

Beyond Gaming

Video Games in the Classroom

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Abstract

This thesis examines the effects of using a commercial video game in education. The thesis investigates earlier studies on video games and second language learning (L2), along with an analysis of the educational properties of video games. In addition, the thesis looks at how video games compare to the view of the competence aims and basic skills in the new English subject curriculum (ENG01-04) in Norway. Empirical evidence for the educational use of video games was collected after a two-week study of teaching with a video game in two Norwegian upper-secondary classes. Both qualitative and quantitative data from the study were used to answer two research questions: (1) To what extent does the educational use of video games motivate pupils' English learning? and (2) What effects does the educational use of video games have on pupils' perceived learning outcomes in English? Results from the study combined with an analysis of earlier research suggest that educational use of video games can result in higher motivation and improved learning outcomes for Norwegian upper-secondary pupils.

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1. Introduction

1.1 Thesis background

This thesis builds on both theoretical and empirical research on the use of video games in education. Section 1.1.1 presents the challenge of English teaching in the 21st century and the reasoning behind this thesis. Sections 1.1.2 and 1.1.3 discuss earlier research and the effects that playing video games have on pupils' second language learning. Together, these sections form the background for the aims and research questions presented in section 1.2.

1.1.1 The challenge of English teaching in the 21st century

"Video and computer games are helping – not harming – our kids. The real reason they play so much is that their games are teaching them to succeed in the Twenty-first Century." (Prensky, 2006, p. iii)

A big challenge for English teachers in the twenty-first century is to close the gap between pupils' out-of-school English and in-school English. With the rapid technological development seen in the last couple of decades, schools and educators struggle to keep up with the change of young people's media and popular cultures. This has resulted in an "authenticity gap" (Henry, 2013), a term used to describe the gap between pupils' in-school and out-of-school activities. When this gap gets too big, it often results in discouraged and demotivated pupils (Sundqvist & Olin-Scheller, 2013, p. 329). A possible solution to this problem could be to expose pupils to more "authentic English", which is the type of English young people encounter outside of school (Sundqvist & Olin-Scheller, 2013, p. 329).

Even though pupils spend a lot of time on various English pastime activities outside of school, many teachers struggle to build on these activities and bridge the gap between in-school English and out-of-school English (Olsson, 2012). Today, young learners are exposed to authentic English more often through online activities such as internet surfing, social media, streaming and gaming. While young people's exposure to English has increased their learning opportunities outside of school, it has also made it challenging for teachers to create authentic English classrooms. Many pupils expect the English they learn in school to be useful and applicable in their out of school activities (Henry, Sundqvist, & Thorsen, 2019, p. 28), and teachers play a central role in bridging this gap. The Norwegian Professional Digital Competence Framework for Teachers state that "in order to be capable of developing pupils'

basic skills and specialised knowledge, teachers must develop their own professional digital competence" (Kelentrić, Helland, & Arstorp, 2017, p. 1). This can be a challenging task for teachers who are not familiar with young people's popular culture and media, because it demands that teachers constantly keep up with modern technologies and teaching tools.

In line with the view of Henry (2013), this thesis argues that there is a growing authenticity gap between in-school and out-of-school English that creates challenges for English teaching in the 21st century. As a possible solution to this challenge, the current thesis examines how schools and teachers can benefit from using video games in education. The aim of the thesis is not to argue that video games are better or worse than other teaching tools, or that pupils should play as much video games as possible at school. Instead, the thesis shares the view of Brevik (2016), who argues that:

It is not an aim to include as much gaming in school as possible, but teachers should be encouraged to use their students' English language engagement positively and actively in the classroom – be that gaming or other interests. Doing so might contribute to the students' motivation for learning English. (p. 55)

1.1.2 Research on out-of-school English and L2 proficiency

There have been several studies reporting positive correlations between out-of-school activities and L2 English proficiency. Sundqvist (2009) found that the time pupils spent on extramural English¹ (EE) activities "correlated positively and significantly with both their level of oral proficiency and the size of their vocabulary" (p. 204). The study also found that the EE activities that required learners to be active or productive (e.g. playing video games, surfing the internet, reading) proved more useful for oral proficiency and vocabulary acquisition than those which allowed learners to be passive (e.g. listening to music, watching TV, films or series) (p. 203-204). Olsson (2012) reported similar findings in a study on the impact of extramural English on pupils' writing skills. Pupils with more frequent extramural contacts wrote longer sentences and varied their vocabulary more than their counterparts. Olsson also found that register variation was greater among pupils with more EE contacts, resulting in "longer and more unusual words" (p. 128).

Other researchers have investigated how playing English video games outside of school might affect pupils' English proficiency in school. Sylvén & Sundqvist (2012)

¹ Sundqvist (2009, p. 24) uses the term extramural English to refer to all types of English exposed to learners outside of school.

examined the correlation between L2 English proficiency and frequency of gaming. They found that pupils' English skills corresponded with their gaming habits, and frequent gamers outperformed less frequent gamers and non-gamers on both vocabulary tests and on reading and listening comprehension in English (p. 314-315). In a different study, Sundqvist & Wikström (2015) found that children who were frequent gamers had better ratings on their essays, used more advanced vocabulary and had the highest grades in English (p. 73). Similar results were reported by Brevik (2016), who studied the relationship between out-of-school gaming and reading skills in pupils' second language. Interestingly, her study reported that pupils who were better readers in their L2 than their L1 often spent a lot of time playing online games. Brevik reported that "enabling the Gaming Outliers in the present study to read in their areas of interest and expertise, like out-of-school gaming, improves these boys' English reading skills in school as well" (p. 56).

1.1.3 Research on video games and learning in educational contexts

While the abovementioned studies focused on activities and gaming outside of school, other studies have looked at the effects of using video games in schools. Ranalli (2008) studied the effects of playing the popular simulation game *The Sims* in a small (nine participants) university class with L2 learners. The study examined how the students perceived the learning experience from playing the game in class with supplementary materials and exercises. Additionally, a 30-word vocabulary test was used before and after the test-period to measure if any vocabulary acquisition had occurred. Results from the vocabulary test showed an increase in acquired vocabulary from an average of 14.22 to 18.44 words (p. 448). While the increase in acquired vocabulary was quite low, the author concluded that the educational use of commercial simulation games like *The Sims* can contribute to vocabulary acquisition when used with theoretical guidance (p. 453).

Vahdat & Behbahani (2013) conducted a study measuring English vocabulary acquisition among 40 Iranian university students majoring in English teaching. Their study had two control groups, one group learned vocabulary by reading five text-drill chapters while another group played a video game to learn vocabulary. The scores were measured using the same vocabulary test for both groups, and the results showed that those who learned by playing video games acquired an average of 16.75 vocabulary items compared to only 14.05 vocabulary items in the reading group (p. 66). Additionally, a questionnaire was used to measure the motivation and satisfaction in the video game group, and the results showed that

67.5% of the gamers were satisfied and 85% answered that they were motivated by playing (p. 67-68). Based on their results, the researchers concluded that video-game based learning had strong effects on acquiring new vocabulary (p. 68).

1.2 Aims and research questions

The studies presented in the two previous sections show that there is a positive correlation between pupils' engagement in English activities outside of school and their English proficiency in school. Results from these studies show that a higher exposure to authentic English, especially in digital forms, can benefit pupils' English skills in both writing, reading, vocabulary acquisition and general language proficiency. In addition, the studies of using video games in schools indicate that video games can have positive learning effects when they are used in educational contexts.

The aim of the current thesis is to examine how teaching with a video game affects pupils' motivation and perceived learning outcomes in English. More specifically, the thesis investigates if teaching with a video game will result in higher motivation and improve language learning for pupils in a Norwegian upper secondary school. The thesis addresses this aim through two research questions:

- To what extent does the educational use of video games motivate pupils' English learning?
- What effects does the educational use of video games have on pupils' perceived learning outcomes in English?

1.3 Outline

This thesis has a didactic approach to video games and learning. Therefore, the focus is on learning and education. Chapter 2 examines the theoretical framework of video games and learning by discussing the educational properties of video games and examining how video games compare to the new English subject curriculum (ENG01-04). Chapter 3 explains the methods and design of the study, while chapter 4 presents the results of the study. Following is a discussion of the results in chapter 5, before chapter 6 presents a conclusion and answers the research questions. Practical and pedagogical implications and suggestions for further research are given at the end.

2. Theoretical framework

The following chapter investigates the theoretical framework behind the use of video games in education. The first section (2.1) explores the educational properties of video games as teaching tools, with a focus on motivation, interactivity and feedback, and multimodality. The second section (2.2) focuses on video games and the new English subject curriculum's (ENG01-04) competence aims, core elements and basic skills.

2.1 Video games and learning

As shown in the introduction to the thesis, many studies show promising effects between video games and language learning (see sections 1.1.2 and 1.1.3). In addition, many researchers advocate the view that video games should be used more in education because of their educational potentials (Colby & Colby, 2008; Gee, 2007a; Gee, 2007b; Prensky, 2006; Whitton, 2014). The current section investigates some of the most prominent reasons to include video games in education.

2.1.1 Educational and commercial video games

To fully understand the educational potentials of video games it is important to consider the different titles, genres and types of video games that are available. Although all games carry some educational potential, some games are better suited to use in education than others. When considering which games to use in schools it is important “not to confuse learning how to play video games and accidentally learning from video games with a targeted educational effort of video games” (Egenfeldt-Nielsen, 2006, p. 186). Basically, this means that learning from video games is different when they are used for education rather than entertainment. It is the targeted educational effort of video games that is of importance in this thesis, and since different games have different learning potentials, the thesis differentiates between games that are made with a specific educational effort (educational games) and games that are made for the commercial entertainment market (commercial games).

