to fit my understanding of Gee’s principles better than many other learning theories.

There are many sociocultural theories about learning present, but as my focus is mainly on Gee (2003), I will not go into depth here about them. Presenting SCT here is meant as both a reassurance to those more familiar with pedagogic theory that I have not in fact gone completely off the rails, and as an insight into my own understanding and interpretation of Gee’s principles.

One final note I will make about the use of SCT to understand Gee’s (2003) principles, is that it might seem counterproductive to some. Gaming is for many an activity where you sit alone and watch a screen while you manipulate the happenings within the screen through some controls. That would to many seem far removed from the social sphere so discussed in SCT. However, it is also in SCT as well as Social Learning theory recognized that people can also learn from and through objects (Mahn, 1996). I will also point out that video games themselves tend to present a form of social representation, if not actual social interaction depending on the game played.

There are many principles of Gee's (2003) that fit in under this particular banner that I have constructed, 19 in fact. And therefore, I will not account for them one by one due to the limitations of space. I will instead group some of them and present them in a more general sense.

Video games tend to have copious amounts of both practice and repetition, but they tend to enact them in a setting that is not only compelling to the player (or learner if you will), but also presents an ongoing feeling of success. Marked achievements and intrinsic rewards for progress on any level of effort and mastery, ensures the continued interest and motivation to keep on playing. This is further upheld by an "ongoing learning principle" which holds that the distinction between a master and novice are small, and through new and tougher challenges one must rethink their old mastery and adapt new strategies. To help the player with this, video games often operate with a concept which is very familiar to Vygotsky's (1978) *zone of proximal development*. This is the idea that there are two levels of learning: the level which is mastered and deal with existing problem-solving capabilities, and the level that can be reached through the aid of a more capable other. Gee (2003) calls his similar learning principles for the "*Reign of competence*" and the *subset/incremental principle*. These principles describe how video games both guide and challenge players through having them operate at the very edge of their means and resources. In turn this keeps things challenging, but never impossible to achieve. Additionally, this will structure the game in such a way that the early learning situations provide skill and knowledge that can be built upon in the next learning phase or scenario. The more knowledgeable other is here the game itself and the various guides, clues, and new resources it eventually provides the player with.

Couple the "reign of competence" principle with the fact that video games always have a clear set understanding of what and how tools can be utilized, as well as what the limitations of the learning situation is. In addition to the fact that most games today allow for multiple routes to solve a problem (which in turn allows players/learners to play to their strengths) (Gee, 2003). You will have a learning environment that constantly both guides, challenges and engages the player/learner to constantly advance, in addition to adapting and learning in the field and context they have been presented with.

Gee (2003) also notes how in games everything within the learning environment has a *situated meaning*. Meaning the learning does not happen in a vacuum, but is dependent on the context it occurs in. Specifically, he clarifies that meaning is situated in an embodied experience. Ignoring the fact for a moment that Gee is talking specifically about a gaming environment, this concept is the same as the situated learning theory (Lave, 1988), which is one of the many sociocultural theories mentioned. However, unlike the situated learning theory, Gee (2003) acknowledges that *transfer of knowledge* is present within the game environments. This, as an aside, has been a critique to situated learning theory for ignoring (Anderson, Reder, & Simon, 1996). For research does indeed support the idea that knowledge can transfer between situations and activities even with different contexts. For video games, Gee notes that there is transfer of knowledge both *within* the game (through forcing the player to rethink and re-master) and *between* games. The latter referring to the learning of and recognition of genre specifics for the games played. Thus, giving the ability to use skills and knowledge procured from one game, when playing new games (usually in the same genre). The constant practice as well as transferability of knowledge will eventually lead to a buildup of *intuitive*, or *tacit*, knowledge within the player/learner. This can in a group setting have the player be recognized as an accomplished gamer by similarly interested peers.

The final principles I will mention in this section are perhaps a little more unique, but still carries the essence of SCT within it, perhaps especially the zone of proximal development theory by Vygotsky (1978). Gee (2003) points out that games seldom overtells or overshadows information to the player/learner. Because the game will maintain the importance of discovery, which again feeds the player/learner's interest in probing and re-probing the world around them to test and rethink strategies and hypothesis they make as they go along. Vital information can be obtained on demand if the player/learner needs it (or is stuck), by for example consulting "unlocked knowledge" (the game gives access to new knowledge as you progress) or "game/player tips" usually included in the game. And video games will also provide vital information "just in time" to the player/learner. Keeping the player/learner on their toes and always receptive to take cues from their game environment. This in turn all follows the principle Gee (2003, pp. 64) calls "*amplification of input*". Learners will get more than what they give, or said differently: a little bit of probing should result in a wealth of information for the learner.

2.2.3 Learner identity

When Gee (2003) discusses principles that deals with *learner identity*, of which there are 4, it can at first glance be hard to consolidate it with knowledge from the field of pedagogy. This is again simply due to wording. When Gee mentions people having more than one identity, this could be understood as the term "role" known from f.ex. Erving Goffman's role theory (Goffman, 1978). This theory deals with how people play different roles in different settings, contexts and in groups, as well as the conflict that can arise when two or more roles are fundamentally conflicted. While I see similarities between this theory and Gee's (2003) identity principles, role theory as mentioned above is not what Gee's principles focus on to my understanding. The content of these principles deal instead a lot more with the motivation to learn and keep interest in the learning presented. The "role" aspect of the identity principle is simply the understanding that learners have other identities outside the learning situation, and that there must be work done to consolidate (or build bridges) between these outside identities and the identity as a learner (with all sub-identities being the various subjects). The first identity principle however is something Gee has directly from psychology and is something that is perhaps very unique to games. I will therefore start with this.

The "*psychosocial moratorium*" principle gets a paragraph all to itself as it is a very fundamental thing to most video games. The terminology originally comes from the psychologist Erik Erikson (1968) and simply put is when a space is created where an individual can take more risks as the real-world consequences are significantly lowered. Gee (2003) has also noted how games are exceptionally good at creating these kinds of learning environments. After all, if you fail, you can either reload a save or simply start over. In motivation theory, or more specifically theory about sources of intrinsic motivation, having reduced real-life consequences is vital for being motivated to "go deeper" in a learning experience (Schunk, Meece, & Pintrich, 2014). The reason being that there is no real risk to your own personal identity if you as a learner engage in play or pretend in a learning situation.

The three remaining identity principles as I've identified them are: *Continued learning*, *identity* and *self-knowledge*. They all deal with, to varying degrees, how to keep learners continuously engaged with the act of learning. Gee (2003) states that there must be bridge building between a learner's real-world identity and their virtual identity. This is here understood as their identity as a learner in various subjects, and that the "virtual world" i.e., the content to be learned or learning experience must be compelling to the

learner. This could be understood as making the content and learning process more relatable to the learner. Gee is, as already mentioned, not a fan of traditional teaching methods (as in passive). He instead believes in a more practical approach, where a learner can play with different roles/identities such as a scientist or historian to learn the subject matters in a more explorative way that entices the natural curiosity. The final principle mentioned; *Self-knowledge*, touches upon something that I will elaborate on further below, but felt that it fit better here with the identity principles: *Bildung*. The self-knowledge principles states that learning should be built in such a way that the learner discovers new potential within themselves and not just the domain they are currently learning to master. Self-discovery should therefore also be part of the journey of learning.

2.2.3.1 *Bildung in the identity principles*

While there are many definitions of *bildung*, and I will revisit this in more detail below, central to it are the concepts of the self, society and the world (Korsgaard & Løvlie, 2003) and how they relate to one another. *Bildung* also carries the understanding that something is developing and many of the perspectives have this development happening within an individual but working together with outside forces (Steinsholt, 2011). What the goal of such an internal process should be varies, naturally, from tradition to tradition and from perspective to perspective. Again however, a common conception is that the goal is to live a "good life" within one's society (Steinsholt, 2011). This honestly just triggers another round of definitions that will always vary depending on not just perspective, but the culture in question as well. However, if we take *bildung* to mean a form of development of the inner self, it is perhaps easier to see how I connect the principle of self-knowledge to the concept of *bildung*.

This is further strengthened by Gee's (2003) insistence that there should be a level of reflective practices involved with the identity principle as well. The learner should be able to reflect on their own "virtual identity" and how the things they discover through the "virtual" identity relates back to their real-world identity and the real world itself.

In videogames your real and virtual identities are very clearly defined. You will take on the role as someone else in the game, and this is one of the many ways games differ from mediums such as movies and books. You aren't consuming a story about a protagonist; you ARE the protagonist.

In Gee's (2003) principle of identity, he states that the learner should have choices in how the virtual identity is formed, this is especially true for role-play games where many games will let you develop the character both morally and emotionally depending on the choices you make for your character in the game. This coupled with the psychosocial moratorium as discussed earlier, will naturally allow the player to take risky actions they would never consider doing in their real life. This in turn can lead to interesting discoveries, not just in game but also for the player themselves about their real-world identities.

2.2.4 *Bildung in games*

Bildung is as mentioned, not exactly a term or concept that is easy to pin down as it essentially can be a whole number of things depending on which angle you look at it from. While *bildung* is known to be called education or liberal education in English, this terminology to me does not carry the weight needed to separate it from education in general. Therefore, I have chosen to instead use the German term to stress the distinction.

Bildung is often misunderstood as a concept of "being cultured" (Steinsholt & Dobson, 2011), instead bildung has its roots from antiquity in the form of *paideia* and is closer understood as the continued development of the self in relation to something bigger. Paideia as a sidenote is a Greek word for education, but is also a concept that contains so much more than that. Some of its extent can be read in Steinsholt and Dobson's (2011) book.

Korsgaard and Løvlie (2003) however, finds the following to be central to bildung in general: the self, the local surroundings and the global surroundings and the relationships between these three concepts. And as mentioned earlier, bildung is a development process that happens internally while set upon by outside forces (here society and the world) (Steinsholt, 2011). One can then say that bildung carries with it the ability to be reflective over oneself, their position in groups and on a global scale, as well as in relation to other "selves" and groups.

While Gee (2003) does not address the term itself, I interpret there to be such a connection with 3 of his principles that he calls "cultural models". Cultural models are presented as the various conceptions and ideas about various topics that exists within a given culture. There is an insistence in these principles that cultural views, ideas and conceptions should be challenged within the learner so that the learner may grow and develop. All the while expanding their understanding of the world and its various other cultural models that might not otherwise be available to the learner. Meanwhile, Gee also points out that this challenge should not denigrate the learner's own identity, abilities or social affiliations (Gee, 2003). But encourage the learner to reflect upon their own cultural models in juxtaposition to the new models, where they might challenge or relate to the existing model. It should be mentioned, that while Gee touches upon morals, he also stresses how the outcome of moral questions in games will largely depend on the player/learner's pre-existing morals. As such, the challenge or relatability of new cultural models can be "good or bad" depending on the eye that sees.

The first of these principles deals with cultural models of the world and relates to how some video games presents new or foreign views to players, while naturally drawing on the fact that the protagonist of a game usually garner support, empathy and sympathy from the player. Gee (2003) specifically mentions games that deal with war, and how playing through it might challenge and change the player/learner's ideas about what war is actually like. Then there are games like *Dishonored* that present the wide discrepancies between the perceived socioeconomic classes in a society during an epidemic.

2.2.5 Communities of practice and the social mind

The final of Gee's (2003) principles that I will mention are the ones dealing with video games as something social; sometimes simply due to the fact that it is used by people who are often inherently social. Through the principles "*Dispersed*", "*Affinity group*" and "*Insider*", Gee showcases how video games ultimately creates something that is better known as communities of practice. Communities of practice is another theory that does fit within the SCT school of thought and deals with the phenomenon of people joining together to learn or master specific domains (Wenger, 1998). As such, communities of practice are not just any group of friends, or random group at all. What makes it a community of practice is their shared competence, a possible shared goal of either passing down knowledge or further learning within the group. Not just a simple shared interest (Wenger, 1998). While Gee (2003) mentions communities of practice, he has chosen to instead call it "*affinity group*". The reason being that the word "community"

carries a positive note with it, for him, and he wishes for a more neutral term. Whether groupings are positive or negative can depend on the eye of the beholder, according to him. "Affinity group" therefore better paints a picture of a group of people who seeks together based on shared interests, set apart from the rest due to their competence in whatever they have an "affinity" for, and their shared goals and furthering of skill and competence. Gee (2003) also points out that the group should bond through their shared interest, goals, and practices instead of more congenial traits such as race, gender or culture.

The two remaining principles mentioned deal more with how meaning is formed, and knowledge develop within the video games and the affinity groups. That knowledge is dispersed means that the player/learner likes to share it outside of the game (Gee, 2003), meaning a game has the "power" to connect people outside of the game. Talking strategies, sharing moments and emotions, as well as asking other perhaps more accomplished players for help are just a few examples of where this principle comes into play. The final principle, insider, implores how the learner should become an "insider" with the domain being learned. Being an insider means for Gee to be able to both teach and produce within the domain. With production having been noted as something important to foster agency within youths (Hoechsmann & Poyntz, 2012), which in turn makes them more involved with their own worlds.

In video games this means the ability to guide others (for example new players) as well as create or customize one's game experience, or creating new content related to the content within a given game. This means I have now come full circle in my presentation of Gee's principles, as I showed in chapter 2.2.1 that the final entry of "good learning" is the ability to create something new built upon a mastered domain.

2.3 Motivation

Motivation is, simply put, the will to perform tasks over an extended period of time. If a person is sufficiently motivated for a given activity, the person will usually keep the activity going until it has run its course or keep it going for a significant amount of time (Schunk, Meece, & Pintrich, 2014).

Exactly how we are motivated and what exactly contributes to our motivation are not questions that are easily answered. The general consensus is that many different factors come into play to affect our motivation. When it comes to video games and the act of gaming however, it is more natural to look at *intrinsic motivation* as gaming after all is a voluntary activity. This chapter aims to link some theories of motivation to the act of gaming, and it will be subsequently used to discuss the findings and relevant reflections later.