What educational games have in common is that they are designed with a specific educational aim. Educational titles usually focus on teaching players specific content and are often used to teach basic skills like algebra, spelling, vocabulary, reading and writing. Educational games tend to be shorter in length and have a stronger focus on the educational components (Egenfeldt-Nielsen, 2006, p. 186). Prensky (2006) calls these games "mini-

games" because of their shortness and simplicity compared to more "complex games" (p. 183). Even though educational games tend to be easier to use in classrooms and require less game knowledge and preparations from teachers, some concern has been given to their simple characteristics and limited teaching potentials. According to Egenfeldt-Nielsen, Smith & Tosca (2013), educational games usually have little intrinsic motivation, no integrated learning experience, drill-and-practice learning, simple gameplay and no need for teacher presence (p. 234-235). While educational games are great tools to learn and drill specific skills, they often lack the motivational drive that comes with commercial titles (Egenfeldt-Nielsen, 2006, p. 186). Van Eck (2009) argues that educational games "can play a valuable role in learning, and students no doubt enjoy them more than they enjoy reading a textbook, but this does not capture the true power of games to engage" (p. 1).

In contrast to educational games, the educational goals of commercial games are indirect rather than direct (Egenfeldt-Nielsen, 2006, p. 186), and the focus of commercial games is to keep players engaged rather than to teach. However, while the aim of these games is to entertain, many commercial games educate players unintentionally while building a motivational drive that can keep players engaged for several hours. In fact, some of the most successful commercial games record players spending thousands of hours playing. In general, commercial games tend to be more entertaining and motivational than educational games, but their complexity and indirect way of teaching can make them harder to use in schools. To be successful teaching tools, commercial games require teachers to shift the focus from fun and enjoyment to learning without losing their motivational drive. In addition, commercial games require teachers to be more "technologically competent" with games in general (Van Eck, 2009, p. 6), which can be troublesome for those teachers who are unfamiliar with computer and video game technology. However, while they are more difficult to use, the learning potential in commercial games seems to be higher than the learning potential in educational games. Therefore, the theory discussed in the following sections will mainly be focused on the use of commercial games in education. Still, many of the learning potentials and effects mentioned will also be true for educational games.

2.1.2 Motivation

While many researchers argue about the educational effects of video games, most people can agree that video games are at least motivating if not educational (Squire, 2005, p. 2). In fact, one of the main reasons to use video games in education seems to be their motivational

effects. Gee (2007b) compares children's motivation for learning long and challenging video games with their motivation for learning in school: "Wouldn't it be great if kids were willing to put in this much time on task on challenging material in school and enjoy it so much?" (p. 2). While it is easy to agree with Gee's statement, the more challenging task is to figure out how and if one can transfer this motivation to classrooms. Therefore, the following section focuses on answering two questions: What is it that makes video games so motivating, and is this motivation transferrable to classrooms?

According to Ryan & Deci (2000), to be motivated means "to be moved to do something" (p. 54). Thus, in an educational context, motivation often means that pupils are moved toward learning a goal or aim set by the teacher. In school, the teacher plays an important role in motivating pupils and moving them towards their learning goals. However, when kids play video games at home, the video game takes over the role as teacher and the focus changes from learning to enjoyment. This shift often comes with a change of motivation from being extrinsic to becoming intrinsic.

The difference between intrinsic and extrinsic motivation is based on the goals or reasons to perform an action. Intrinsic motivation is an action or activity done "because it is inherently interesting or enjoyable", while extrinsic motivation refers to "doing something because it leads to a separable outcome" (Ryan & Deci, 2000, p. 55). In school, pupils rarely do tasks and assignments because they are interesting or enjoyable in themselves, but rather because they lead to a desired separate outcome such as good grades or praise. When playing video games however, kids often play them because the game itself is inherently fun. When an activity is intrinsically motivating, people "engage in it for its own sake, rather than in order to achieve some external reward or avoid some external punishment" (Malone & Lepper, 1987, p. 229).

In an educational context, video games could end up being both intrinsically and extrinsically motivating depending on the type of game and how the game is used. If teachers want to keep video games intrinsically motivating in the classroom, "all instructional activities must strive to extend the context of the game world to the content that occurs outside of the game itself" (Van Eck, 2009, p. 4). If this is done, the teacher not only makes the playing part of the game meaningful in terms of learning, he also creates a smaller gap between the context of the game and the content of the classroom. Furthermore, by using video games to teach, the teacher helps close the gap between pupils' out-of-school and in-school activities, which in turn creates authentic learning material that is crucial for pupils' motivation (Henry 2013; Henry, Sundqvist & Thorsen, 2019, p. 77).

Although it can be tempting to claim that all video games are fun and motivating, it is important to mention that video games can sometimes end up having the opposite effect. Whitton (2007) identified that video games can become unmotivating if players have difficulties getting started in the game, get stuck during the activity, experience lack of trust in the game environment or experience intrinsic boredom with the game (p. 69). In addition, Whitton (2007) found that games were motivating when players saw swift and steady improvement or got a perception of being good at the activity (p. 69). As with other teaching material, this means that teachers must be careful when selecting video games to use in class. Video games should not be too long or difficult, and they should offer a sense of improvement for the learner. When selecting commercial games to use in school, teachers need to be extra careful with their selection of games because titles can be too long and difficult to use for learning. Squire (2005) attempted to teach a history class using the strategy game *Civilization III*, and his experience was that "bringing a commercial-quality educational game into the classroom may create as many motivational problems as it solves" (p. 2). The problem he found was that roughly 25% of his pupils questioned why they should play the game because they did not understand how they would learn anything about history by playing it. In addition, some pupils found the game to be too hard and complex which resulted in complaints and demotivation. However, a number of Squire's pupils loved playing the game and considered playing the game to be the highlight of their schoolyear (p. 3).

In terms of motivation and learning, Krashen's (1982) affective filter hypothesis can help explain why motivation is a crucial part of language acquisition. Krashen's hypothesis claims that performers who are motivated, self-confident and find themselves in a low-anxiety situation tend to be better suited to acquire language (p. 31). Learners who lack these affective variables are less apt to receive and store input, and the key is therefore to have highly motivated pupils who believe in themselves in low anxiety learning environments. Krashen argues that "performers with high motivation generally do better in second language acquisition", and if language learning does not inspire the learners' motivation it could cause boredom and disinterest, resulting in filters that prevent input from reaching the learner (p. 31). This means that if pupils are intrinsically motivated by playing video games in school, it should lead to more input being stored and thus improve their language acquisition.

According to Crookes and Schmidt (1991), less orthodox teaching techniques or materials can result in more curiosity and interest. The authors claim that "change is an essential part of maintaining attention, since otherwise habituation will set in" (p. 235). The authors advocate that variety of classrooms activities are closely connected to motivation. If

classroom routines become too regular and involve “many traditional SL texts which use the same format for each unit”, it could negatively affect motivation (p. 235). Consequently, video games could end up being more motivational since many pupils are unfamiliar with the teaching method. By offering an activity that is new, different and varied, video games could increase the pupils’ interest and curiosity, and thus increase their motivation for learning.

As this section has pointed out, there are several factors that make video games motivating. The first and maybe biggest reason why so many are motivated by video games is the fact that they tend to be inherently fun and can create an intrinsic motivation in players. Van Eck (2009) even goes so far as to say that "all successful games are intrinsically motivating" (p. 4). However, there are other factors that need to be considered if one is to successfully transfer the motivation from out-of-school gaming into classrooms. First, the teacher has to be careful in selecting a game that is not too difficult and does not take too much time to learn. Second, there must to be a clear purpose for playing the game and the pupils need to be aware of how the game can help them learn. Finally, the teacher has to connect the game environment to the activities in the classroom and make sure that learning is not separated from playing, which is mentioned in Van Eck’s (2009) guide to integrating commercial games into classrooms:

If you think of the game as something you will have learners do in addition to learning in your classroom, you will have lost before you begin. In everything you do, you must strive to make the content, classroom activities, and game world seamless and integrated into a meaningful whole. This is not entirely possible of course, but it should guide your design from the start. (p. 9)

2.1.3 Interactivity and feedback

Some of the key characteristics of video games are the amount of interactivity required to play and the game’s ability provide immediate feedback. Interactivity and feedback are at the heart of all video games and could be a big reason why video games can enhance learning (Natkin, 2010, p. 161; Whitton, 2014, p. 148). Smuts' (2009) definition of interactivity states "that to be interactive, something must be responsive in a way that is neither completely controllable nor completely random" (p. 54). Built into every video game is a responsive feedback mechanism: a player makes an action and receives a reaction (Whitton, 2014, p. 148). All video games require a certain level of player interaction, and for every interaction the game provides a response. Players can control what happens within the parameters and rules of the

game, but not the response or feedback that the game provides. According to Natkin (2010), the core element of video game interactivity lies in the player's engagement: "From the player's engagement importance point of view, the fact that the player exerts effort in order to influence the outcome, and feels attached to the outcome is the core point" (p. 161). In other words, the main aspect of video games is that they require players to engage and that players can influence the game's outcome. In terms of education, this means that video games have a potential to create learning that pupils feel more attached to. The focus of the current section is therefore on the potentials and effects that interactivity and feedback have on learning outcomes.