2.3.1 Intrinsic motivation

Games are voluntary activities, and thus it is more viable to look into *intrinsic motivation*. This doesn't necessarily mean that voluntary participation is unique for intrinsic motivation, I should perhaps have added that many people voluntarily devote several hours of their days to this activity without receiving external reward such as money. The receipt of external reward as a motivation factor is called *extrinsic motivation* (Schunk, Meece, & Pintrich, 2014). Intrinsic motivation on the other hand is being motivated by the activity itself as it is regarded as rewarding on its own. I.e., what we regard as fun. This also means that intrinsic motivation is dependent on the context we find ourselves in our lives. For example, our interests, which is recognized as a source/trigger for intrinsic

motivation, might change over time. Things we enjoyed doing as children, is not necessarily as fun for a teenager or an adult (Schunk, Meece, & Pintrich, 2014).

For quite some time now there has been a link between good learning and intrinsic motivation (Schunk, Meece, & Pintrich, 2014) and fostering intrinsic motivation in learners have become a goal all on its own for many learning institutions. It is therefore perhaps disheartening that research has also found that the intrinsic motivation towards learning tends to decrease as children grow older (Schunk, Meece, & Pintrich, 2014).

I will further present one theory that deal with intrinsic motivation: Self-determination theory which has already been linked with video game use and play.

2.3.2 Self-determination theory (SDT)

SDT (Deci & Ryan, 2000) assumes that humans have three basic psychological needs that will direct behavior. These internal needs will direct us in choice of activity to get the needs fulfilled, meaning they usually lead us to intrinsically motivated activities, as the goal is to feel a psychological sense of well-being. The activities can also be affected by extrinsic motivation, as according to Schunk, Meece and Pintrich (2014) varying degrees of both intrinsic and extrinsic motivation can exist simultaneously within an individual at any given time

The three psychological needs identified by Deci and Ryan (2000) are as follows: *Autonomy, competence and relatedness*.

The need for *autonomy* is the need to be an agent in one's own life, be self-actualizing and the like. Said with less fancy words, it is the need to have choices and options in a given situation. Autonomy also ties in with self-organization and self-regulation. All in all, to have control over your own life and not be controlled by someone else. The ability to make choices in an activity, or simply choosing what activities we do will heighten motivation. While lack of choices or the sensation of being forced will lower it.

The need for *competence* is the individual's need to feel competent in their life, in interaction with others and the world. This need is also linked to the need to learn new things, as to better be prepared for new situations. Said differently, it is a need to feel self-efficacy, or mastery. We have a need to feel mastery, or self-efficient in something, to feel a sense of personal value.

The need for *relatedness* springs from human tendency to group together. We are social creatures and have a need to feel as if we belong to one form of group or be part of a bigger whole.

When these elements come together and manage to trigger intrinsic motivation in an individual, that individual can start experiencing something called "*flow*". To be in a "*flow*" is described as effortlessly holding all concentration and focus on a given activity, and the perception of time greatly diminishes (Csikszentmihalyi, 2005). For there to be "*flow*" a certain degree of knowledge and/or skill in the given activity is needed, if this is in place the individual will usually feel as if they are in control of the given situation. Activities with clear goals and rules usually triggers "*flow*" faster in individuals than activities that do not possess these characteristics. And finally, to experience "*flow*" when the activity is intrinsically motivated is usually a very positive feeling. Or said in layman terms "time flies when you're having fun".

3. Method

In this chapter I will detail the research process so that the choices made throughout the study become apparent. These choices have undoubtedly had consequences on my study, and I will reflect upon them and possible limitations. I have chosen a qualitative approach to answer my research question, which I will get further into below. It is worth noting however, that while I have used Gee (2003) as a way to approach the subject, my study is both deductive and inductive at the same time. I will further express what this means for my study below. I will also revisit and go in depth about my role as a researcher here, as well as discuss ethics, limitations and possibilities with my choices.

3.1 Overview of the process

I will first present step-by-step how this study was done. The choices going into these steps will all be detailed in subsequent paragraphs.

First, after having set a research topic (gaming) I began forming my ways to approach the initial research question. How I should choose my informants and how to reach them were important first factors to consider.

When deciding how to move forward with this study, I was always very interested in using the internet as a medium to reach people. Therefore, I decided on a survey with open ended question as my tool to gather information. A form of written interview if you will.

I then formed an "interview guide" for my survey, as well as compiled the writ of information to the informants. This writ detailed the purpose of the study, as well as all rights possible informants would have if they should choose to participate.

Next, I sent all this information about the study to the Norwegian Center for Research Data (NSD) for review. After NSD was done with their evaluation of the study, and gave the go ahead, I proceeded with data collection.

Data was collected through sharing links online on various social media. After a sufficient amount of data had been gathered, I began sorting through all the answers.

The data was then coded and categorized, before it was further analyzed through the use of Gee's theory (2003) and other relevant theory.

Finally, the study as a whole was written down as a thesis paper.

3.2 Scientific theory behind the study

Scientific theory is the very foundation any kind of study builds upon. Within a chosen theory lies the researcher's understanding for what counts as good information, where or from whom can it be obtained and what the researcher can "bring with them" when meeting this new information (Thagaard, 2018). What comes first the scientific theory, or the researcher is a question for another day, but in my case the scientific theory was chosen based on what would fit both the theme and the conduction of my study best.

Phenomenology primarily concerns the study of an individual's experience, thoughts, and opinions about a phenomenon (Thagaard, 2018). It is defined as both a discipline and philosophical perspective (Smith D. W., 2018), in both instances the focus is taken to how an individual interprets and reflects about a phenomenon which really depending on who you ask could be anything from an observation to a much more complex event or experience of something. Thus, data are here the collected thoughts, opinions, and

experiences of other people. My goal was to explore the phenomenon known as gaming. More specifically the experience gamers have with games in relation to topics such as their day-to-day, school, work life, and learning in general. Phenomenology as the scientific theory in my study's foundation thus became natural.

The inclusion of *hermeneutics* into this foundation is the acknowledgment of my role as both a researcher and as someone who also identifies as a gamer. Hermeneutics presents the assumption that everyone (not just researchers) interpret all they come across based on their own background, i.e., their own experiences, social background, schooling and so on (Kleven & Hjordemaal, 2018). Therefore, it is believed that by being aware of your own so-called background you can possibly dig deeper when encountering something new, and that each new information being added adds to the interpretation of the next new information you come across.

Thus, I am aware that not just my background as gamer, but also my background with both psychology and education will and have affected how I have interpreted the data I collected. As well as how it is being presented.

As I collected data however I, first of all, collected a lot more than what I thought I would. The answers received were also of a somewhat different nature than what I had first assumed. The more in-depth consequences of this I will get into in part 3.2. However, due to the sheer numbers of informants, I found myself able to include frequency counting as I began the analyzation process. While not unheard of for qualitative studies, this is a gentle approach towards quantitative method. And while the quantitative part of this study is more of a minor side piece and won't be gone into in detail. The introduction of numbers was deemed as one of the strengths of this study and was thusly included in the presentation of the results.

3.3 Qualitative design – With a twist

Qualitative design is usually held as the design one uses to achieve in-depth knowledge of a research topic (Thagaard, 2018). It focuses on the individual and all the information they can bring in contrast to quantitative research which focuses on the collective information of many (Kleven & Hjordemaal, 2018). When doing an exploratory study about something (relatively) new such as mine, qualitative designs are often preferred as a starting place (Erickson, 2012). This to find out what kind of information there is to be found within the topic, and how does it branch out in perhaps unexpected ways. The data in qualitative research is usually text or picture material (Thagaard, 2018). This is also true for my study, however there is a twist.

Due to the international aspects of the phenomena "Gaming", as well as Covid-19 making meet-ups difficult, I decided on a perhaps unusual and innovative approach which I will detail further below. I will however first account for how my data is perhaps a little ambiguous and different from a qualitative interview, as analysis of narratives was my original starting point and inspiration for how I built up my data collection for this study.

Narrative theory is potentially a deceptive term, as a narrative theory becomes as the research progresses from what I understand in my delving into them. Essential to it however, is the building on stories and the idea that reality itself is constructed through the use of narratives (Bruner, 1991). These narratives shape the reality for every individual individually and become life stories. And while narrative theory isn't all up in the air and does have guidelines as to how best approach analysis of narratives and

different terminology for the types of narrators (Godson, 2012), I found through my collection of data that narrative theory no longer fit as a method for the data collected. To apply narrative theory, you first need a story (Godson, 2012) that usually reaches through time or has a progression of time built into it (Bruner, 1991). Through these stories the narrator can possibly be pinned down into the categories presented by Godson (2012) in his book *Developing Narrative Theory*. While I could potentially also assign these terms to my informants, it would be shallow (due to the general lack of a deep and continuous story from many of them) and not give much depth to any subsequent analysis. So, while some aspects of narrative theory perhaps remain, as I will show in the next paragraph, narrative theory as an analyzation tool was abandoned.

3.3.1 The data

The data in this study is in the form of self-formulated answers from gamers, with the role "gamer" being something one self-identifies as. This form of data strongly resembles narrative data, in that it is shaped by the informants themselves (Godson, 2012), and since I have been asking about experiences and personal thoughts, many have structured their answers as stories and even included anecdotes from their own lives. However, I cannot say that my data is one hundred percent narrative data, as some informants have taken leave to answer with as few words as possible. Taking the opportunity to answer directly to what was meant to be reflective inspiring text and guidance into what I wanted information about. Some also favor bullet point lists, making the data close in on a quantitative approach. Such answers could be seen as weaker answers what with my initial choice of design, however I have chosen to include them as they also bring important information to the study. There is also the sad but true fact that many of these "listing answers" often came from male participants of which I already have a minority in my study.

This is where my inclusion of frequency counting enters the picture. For example, how many reported improvement of English skills and etc. There is strength in numbers even if that is not qualitative method's focus. The mixing of the two approaches is known as mixed methods (Bryman, 2006). Mixed methods are gaining in traction and popularity as the benefits of both methods together become more pronounced. According to Bryman (2006) the budding consensus is that the two methods fulfill one another to varying degrees. And while one cannot just mash them together without thought, sometimes happy accidents happen. With the sheer numbers of informants in my study, over 100, I have the unique ability to include a quantitative bi-method alongside my main focus as described above. This in turn helps give the information gleaned from the informants a small form of quantitative credibility (Bryman, 2006).

3.4 Practical execution of the study

Gaming is, as already mentioned, a global phenomenon and as a community overall it is widely international. It is also a community where its largest presence is undoubtedly in the digital space.

Limiting myself to Norway was thus not very interesting this time around. With the added hurdle presented by Covid-19, the prospect of doing an online based study became even more desirable. Since I have had good experiences with receiving written stories from people which I have then extracted data from, I decided to head in this direction instead of video/online interviews. But to keep to rules of anonymity and not having to make different declarations of consent for every nationality that ended up signing onto the

study, I landed on the decision to make a survey with open answers only. This way, anonymity of all informants were assured.

3.4.1 Recruitments and participants

Since the study was to be online based, meaning the sharing of a link that led to the digital survey, using online sharing culture for an online based snowball method of recruitment seemed the better option. As well as contacting and enlisting the help of acquaintances and friends to help spread the link further than I could possibly do on my own. This is known as the snowball method (Thagaard, 2018) and was deemed the most suitable for my study. Since I chose a sample based on whether they were gamers, I've clearly aimed for informants who I trust to have a certain know-how about the topic, this qualifies my sample as a strategic one. Meaning, I've chosen informants *strategically* in relation to my research question (Thagaard, 2018). This means that in choosing such people that could possess similar thoughts and feelings around the topic, I exert a subtle control over the information I will get from the sample. It isn't unreasonable to expect that my sample is skewed towards a positive opinion of games when asking gamers. At the same time, I lose a certain amount of control over who my informants are when releasing a link onto the world wide web. After all, the gamer community is large and has a complex structure, hence opinions naturally vary wildly from group to group. So, this random nature of who I would end up with as informants adds unique challenges, but also unique reward especially when this study was meant to be exploratory.

As I am aware many, but far from all, gamers are usually on the younger end of age; I decided to include the gender categories: "Non-binary" and "Other". This was deemed important to appeal to a wider part of the gamer community to perhaps get ahold of as many diverse voices as possible. It was also perceived as a possibility that the informants would bring up gender as a topic, as video games play around with the concepts of identity regularly as presented in 2.2.

At first my survey's age brackets only went as high as 40+. After some feedback on this being exclusionary (and frankly insulting apparently), this was changed to include the brackets 40-49 and 50+ on the same day the survey opened. No one above the age of 30 had answered the survey by then, so no informants were lost in the shuffle.

The most important background factor, and requirement to participate in the study, however, is that the informant identifies as a gamer. Gender and age are not overall too interesting at this moment as the study didn't aim to look for gendered differences of opinion or experience. These categories were instead mainly used as an identifier for the various answers should an informant wish to revoke their answer at any point. More interesting for the study were the information on what type of gamer the informant identified as: singleplayer, multiplayer, equally multi- and singleplayer or other. As well as their top 3 preferred genres of games.

This study was meant to explore the opinions and experience gamers have with gaming and learning. As the research field of gaming is still relatively new, and has mainly concerned itself with children, the more common traits associated with the basic information part of any survey or interview were deemed uninteresting in the grand scheme of things for this study.

This does by no means mean that gender and age in gaming doesn't matter. On the contrary, these categories usually act as the sources for many heated debates within many different gaming communities. But gender and age will not be used to discuss

answers. Nor were they used in any meaningful way in the analyzation process unless specified by an informant.

3.4.2 The interviewing survey

When forming the open questions that would go into my "interviewing survey" I had my foundation in literature about forming interview guides for a qualitative interview and the questions I had used for my bachelor thesis with the same theme and similar research question. Good questions are at the heart of any qualitative study (Erickson, 2012), I however lose the opportunity to change direction as the interview goes along. Meaning I lose some of the flexibility that is cited as one of qualitative research's strong points (Kleven & Hjordemaal, 2018).

This means that the study runs the risk of collecting so called surface information like most quantitative research, instead of the deeper dive made possible with the qualitative interview. This risk is further increased as the closeness between researcher and informant, described by Kleven & Hjordemaal (2018), is also gone with the method I have chosen for data collection through a survey online. It therefore became important to have as open questions as possible, where answering simply a yes or no would appear lacking. To further aid in this a few sentences were added under each question which encouraged the use of examples from their lives (their experience) and gave examples of possible ways to reflect over the question. In addition, some questions were phrased similarly to encourage the "people of few words" to share more of their experience with gaming.