According to Krashen's (1982) affective filter hypothesis, learners who are self-confident and in low anxiety situations are better equipped for language acquisition (p. 30-31). As a teaching tool, video games could enhance both of these affective variables and benefit pupils' learning. In terms of self-confidence, interactions in video games allow for two stories to co-exist: The first story is the designer's story which everyone experiences when playing a video game, and the second story is the player's story which is personal and made from the choices and interactions of the player (Gee, 2007a, p. 85-86). When pupils are working with something that is personal and unique, it could make them feel more apt to move beyond what others have written (Colby & Colby, 2008, p. 306). A common problem when using traditional teaching tools is that pupils often feel unqualified to state their own opinions or write their own words, and instead turn to sites like SparkNotes or Schmoop for inspiration (Darvasi, 2016, p. 141). This could be because pupils feel unconfident and anxious when working with something that more qualified people have already worked with. However, if pupils feel like they are the only experts of their story it could make them more confident, and thus more likely to rely on their own skills. In addition, the fact that video games are a relatively new medium and often associated with young people could make them less intimidating to work with. If pupils feel more confident with the medium and find themselves working in a low-anxiety learning situation, it should benefit their language learning.

Video games can also aid pupils' language learning because of the automated feedback players receive while playing. Whitton (2014) describes video games as "rich interactive systems, which respond swiftly to a player's actions and provide relevant feedback" (p. 145). Likewise, Malone & Lepper (1987) stress the importance of performance feedback in building intrinsic motivation, which is especially effective when it is frequent,

clear, constructive and encouraging (p. 232). The ability for video games to provide frequent and constructive feedback can be one reason why games tend to be so motivating. When playing video games, players constantly receive feedback on their actions in different forms such as signs, scores, tips, text, speech or simply through progression. The feedback in games tells players what they did wrong or right, and it is almost always formative (Whitton, 2014, p. 149) with the intention of teaching players how to progress and learn. This is the same type of formative feedback practise that is currently in focus in all school subjects in the Norwegian school system, evident in projects like "Assessment for Learning" which focuses on an assessment practise that seeks to build learning rather than evaluating performance (Norwegian Directorate for Education and Training, n.d.-d). Schools are in fact trying to achieve the same feedback practise that already exist in many popular video games. The video game industry knows that "if people can't learn to play a company's games, the company goes broke", which is why "good learning principles are built into their very designs" (Gee, 2007a, p. 2). These learning principles build on constant feedback that either tells the player what he did right or what he did wrong. Feedback in games is essential because "game designers have no choice, they have to make games that are very good at getting themselves learned" (Gee, 2007a, p. 2). While interactive feedback seems to enhance learning in games, the question is if it can benefit pupils' learning outcomes in classrooms.

Ritterfeld, Shen, Wang, Nocera, & Wong (2009) studied the connection between interactivity and educational outcomes in video games. The researchers tested whether learners in interactive learning environments achieved more effective learning outcomes than learners in non-interactive conditions (p. 692). The study involved 100 participants divided into four conditions where the participants had to: (a) play a game, (b) watch a game replay, (c) read a hypertext about the game, and (d) read a text about the game (p. 692). The game used in the study was an educational game called *Metalloman*, made specifically to teach about the human digestive system. When comparing the results of the different conditions, the researchers found that participants in the high interactivity condition (playing a game) had gained a higher overall knowledge and definitional knowledge than participants in the low interactivity condition (watching a game replay; p. 694). Although the study focused on participants learning new concepts rather than foreign or second language learning, the findings indicate that there could be a positive effect between levels of interactivity and learning outcomes.

In contrast to the abovementioned study, deHaan, Reed & Kuwada (2010) found that interactivity in video games had negative effects on learning. Their study investigated written vocabulary recall among eighty Japanese university students who learned English as a second language. The participants were divided into two conditions, one group played a music video game while the other group watched an identical video signal of the partner's game (p. 78). The study measured vocabulary recall in both groups and compared results from those who played the game with those who watched the live signal. Interestingly, the research showed that those who watched the game scored an average of 21.7 words on the vocabulary recall test, while those who played the game only scored 7.23 words on average (p. 82). While both groups increased their vocabulary, the low interactivity condition scored significantly better than the high interactive condition. The researchers argued that "the players' poorer recall of vocabulary seems to be attributable to the interactivity of the video game" (p.84). Since the players experienced a higher cognitive load than the watchers, more attention was used to play the game rather than learning vocabulary. The results indicate that the higher cognitive load of playing hindered vocabulary recall for the players and thus negatively affected language acquisition. However, the researchers note that "this study's video game did not in any way allow the players to navigate through the rap, or to make meaningful choices about the game's language" (p. 85), which could be the reason why the interactivity in this game had negative effects on learning. The authors suggest that games with interactions that are more closely aligned with the language of the game or give player's more choices might result in better learning outcomes (p. 86).

While there is less research on the correlation between interactivity and motivation, some studies have reported positive findings on motivation and interactive activities. Kang & Tan (2014) found that teaching with various interactive educational games significantly increased students' intrinsic and overall motivation compared to traditional teaching methods (p. 114). Similar results were reported by Tüzün, Yılmaz-Soylu, Karakuş, Inal, & Kızılkaya (2009), who found that a geography educational computer game resulted in statistically significant higher intrinsic motivations after three weeks of teaching in an elementary school (p. 74). Furthermore, the study found that the pupils had a decreased focus on getting grades and were more independent when participating in game-based activities. The researchers suggest that the positive motivational direction might be a result of the pupils participating in "game activities that offered exploration, interaction, and collaboration affordances, and [...] meaningful real-world events." (2009, p. 74).

The review of research and studies in this section suggest that interactivity affects pupils' learning outcomes and motivation. In terms of learning outcomes, Krashen's (1982) affective filter hypothesis showed how interactivity and feedback provide affective variables that could enhance pupils' language acquisition. The affective filter hypothesis states that second language learners who are motivated, self-confident and in low anxiety situations are better equipped for language acquisition (Krashen, 1982, p. 30-31). Video games also offer a personal and unique gameplay experience that might make pupils more confident language learners. Furthermore, the interactive feedback in video games could build an intrinsic motivation by providing frequent, clear, constructive and encouraging feedback (Malone & Lepper, 1987, p. 232). Even though the literature suggests that interactivity can have positive effects on learning outcomes, the shortage of empirical evidence makes it hard to draw any conclusions. While the two studies on learning outcomes reviewed in this section points in different directions, both studies show that the level of interactivity in video games have effects on language learning. Considering that the studies used two very different games with various levels of interactivity, the results indicate that video games that require higher amounts of interactivity could hinder language acquisition. Weber, Behr & DeMartino (2014) share this view and write that:

If playing an interactive game demands more mental resources, fewer resources remain for other cognitive processes. Alternatively, interactivity might intensify game effects as players receive constant and immediate feedback on their behavior and its consequences. This might lead to greater enjoyment and to an increased motivation for playing. (p. 79).

Since the level of interactivity in video games affect learning, a lot of games become unattractive teaching tools because they require too many interactions from the player. This means that video games should be critically assessed based on their level of interactivity. Games that require too many interactions (e.g. popular games like Fortnite or Counter-Strike) would probably turn out to be less efficient teaching tools, while video games with lower levels of interactions could hinder the motivational drive and feedback one seeks from games.

2.1.4 Multimodality

In addition to interactivity and feedback, video games have a unique ability to present information through several different modes. Lauer (2009) defines multimodal texts as being

"characterized by the mixed logics brought together through the combination of modes" (p. 227). A mode is a code used to present information, and multimodal learning environments present information through both verbal (e.g. printed or spoken words) and non-verbal modes (e.g. illustrations, photos, videos and animations; Moreno & Mayer, 2007, p. 310).

Multimodal learning environments require learners to use multiple sense receptors (or modalities) to process information, and multisensory learning theories claim that individuals learn better when information is presented through multiple modalities (Moreno & Mayer, 2007, p. 310; Whitton, 2014, p. 169). Mayer (2009) argues that multimedia² learning instructions offer better learning because "people learn better from words and pictures than from words alone" (p. 4). In addition, when multiple modalities support each other and point in the same direction, they sometimes combine to form a more meaningful and satisfying whole (Gee, 2007b, p. 106). This means that multimodal teaching tools, like video games, have a potential to create more comprehensible input that might benefit pupils' learning outcomes in school.

Mayer's (2009) cognitive theory of multimedia learning supports the notion that multimodal learning environments can improve learning outcomes. This theory builds on the idea that people use two separate channels to process information, one visual and one verbal (p. 64). These channels have a limited capacity, and learning is therefore better when both channels are used. Moreno & Mayer (2007) claim that "the most effective learning environments are those that combine verbal and non-verbal representations of the knowledge using mixed-modality presentations" (p. 310). If learners only receive information through one channel they are more likely to experience a "cognitive overload", which happens when the amount of information exceeds the cognitive capacity of a processing channel (Moreno & Mayer, 2007, p. 310). This means that multimodal learning environments could lead to higher amounts of input and better learning outcomes, because learners receive more input when multiple processing channels are used:

When pictures and words are both presented visually (i.e., a split-attention situation), learners are able to select fewer pieces of relevant information because visual working

² Some researchers (Mayer, 2009; Whitton, 2014) operate with the term multimedia. While multimodality and multimedia have slightly different meanings, they are often used interchangeably (Lauer, 2009, p. 229; Moreno & Mayer, 2007, p. 309). This thesis does not distinguish between the two terms.

memory is overloaded. When words and pictures are presented in separate modalities, visual working memory can be used to hold representations of pictures and auditory working memory can be used to hold representations of words (Mayer & Moreno, 1998, p. 318).