All in all, the survey consisted of 4 background questions (these were multiple choice usually), and 8 open questions where the informant could write as much as they wanted under each question. The survey in its entirety is included in the appendix (Appendix 3).

3.4.3 Execution of the study

After the survey was completed, the link to it was shared on social medias like Facebook, Discord and Tumblr. Participants were encouraged to share the study with gamer friends that could possibly be interested in being part of such a study.

Informants shared the study further both on social media like Twitter, Facebook, and Tumblr. As well as by private messaging between friends. By 17. Of March, I had to close the survey ahead of schedule by almost two weeks as I was going well over 100 replies.

A total of 160 answers had been sent in. 3 of those answers were blanks and were deleted. Taking the number down to 157 answers. Another 24 answers were deleted after careful consideration. Deleted answers were all characterized by a lack of information either by simply answering yes or no to the questions listed, or barely writing anything down. A few were deleted as the information given had completely missed the mark, as in no real personal experience had been shared.

After the collected data had been cleaned for so-called "useless" data, I went on to properly familiarize myself with the information I had been given. Getting to know your data is an important preparation step before you begin your analysis (Braun & Clarke, 2006) If only to have a general view of what themes occur frequently.

3.5 Analytical approach

As mentioned, this is an exploratory study of topic gaming and learning, thus nailing down any specific kind of theory from the get-go is no easy task. Therefore, much of the theory used in this study has appeared as the data started to reveal itself. Of course, I

had a general idea of what I might find before I started, and thus I had some theory prepared beforehand. I planned to use James Paul Gee (2003) book on video game learning and literacy as a springboard to some aspects of the analysis. However, majority of the theory and comparative studies used, were found as categories were discovered and developed in the analysis process. This form of theory use is therefore a mix of both inductive and deductive reasoning (Tjora, 2010), called a step-by step deductive and inductive approach (SDI) by Tjora. Deductive being when you derive data from theory, and inductive being when you derive theory from data.

3.5.1 Coding and categories

When working on coding and creating categories for the data collected, SDI was used. In this context that means the codes and categories were derived from the texts themselves, almost directly from the keyboards of the informants. This makes the codes appear closer to the source material, as well as more genuine (Tjora, 2010). The categories worked much in the same way and were made early in the analysis process to sort all the codes. This is a repeating theme for my process, the sheer amount of data was near overwhelming and needed to be sorted into placeholder categories early just to not lose track of all the unveiled codes. Tjora (2010) does mention that codes derived directly or closely from the data, tends to be numerous. This was very much what happened in my case, on top of just having a lot of informants.

The initial categories were later kept, but again the theory was consulted which resulted in the moving of unassigned codes as certain categories were later ascribed theory derived values (such as *bildung*). The broad, initially placeholder categories, were given a number of sub-categories as the codes were reworked and collected depending on the relatedness to one another. As such my working with the codes and categorizing, in addition to using SDI, makes heavy use of hermeneutics. The codes are derived from the data, but also my understanding and interpretation built on years of studying pedagogy and the various concepts and theories within.

With such a number of informants, the categories and their sub-categories are very capable to stand on their own even though they are related through the main theme: gaming. And they keep their close-to-the-data nature throughout the coding and categorization process.

This gives me the ability to exclude a number of categories from my presentation of findings without harming the overall presentation of the study. While I would have liked nothing more than to be able to present them all in detail, they are simply too numerous for me to do so here.

In the end I ended up with 7 categories, which all bar one have sub-categories. These will all be presented in part 4. Where they will also be properly connected to the theory presented in part 2.

3.6 Ethics

In any kind of study there needs to be attention to the topic of ethics. Perhaps particularly within qualitative research where one often asks the informants about personal information or even intimate experiences (Thagaard, 2018). This raises several ethical concerns. First of all, what we can and cannot ask, is something too sensitive? A goal for a researcher here should be to do no harm, in the case of a social science such as education this harm would likely be of an emotional or psychological nature. One way to avoid such issues is the mandatory act of informed consent (NESH, 2016). The

informant should be fully informed about what participation in the study will entail. What kind of information the researcher is looking for and how it will be obtained. Once given, the consent can also be revoked at any point.

Before starting the collection of data my study was sent in for approval by the Norwegian center for Research Data (NSD). They act as data protection officials for research projects connected to universities and other research institutions according to the rules for ethical research (Thagaard, 2018). I sent NSD a writ of information as well as the questions included in my interviewing survey, both of which I have included in the appendix (appendix 2 and 3). My study was subsequently greenlit to continue after minor corrections to the information writ, as I had failed to include details about the rights the informants possessed. This was rectified and the edits were approved. The steps taken to ensure the study was ethical is detailed in the following paragraphs. The evaluation by NSD has been included in the appendix (appendix 1).

As my data collecting happened online, the very first page of the survey included the information writ to be read before entering the study. Here I detailed my intent with the study, what would be asked as well as assurances of anonymity. The consent was given in the form of clicking "Next" on the survey itself at the end of the information writ, which was also stated in the information writ itself.

A second question to consider, how is both the informant and the information they give protected? As the information can be of sensitive or intimate nature, and overall, of a personal nature. The informant as such has a right to anonymity. Researchers, especially in qualitative research must take care to anonymize their informants as interview and observation is often more telling. However, in my study this was not of any great concern as I had no access to my informants' identities. Informants were however told on multiple occasions, both in the information writ in the beginning and later in the survey itself, to NOT include real names of themselves, people they know, institutions they've gone to or used, and places they live. If such names occurred anyway, they were anonymized by me.

Also, in the "How is the information protected" is how is it stored? Again, this is more pressing when the data collected is of a sensitive nature. However, in my study all informants are anonymous, even to the researcher. The need for high security storage was thusly not needed. Even so the data has only been available to me during the entirety of the research project. The survey and answers collected online were deleted upon the ended analysis period.

In this way the ethical question and concerns when doing qualitative research feels largely covered in this study.

3.7 Project Quality and reflection on researcher Role

The final point of the technicalities of this study that will be discussed in this chapter is its quality and my role as both an insider and researcher.

3.7.1 Project quality

When discussing quality of a project it's important to keep in mind how fickle the subject at hand can be. Unlike quantitative research projects where things such as *reliability* in the form of being able to reproduce a study's findings is a deciding factor on quality (Thagaard, 2018). Recreating findings when doing qualitative research is not usually held as a standard however, as the very nature of qualitative research can make it hard to

replicate the exact same findings over and over. The second quality factor is *validity*. Or posed as a question: are what we found valid information? (Thagaard, 2018).

Instead of replicating findings, qualitative research values *transparency* to increase the study's reliability (Thagaard, 2018). This means being transparent about the research process and the choices made during this process as described in the methods chapter. As well as being transparent about one's own role and possible effect one as a researcher can have on the study and subject matter at hand. I have already mentioned on several occasions how I am both researcher and insider in this topic and will further detail this in the part below: "My role as researcher and insider".

If my research is valid however is a more complex and comprehensive question. According to Thagaard (2018) validity comes down to which criteria you set for the study. A very common criteria is sample size, which normally in qualitative research is relatively small. This means that many qualitative studies cannot boast generalization, as in their findings can be applied to the general population based on the sample. While my sample size in comparison is quite large for a qualitative study, I still cannot use terminology as generalization even if I do have a gentle approach to quantitative methods in my study. Simply because my study is a qualitative study with qualitative data. In addition to this I did a strategic selection of informants, over several social media platforms. Such strategic samples can become skewed or biased (Thagaard, 2018), as people who are more comfortable sharing thoughts or participating in research are more likely to respond to such requests. Even so I would argue that my sample and the informants therein have all of them given valuable and numerous information as a group.

I will hold the numbers of informants (133) as a strength as it heightens the chances for it to be of a representative nature, eliminating what could possibly be local or even national traits. However, without further study where such criteria are paid more mind, it isn't something I can use as a sure sign of validity for the study. The sample while large is not an unbiased sample, and such samples as mine have little to no chance of being generalized to the general population (Kleven & Hjordemaal, 2018).

Instead, there should be a focus on the analyzation process of the data. By being transparent, a reader of this study can make a clear picture for themselves whether or not I as a research have made clear and meaningful assumptions, connections and interpretations of the data presented. Said in other words, my transparency will allow the reader to better decide for themselves whether they find my findings valid or not.

By using the findings as presented in the various categories in this study, instead of a generalization qualitative research will instead often use a concept known as *transferability* (Tjora, 2010). One such understanding of transferability is to ask whether or not one's findings can be transferred to other situations, or is it applicable?

Finding out what types of learning experiences, if any, exist within games can bring with it possibilities of application within formal learning. Which I fully intend to discuss later in this study after presenting the findings. I find that this spells, if nothing else, a wish for transferability that exists at the very core of this study.

With that in mind, and looking at the findings as well, it is my belief that the information gained in this study is of a useful nature to potential research questions within the field of gaming. As well as recreating some general findings already found by some game

research. With the information and how it is presented here I believe I give further insight into the many possibilities of this field and phenomenon.

3.7.2 My role as researcher and insider

Here I will continue the quality reassurance of being transparent and elaborate on my role as a researcher as well as my own identity as a gamer. Seeing how I am very much part of the gaming community, this part needs special attention. Both to show how my own preconceptions have affected the work done within this study, consciously as well as unconsciously. Thus, bringing back the hermeneutical foundation this study is built on as presented earlier in this chapter.

I have all along presented myself as an insider in the phenomenon "gaming" throughout this study. And while insider is perhaps more often used in research situations where the researcher looks into an actual organization or community of practice that they are a part of, I see many similarities to my own situation. An insider in research defined as someone who belongs to the area of study (Brannic & Coghlan, 2007), they are looking in on the home turf as it were. Doubts have been raised as to the insider being able to show the objectivity demanded by academic research. As an insider one must pay extra attention to, and reflect upon, where they themselves stand within the community (or area of study) and be transparent about themselves as part of this community. If they are to hold any credence at all within their own research. Here an hermeneutical approach can be invaluable to the insider researcher, to become aware of how one's own prejudice and conceptions could affect the findings and their presentation (Kleven & Hjordemaal, 2018). As an example: I am undeniably positive towards video games, and I wish to share just how wonderful they can be. However, I am very aware of this being a bias. Thus, I have actively sought out the negative aspects of video games, for I am aware that they are there. And have even gone so far as to keep the criticism noted down even if the rest of an answer could not be used as part of the data material.

On the flip side, being an insider implies a lot of benefits (Brannic & Coghlan, 2007), such as preexisting knowledge, access and authenticity. The preexisting knowledge I possess about the community and their practices makes it easier to suss out what information is valid and of value and what is not. A good example being that one understands the language as it were, I am already familiar with all the terminology gamers use and nothing is as such lost in translation. I had for example no problems understanding when someone was talking board games (I.e., games played on an actual table like checkers), instead of video games while using similar or the same terminology one would use for video games.

My access to the community manifested itself as knowing where to go to find potential informants who fit the criteria of gamer. I shared the survey on Facebook of course, but believe I had much better luck sharing the link within gamer groups on the social media platforms Tumblr and Discord. And while the authenticity is perhaps harder to pin down, the hope is that it will show throughout the study in various ways. Such as a genuine interest in the research topic, my informants and fellow gamers, as well as an understanding shown to the uninitiated amongst my readers.

I have been playing video games since early childhood in the 90s. I started calling myself a gamer relatively early as well, and truly took on a gamer identity as a teenager. I started trying to defend video games already when I was in junior high school and would take any opportunities given to write and talk positively about video games. This was back when video games were still heavily criticized in the media as something that

encouraged violence among children and youths, as well as being seen as a huge waste of time by many of the immediate adults around me. As I reached high school this trend of incorporating video games continued, and my teachers were not happy about it. This strengthened my belief that video games were grossly misunderstood and villainized.

When I entered university these experiences and preconceptions followed me heavily, but it was also at this point that I finally experienced peers and mentors not minding my love of video games entering my academic work. I was encouraged to pursue and so I did. I confess I at first was wholly against painting video games in any sort of negative light, it had been done enough. Yet as I started writing academic papers about video games, I came to understand that a lot of research wasn't as negative as I had first thought. Thus, I believe I have some grounds to say that my approach to writing and researching video games have become a little more tempered with time.

With my background in mind this means that I entered this research topic with a great deal of understanding for the field as well as for the research done within it already. And while this can be a great boon as one does not need to research the field much before starting, it can also hamper innovation and new thinking. As well as make it harder to see the things one perhaps wouldn't like to see.

One unique thing I as both a researcher and insider need to keep in mind is that many gamers likely carry similar feelings about video games that I do. And as such would be unwilling to offer any thought to what a drawback could be to playing video games. Informants were therefore explicitly told to consider how video games could perhaps not fit within a school setting, which seems to have helped many informants to reflect upon what they would like a learning situation to be like in a school setting. In addition to how video games, as is, would and would not work in such a setting. Some did take this further, and presented reflections about what games today portray, how it is portrayed, and the accuracy of the information given.

Other than this, and the fact that I deliberately sought out gamers to answer my survey, I believe I have had very little influence on my informants as a researcher. They have all written down their answers on an online survey, and there has been no contact between us. An aspect that made the situation reminiscent of a quantitative study was that there where little to no contact between researcher and informant (Thagaard, 2018). One could though perhaps ask if this would be doable if the researcher were not an insider. As I didn't have my informant in front of me, I could not learn anything more from them than what they initially gave me. I could not ask for clarification or for them to go into deeper detail. And yet as I read through the answers given to me, I did not at any point have any issues understanding what my informants meant and what they wished to convey. This I believe to be an effect of "speaking the same language", as mentioned earlier, as well as belonging to the same popular culture and community.

Therefore, in this study it is inconceivable to even imagine "removing oneself" as a researcher, as in standing completely on the outside and taking an outsider role (Kleven & Hjordemaal, 2018). I have instead embraced the role as insider and attempted to use it to its fullest potential to give a unique and filling view into the gaming community and the world of gaming. While keeping in mind the limitations my insider role has on my role as a researcher and remembering to introduce as whole a picture as possible.