Mayer and Moreno suggest that people have two working memories, one visual and one auditory, and each memory is used to hold different types of information. Since multimodal activities present information that can be stored in both the visual and auditory memory, the total amount of information stored should be higher. In a typical video game, players gain most of their information through both non-verbal modes such as video and animation, and verbal modes such as sound and text. This means that video games and other multimedia teaching tools can utilise a higher amount of working memory when information is presented, which could make learning from these types of media more effective.

Some concern has been given to a potential disadvantage of multimodality called the "split-attention effect", which can occur when the same modality (e.g. visual) is used to process multiple sources of information within the same display (e.g. text and picture; Mayer & Moreno, 1998, p. 313). Mayer & Moreno (1998) tested the split-attention in two different studies with 68 and 78 college students. Both studies utilised groups of participants who watched different animations with either a concurrent narration or a concurrent on-screen text (p. 314). According to multimedia theory, more learning should occur in the groups where pictures and text were presented in two separate modalities (text and sound) rather than one (text and picture). In both studies, the researchers found that the groups who watched the animations with audio rather than with text scored better on all three tests (p. 315, 317).

Guichon & McLornan (2008) studied the effects of multimodality on French L2 learners. Their study measured comprehension across four conditions with different levels of modalities: (1) audio only, (2) image and sound, (3) image, sound and L1 subtitles, and (4) image, sound and L2 subtitles (p. 87-88). The results were gathered by calculating the number of semantic units reported by the participants in a written summary. The results from the study showed that the learners' comprehension scores rose according to the number of modalities: the audio condition (1) scored 19,7%, the image and sound condition (2) had a score of 25,1%, while both conditions with subtitles (3 and 4) scored 30,2 and 29,7% respectively (p. 89). The researchers stress that this was only a pilot study with a limited number of participants (only 10 per group; p. 91). However, the results from the study imply

that learners benefit from having more information presented, and the researchers therefore argue that "learners should be exposed where possible to input that is multimodal" (p. 91). Interestingly, the researchers also note that in cases where the visual information is not directly related to the oral message, there seems to be a cognitive overload because "visual information which is not directly linked to the auditory information may distract learners' attention and create a split-attention effect" (p. 91).

In addition to interactivity, Ritterfeld et al.'s study (2009) also investigated the learning outcomes of multimodality in video games. To measure the effects of multimodality, the researchers compared playing a game with reading a hypertext, and watching a game replay with reading a text (p. 694). The results were measured using a post-test and follow-up test, and the results showed that learners in the higher multimodality conditions scored better on both overall knowledge gains and definitional knowledge gains (p. 694). The results indicate that multimodality can enhance learning outcomes in situations where video games are used to learn specific vocabulary related to the game itself. However, the researcher stress that their study measured learning effects without any pedagogical instructions, and that "their educational impact might well change when the context of media use (either within or outside the traditional classroom) is taken into account" (p. 696).

Some concern has been given to the idea that people have different learning styles. One of the most popular learning styles theories is the visual-auditory-kinaesthetic model (or VAK), which builds on the idea that people have different sensory learning preferences (Whitton, 2014, p. 169). According to this theory, some people learn best by watching (visual), others while listening (auditory) and some learn best when they are physically active (kinaesthetic). Even though the VAK-model lacks empirical evidence and some researchers even reject the theory of learning styles, ideas of sensory learning preferences are widespread in schools and universities (Whitton, 2014, p. 169). The theory of different learning styles is important to consider because "the general idea that different individuals prefer to receive information from different sensory inputs [...] is not implausible" (2014, p. 169). Regardless of whether pupils have different learning styles, many pupils prefer different methods of teaching, and "having multiple modes within a single task allows learners to choose according to their own specific needs and preferences" (Stockwell, 2010, p. 87). Since video games utilize a number of different modes, learners can gain information visually, auditorily and sometimes kinaesthetically. In educational contexts where teaching often involves bigger groups, video games could benefit teaching and learning because information is available

through several modalities that suit different learning styles and preferences. Whitton (2014) argues that "learners are all different, with diverse game preferences and learning styles, and it cannot be assumed that all students will react to a game in a uniform manner; for any game some learners may find it appropriate and stimulating, while others will feel that it is boring and a waste of time" (p. 175).

In a study of multiple representations of content using multimedia across different learning styles, Sankey, Birch & Gardiner (2011) found that "students perceive learning resources with additional representations of content to assist their comprehension, understanding and retention of content, and to be more interesting and enjoyable to use" (p. 31). Even though the study did not find correlations between multiple representations of content and comprehension gains, the results indicate that many learners prefer multimodal learning environments and experienced more content to assist their comprehension.

The research reviewed in this section suggest that multimodal learning environments can enhance learning. While the research on multimodality in video games is limited, research on multimodality in other media show promising effects. The research indicate that more learning finds place when information is presented through more than one mode. In addition, video games should be more appealing and suit learners with different learning styles, resulting in better learning outcomes and more motivated pupils.

2.2 Video games and the new English subject curriculum (ENG01-04)

Even though studies and research might indicate that video games can facilitate learning, many people still look at video games with scepticism. However, with the introduction of a new English subject curriculum that recognises video games as true cultural expressions, this could change. While the current curriculum (LK06) does not mention video games in any of its competence aims, the new curriculum, which is planned to replace the current curriculum in the Fall of 2020, finally puts video games on the educational map. Since the new curriculum is soon to be released in Norwegian schools, the current section aims to investigate how video games fit with the competence aims, core elements and basic skills of the new English subject curriculum (ENG01-04).

2.2.1 Competence aims

Although there are many changes in the new English subject curriculum, the perhaps biggest change seen from a video game perspective is the introduction of games in the curriculum's

competence aims. The new competence aim states that pupils should: Discuss and reflect on form, content and literary tools in English cultural expressions from different media, including music, film and games³ (Norwegian Directorate for Education and Training, n.d.-c). This competence aim encourages more than just playing video games in classrooms, it also states that video games should be analysed and discussed similar to how one would analyse other well-established media. By acknowledging the importance of including a variety of different media in teaching, the new curriculum makes it easier for teachers to include teaching methods that reflect young people's out-of-school activities. Thus, the competence aim helps reduce the authenticity gap mentioned by Henry (2013) and opens the possibility for teachers to vary their teaching methods and find the most suitable teaching tool for their pupils.

Besides the abovementioned competence aim, the argument to use video games can be drawn from other competence aims in the new curriculum as well. One competence aim states that: The pupils should use suitable digital resources and other aids in language learning, text writing and interactions⁴ (Norwegian Directorate for Education and Training, n.d.-c). As the studies in the introduction to this thesis show, many pupils improved their English skills by playing video games outside of school. One example of this is Brevik's (2016) study, which found that the English reading skills of gamers improved when they could read in their area of expertise in school (p. 56). If video games or other media improve pupils' ability to read and learn English, the argument to include those teaching tools increases significantly. Moreover, since video games is a digital resource, they also fit with the new curriculum's aim to improve pupils' digital skills.

2.2.2 Core elements and basic skills

The new curriculum (ENG01-04) also comes with an updated section about the English subject's core elements and basic skills. In the core elements section, one paragraph describes how language learning happens when pupils encounter English texts. The paragraph emphasizes that:

Texts should be used as a wide term: oral and written, printed and digital, graphic and artistic, formal and unformal, fictional or factual, from present and past. The texts can

³ Author's translation

⁴ Author's translation

contain writing, pictures, sound, drawings, graphs, numbers and other forms of expression that are put together to emphasize and convey a message.⁵ (Norwegian Directorate for Education and Training, n.d.-b).

Since the core elements states that the term “text” extends to all types of expressions that convey or emphasize a message, teachers and schools have to include different types of materials in their teaching. The new curriculum requires teachers to go beyond the textbook and expose pupils to a variety of texts. From the core elements it is quite clear that video games are defined as texts, and one could argue that video games are prime examples of texts because of their multimodal nature and wide variety of sensory inputs. Within a single video game, one would probably encounter most of the text types mentioned in the core elements.

One of the four basic skills mentioned in the new English subject curriculum is the development of pupils’ digital skills. This section states that: Digital skills in English is to be able to use digital media and resources to strengthen language learning, to meet authentic language models and speaking partners in English⁶ (Norwegian Directorate for Education and Training, n.d.-a). Based on the curriculum’s definition of digital skills, video games seem like good teaching tools that can help develop pupils’ digital skills. By playing and analysing video games pupils would interact with a digital medium that requires the use of digital skills. With the variety of video games that exist, one can find video games that are authentic language models and that reflect and portray the society in which they are set. In addition, some video games have a possibility for interactions and conversations with other English-speaking players that could help develop pupils’ communicative skills.

⁵ Author’s translation

⁶ Author’s translation

3. Methods and design

This chapter outlines the methods and design of the study. The study's purpose was to collect a combination of quantitative and qualitative data that could be used to address the two research questions. Section 3.1 describes the types of quantitative and qualitative research methods used in the study, with a focus on mixed methods classroom research. Following, in section 3.2, is a description of the design of the study and the data collection process. Section 3.3 provides a brief description of the data analysis procedure, before section 3.4 considers the study's reliability and validity. The final section (3.5) describes the ethical considerations of the study.

3.1 Methods

3.1.1 Quantitative research

Quantitative research is frequently used in studies and projects where the major data revolves around numerical data. Quantitative research is usually employed in research where the aim is to investigate trends in a field or find out why something occurs, often by establishing an overall tendency of responses or how certain tendencies differ in a group of people (Creswell, 2012, p. 13). This means that quantitative research does not concern itself with individual variations, but rather focus on larger tendencies. To identify tendencies and make generalised claims, quantitative research relies on having bigger sample sizes. Although many scholars argue about what an appropriate sample size is, Dörnyei (2007) suggests somewhere between 15-100 participants depending on the type of quantitative method used (p. 99-100).

The current thesis gathered quantitative data using two questionnaire surveys, one before and one after the completion of the study. The purpose of the pre-study questionnaire was to gather information about the participants' video game habits and their expectations towards using a video game for learning purposes. The post-study questionnaire was mainly concerned with the participants' experiences with the game, their motivation when playing and their perceived learning outcomes from the game.

3.1.2 Qualitative research

According to Dörnyei (2007), “qualitative research involves data collection procedures that result primarily in open-ended, non-numerical data which is then analysed primarily by non-statistical methods” (p. 24). In contrast to quantitative research, “qualitative research is best suited to address a *research problem* in which you do not know the variables and need to explore” (Creswell, 2012, p. 16). Qualitative research methods are usually more time consuming and labour intensive, making it more common to operate with smaller sample sizes. Since this type of research method operates with non-numerical data and fewer participants, the aim is not to make wide generalised claims or conclusions, but rather to shed light or clarify important aspects related to the research questions.

In addition to the quantitative data from the two questionnaire surveys, the study gathered qualitative data by conducting interviews with four groups from the study. There were mainly two reasons for including qualitative data in the study. First, in relation to the two research questions concerning motivation and learning outcomes, qualitative input could help explain some of the results from the surveys. Second, due to a limited number of participants, the qualitative data could help strengthen the validity of the study.

3.1.3 Mixed methods classroom research

A combination of quantitative and qualitative methods is often referred to as a mixed methods research approach. Dörnyei (2007) describes mixed methods research as “some sort of combination of qualitative and quantitative methods within a single research project” (p. 44). In classroom research, combining different methods is often seen as necessary in order to fully understand the “intricate tapestry of classroom events” (p. 176). Since classrooms are complex environments where several factors can impact test results, some scholars even claim that mixing methods is indispensable when doing classroom research (p. 177). Generally, in a mixed methods approach, one of the methods have a higher priority than the other, with the secondary method being used to support the main method (p. 171).

For this thesis, the main reason for a mixed methods approach was the ability to offer a multi-level analysis that could help improve the validity of the results. The idea was that by combining interviews with surveys it would add more information to the results. While the surveys were aimed towards answering *if* the pupils were more motivated and perceived higher learning outcomes when using a video game as a teaching tool, the aim of the

interviews were to figure out *why*. Therefore, the interviews contained more detailed questions related to the pupils' experiences with the game and supplementary tasks. In addition, because of the limited number of participants in the study, the mixed methods approach was used to improve the validity of the survey results.

3.2 Design and data collection

3.2.1 Choosing a game

In a review of educational video game designs, Dondlinger (2007) identified a number of design elements that help facilitate learning from video games. According to the review, video games with design elements “such as narrative context, rules, goals, rewards, multisensory cues, and interactivity, seem necessary to stimulate desired learning outcomes” (p. 28). These principles, in addition to the game elements discussed in the chapter about video games and education (see chapter 2.1), helped create the criteria for selecting a video game for the study. To be functional both in a classroom and for this particular study, the video game had to (1) be a commercial game, not made for educational purposes, (2) be short enough so that it could be finished during the study period, and (3) have some level of interactivity, but not so much as to hinder learning. In addition, the game had to (4) have a reasonable price per copy and (5) fit the hardware requirements of an average school computer.

Bearing these requirements in mind, the game selected for the study was a commercial story exploration video game called *Gone Home*. The game, released in 2013 by the Fullbright Company, has been highly appraised by critics and won several awards. *Gone Home* was chosen because it is relatively short in length and has a gameplay that does not require a lot of interactions from the player. The game's simple mechanics makes it easy to learn, which means that players who are unfamiliar with video games or computers can learn the game relatively fast. The game also offers a variety of multisensory cues that appear in both visual and auditory modes. In addition to the game design requirements, the game developers of *Gone Home* offers a discount to educators who wish to buy and use the game in schools, and the game's system requirements made it possible to run on the pupils' school computers without causing technical problems.

3.2.2 Overview of the study

The study was designed to last between 8-12 school lessons with the purpose of gathering information about pupils' motivation and perceived learning outcomes while playing *Gone Home* in school. The pupils were given instructions and information while playing, and they had to complete supplementary tasks (Appendix 2) during the project. One of the instructions was that the participants had to play the game in pairs, which meant that one participant would control the game while the other participant would be responsible for taking notes to use with the additional tasks. In the first lesson, pupils were given navigational restrictions inside the game to ensure that everyone completed the supplementary tasks before they could progress. About halfway into the game, the pupils got to choose between three in-depth study tasks (see Appendix 2) which they had to complete by either handing in a written essay or making an oral presentation.

After completing the game and additional tasks, data was gathered in a post-study questionnaire (Appendix 3). The questionnaire asked questions about the participants experience with the teaching method, their motivation when playing in school and their perceived learning outcomes from this type of teaching. In addition to the questionnaires, interviews were conducted with four of the groups from the project. The interviews took place in the week following the study and were aimed towards providing more in-depth information about the questionnaire results.

3.2.3 Participants

The recruitment process for the study started in early October 2018 by contacting one of the upper-secondary schools in the area. An appointment was made with one of the more experienced English teachers at the school, and although he had no experience with video games, he was positive to the project and decided to include one of his classes in the study. However, shortly after the visit, the original plan had to be postponed because the school offered the author a temporary teaching position at the school. A new plan was therefore made, and the project was rescheduled to March 2019 instead. Although the temporary teaching position made it more difficult to carry out the research because of a tight teaching schedule, it opened the possibility for the author to include his own English class in the project. As a result, the study was extended to include two classes in the project.

The study utilised a sampling strategy known as convenience sampling (Dörnyei, 2007, p. 98), which resulted in a total of 39 participants from the two upper-secondary classes. Convenience sampling is seen as “the least desirable but the most common sampling strategy”, and it is often used in L2 research (p. 129). The only criteria for the sample selection, besides being in an English upper-secondary class, was that the participants had to be available during the study period and be willing to participate in the project. Of the total 39 pupils who chose to participate in the study, 25 were in their first year of upper-secondary while 14 were in their third and last year. Both classes were in the general studies programme, but the first-year pupils attended a mandatory English class while the third-year pupils had chosen a more advance and optional English class called Social Studies. The gender division among the participants was surprisingly uneven, with only 9 boys and 30 girls. The uneven gender composition was hard to explain since statistics show that general studies in Norway consists of 44% boys and 56% girls (Bufdir, 2019). Even though a more even gender composition would have been favourable in terms of generalising the results, the results would nevertheless be interesting considering that girls tend to spend less time playing video games than boys (Medietilsynet, 2018).

While the project started with 39 participants who completed the pre-study questionnaire, the post-study questionnaire only had 35 respondents which meant that four participants had dropped out. Since none of the participants informed the researcher that they wished to withdraw from the project, the reason for the lower number in the post-study questionnaire is hard to explain. One reason could be that some pupils were sick or away from school at the day of the post-study questionnaire, but this is unlikely to be the reason since those pupils were instructed and got time to complete questionnaire once they returned to school. A more likely reason could be that some of the pupils simply decided that they did not want to complete the second survey.

3.2.4 Design and data collection

The design of the study was inspired by teaching material available online (see Husøy, 2016). The teaching plan (Appendix 1) was largely based on the tasks and materials that was found online, but with a few minor changes to make them suitable for the study. The teaching plan was originally created to last five school lessons of 2 x 45 minutes, but it could be changed to last longer or shorter depending on how fast the pupils completed the video game and the

tasks. While the tasks and teaching materials were created by other teachers, all of the data collection materials in the study were made by the researcher.

3.2.4.1 Materials

A number of materials were needed in order to complete the project. Since the school did not have any previous experience using video games in education, all the materials had to be acquired by the researcher. Besides the supplementary tasks and data collection tools which are described in the following sections, the completion of the study required each group to have:

- A game license
- Two computers (one for the game and one for writing notes)
- One computer mouse and a mousepad
- Two headsets and an aux splitter

Game licences and aux splitters had been purchased by the researcher prior to the project. The aux splitters were needed to make it possible for the participants to get sound from two headsets while playing the game. The pupils were instructed to bring their own headsets with an aux connector, and one computer mouse and a mousepad to navigate in the game. Additional computer mice and headsets were brought by the researcher in case someone forgot to bring their own.

3.2.4.2 Supplementary tasks

While several studies have found that playing video games without additional learning materials can lead to learning (Sundqvist, 2009; Olsson, 2012; Sylven & Sundqvist 2012; Sundqvist & Wikström, 2015; Brevik, 2016), the current study utilised a set of supplementary tasks (Appendix 2) related to the game. There were mainly two reasons to include extra tasks in the project. First, since video games is a relatively new medium and very few pupils have experience with the use of video games for learning purposes, the supplementary tasks were seen as a way to guide pupils towards the desired learning outcomes. Since the tasks used in the study were closely related to the characters, setting and story of the game, they functioned as a method of integrating learning with playing. Van Eck (2009) mentions the importance of including additional teaching material with commercial games, “because commercial games

were not designed to teach content, none will be sufficient on its own as a teaching tool” (p. 13). The second reason to include supplementary tasks with the game was to make the learning experience from *Gone Home* more evident. By including tasks that required participants to use what they had learned in-game to complete tasks outside of the game, the learning should feel more familiar and applicable to pupils who are used to working with additional learning materials. Since the tasks required participants to produce something outside of the game it could make it easier for the participants to recognise if any learning had occurred.