And finally, I will make a note on my informants, or indeed my fellow gamers. That while my sample filled with gamers might be skewed in favor to video games, I believe them to

be a worthwhile source of information. Video games are more than just games and that must be understood before the right questions can be asked (Yee, 2006).

4. Analysis and presentation of findings

In this chapter I will present the general information about my informants, before proceeding to detail the categories developed through the analyzation process. As mentioned before, the codes and categories were derived from a mix of the theory used and the text from the informants themselves. In general, giving both the codes and categories a close relationship with the raw information from the informants.

4.1 The informants

After the first processing, the study had a total of 133 answers. Of which 70 were female, 34 were male, 23 were non-binary and 6 chose the "other" option. Their ages ranged from 16 to 50+ and were distributed like this:

Age Brackets	Number of Informants
16-19	11
20-29	79
30-39	38
40-49	3
50+	2

81 of the 133 identified as primarily singleplayers, 7 marked themselves down as primarily multiplayer. 44 said they were equally multi- and singleplayers, whereas 1 marked themselves down as "Other". A staggering 111 informants put down the RPG-genre as one of their 3 top preferred genres of games.

In the subsequent presentation of the categories and their contents, demographic criteria such as gender and age will not be presented. This is due to the belief in this study that such criteria would add relatively little to the understanding this study attempts to explore.

The information shown in the categories were chosen because they were found to be more ample descriptions of things many informants echoed. At the same time, I have attempted to not always go back to the same answers to extract examples. As mentioned, some were more conservative with their words than others, and some of these have also been attempted to be included below.

4.2 The categories

Category	Game Sentiments	Gaming in School	Learning	Bildung	Facts Learner	Specific Skills	Negative
<i>Sub. Cat.</i>	Social	Examples	How does one learn	Moral and Ethics		Language & Writing	Misinformation
<i>Sub. Cat.</i>	Utility	How to	Motivation	Self-development		Social	Behavior
<i>Sub. Cat.</i>	Content	Benefits				High Cognition	Anti-social
<i>Sub. Cat.</i>	Consequence	Drawbacks				Motor & Spatial Cog.	Suitability

Sub. Cat.						Creative	Application-failure
Sub. Cat.						IT/Tech	
Sub. Cat.						Mentality	

During the analyzation process, 7 major categories were identified and used to sort the many codes that evolved from the information given by the informants. After all texts had been coded, the codes sorted under the major categories were all sorted into sub-categories. This is due to the sheer amount of information gathered through 133 people and the open nature of the study itself, which garnered a wide net of information.

Here I will now account for each of these categories and present the reasoning behind them, as well as give concrete examples from the informants. I will then try to see if the information from the informants cover Gee’s (2003) principles.

As 7 relatively big categories would take too long, there will be a greater focus on game sentiments, learning and bildung in games. The category negative gaming will be given its own unique attention. While the remaining three; facts learner and specific skills and gaming in school will be shortly presented.

4.2.1 Game sentiments

This category was established to sort the many opinions gamers had about their own experience with gaming. Many of them could fit into a learning situation, but it was kept separate from the learning category as that category was meant as a more on-the nose examples as recognized by the field of pedagogy. The category “Game sentiments” were split into 4 sub-categories which I will detail below.

4.2.1.1 Social sentiments

These opinions were social in nature in relation to gaming and belonging in the various affinity groups. Several informants noted how games and gaming could both be or lead to real-life social activity. One informant writes:

“My husband and I play games together and watch each other play games, and our child has become interested in watching and playing games. It is a way for us all to do something together.”

Many games offer “local multiplayer”, meaning you don’t need several consoles or pcs to play, the good old-fashioned split-screen on TVs for example. However, the online multiplayer games were by many cited as good and new ways to be social with friends in Covid-times. Covid, quarantine and isolation were a recurring mention by several informants and not just in terms of social life. To keep it in the social sector however, many mentioned that even without the pandemic, playing multiplayer games were a great way to meet people one normally wouldn’t get to meet due to practical constricts such as distance and culture. The informants write:

“It gives me the opportunity to be social and have fun with my friends without having to physically meet. This is good when one or more of your friends live far away, or when a global pandemic is raging.”

“The joy of connecting with others, even in times of deep isolation (like having to always stay indoors during the Covid pandemic). Even something as simple as standing around in an MMO with my friends while we chat, not even playing the game, feels almost

healing in a way. I feel much less alone, and it's very comforting to know I can find company just from logging in."

The latter of these two informants mentioned the lessening of loneliness, which by other informants were mentioned even more specifically and sometimes even without the multiplayer tag on. An informant illustrates it like this when they write about games as being a kind of friend:

"A friend to help with loneliness. Sometimes a place where I feel I belong and I can think about all the aspects I like about myself instead of the things I don't. Personally, they create a positive headspace for me."

Finally in this category are the codes connected to a more general sense of community. Note how this informant, who had marked themselves down as a single-player with preference for role-play games still notes how games gave them ways to socially connect:

"Games also brought me many great friends from all over the world which I would never meet otherwise. I even managed to meet few of them face-to-face - just because we bonded over playing the same RPG games."

Games as a social bonding activity was recurring to several informants and not just the multiplayerers. Things like talking about games, the content and stories in games were all cited as unique bonding activities that brought the gamers personal joy and a sense of fulfilment in their lives. Participation in so-called fan-culture (where fans of a game or genre meet both online and in real life to exchange ideas, fan creations and love for the same topic) were also mentioned as community participation. This informant summarizes it comprehensively:

"Aside from learning, it gives me a social platform. Gaming has allowed me to reach out to so many different types of people, make friends, and socialize with people of similar interests. You could find people to compete against, collaborate with, or enjoy content from. It's a diverse and stimulating community filled with lots of different people all gathered to enjoy the same thing as you."

4.2.1.2 Utility sentiments

Utility sentiments are opinions the gamers had about how they use games in their day-to-day life. I can already spoil you now and say that no one explicitly mentioned using video games to learn content in their day-to-day. This category will therefore be summarized in a shorter fashion. I can for example safely say that almost half of the 133 informants (over 60) stated that games were a way to escape real life, work stress or just life stress in general. Closely relating to the people who used words like "relax" instead of "an escape". Stating that they used games to relax after a long day at work or in school. However, it was noted by several informants that games although noted down as entertainment, felt like a better form of entertainment than watching TV or YouTube as you in games actually do something:

"It gives me a break while also helping me feel productive. Especially if it has a storytelling aspect, then it's similar to reading a book."

"Games give me stimulation, so I don't get brainrot from watching Youtube or Netflix all day"

Just like when other typed of media are consumed, be it movies, music or books, games also seems to have a tendency to inspire and foster creativity in people. According to the informants, video games are greatly inspiring in many different activities. With sources for the inspiration cited to be anything from the visuals, the audio and to the story being told, games are held by the informants as excellent motivators for the creative senses.

"I also feel that video games immensely fuel my creativity, as some of them are extremely inspiring and motivate me to do something creative such as draw, write or come up with stories or even make music."

Lastly some individuals said that games specifically helped them cope with mental issues and challenges such as depression, debilitating stress and even learning disabilities:

"From the game I got tutoring that actually motivated me to take control of my own form of learning. For the first time while I was learning to read I wasn't explicitly aware of my disabilities, how I can be... I'm too busy catching Pokémon."

4.2.1.3 Content sentiments

Content sentiments are the gamers' opinions about what are unique about games and the gaming experience, sometimes set up to learning situations. Essentially, what does a game have that other mediums or experiences do not have? Several pointed out that games allow for explorations in environments that are both safe and interactive. Which tied in with the informants that specifically mentioned that games were spaces where it was safe for them to fail. By safe environments the informants meant that new topics could be explored without there being real-life consequences to themselves and their lives. The informants write:

"Also RPG games can give you a safe place for practicing disagreeing with people, which is something I also have a problem with. Seeing that you can disagree with somebody and still achieve your goals, and the sky won't fall on your head, so to speak"

"Being able interact with an environment where the player can experiment/try things with smaller/less severe real-world consequences really allows them develop decision making skills through experience."

This safe environment and safe place to fail policy was further noted as many informants noted how games could ask the "hard questions". It should be noted however, that this is true of any medium. Books and movies have always been used to get an issue at hand out to people. It is only natural that games also catch up to this and present perspectives on "heavy subjects" such as war, mental illness, racism and homophobia to mention a few. One informant notes how playing such games that directly handle difficult subject matter could be an excellent way to gain deeper understanding of the topic.

"Also indie games about sensitive topics such as depression, isolation, war that can help kids/teens to deal with such feelings and see that it is to some regard "normal" and they are not alone. Games like "Valiant Hearts" can teach without any words spoken, the destruction and broken souls/hearts of people during a war. I think instead of talking about the same (important!) things like WW 1 or WW 2 in school every year in a boring and distant way playing Valiant Hearts with teens would make them understand better what it meant for the people to experience such times."

The informant above mentions "instead of just talking about it", hinting to perhaps the reigning passive structure of learning in many classrooms today still. I already mentioned how video games were also said to be "interactive environments" by the informants.

Which going by how they are writing about it, sounds as if the interactivity helps keep them engaged for a longer period of time. Words such as "I can participate" or "I'm taking in a new experience actively, instead of passively such as TV and books" are frequent and worth noting down. This noted active participation in an activity is further exemplified by the informants noting how stories in games can be more immersive than that of books and movies. One informant writes:

"Generally, it's similar to movies, with the important distinction that movies are consumed but games are experienced."

4.2.1.4 Consequence sentiments

Sentiments about consequences are the informants' thoughts on what games contribute to them in their day-to-day. This must not be understood as a "why the gamers play" kind of category, it rather contains so called "happy bonuses" due to playing games as experienced by gamers. Notably another large amount (again over 60 informants) noted how knowledge and skill they perceived as coming from games, were found to be useful in their day-to-day lives. A large amount also mentioning finding skills and knowledge from games useful in formal settings such as work and school. Specifically, skills in language (most commonly English) and resource management were the most commonly cited. This information is particularly interesting as it bears witness that: If the gamer has attributed a skill or knowledge to their gaming activity, there is a rather credible form of transfer of skill from a virtual space to a real-life space happening. The informants write:

"As mentioned previously I think the best example of this is using my mmo play as a way of practicing leading group projects which has come in handy recently at work."

"I make documents in English at work and sometimes I have to talk with People from other countries, so it is really helpful to hear and read English, not only in the work environment."

Additionally, in this sub-category a few informants mentioned positive consequences to their mental health being the result of the games they played. Which they often related back to video games being a safe space to explore both their own selves and capabilities. One informant writes:

"feeling like I can do things (im chronically ill and there's a lot of things I cant physically do) and it gives me more dimension to life"

While another illustrates just how games being a safe zone has helped them have better quality of mental life:

"I've had debilitating anxiety for years, and social anxiety is one facet of that. It's part of why I've been extremely isolated for a long time, even before Covid. But with multiplayer games, especially MMOs, helping me connect with others, I've been able to get out more and do tasks like speaking with strangers more easily. My depression and anxiety have both been steadily improving since I started playing multiplayer games on a daily basis."

4.2.1.5 Gee's principles in the sentiments Category

When going through the information given by the informants, I found a lot of similarities between Gee's principles (2003) and the gamers' own thoughts on and around video games. Many are also present within their described experiences as well.

One could argue that through simply reflecting about their own gaming habits and the consequences thereof gives a nod towards Gee's concept of "good learning". However, it is not addressed directly and certainly not directly accredited to games. Therefore, I am hesitant to draw too many comparisons here with Gee's "good learning".

On the other hand, similarities to the principles presented in both learner identity and the social mind is very present here. That video games are a safe space where the learner can take increased chances, as there is a lessened risk of ridicule or other damaging consequences to one's identity. This in turn makes it easier for the learner to commit to the learning experience and in a happy case, as with the informant mentioning reading due to Pokémon, a bridging of the learner's identity and personal identity can happen. Ultimately leading to the ability to make self-discovery and a step further, self-improvement.

These bridges between learner identity and personal identity, or perhaps gamer identity and personal identity, also seems to have far reaching consequences for the gamers' social life according to the informants. People do not just meet up in virtual space, but will also bond in the real world over shared experiences and interests. They will then further develop the learning experience, knowingly or not, by discussing the games they play. This is very reminiscent of Gee's principles that deal with affinity groups and the social practice within and around video game play. I will also bring back the study by Granic, Lobe & Engels (2014), that the wording of meeting people across border, cultures, ages, and backgrounds also rings true in my study.

The ability to conclude that a lot of both interpersonal, language and other types of skills come from video games are an interesting observation, however. As I mentioned, it hints to the possibility of transfer not just between games as Gee writes about in his book, but also from games to real life. This in turn is interesting for this study's question of using video games as educational tools. Based on a rather large amount of the informants in this study: games already contribute to their informal learning to such a degree, that the informants themselves notice this impacting both their formal and non-formal learning. In fact, many mentioned applying various skills and factual knowledge from games in school and employment.

Finally, I will mention that the overall air in this category is that games create a compelling and engaging environment to be in. This is a principle for good learning by Gee (2003), that is the very essence of why there is continued learning. This also brings to mind self-determination theory (Deci & Ryan, 2000). It is clear from the informants that in their gaming experiences they feel in control of their situation, as well as competent. The challenge presented by video games is seen as positive over the passive consumption of "YouTube and Netflix", as one informant puts it, while the aspect of being in a world of make believe gives them confidence to act in ways the otherwise wouldn't. This in turn spurs them on even outside of the gaming experience. The relatedness to others is clear as well, not just in game, but simply through meeting others who play the same games as oneself.

4.2.2 Gaming in school

This category is more normative in nature and as such it won't be discussed in such depth as some of the other categories. It is normative in the sense that many informants took it upon themselves to discuss what they felt gaming in school *should* be like. Or said differently, how games could or should be used in a formal learning situation. It might seem counter-productive for a study concerning itself with games as educational tools to

not include this category. However, it is not for this study to be normative. I am in no way aiming to tell anyone how games should be used in any kind of situation. Rather, I aim to discuss the possibilities of use. So, while the deliberations, thoughts and ideas of the many informants are interesting and thoughtful; it was considered to be less of the firsthand experiences asked for and as such less relevant to the research question than I had initially believed. I will therefore only touch briefly on the various sub-categories.

4.2.2.1 Examples of games used in formal learning

The first sub-category is a collection of the various examples informants had of games being used in school already. These were mentioned or discussed by a total of 41 individual informants. Everything from math, language and logical problem solving to teamwork, resource management and ethics were listed among the examples. Specifically, the game *Minecraft* and its new learning mode were mentioned by several informants as a great tool to learn various skills and knowledge.

4.2.2.2 How to use games in formal learning

This category includes codes for how the informants felt video games should be used, or how it should be implemented. Many who presented views here felt that video games used in education, should be made with education or educational goals in mind. Others stressed that educational games must be well made, on par with those made for entertainment. Interestingly enough in this sub-category however, was the notion by a few informants that, while the idea of using regular video games were fine and encouraged, there was a need for guided reflection led by a teacher after ended play. Not just to understand the learning experiences from the games better, but also to cultivate good reflective practices about one's own in-game learning experiences. As well as becoming better at reflecting over the content consumed and experienced, instead of just swallowing it all whole.

A final notion in this category was the demand that teachers had to know what they were doing. This I believe is a very valid point and a nod to potential generational gaps. The informants acknowledged that one couldn't simply give any teacher a video game and demand they play with the students. If the teacher doesn't know how to play video games or doesn't understand the sometimes subtle learning experiences taking place, they cannot be expected to utilize video games as a good educational tool.

4.2.2.3 Benefits of using games in formal learning

This sub-category was characterized by the intense optimism gamers often show to have for games and their possibilities. The discussions around the benefits video games could have to various educational systems were enthusiastic and plentiful. I will here summarize as briefly as I can.

Games were held as an untapped resource by schools and educational systems not realizing what a good tool games could be. Especially in the times of the pandemic with its sudden need for good digital educational tools. Games could also allow for exploration beyond cost and realism in many cases either through screen or other technology such as virtual reality.

It was believed by many informants that using video games could make school and education more relatable, engaging and active than what they perceived school to be like today. Perhaps especially better aid those who struggle to keep up with traditional learning.

Finally, it is worth mentioning that many, if not all of those who mentioned school specifically, felt that video games shouldn't replace traditional learning. But instead, it could be used as a tool to aid and improve what was described to be stale and outdated forms of learning.

4.2.2.4 Drawbacks of using games in formal learning

Here informants showed their ability to reflect upon video games and learning and how it would perhaps *not* benefit learning. Thoughts and opinions varied wildly here, as it truly depended on their past experiences with both educational games, and how their own schools had done things when the informants were in school. I will again sum up the gist.

Several felt that educational games were doomed to fail, as making a game educational would automatically take away all the fun. They alluded to the belief that games are more entertainment than anything else and should not permeate the educational sphere.

Other drawbacks mentioned were of the materialistic kind, such as gaming equipment can be expensive for either the school or the students. As a reminder, the informants in this study come from all over the world. Therefore, school systems where the student has to pay for equipment (such as the United States) are also present. Others felt that schools already had too much unnecessary technology that teachers didn't know how to properly utilize.

Finally, the more universal understandings were that for one, a game could never replace a teacher in the classroom. Echoing the sentiment from above that games should be used as educational tools. The primary drawback mentioned as to how a game could never replace a teacher was that a learner cannot have a true dialogue with the game. Thus, removing the ability to ask questions or deliberate, which must happen outside the game.

4.2.3 Learning

This category holds all the opinions and experiences where the informants have directly described them as learning experiences. Including notions of why games are motivating as well as how they, for the informant, function as a learning tool. This category carries the most direct link to the educational theory presented together with Gee (2003) in part 2.2, especially in the first category detailed below.

4.2.3.1 How does one learn through games

In this sub-category, codes that focused on learning experiences as either described by SCT or Gee's active and reflective learning were gathered. Some were of a mind that games taught "quietly", as in the learning taking place wasn't noticed. This is in line with learning in games as is, is an informal way of learning. And as there isn't an intent to learn, the learning happening might pass the learner by. Or as one informant puts it:

"The best games don't shove in your face that you're learning at all. You should be able to play a game and only realise when you come to use the skill or knowledge later where it came from"

The majority of the informants, however, were more willing to discuss video games as an active learning process. But some did point out that learning in games were, in fact a process, and not something that could be pinpointed in single moments. The ones who did explore their learning in games however presented a multitude of realizations and recognition of learning experiences taking place.

The simplest of forms, if such a term could be used, is the recognition of learning-by-doing in games. The ability to both see and get a close up on a particular process were cited by many as helpful to their own learning:

"Learning from games is very hands on. You get to experience things somewhat firsthand instead of just reading or watching something, which is a great way to stay engaged"

"Games also teach a lot by trial and error, and the resulting self-reflection which is just how children learn. If you can't beat a boss, you're respawned at an earlier checkpoint and have to check if there was something wrong with your strategy,"

Experiencing instead of consuming was a general theme amongst the informants when discussing how games taught them in ways, they believed, more engaging than traditional learning. A few informants specifically mentioned how games, through being an interactive medium, forces you to think.

"Games are a mentally enriching activity that requires the player to be in constant use of their brain and reflexes. They're meant to be challenging in some way or another, in most cases."

The aspect of challenge was for many important, that the game should challenge them but not be impossible. As well as the ability to move between challenge levels depending on one's own abilities. This seems to allow the informants to "keep at it" and not be taught to simply give up. Another way games kept the informants engaged was the ability to solve in-game challenges differently:

"As someone once said "if you're a dumbass, link also becomes a dumbass." Because the game has gravity, magnetism and electricity and other functionalities for its puzzles in an open-world setting, you don't always have to follow the one strict route to success, but can come up with your own ways of solving problems."

The informant is here talking about the protagonist Link in the game *Zelda: Breath of the Wild*. It is far from the only game with such a mechanic as another informant writes more generally in the same lines:

"I also love games that give you new maneuvering abilities and then just let you figure out how to get to the next level yourself - that trial and error is really fun, and it does train your creativity on how to use the things you have."

Many games like this carry a distinct similarity to the zone of proximal development (ZPD) (Vygotsky, 1978) within them. The more accomplished other is here the game itself. The act of giving some brief instructions and tools that will later allow the player/learner to build further upon them is a regular occurrence in games today. Though sometimes the more accomplished other is still peers that are more skilled than oneself:

"The game Sky: children of the light I find to have an interesting approach for teaching its mechanics, as the most basic is explained and further information can be found in a menu. But many things must be figured out on your own or, as intended, through the help of other people."

"I also seek knowledge from people I know have a higher level of skills than I have and also from streamers/Youtubers. "

In addition to all this was the belief that continuous practice of the skills learned helped the informants evolve and eventually made the skills and knowledge intuitive. The act of

practicing and trial-and-error seemed for many integral to their learning process within games. This in turn showcases that no one is really “born to be great at games”:

“the first time you play it will be very confusing and overwhelming, as there's a lot of information to take in at once, the layout of the map, running away from the hunter (or failing to do so and what happens after), fulfilling the objectives of the game, the mechanics of your own chosen character and the mechanics of the hunter. It all takes time getting used to through practice.”

The informant is here talking about the game *Identity V* which allows several players to play together in an intense form of tag where one plays the hunter and the rest the hunted. Multiplayer games were usually cited as great ways to learn about both teamwork and communication. Even in more competitive games such as *Counter Strike* (A shooter game).

Finally, under this category I want to go back to the aspect of “experience rather than consuming”. For indeed, many players meant that games ultimately taught through telling stories.

“Games teaches us important lessons by putting the players into the shoes of the protagonist.”

Of course, we have stories based in reality which for many would seem like an obvious choice when talking about learning. One informant writes:

“Assassin's Creed for example teaches you about places, cultures, historical events by sending you in exact these places and times and lets you speak with historical persons. Also in many games there are a lot of background information on the setting.”

However, others brought forth that also stories not based in our reality could have things to teach us. And again, it is the engagement, activity and immersion that comes forth:

“I think the greatest strength of games as teaching tools comes from the sense of personal involvement. I feel more involved in a character's development if I can interact with them,”

As well as the engaging and safe environment to explore making a comeback from category: sentiments. The unique ability within games that allows a gamer to explore without real-world consequences. One informant expresses it in this way:

“An observant player can pick up context clues from the environment, the art architecture and ambient dialogue, as well as notes and texts they read as well as secondary dialogue from NPCs. The choices that they make in choice based RPG formatted games also allow them the opportunity to explore the consequences of actions within an environment on their own terms.”

4.2.3.2 Motivation

This sub-category is on the smaller side in the way that there are less codes within the category. This is due to the fact that they often do not come from the words of the informants themselves, but has instead been interpreted by me as recognition of moments of motivation. The most commonplace observance of aspects of motivation is, perhaps not surprisingly, competence or self-efficacy. Games allow the informants to feel good due to their mastery of various situations and instances as demonstrated by these informants:

"Gaming makes me so happy. It's so cool to see different stories unravel, learn new strategies to play certain games, and to finally succeed at something when you've been trying for hours! It is a de-stresser (for the most part) and gives me such a sense of satisfaction."

"Especially during Covid-19 lockdowns and during receptive days at work, games offer a near guaranteed source of progressing or accomplishment when completing the game or a task within the game."

This "sense of accomplishment" is repeated by many informants when talking about what video games give them in their day-to-day life.

The other codes in this sub-category dealt with how the play of video games seemed to further inspire intrinsically motivated learning later. Some informants speculated that this might come from being trained to "stay on target" from video games, while others cite video games as the source of inspiration to learn new real-world skills such as coding, foreign languages or the taking up of new hobbies. Games were even cited as inspiration to obtain more knowledge about various topics such as f.ex. history, culture and folklore. An informant writes about playing games and learning:

"I think there will always be people who think games will have a negative impact on learning, but after 10+ years of teaching, I can confidently say that the students who PLAY, whether it's video games or other types of games, are the ones who make greater leaps in learning and are more likely to be invested in learning for the sake of learning itself."

4.2.3.3 *Gee's principles in the learning category*

In this category we see a much larger presence of Gee's (2003) principles that I presented in part 2.2.2 where I connected Gee and SCT. Certain information given and presented here also showcases principles about identity (such as the psychosocial moratorium for one) and the social mind. I will here focus on the principles presented in 2.2.2.

The informants seem on the large to be aware that learning in games happen in incremental or sub-set space. Better known in gaming as the tutorial phase leading to freer and less guided play later. Many informants paint pictures that are, as mentioned similar to the ZPD (Vygotsky, 1978), with both the game itself and real people acting as the more accomplished other. The latter brings to mind Gee's (2003) principles about knowledge in games being dispersed in the sense that gamers will share what they know with others.

Many bring up the ability for multiple routes to solve a problem, which is by Gee held as an important principle to obtain a good learning environment. This also connects to how informants feel like they can adjust challenge level to fit their level better. This ability to adjust and play to one's strengths allow for a learning environment where the learner isn't expected to fit into only "one size". This in turn allows more individuals to feel like accomplished and competent learners/players. This regime of competence (Gee, 2003) further ensures that learning is ongoing and (often) intrinsically motivated.

As shown by one informant above knowledge in games can lie implicit in the very environment the player is allowed to roam in, which encourages the players/learners to keep being curious about the world around them. They need to prod it (the world) to see the reaction through trial and error. These are also principles for good learning by Gee

(2003). This is all really only possible through the allowance to explore and make “experiences themselves instead of just being told” as one informant writes.

When games keep “*over telling*” (explaining so much that the aspect of exploration is taken away) to a minimum, but gives clear goals and foundations for the player/learner to build on. This seems to engage the player/learner and possibly increases their sense of accomplishment when the goal is reached.

Finally, the informants recognize that a lot of practice is involved to finally make many of their skills intuitive, which many of the informants seem to find rewarding in itself. This isn’t just also among Gee’s many principles, but also brings to mind intrinsic motivation. I’ve already mentioned how relatedness seems to be well covered by games *both in game* (if it’s a multiplayer game) and *out of game* (affinity groups). Throughout this category it also becomes clear that competence is also a need met by the act of playing video games. This is perhaps the most obvious one for some, but it still warrants a mention.

However, I would also like to propose that also the fulfilment of autonomy is also met here, through the ability to choose multiple routes to solve a problem and adjust challenge level. Autonomy is also increasingly present in the emerging trend of giving players multiple choices that affect how the game itself will play out, giving players further control of their game experience.

4.2.4 Bildung in games

As mentioned, bildung is a tricky thing to define, and as such it is not something one really can “find” in a study. Signs of bildung will always be highly dependent on the eye that sees and as such, this category is based around my own reflections on what building is and how I have related it to Gee’s (2003) cultural model principles. In addition to how I have chosen to recognize it within the texts given to me by informants. The codes I believed fit into my reflection around and understanding of bildung were split into two groups: Morals and Ethics, and Self-development. The former was kept separate from the latter, as codes within often dealt with the potential games had to teach such things through their stories. Meaning they were more normative in nature. However, there were still examples of direct realizations that the gaming experiences had furthered the informant’s understanding of themselves in relation to other cultures and groups.

4.2.4.1 Moral and ethics

In this sub-category, many informants showed their ability to draw comparisons between content in video games and situations in the real world. They also attributed their furthered understanding and personal development from the exposure received through the video games played. One informant shares their discovery:

“I was a teen when I played Dragon Age Inquisition for the first time. I had never played an rpg like that before, and it was a first for me on a lot of levels.

I started looking at real world conflict in a different way. Big issues held more nuanced views than what I had previously believed. The mage-templar conflict is a complicated in-game issue, but the way the players responded to it online (usually in a very ‘extreme’ way, without nuance) made me draw comparisons to human behavior towards real issues”

Dragon Age is a fantasy Role-play game (RPG) series by Bioware, known for their inclusion of player driven choices that shape the reality of the various people in the

game. In general, such realizations of moral and ethics were cited to come mainly from RPGs which involved complex storylines. Another RPG from Bioware, *Mass Effect*, was also mentioned in relation to discovery of morality lessons:

"Mass Effect asks you to make moral based as well as strategic decisions that will have lasting effects on the universe you're playing in. Each game shows the player the repercussions of your actions whether positive or negative on the galaxy, along with how your character is viewed by others for having made them. Such gameplay helped me question my moral integrity and what kind of leadership skills I may possess in the future."