The first set of tasks (Appendix 2) were given to the pupils at the start of the project with instructions to only explore the first two rooms of the game. In the second lesson, the participants chose an in-depth study task (Appendix 2) which they had to complete during the project and hand in as a written essay or oral presentation. All of in-depth study tasks included a key-question which the participants had to answer with their text or presentation (displayed in table 3.1).

Task 1 Character Tracker	Key Question: How has the major character changed over the course of the story? Is s/he better off at the end of the game than they were at the beginning? How?
Task 2 Archeology	Key Questions: How did the historical setting of 1995 affect the game? How would the game have changed if it were to take place today?
Task 3 Riot Grrrl Music	Key Questions: How did this style of music work well with both the geographic and historical context of the game? Why is this style of music a genuine expression of Sam’s journey in the story?

Table 3.1: Key questions from in-depth study tasks

During the project, the participants were also instructed to work in pairs rather than alone. There were several reasons to have the participants work in pairs. First, since single player video games like *Gone Home* usually does not require any type of oral communication, working in pairs ensured that the participants communicated while playing. Second, since “collaboration places more responsibility for the learning process on the students” it would make it easier for pupils to complete the game and tasks on their own (Van Eck, 2009, p. 10). Third, working in pairs made it possible for pupils to discuss and help each other with input that would otherwise be too difficult to understand.

3.2.4.3 Questionnaires

The current study utilised a set of questionnaires as the main data collection method (see Appendix 3 and 4). Questionnaires were used because they are “capable of gathering a large amount of information quickly” (Dörnyei, 2007, p. 101), which was important for the study because more time could then be spent on playing the game and guiding the pupils. Furthermore, questionnaires enabled information to be gathered anonymously and without concerns for the participants’ privacy, which was positive for the recruitment process. The questionnaires were made in Norwegian to avoid any misunderstandings or confusions, and the pupils answered the questionnaires online at school before and after the project. After the completion of the study, the questionnaires were translated to English (Appendix 4) by the researcher.

According to Dörnyei (2007), questionnaires usually gather information by asking participants three types of questions: factual questions, behavioural questions and attitudinal questions (p. 102). The main purpose of the factual questions was to determine the gender and age of the participants, which was important because gender and age were factors that possibly could affect the results. The factual questions allowed for a multivariate analysis across different conditions, which could help explain some of the results. Besides the factual questions, both questionnaires utilized a mix of behavioural and attitudinal questions. While the behavioural questions focused on the participants habits and prior experiences with video games, the attitudinal questions were used to find out about their thoughts and attitudes toward the teaching method (Dörnyei, 2007, p. 102). All of the questions consisted of a mix of close-ended items, such as multiple-choice items, rating scales and Likert scales. While most of the questions were close-ended and without any free writing, some questions included an open-ended section where the participants were asked to explain their answers.

3.2.4.4 Interviews

In addition to the quantitative data from the questionnaires, qualitative data was gathered by conducting interviews with some of the groups from the project. The aim of the interviews was to provide more insight to the questionnaire answers, which were thought to be advantageous for both understanding and strengthening the results. To make the interviews less intimidating, the interviews were conducted in Norwegian and with the original groups from the project. The recruitment resulted in a total of four interviews and eight participants,

with two groups from each class. The interviews were recorded and transcribed, and all of the quoted parts used in the thesis were translated from Norwegian to English by the researcher.

The interviews were semi-structured (see Appendix 5 and 6), meaning that the interviewer followed a set of pre-prepared questions, but allowed for the interviewees to elaborate and discuss on any issues or points made (Dörnyei, 2007, p. 136). There were six main questions in the interview guide, with some follow-up questions in case something needed more explaining. The participants were asked questions about how they experienced the teaching method, whether they were more or less motivated, and if they felt like the video game was better or worse than other teaching methods in terms of learning outcomes. Both participants got a chance to answer the questions, and the interviewer focused on speaking as little as possible let the interviewees elaborate and discuss their answers. This was important because most often “the real meaning is [...] uncovered through exploratory and unstructured responses that deviate from the interview schedule” (Dörnyei, 2007, p. 137).

3.3 Data analysis procedure

The quantitative and qualitative data were analysed using a multiple level analysis procedure. This method of analysis is relevant for studies that uses a combination of quantitative and qualitative data because it opens the possibility to “gain additional knowledge of a specific subset of participants by analysing their responses in the light of data gathered from a larger sample that these participants were part of” (Dörnyei, 2007, p. 269). For this thesis, the main data was the post-study questionnaire while the pre-study questionnaire and interviews were used to gain additional information about the results.

3.3.1 Analysing the questionnaires

The questionnaires were analysed using SurveyXact, which is a survey tool used to both create and analyse questionnaires. The data from the questionnaires consisted mainly of statistical numbers, but also some short-written answers which were meant to give the pupils an extra opportunity to explain their answers. The statistical data that was included in the thesis are presented in either tables or figures, which were created in SurveyXact and Microsoft Excel. Some of the non-numerical data from the questionnaires was made into

numerical data by categorising and counting the answers, while the rest of the non-numerical data was translated by the researcher and included as quotations.

3.3.2 Transcribing and analysing the interviews

The interviews were carefully transcribed before they were analysed. To ensure an accurate transcription and avoid mistakes, the interviews were listened through several times. The analysis of the interviews followed Creswell's (2012) qualitative process of data analysis, which consisted of collecting, preparing, reading and coding the data (p. 237). The transcribed versions of the interviews were printed out and read multiple times, and finally coded to ensure a consistent analysis. Creswell (2012) describes the process of coding data as "the process of segmenting and labelling text to form descriptions and broad themes" (p. 243). The coding of the interviews from this study involved categorising the different questions and answers, before analysing the questions in an attempt to discover overlapping thoughts or answers relevant to the research questions.

3.4 Reliability and validity

3.4.1 Reliability

According to Creswell (2012), "reliability means that scores from an instrument are stable and consistent" (p. 159). Simply put, a reliable instrument means that the scores should be nearly identical when measuring the same thing at different times. There are several factors that can improve the reliability of a measuring instrument, such as having unambiguous and clear questions, ensuring consistent and standardised test procedures, and making sure that the participants have the required energy, time and patience to complete the questions (Creswell, 2012, p. 159).

To ensure that the current study contained clear and unambiguous questions, the questionnaires and interviews were checked by the research supervisor before the project. The surveys and interviews were also carried out in Norwegian to reduce the likelihood of questions being misunderstood or misinterpreted by the participants. Furthermore, the use of Likert scales and multiple-choice answers were included to make the questions easier to understand and answer. Some sections also featured small writing sections where the

participants could explain their answers, which was another method used raise the reliability of the test scores.

3.4.2 Validity

Creswell (2012) describes validity as “the degree to which all of the evidence points to the intended interpretation of test scores for the proposed purpose” (p. 159). Validity is therefore connected to the interpretations made by the researchers, and not the test or test scores. While perfect validity can never be obtained, one can provide evidence that make the validity argument more plausible than other competing interpretations (Dörnyei, 2007, p. 52).

One of the methods used to ensure higher research validity for this study was the use of a mixed methods approach. By combining the results from several methods one can increase the generalisability and strengthen the research validity. This was especially important since the sample size in this study was on the lower end for a quantitative study. By using a mixed methods approach, the results from both the quantitative and qualitative methods helped raise the overall validity of the study by eliminating the weaknesses of one method with the strengths of another.

There were some potential threats to the research validity in the current study. The first possible threat was participant mortality, which happens when a study experiences subject dropout (Dörnyei, 2007, p. 53). This did occur in the study, as there were more participants in the pre-study questionnaire compared to the post-study questionnaire. However, the dropout should not have had a great impact on the final results because the research questions were mainly answered using the results from the post-study questionnaire and interviews. The second possible threat to the research validity was the Hawthorne effect, which is an effect that happens when participants work better or differently because they know they are being studied (Dörnyei, 2007, p. 53). While there was no way to avoid this effect because of privacy concerns, it is unlikely to have affected the final results because it was the participants’ individual experience with the teaching method and not their work ethic or production that was investigated by the thesis.

The final and perhaps biggest threat to the validity of this study was the participants’ desire to meet expectations (Dörnyei, 2007, p. 54). Since the researcher was also the teacher for some of the participants, the results could have been affected by the pupils’ desire to meet the expectations of their teacher. To minimise the risk of this effect, the researcher made it

clear that the answers in the study would not affect the pupils' grades or relationship with the teacher, and that both positive and negative responses would be equally important to the study. In addition, the pupils were reassured that the questionnaires were anonymous and that the researcher could not identify the participants' individual answers. Since the researchers also conducted the interviews, the interviewees were reassured that they should not be afraid to express any negative or constructive views they might have about the teaching method, and that their views and responses would not affect their relationship with the teacher.

3.5 Ethical considerations

Since the study gathered personal information through questionnaires and interviews, the project was reported and later approved by the by the Norwegian Centre for Research Data (NSD). NSD's guidelines were followed to ensure the privacy of all participants, which included the distribution of information letters and consent forms (Appendix 9) before the start of the project. The audio recordings from the interviews were also securely uploaded to the university's cloud storage, before the memory card was destroyed. After transcribing the interviews, the audio recordings were deleted.

Since the project was voluntary, the consent form informed the participants that they could withdraw from the project if they wished to. All of the participants were above the age of fifteen and could therefore legally consent to the project without involving their parents. They were also informed that their identities would be kept anonymous, and that no names or personal information would be included in the thesis.