Aside from speculations about morals and drawing real-world comparisons, the most reported "consequence" of being exposed to various stories; were the new understanding and acceptance for "others unlike myself", as several informants put it. This is not something new; books and movies have long been used to attempt to show the proverbial "different sides to a story". However, as video games takes the learner into the situation where it becomes very hard to not sympathize with the protagonist (it is after all either you or an extension of you). One can therefore speculate on whether video games do a "better job" of showcasing such differences effectively, instead of further alienating. The informants write:

"Roleplay games which are choice based and games with rich characters have shaped the way i look at people and their decisions and given me an easier time to understand/realize other people's point of view or sentiments."

"Some games have also exposed me to different experiences and to people outside of what I'm used to where I grew up, which has changed my view on things by expanding my knowledge of different people and places."

Finally, let us not forget that many people do play video games together and in meeting others from most likely a global space can challenge the players and their own beliefs and convictions:

"Multiplayer or online games can potentially cause you to be more mindful of people around you. Sure, social media is a thing, but with some multiplayer games you are directly confronted with a great amount of all kinds of people. Everyone's different, and that also translates into games - the way they play, communicate, their thoughts on lore - all of that has to be taken in account."

4.2.4.2 Self-development

In this category I gathered the codes that dealt with how, usually due to games being perceived as a safe space, some informants shared how they could explore their own identities safely. One informant writes:

"For a very long time, video games gave me a way to express my sexuality and gender identity. Even before I realized I was trans, I always liked playing as male characters. Like, I got to be this strong man without my parent questioning why I play as so many guys. Basically, Dragon Age: Origins was one of my first ways I was comfortable playing as a gay man and I wish that some point down the line, there's more trans representation in video games so I can finally play as myself."

Others expressed how they felt video games had helped them become more empathetic towards others. This can likely be related to this "power" of immersion and engagement

video games seem to possess. Again, it was mainly RPGs mentioned when such things came up in a few informant's writings. One informant puts it like this:

"RPGs teach compassion. Often, getting the "best ending" involves you getting to know your companions and helping them on their personal journeys. It involves being selfless, caring about the good of the many (your traveling companions / your town / the world)."

Video games are experienced as a medium that is first of all safe to explore without consequences to your real-world self, and also where things are less complex and more on the nose than real-life. Video games were cited as a help in developing empathy for those who struggled with it in their own lives:

"As an autistic person, its taught me empathy. I only felt empathy for objects and animals as a child, but gaming I started to see people as something deeper."

"I feel this has helped to make me a more empathetic person, which is something I struggled with a great deal in high school."

Finally, several informants cited video games as a big help in developing their self-confidence on various arenas. Aspects such as seeing oneself represented in the game in the form of gender, race or sexuality was a recurring theme. One informant writes:

"Not so much knowledge or skill, but rather confidence. With a female player character, I (f) finally got to experience that "I can do anything" feeling. It helps me in terms of general confidence, but especially regarding sports. I train harder because I have seen this female badass on the screen and want to be more like her. And I can do it."

4.2.4.3 Gee's principles in the category bildung

It warrants a mention that it is not this study's attempt to say that video games bring forth such realizations, as presented above, automatically. It all understandably hinges on the player's ability to reflect about such things in the first place. But as Gee (2003) states with his "cultural models about world/learning/semiotic domains", good learning environments should get the learner thinking about their own cultural models and set them up against the others presented.

The first sub-category here, moral and ethics, carries the most similarities with the cultural models principles. It is also perhaps not surprising, as stories about "the other" in a space that is not inherently threatening to the individual and their identity will usually have the means and at the very least, the foundation, to make the individual aware of their own and other's cultural models.

The second sub-category carries more ties with Gee's (2003) identity principles, including the self-knowledge principle I already connected to bildung in part 2. This heavily stems from the fact that the video game is seen as a safe environment for both exploration, but also self-expression as with the case of the transgendered informant above.

The inclusion of this category is mainly to showcase the need to bring gaming into consideration when discussing bildung further. It is unavoidable when it is such a big part of so many lives.

4.2.5 Facts-learner

This category has no sub-categories as it is a collection of examples the informants have given on factual knowledge obtained within games. Alone, this category perhaps tells nothing unique, as books and film can also teach an array of facts. It is none the less

included to, if nothing else, show that also games have this potential. Naturally with so many different people, the fact learning mentioned varies greatly and sometimes was even mentioned by only one person. It is however worth mentioning that a decent number mentioned learning history facts through games. With the added note of how learning it through video games were more engaging than reading books or sitting in lectures.

4.2.5.1 Facts-learner table

Facts About	No. of informants	Facts About	No. of Informants
Foreign cultures	4	Metallurgy	1
Agriculture	1	Philosophy	2
Biology	4	Politics	4
Game Genres	1	Science	1
History	27	City planning	3
Marine Biology	1	Zoology	4
Mental Health	2	Play and Learn (Elementary curriculum)	4

4.2.6 Specific skills

This category shows the reported skills the informants believed they have largely gained or developed due to gaming. Just as with the facts learner category the different skills reported are large in scope, but often just a few informants reporting the same skills. It is interesting to note that codes befitting the category "language" was a frequent mention among many informants, and not always specified as English. Meanwhile codes that could be grouped into the concept of higher cognition (logical thinking, problem solving etc.) had a clear majority.

4.2.6.1 Specific skills table

Skill category	Codes	Mention in individual texts
Language	Typing, Read speed, Language skills	57
Social And group	Online navigation, leadership, team problem solve, social skills, communication, teamwork	44
High Cognition	Problem solve, Crit. Think, Logic think, analytic, strategy, multitask, planning, patience, reflection, resource manag.	144 (Note that while High cog. Was often present, some texts have mentioned the codes multiple times)
Motor and Spatial Cognition	Reaction time, navigation/spatial awareness, hand-eye, reflexes, fitness, driving	53
Creative Endeavors	Arts and Crafts, game development, visual design, writing/storytelling, Building, Cooking	25
IT/Tech	Technical knowledge, programming	11
Mentality	Coping skills, Game therapy	3

4.2.7 Negative gaming

In this category, the informants were asked to consider what it is about gaming that could be seen as negative. This category has a plethora of opinions and ideas. There is no such thing that doesn't also have potential draw backs and negative sides. Some stressed that a lot of the negative sides of gaming came not from the games themselves, but from a poor ability to self-regulate, self-control and self-discipline. While this is a debate that is important to include in this study, it is not the main focus.

As such, I will present the informants opinions on the negative aspects of gaming and bring them, through to part 5 for further discussion.

The informants of this study identified several negative aspects in and around the phenomenon of gaming which I then split into 5 areas depending on focus.

Misinformation: This area deals with how games can be disconnected from reality or spread false information. Games that contain historical content will sometimes take artistic liberties or change things around to fit a narrative. Some also mentioned that games would sometimes over-simplify serious topics to, if nothing else, make it easier for a player to swallow.

Behavior: This area has examples of how games can feed issues with self-regulation and control. Phrasings such as "games are addictive" or "I spend too much time on games sometimes" were represented here. There were also given examples on how, when games become too frustrating, or other players become too frustrating to handle, it could be taken out on the environment or other players. This is also connected to how, in particularly massive multiplayer games online (MMOs) tend to develop toxic communities. Toxic communities here meaning communities where harassment, ridicule and bullying is commonplace. Some also believed that the constant instant gratification that video games have, makes for impatient and "award-spoiled" individuals.

Anti-social: While this area technically could fit within the behavioral area, this was kept as its own area due to the traditional belief that gaming is a lonely activity. It does however carry traits with it from the behavior area such as toxic behavior learned from the toxic communities online. Some were also still of the belief that video games in general are not social whatsoever, or at the very least not the same as real life socialization.

Suitability: Here are the codes where informants questioned the lack of parental control sometimes observed in children's game use. Things such as minors consuming ill-fitting content simply because their parental figures either do not pay attention, or doesn't care to learn about the activity or the content. As well as some informants believing that kids shouldn't be overly exposed to screen time from such early ages.

Application Failure: This final area dealt with how some informants believed that games were unable to bring out knowledge and skill outside of the game. Beliefs such as that video games cannot teach method and a failure to translate game knowledge to real-world knowledge is present here. Some informants also questioned whether or not "gamifying everything" is such a good idea in the long run.

All these areas and the opinions related to them are all valid and important when discussing video games. Even though some of them might be outdated and disproven by

science by now, they are none the less valid concerns. Also, it is meaningful and a credit to the informants' reflective practices that they are willing and able to put a critical lens onto something that they clearly love. After all, if one cannot talk about the drawbacks, one cannot take up the mantle to possibly solve the problems in the future.

5. Discussion

In this chapter I will discuss the findings from chapter 4 and how they have been shown to come together with much of the theory presented in part 2. I will also discuss video games in light of self-determination theory (SDT) also presented in part 2. Further, I will devote some time to the drawbacks of video games, before finally discussing video games as potential learning tools in formal learning.

5.1 How are games good learning environments?

In the very beginning of my presentation of Gee (2003) in this study, I mention his 5 general principles for what he defines as "good learning". This has only been minimally addressed in part 4, as I cannot exactly pin it directly to the informant's actual expressions. I would argue that the connection is none the less there. I related Gee's 5 first principles to Bloom's taxonomy (Kratwohl, 2002), and I would claim that throughout their answers to me the informants have shown much of these properties. If we focus on the 3 latter steps in the taxonomy (Analyze, Evaluate and Create), and say that the first 3 (Remember, Understand and Utilize) is the playing of the game itself. I can claim the following: Simply through writing about their own practices the informants show that they are able to see connections and connect their knowledge up to something bigger, here learning (Analyze). They are also able to use the knowledge to evaluate the knowledge critically, which shows most clearly in the negative category (Evaluate). The last step is harder to pin down, but is none the less there through the many informants who claim they use what they learn and experience in video games to create art, music, stories, game modifications and new games (Create).

As such, I would claim that Gee's (2003) concept of "good learning" is present in what the informants have written. Including his social aspect when they write about sharing information and helping one another to get through hard stages of games. In addition to when they write of joining together in groups outside of the game to further discuss, enjoy and create new content inspired by shared game experiences.

Of course, the very first principle presented by Gee (2003, p. 41), "Active learning principle", states that learning should be active and not passive. This has been a recurring theme for nearly all the informants who discussed learning benefits in video games.

Through the information given by the informants, there seems to be a great deal of similarities between the presented learning experiences and the remaining of Gee's proposed learning principles from gaming. In turn, this gives credence to much of Gee's (2003) principles. Though not all the 36 principles are present in the expressions of the informants, there is enough similarities to not dismiss the principles outright.

When discussing learning in games set up against traditional learning, the message from several informants were clear: the active and engaging learning form trumped the traditional form of passively receiving information. This does not mean that the informants claim that traditional learning should be scrapped and left behind. On the contrary, many informants stressed how video games should be an aid to traditional

learning. In addition, we must remember that this study is rather global when it comes to the informants. This means that the study cannot rightly discuss how the education system could change, as I wouldn't be addressing simply one education system. And educational systems around the world carry their own quirks and paces when it comes to change and development.

What I can say however is what many gamers, from across the globe, agree upon how a good learning environment should be if my informants' writings are to be believed.

A good learning environment is strongly characterized by the engagement the learner feels in connection to the learning environment. For there to be such engagement in the learning environment, several factors as presented by Gee (2003) and corroborated by the informants, must be present. As well as compelling and relatable subject matters, a possibility for challenge adjustment and the ability to play to one's strengths. Also important is the ability to give the learner a learning-identity they feel they own; it is a part of them, which in turn makes them invested to push further and stay engaged for longer.

The good learning environment also needs to be a safe environment, according to the informants, where there is minimal risk to the learner's real-world identity. But still an environment that puts the learner's ideas and conceptions about the world, their abilities and learning *at risk*. As in challenging ideas and conceptions by daring to present new and other perspectives than the ones one is already surrounded by.

Further, the informants express that a good learning environment structures learning incrementally, gradually upping the difficulty and challenge presented by the learning. By including ways that allows for "the more competent other" to guide and aid the learner, creating a reign of competence. This competent other can be a tool or a person, which signifies the need to include the social mind within the learning environment. The allowance of cooperation based on shared practice and goals and not race, gender or culture will allow for the development of good social group skills. As well as strengthened a shared learner-identity among participants.

All this might seem a tall order, but recall that I am not yet speaking on learning environments in school. Just a general sense, much in the same way Gee (2003) does in his book. I am woefully aware that such ideas about a learning environment in a school, any school, is at the time utopian at best. And there are many other factors to consider than the ones brought up here.

However, I would argue that the discussion of what a good learning environment is coupled with how video games possess a lot of said traits; shows how education's failure of creating educational games in the past (Roussou, 2004) went down. I believe educational games in the past (think 90s and early 2000s) most likely sought to gamify education by applying their own models and ideas about reward and punishment. Thus, gamified education (as I remember it) became all about the receiving of as many points as possible and dressing up homework with fun colors and funky animations.

If both Gee (2003) and this study is to be believed, that completely misses the potential that lies within video games. It isn't the aspect of constant reward that draws a gamer to engage for long periods of time in play. Although, I won't deny that it is part of it.

It is all the smaller parts coming together into what is undeniably an immersive, interactive, compelling and satisfying experience.

5.2 Bildung in this study and video games

Bildung is as mentioned not really something you can find proof of in a given setting. The term will always need clarification and reflection by the eye that sees, as it were. The findings that I have called bildung in this study are therefore based on my presentation of understanding and definition of the term as presented in part 2. And as presented in part 4, I believe there to be some aspects of bildung to be found within video games. If the development of games is taken into consideration this is, perhaps, not so surprising. Works of fiction has long been recognized to have potential for bildung in the form of the bildungsroman (roman here being the German word for novel) (Steinsholt, 2011). Much of what characterizes such novels can also be found in games based in and around story telling. In particularly role-play games (RPGs).

It is primarily role-play games that was mentioned by the informants when discussing things such as developing empathy, open-mindedness, learning about morality and ethics. In my own experience, with RPGs being a favored genre of my own, RPGs have increasingly shifted the focus from a more external point of view to an internal one within the protagonist. Things such as choices, morality and consequence, character growth and the showing of multiple perspectives on a problem is becoming increasingly more common with such games. All of these aspects are also part of what is understood as a bildungsroman by several of the perspectives on them (Steinsholt, 2011). Many informants did in fact liken the play of singleplayer games to the act of reading engaging and captivating books.

Morality and video games is an interesting facet that is becoming more prevalent and also slipping into other genres of gaming in my experience over the latter years. It is interesting to note that people will in general make the same moral choices in games as they do in real life (Weaver & Lewis, 2012). Meanwhile, antisocial behavior done in games will evoke feelings of guilt. However, the study done by Weaver and Lewis (2012) did find that such feelings of guilt did not hamper the enjoyment of the game play.

This all puts forward the possibility of making use of role play games at the very least as potential tools for bildung, like the bildungsroman is recognized as such today. This contrasts with the belief that there isn't much to be gained from RPGs in a learning sense as presented by Green and Bavelier (2012). On the contrary, I would argue that RPGs dip into very familiar pedagogic concepts such as learning by play. As well as giving the learner the opportunity to explore difficult topics and questions in a safe and consequence-free (to their real selves) environment. So that they may take those explorations and grow with them, in a continued development of their selves in relation to something bigger.

5.3 Video Games and the magical art of motivation

Already in part 4 did I touch upon how some of the statements made by the informants were reminiscent to me of the three needs presented by SDT (Deci & Ryan, 2000): Autonomy, competence and relatedness. Many of the informants did, after all, present how they "felt happy" or "accomplished" through their mastery of the video game. This sounds very familiar to the fulfilment of the competence need as presented by SDT.

In fact, in several studies made by Ryan, Rigby and Przybylski in 2006, where they sought to see if video games could fulfill any or all of the three psychological needs; they found that in most cases the needs autonomy and competence were very fulfilled by the act of playing video games. At least for a short while. In addition, they found that,

although many of their participants were not gamers originally, if enough of the needs were met consistently many reported they would continue to game after the study concluded (Ryan, Rigby, & Przybylski, 2006). They stipulated that this might have something to do with the experienced "presence" in the game. This term is closely connected to the term "flow" by Csikszentmihalyi (2005), which is stated to be a very pleasant state to be in. While flow or presence were neither used by any of my informants, their use of the word "engagement" and "immersion" is close to the natural definition of the two. With their ability to immerse the player, as well as keep them challenged and feeling accomplished, video games were practically made for the term "flow" (Sherry, 2004).

For relatedness however, Ryan, Rigby and Przybylski (2006) keep their eyes firmly on multiplayer games to meet this need. If one is to take it as a directly met need, then multiplayer games would be my go-to as well. The social sphere around games in general, or specifically singleplayer games, can be a little more implicit in the form of "affinity groups" as presented by Gee (2003).

As such, there could be said that there seems to be a strong link between intrinsic motivation and video games. This was also experienced by my informants, although not always stated explicitly. This in turn, heightens games viability as a potential educational tool; as they seem to be able to give the player a sense of autonomy, competence and relatedness (Dickey, 2007).

5.4 Addressing the downside

It became clear that many of my informants were very aware of the potential drawbacks that come with gaming. Or, at the very least, aware of the rhetoric that has long persisted about the so-called shadow side of gaming. Research has however in later years turned away from seeking issues and problems with video games, to instead examine the possibilities (Przybylski, Rigby, & Ryan, 2010).

That isn't to say that video games do not have their challenges. And while not the focus of this study, I will none the less address a few of them. The most prominent myth perpetuated by various news outlets is that playing video games will eventually make the player violent themselves. Research however has found little to no evidence of this being the case, even when playing violent video games (Przybylski, Rigby, & Ryan, 2010). In a recent 10 year long, longitudinal study; they found very little evidence of increased violence in adolescents who played violent video games (Coyne & Stockdale, 2021). This, of course, does not erase the need to ask how violent and mature games can potentially affect a younger audience. After all, the age recommendations on the games themselves are there for a reason. One of the prevalent concerns presented by my informants, were in fact the encountering of young children playing games that really weren't meant for them and seen as ill-fitting for their age.

The second large concern with video games that I will address, is the potential of addiction. That games were "time stealers" and "addictive" was also mentioned by many of my informants, so there is no doubt that this is to some extent true or at least a possibility. In light of SDT, Przybylski, Rigby and Ryan (2010) propose that individuals who experience little to no satisfaction of the three needs in their real-life will feel a bigger compulsion to engage in video game play. Whereas people who have a decent amount or high satisfaction of their psychological needs, will have a more harmonious relationship with their video game play practices. They call this the difference between *needing to play* versus *wanting to play* (Przybylski, Rigby, & Ryan, 2010). This becomes

a difficult question however, when you take into account that many young men satisfy their need for relatedness through the play of online games (Yee, 2006). Yee concludes in his article that video games are more than just games, and that research must see them as such before they can truly find out the answers they seek. A sentiment that also this study is trying to exemplify.

5.5 Video Games as educational tools

So as established in this discussion thus far video games are good learning environments, and they inspire intrinsic motivated engagement as they more or less fulfil all three psychological needs. How then can they be used as an educational tool, if at all?

I mentioned in part 2.3 about motivational theory that research has found that many children lose their motivation in school as they get older (Schunk, Meece, & Pintrich, 2014). One of the reasons for this is imagined to be the school's general lack of involving the children's daily life outside school, thus becoming highly unrelatable to the children of today.

It's also undeniable that for many daily life has become highly digital, and that part of that digital every day is the playing of video games. Recall the number of over 3 billion players of games worldwide (Moore, 2020) as presented in the introduction. In Norway in 2020, 86 % of youths between the ages of 9 and 18 played video games (Medietilsynet, 2020). These are both high numbers, signifying the importance of digital games in everyday life. As such, the introduction of video games as an educational tool for formal learning can on its own be motivating as it would potentially connect children's school life and life outside school. Thus, perhaps starting to bridge the gap between the real-world identity and learner identity, which is one of Gee's (2003) principles for good learning.

As an unsurprising side-effect to the digital age is also the increased level of informal learning happening. Informal learning has long been recognized as having an effect on both formal and non-formal learning (Rogers, 2014). However, it has also been recognized that formal learning institutions such as schools have been slow to even acknowledge this effect. Continuing to ignore the informal learning will not benefit formal learning, Rogers (2014) argues. It will instead, per my understanding, only alienate the learner from the institutions further. Using video games as educational tools could be a way to acknowledge informal learning in a formal setting.

If we also recall the research presented in the introduction of this study, games have already impacted formal learning in informal ways. Improvement of language skills and quick thinking are both skills valued in formal learning. If we also add that video games seem to have a tendency to train the players into becoming good problem solvers in the sense that they are lasting and do not easily give up (Adachi & Willoughby, 2013). Then proposing video games as potential educational tools are perhaps not as farfetched anymore.

While video games are primarily, in most cases at least, meant as a form of entertainment; many video games have shown to have elements that demand problem solving, creative thinking, learning and critical evaluation (Dickey, 2007). This was also echoed by many of my informants in various ways. It is however understood that not all sides of video games, as is, would be fitting in a formal learning situation. Dickey (2007) however, suggests that there is much educators can learn from video games. They could then potentially help develop good, digital learning tools that would both benefit and please a class of youngsters. In this way Dickey (2007) and Gee (2003) speak of much

the same. Not that games, as is, can be used without any form of training or understanding, but that there is much to learn; and even more for education to gain.

I discussed earlier how I found video games to fulfil all the levels of Bloom's revised taxonomy (Kratwohl, 2002). If nothing else, I believe this shows how games could work in favor of education as good educational tools. The question really boils down to the content the game presents, while keeping the elements that makes it engaging outside the school setting. If games can present information to be recalled, understood and applied in new settings within the game. To then allow for analyzation and evaluation later against something else, something bigger; and finally inspire and give the tools needed to create something new. Then it doesn't sound so far-fetched a possibility to use games as educational tools anymore.

Instead of perpetuating the mistakes of the past, I would urge educational games to move away from the reward system as a digital educational tool. I would instead argue that video games potential as educational tools is within their audio-visual nature that stand out next to other such mediums, i.e. movies. The possibilities of making our own choices within such an audio-visual medium is unique to video games. And as such, games as we know them today could function as a good guide as to how to create the good digital educational tools of tomorrow (Dickey, 2007).

Video games have already made their way into classrooms of various ages and subjects. With such an array of genres and topics to choose from, the sky is really the only limit. The possibilities of a game-based educational tool seem highly possible with the findings and research presented. After all Discovery Mode in *Assassin's Creed* by Ubisoft was created because some teachers reached out to them (Ubisoft, 2018), there is much to be gained for both developers and educators if greater cooperation was to arise.

6. End

In this study I set out to see how gamers perceive and explain their own experiences with learning in video games. Using Gee's (2003) theory about what video games have to teach us about learning and literacy to establish a baseline for what a good learning environment and good learning is. The principles put forward by him was then sorted and likened to established pedagogical theories by me. Things such as Bloom's taxonomy, sociocultural theory, communities of practice, bildung and zone of proximal development were presented alongside Gee's principles.

I've also included self-determination theory by Deci and Ryan (2000) to further discuss the potential in video games for learning, as well as the potential of using them as tools for learning in formal learning such as schools. Games have been shown to be an intrinsically motivated activity that also covers most, if not all, of the 3 psychological needs possessed by most people (Ryan, Rigby, & Przybylski, 2006).

Throughout the study, I have shown and discussed the information received by my informants. And shown how much of the information given by the informants align with many of Gee's principles and my own groupings of them. Showcasing that, first of all, video games do seem to possess learning environments that are perceived as good and fruitful to those who partake in them. Second, that the informants of this study seem to universally agree that games can be used as a educational tool as an aid to traditional learning. Though the informants vary wildly in the discussion about to which degree games should be used in formal learning situations such as in schools.

Using video games as educational tools have further been discussed by me in light of both presented theory, relevant studies and the findings in this study. With the conclusion that video games at the very least possess a lot of knowledge as to how good, digital educational tools could be created. And that gamifying education with only a focus on reward and punishment misses the point of what a good learning environment should be, as well as ignores the all-around wealth of potential to be found within video games.

This has by no means been an exhaustive study, but the hope is that with studies such as these the scientific community can gain some much-needed insight into just how vast and complex the world of video games can be. And in turn start asking the right questions so it can find the answers they seek.

After all, video games are more than just games. It's a phenomenon compiled of more than just mechanics and audio-visuals. It is a phenomenon involving complex social structures and its own global community and culture. It is perhaps time that more than just gamers see this as well.

6.1 Where do we go from here?

As I mentioned, this study is far from exhaustive. The true test would be to try to see if people who have little to no experience playing games can recognize the same things as stated by the informants in this study after some time playing video games. Even so I believe this study, with its rather skewed sample, makes a valid point. Using those who know the phenomenon, at least in the beginning of an exploration, will reveal much of the finer details of potential hiding within.

With the growth of gaming community around the globe as presented in the introduction, it is clear that more research is indeed needed on the concept of gaming and all the different aspects it involves itself in. It is after all, seemingly a large part of many of our daily lives. Particularly the younger generations.

With such an unique audio-visual medium at our disposal, the possibilities can to the right eye seem endless. It is my hope that the scientific community will take hold of this optimism and continue searching out the possibilities and potential within video games.

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Appendix

Appendix 1 – NSD evaluation

Prosjekttittel

Læring og Gaming

Referansenummer

475230

Registrert

06.01.2021 av Mali Grimstad - malig@stud.ntnu.no

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Type prosjekt

Studentprosjekt, masterstudium

Kontaktinformasjon, student

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Prosjektperiode

01.02.2021 - 15.05.2021

Status

17.05.2021 - Avsluttet

Vurdering (1)**05.02.2021 - Vurdert**

Det er vår vurdering at behandlingen av personopplysninger i prosjektet vil være i samsvar med personvernlovgivningen så fremt den gjennomføres i tråd med det som er dokumentert i meldeskjemaet med vedlegg den 05.02.2021, samt i meldingsdialogen mellom innmelder og NSD. Behandlingen kan starte.

DEL PROSJEKTET MED PROSJEKTANSVARLIG

Det er obligatorisk for studenter å dele meldeskjemaet med prosjektansvarlig (veileder). Det gjøres ved å trykke på "Del prosjekt" i meldeskjemaet.

MELD VESENTLIGE ENDRINGER

Dersom det skjer vesentlige endringer i behandlingen av personopplysninger, kan det være nødvendig å melde dette til NSD ved å oppdatere meldeskjemaet. Før du melder inn en endring, oppfordrer vi deg til å lese om hvilke type endringer det er nødvendig å melde: <https://www.nsd.no/personverntjenester/fulle-ut-meldeskjema-for-personopplysninger/melde-endringer-i-meldeskjema>

TYPE OPPLYSNINGER OG VARIGHET

Prosjektet vil behandle alminnelige kategorier av personopplysninger frem til 15.05.2021

LOVLIG GRUNNLAG

Prosjektet vil innhente samtykke fra de registrerte til behandlingen av personopplysninger. Vår vurdering er at prosjektet legger opp til et samtykke i samsvar med kravene i art. 4 og 7, ved at det er en frivillig, spesifikk, informert og utvetydig bekreftelse som kan dokumenteres, og som den registrerte kan trekke tilbake. Lovlig grunnlag for behandlingen vil dermed være den registrertes samtykke, jf. personvernforordningen art. 6 nr. 1 bokstav a.

PERSONVERNPRINSIPPER

NSD vurderer at den planlagte behandlingen av personopplysninger vil følge prinsippene i personvernforordningen om: lovlighet, rettferdighet og åpenhet (art. 5.1 a), ved at de registrerte får tilfredsstillende informasjon om og samtykker til behandlingen formålsbegrensning (art. 5.1 b), ved at personopplysninger samles inn for spesifikke, uttrykkelig angitte og berettigede formål, og ikke behandles til nye, uforenlige formål dataminimering (art. 5.1 c), ved at det kun behandles opplysninger som er adekvate, relevante og nødvendige for formålet med prosjektet lagringsbegrensning (art. 5.1 e), ved at personopplysningene ikke lagres lengre enn nødvendig for å oppfylle formålet

DE REGISTRERTES RETTIGHETER

Så lenge de registrerte kan identifiseres i datamaterialet vil de ha følgende rettigheter: åpenhet (art. 12), informasjon (art. 13), innsyn (art. 15), retting (art. 16), sletting (art. 17), begrensning (art. 18), underretning (art. 19), dataportabilitet (art. 20). NSD vurderer at informasjonen om behandlingen som de registrerte vil motta oppfyller lovens krav til form og innhold, jf. art. 12.1 og art. 13. Vi minner om at hvis en registrert tar kontakt om sine rettigheter, har behandlingsansvarlig institusjon plikt til å svare innen en måned.