NSD considered the project to be in line with the national rules of privacy and data concerns. NSD's approval letter is included in Appendix 8.

4. Results

This chapter presents the results from the study. As previously mentioned, data was collected using questionnaires and interviews. The aim of the data collection was to answer the two research questions:

- To what extent does the educational use of video games motivate pupils' English learning?
- What effects does the educational use of video games have on pupils' perceived learning outcomes in English?

The results from the two different data collection methods are presented separately. Section 4.1 presents the results from the two questionnaires, and since the questionnaires contained both close-ended and open-ended questions, the results are a mix of numerical data and quotations. Section 4.2 presents the results from the group interviews, which have been transcribed and translated to English. All of the questionnaire and interview extracts have been marked with numbers, and the original Norwegian extracts can be found in Appendix 7.

4.1 Questionnaires

The data collected from the two questionnaires served as the main data collection method in the study. It is important to mention that the two questionnaires had different goals in terms of data collection. The pre-study questionnaire, which was conducted before the project, was used to gather information about the participants' gaming habits, prior experience with video games and expectations towards using video games in education, while the post-study questionnaire was aimed towards gathering data about the participants' motivation and learning outcomes in an attempt to answer the two research questions.

As mentioned earlier, the post-study questionnaire suffered a drop-out of four participants. Table 4.1 shows the total amount of participants in the two questionnaires. A total of one boy and three girls dropped out during the project.

	Boys	Girls	Total
Pre-study	9	30	39
Post-study	8	27	35

Table 4.1: Total number of participants divided across gender and participation in both questionnaires.

4.1.1 Motivation

At the start of the project, it was relevant to know about the pupils' motivation and expectations for using video games in teaching. A question from the pre-study questionnaire asked the participants about their expectations to play video games in the upcoming English lessons. Since this was an open-ended question, the answers were categorised and made into a graph based on the response being positive or negative. Figure 4.1 shows the categorised results from the question.

What are your expectations for playing video games in English lessons?

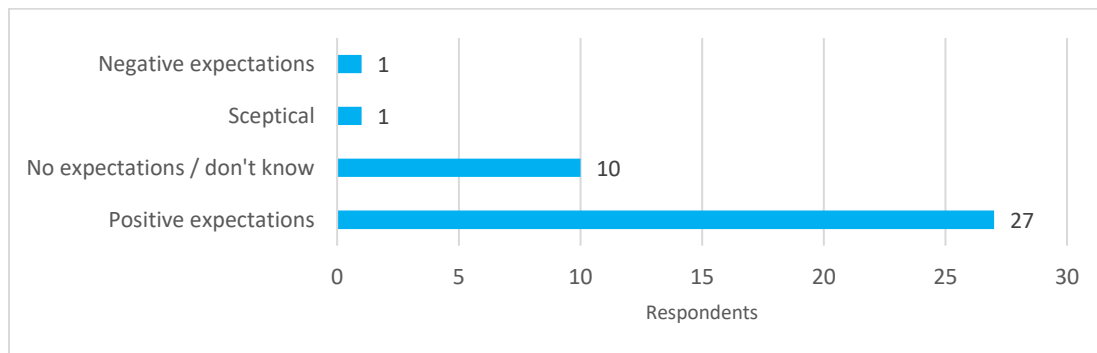


Figure 4.1: Expectations to play video games in English lessons

As the figure shows, a majority of the participants had positive expectations to the project. The most frequent reason was that the participants were excited to try something new and different:

I think it will be fun to do something different than just sitting and writing in our books/computers. (1)

I think it will be fun to do something new and different in class. (2)

I think it will be interesting to try something new. (3)

One participant thought video games would be an exciting way to learn English, but was unsure about the learning potential:

I think that this can be an exciting way to learn English. Very many do not like to study words and sentences so I think that this can be a positive method to acquire some English. [However], I think that it might not provide as much English knowledge as traditional learning. (4)

It was also interesting to find out why the participants play video games. An open-ended question asked the participants to write down the main reason why they play video games. The answers were categorised according to the number of times a reason was stated, and figure 4.1 shows the results from the question (not including those who reported that they do not play).

What is the main reason why you play video games?

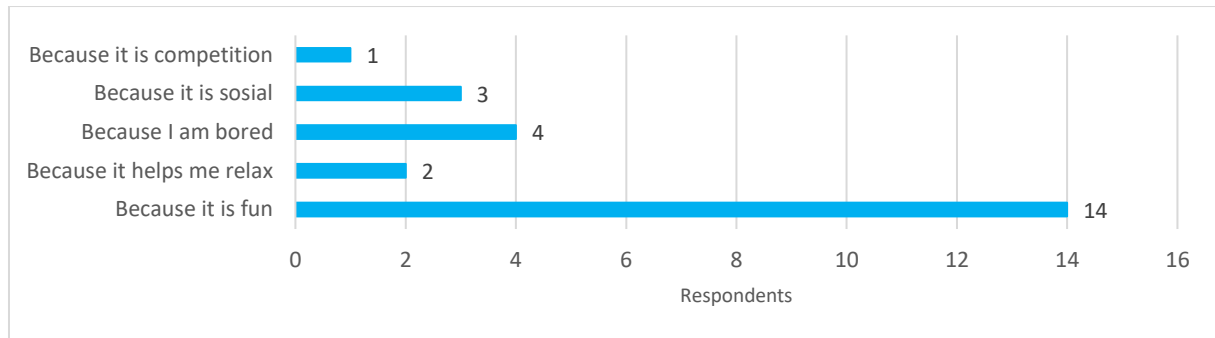


Figure 4.2: Reasons to play video games

Not surprisingly, the most frequent answer was that they play video games because they are fun. Interestingly, no one mentioned learning as a reason for why they play games. These results provide a good indication that many participants play video games because they find them intrinsically motivating and fun.

While the participants seemed motivated at the start of the project, it was their motivation after completing the project that would be most essential for the research questions. Therefore, questions in the post-study questionnaire asked about the participants motivation with the teaching method. One question asked to what extent the participants liked using video games in teaching.

To what extent did you like using video games in teaching?

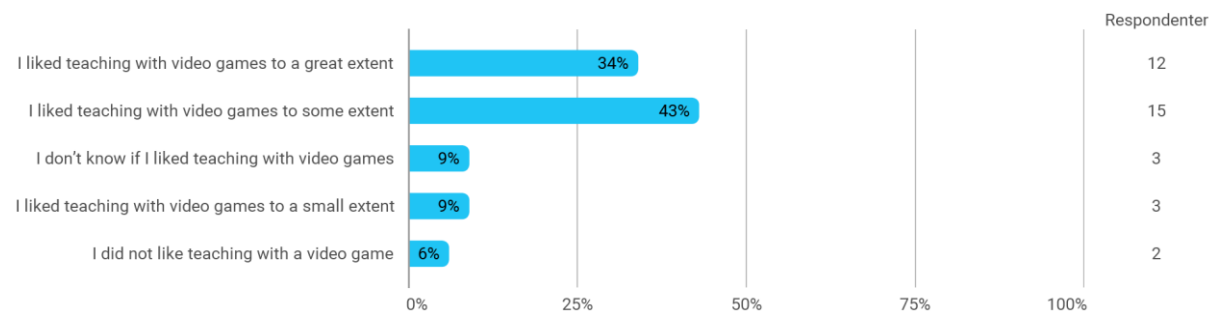


Figure 4.3: Like teaching with video games

As can be seen from the results (Figure 4.3), 77% of the participants responded that they either liked teaching with video games to a great extent or to some extent, while 15% responded that they did not like the teaching method. In the question's open-ended section, many wrote that they liked the teaching method because it was more fun and different:

I liked that we used a new method to learn something (instead of books and texts, etc).
(5)

A different learning method that did not include reading through a text or interpret a picture. (6)

A couple of participants also mentioned that it is easier to pay attention and more fun to find information when working with a video game:

I liked the game, and it is easier to pay attention and write an assignment based on something that is fun. (7)

More fun to find information through a game than by reading. (8)

One participant wrote that he liked how the video game simulates real interactions:

I liked that it simulates how one interacts with a language in real life to some extent.
(9)

While the majority reported that they liked the teaching method, one of the participants wrote that he did not like it because it was difficult to see how it would be relevant for their grades:

It was difficult to show what you really know, and [the game] does not have specific learning goals that are relevant for our grades. (10)

Another participant had similar concerns and struggled to see how one could assess the work with video games:

I did not like video games because it is a poor method to assess. (11)

Even though many of the participants liked the teaching method, it does not necessarily mean that they were more motivated by it. To find out if the participants were more motivated, a question asked whether they were more or less motivated by playing video games compared to other teaching methods.

Compared to other teaching methods, would you say that you were more or less motivated by playing video games?