FØLG DIN INSTITUSJONS RETNINGSLINJER

NSD legger til grunn at behandlingen oppfyller kravene i personvernforordningen om riktighet (art. 5.1 d), integritet og konfidensialitet (art. 5.1 f) og sikkerhet (art. 32). Nettskjema (UiO) er databehandler i prosjektet. NSD legger til grunn at behandlingen oppfyller kravene til bruk av databehandler, jf. art 28 og 29. For å forsikre dere om at kravene oppfylles, må dere følge interne retningslinjer og/eller rådføre dere med behandlingsansvarlig institusjon.

OPPFØLGING AV PROSJEKTET

NSD vil følge opp ved planlagt avslutning for å avklare om behandlingen av personopplysningene er avsluttet. Lykke til med prosjektet! Tlf. Personverntjenester: 55 58 21 17 (tast 1)

Appendix 2 – Writ of Information and consent (to informants)

This research project is a part of my master's degree at the Norwegian Technical and Natural science University (NTNU), where I wish to take a closer look at gaming and learning. Thus, I am very interested in your experiences with video- and computer games if you are 16 or older.

This study aims to map out different learning experiences within different genres of games, and focuses on what is learned and how it is learned by the user.

Who are responsible for this research project?

The Norwegian Technical and Natural Science University (NTNU) is responsible for this project, through my supervisor Daniel Schofield.

- daniel.schofield@ntnu.no

What does participation in the study entail?

Participation consists of writing down your own experiences with learning in games. This is done through a survey where you can freely write in your experiences in different boxes. You may write as long, or as short, as you wish. The survey will also ask you to share basic information like gender and age group. As well as what genre of games you are most interested in, what you chose here is what you will be asked to share experiences about.

The Survey will be kept open until March 26. After this no more stories will be collected.

Participation is voluntary

Participation in this study is entirely voluntary, and you may at any point rescind your consent to participate without giving any reason. All your information will then be deleted. There will be no consequences for you if you do not wish to participate or chose to rescind your consent later.

Please do not partake in this study if you are under 16 years of age.

Your information and the information you share

Your answers will be anonymous, and you are asked to **NOT** include real names on people, locations or institutions in your story. If any names are included, they will be anonymized.

The information that you share will only be used in the analysis work of the study and is handled in confidence according to Privacy Protection regulations. Parts of the story you share might be quoted or shown in the finished report.

The program Nettskjema, delivered by the University of Oslo (UiO) will be used to collect your story. When you send in the survey, your IP- address (or parts of it) will be saved. This and the survey you handed in will all be deleted when the project ends on the 15. of May in 2021.

Only my supervisor and I will have access to this information and the stories during the duration of the project.

This study has been reviewed and approved by the Norwegian Centre for Research Data (NSD).

Your rights

As long as you may be identified within the data, you have the right to:

- Protest
- Insight into which of your personal data has been recorded
- Correct your recorded personal data
- Delete your recorded personal data, and
- File a complaint with the Norwegian Data Protection Authority about the handling of your personal data.

How can I learn more?

If you wish to know more about this study, or rescind your consent to participate (and thusly remove your story from the data material) you can send me an E-mail:

- malig@stud.ntnu.no

If you have questions about the Norwegian Centre for Research Data's (NSD) evaluation of this project you may contact:

- NSD – Norwegian Centre for Research Data via email (personverntjenester@nsd.no) or phone +47 55 58 21 17

Consent

By clicking "next page" you consent to participate in this research project. You have read and understood the information on this page. And you consent to your data being handled until the end of the project.

Appendix 3 – The interviewing survey

Project gaming and learning - Info

Thank you for your willingness to share your story about your experience with learning in gaming! The survey has been written in English for simplicity's sake, but feel free to reply in either Norwegian, Danish or English.

Your answers will be anonymous.

You will first be asked to share basic background information, so that if you wish to withdraw your consent your story can be identified and deleted per your request.

Then you will be asked to share up to 3 genres of games you play/enjoy the most. When writing about your experience with learning in games, please try to keep within those genres you marked down earlier.

Ex. If you mark Action, RPGs and puzzles as the types of games you play the most, try to share how you believe you learn from these specific genres.

Lastly, you will be able to share your stories through 8 boxes. You do not have to answer all of them if you do not want to. And if you wish, you can simply share your story in just one box. Write as long or as short as want!

Thank you again!

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Basic Information

Age

Under 16

16-19

20-29

30-39

40-49

50+

(This element only shows if alternative «Under 16» is chosen under category «Age»)



You need to be at least 16 years of age to participate in this project. Please exit this survey.

Gender

Female

Male

Non-binary

Other

Which genre of game do you play most?

You can choose up to 3 genres.

Action

Action-Adventure

Adventure

Horror

MMO

Platform

Puzzle

Shooter

Simulation

Sport

Strategy

Survival

Role Playing Games (RPG)

Other

Do you count yourself as a:

Singleplayer

Multiplayer

Equally Single/Multiplayer

Other

-Next page-

Your Story

You will now be asked to share your experiences with gaming. Please use either Norwegian, Danish or English when writing down your experience.

You are encouraged to reflect in your answers and give examples (both hypothetical and real are more than welcome). There will be no consequence or judgement on sharing your personal opinions about gaming and the potential of learning in games.

Note! Remember that you should not use names on people and places that could potentially lead back to you as a person. (Examples your own name, name of where you come from, schools you've gone to etc.). You can use game characters names, and place names in games.

Think about the games you've played and currently are playing (since you started gaming and until today), do you feel as if you have learned something or developed a skill due to these games?

Write down your story about your experiences with games in the boxes below. **You don't have to write in all the boxes** (but you can if you want), and the questions above them are meant to help you reflect over your own experiences with gaming. As such you do not have to answer the questions directly.

Write as long or as short as you want within the boxes! If you just wish to write your story in one box, you can scroll down to the last one.

When you are done click to the next page and then hit send! Otherwise your answers will not be recorded.

- **What have you learned/which skills have you developed?**
 - Knowledge and skill can be almost anything! Different ways of thinking, or a changed view on something (ex. a topic, a group, an event etc.) could also be included here.

- **How do you think that you learn from games? Can you give examples on moments in games that for you was a learning experience?**
 - If a game is a teacher, how does it teach?

- **Could that which you have learned in games be used outside the game? Or does the knowledge bring you personal joy outside the game?**
 - Feel free to use examples!

- **Can you give examples on when you've used knowledge or skills from games in your daily life?**
 - Which skills or knowledge did/do you use? And how?

- **Do you think games could be used actively in formal education (such as learning institutions like schools), in which case how?**
- **Could games negatively impact learning?**
 - Give your thoughts on this question, perhaps consider what games cannot teach that a more traditional way of learning can.
- **What do you feel games give you in your day-to-day life (generally, doesn't need to be about learning)?**
- **I just want to use one box / Do you have something else to add about the topic learning and gaming?**

-Next Page-

Thank you for sharing your experience with gaming and learning!

If you know any other gamers that could be interested in participating in this project, please share the link to this survey!

Appendix 4 – Gee's 36 learning principles

Gee's 36 principles as presented in the appendix of his book (Gee, 2003, pp. 221-227)

1. Active, Critical Learning Principle

All aspects of the learning environment (including ways in which the semiotic domain is designed and presented) are set up to encourage active and critical, not passive, learning

2. Design Principle

Learning about and coming to appreciate design and design principles is core to the learning experience

3. Semiotic Principle

Learning about and coming to appreciate interrelations within and across multiple sign systems (images, words, actions, symbols, artifacts, etc.) as a complex system is core to the learning experience

4. Semiotic Domains Principle

Learning involves mastering, at some level, semiotic domains, and being able to participate, at some level, in the affinity group or groups connected to them

5. Meta-level thinking about Semiotic Domain Principle

Learning involves active and critical thinking about the relationships of the semiotic domain being learned to other semiotic domains

6. "Psychosocial Moratorium" Principle

Learners can take risks in a space where real-world consequences are lowered

7. Committed Learning Principle

Learners participate in an extended engagement (lots of effort and practice) as an extension of their real-world identities in relation to a virtual identity to which they feel some commitment and a virtual world that they find compelling

8. Identity Principle

Learning involves taking on and playing with identities in such a way that the learner has real choices (in developing the virtual identity) and ample opportunity to meditate on the relationship between new identities and old ones. There is a tripartite play of identities as learners relate, and reflect on, their multiple real-world identities, a virtual identity, and a projective identity

9. Self-Knowledge Principle

The virtual world is constructed in such a way that learners learn not only about the domain but also about themselves and their current and potential capacities

10. Amplification of Input Principle

For a little input, learners get a lot of output

11. Achievement Principle

For learners of all levels of skill there are intrinsic rewards from the beginning, customized to each learner's level, effort, and growing mastery and signaling the learner's ongoing achievements

12. Practice Principle

Learners get lots and lots of practice in a context where the practice is not boring (i.e., in a virtual world that is compelling to learners on their own terms and where the learners experience ongoing success). They spend lots of time on task

13. Ongoing Learning Principle

The distinction between the learner and the master is vague, since learners, thanks to the operation of the "regime of competency" principle listed next, must, at higher and higher levels, undo their routinized mastery to adapt to new or changed conditions. There are cycles of new learning, automatization, undoing automatization, and new re-organized automatization

14. "Regime of Competence" Principle

The learner gets ample opportunity to operate within, but at the outer edge of, his or her resources, so that at those points things are felt as challenging but not "Undoable"

15. Probing Principle

Learning is a cycle of probing the world (doing something); reflecting in and on this action and, on this basis, forming a hypothesis; re-probing the world to test this hypothesis; and then accepting or rethinking the hypothesis

16. Multiple Routes Principle

There are multiple ways to make progress or move ahead. This allows learners to make choices, rely on their own strengths and styles of learning and problem-solving, while also exploring alternative styles

17. Situated Meaning Principle

The meanings of signs (words, actions, objects, artifacts, symbols, texts, etc.) are situated in embodied experience. Meanings are not general or decontextualized. Whatever generality meanings come to have is discovered bottom up via embodied experience

18. Text Principle

Texts are not understood purely verbally (i.e., only in terms of the definitions of the words in the text and their text-internal relationships to each other) but are understood in terms of embodied experience. Learners move back and forth between texts and embodied experiences. More purely verbal understanding (reading texts apart from embodied action) comes only when learners have enough embodied experience in the domain and ample experiences with similar texts

19. Intertextual Principle

The learner understands texts as a family ("genre") of related texts and understands any one text in relation to others in the family, but only after having achieved embodied understandings of some texts. Understanding a group of texts as a family ("genre") of texts is a large part of what helps the learner to make sense of texts

20. Multimodal Principle

Meaning and knowledge are built up through various modalities (images, texts, symbols, interactions, abstract design, sound, etc.), not just words

21. "Material Intelligence" Principle

Thinking, problem-solving and knowledge are "stored" in material objects and the environment. This frees learners to engage their minds with other things while combining the results of their own thinking with the knowledge stored in material objects and the environment to achieve yet more powerful effects

22. Intuitive Knowledge Principle

Intuitive or tacit knowledge built up in repeated practice and experience, often in association with an affinity group, counts a good deal and is honored. Not just verbal and conscious knowledge is rewarded

23. Subset Principle

Learning even at its start takes place in a (simplified) subset of the real domain

24. Incremental Principle

Learning situations are ordered in the early stages so that earlier cases lead to generalizations that are fruitful for later cases. When learners face more complex cases later, the learning space (the number and type of guess the learner can make) is constrained by the sorts of fruitful patterns or generalizations the learner has founded earlier

25. Concentrated Sample Principle

The learner sees, especially early on, many more instances of the fundamental signs and actions than should be the case in a less controlled sample. fundamental signs and actions are concentrated in the early stages so that learners get to practice them often and learn them well

26. Bottom-up Basic Skills Principle

Basic skills are not learned in isolation or out of context; rather, what counts as a basic skill is discovered bottom up by engaging in more and more of the game/domain or games/domains like it. Basic skills are genre elements of a given type of game/domain

27. Explicit Information On-Demand and Just-in-Time Principle

The learner is given explicit information both on-demand and just-in-time, when the learner needs it or just at the point where the information can best be understood and used in practice

28. Discovery Principle

Overt telling is kept to a well-thought-out minimum, allowing ample opportunities for the learner to experiment and make discoveries

29. Transfer Principle

Learners are given ample opportunity to practice, and support for, transferring what they have learned earlier to later problems, including problems that require adapting and transforming that earlier learning

30. Cultural Models about the World Principle

Learning is set up in such a way that learners come to think consciously and reflectively about some of their cultural models regarding the world, without denigration of their identities, abilities or social affiliations, and juxtapose them to new models that may conflict with or otherwise relate to them in various ways

31. Cultural Models about Learning Principle

Learning is set up in such a way that learners come to think consciously and reflectively about their cultural models about learning and themselves as learners, without denigration of their identities, abilities, or social affiliations, and juxtapose them to new models of learning and themselves as learners

32. Cultural Models about Semiotic Domains Principle

Learning is set up in such a way that learners come to think consciously and reflectively about their cultural models about a particular semiotic domain they are learning, without denigration of their identities, abilities, or social affiliations, and juxtapose them to new models about this domain

33. Distributed Principle

Meaning/knowledge is distributed across the learner, objects, tools, symbols, technologies, and the environment

34. Dispersed Principle

Meaning/knowledge is dispersed in the sense that the learner shares it with others outside the domain/game, some of whom the learner may rarely or never see face-to-face

35. Affinity Group Principle

Learners constitute an "affinity group," that is, a group that is bonded primarily through shared endeavors, goals, and practices and not shared race, gender, nation, ethnicity, or culture

36. Insider Principle

The learner is an "insider," "teacher," and "producer" (not just a consumer) able to customize the learning experience and the domain/game from the beginning and throughout the experience