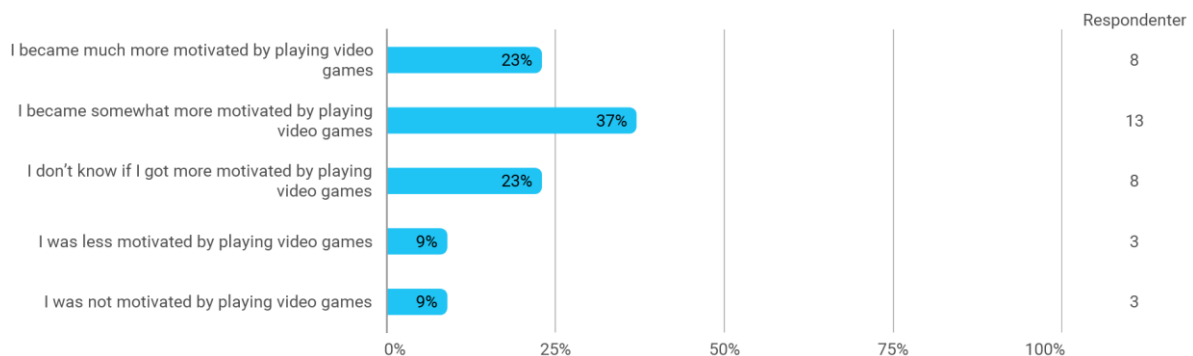


Figure 4.4: Motivation compared to other teaching methods

The results (Figure 4.4) show that a majority of the participants (60%) were more motivated when playing video games compared to other teaching methods. Only 18% reported that they were less or not motivated by the teaching method, while 23% were uncertain and did not know whether their motivation changed. In the open-ended section of this question, one participant felt like the video game was fun and rebuilt her motivation:

It was fun, and now my motivation has been rebuilt. We used to learn about a lot of things I did not know, and then I felt that I had little to contribute with, but when we played it was different. (12)

Other participants mentioned that their motivation increased because video games was something new and creative:

It is a creative way to learn, and you do not have to just sit still and pay attention to the teacher. (13)

The thing that motivated me the most was that it was something new and that it was not normal teaching. (14)

While only a few reported that they were less motivated, one participant felt like the game was too difficult:

I think [the game] was difficult which made it less motivating. (15)

By using a multivariate analysis, it was possible to check whether there were different levels of motivation across the digital game groups. The participants were divided into digital game groups based on how many hours they spent playing video games per week. Table 4.2 shows the gender distribution in the digital game groups in the post-study questionnaire, while

figure 4.9 shows the multivariate analysis of motivation across the different digital game groups.

Digital game group		Boy	Girl	Sum
Non-gamers	(0 hours per week)	1	14	43%
Moderate gamers	(1 – 5 hours per week)	3	13	45%
Frequent gamers	(5 or more hours per week)	4	0	12%
Sum		8	27	100%

Table 4.2: Gender distribution across digital game groups in post-study

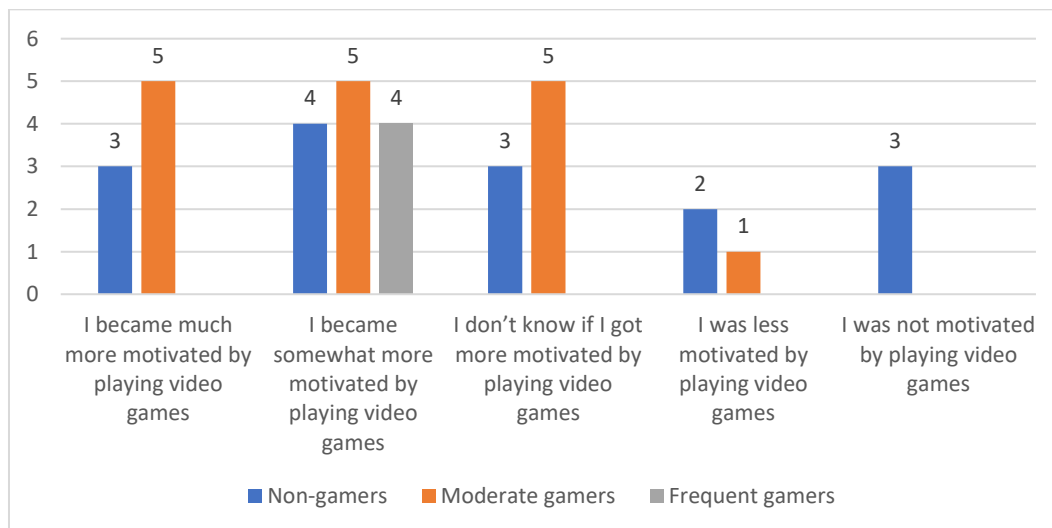


Figure 4.5: Motivation across digital game groups

As figure 4.9 shows, the eight participants who became much more motivated were either non-gamers or moderate gamers. While there were only four frequent gamers in the post-study, all of them responded that they were only somewhat motivated by the teaching method. However, all of the participants who reported that they did not get motivated by playing video games belonged to the non-gamer group. Those who were less motivated by playing video games consisted of two non-gamers and a moderate gamer.

4.1.2 Learning outcomes

The second aim of the study was to determine how the educational use of video games affects pupils learning outcomes in English. While earlier studies (Ranalli, 2008; Vahdat & Behbahani, 2013) have found that video games can be used to learn specific knowledge such as vocabulary, the current study aimed to measure the overall learning outcomes from playing video games in school. However, since determining and measuring learning outcomes can be difficult, especially without some sort of standardised test, the most effective way to measure learning outcomes for this study was to ask the participants about their learning outcomes in the post-study questionnaire.

Before the start of the project, the participants were asked to what extent they learn while playing video games outside of school. Since no one mentioned learning as the main reason why they play video games (see Figure 4.2), it was interesting to find out if the participants felt like they learned while playing video games on their spare time.

To what extent do you feel like you learn when you play video games?

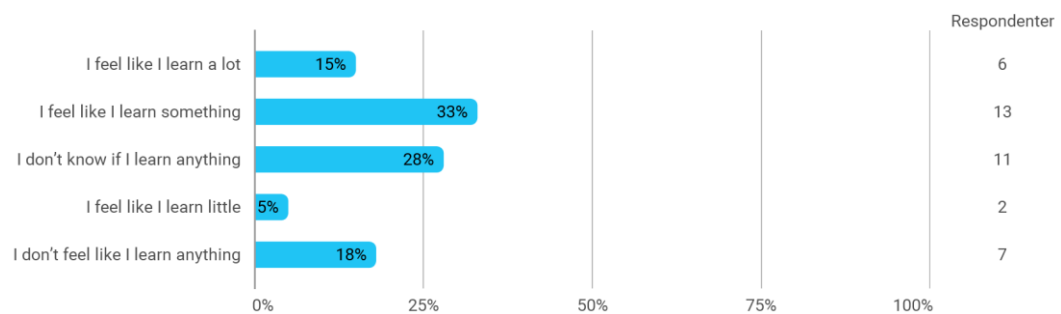


Figure 4.6: Learning while playing video games

As figure 4.6 shows, 48% responded that they either felt like they learned a lot or that they learned something while playing. Only 23% felt like they learned little or nothing, while 28% did not know whether they learned anything while playing.

Another question from the pre-study questionnaire asked to what extent the participants think video games have improved their English skills (Figure 4.7).

To what extent do you think video games have improved your English skills?

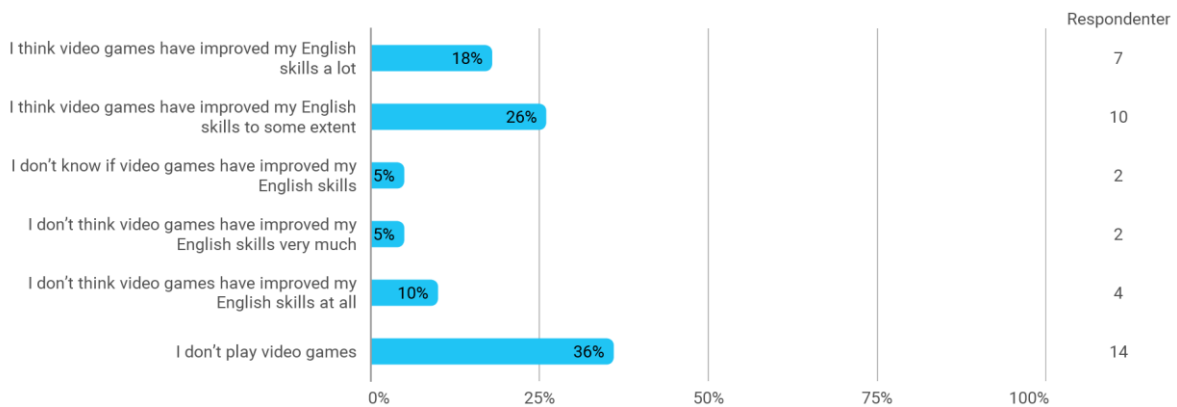


Figure 4.7: Have video games improved your English skills

The results showed that many of the participants think video games have improved their English skills. 44% Responded that their English skills had improved a lot or to some extent because of video games, while only 15% responded that their English skills had only improved a little or not at all because of playing video games. The rest (41%) either did not play video games or did not know if it had affected their English skills.

It was also interesting to know about the participants’ attitude towards using video games to learn English in school. Since many of the participants in the project did not play video games, it would be interesting to know what they think about using video games to learn English in school.

Do you think video games can be used to learn English in school?

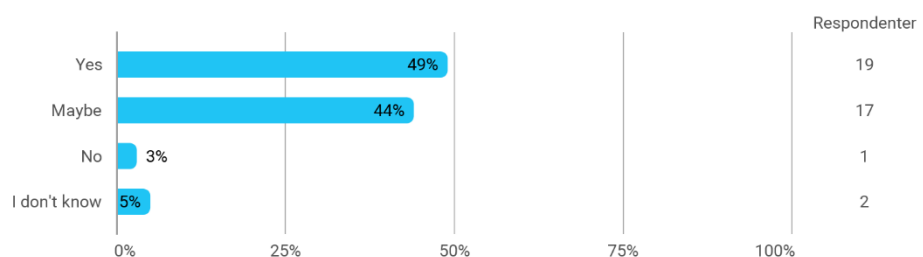


Figure 4.8: Video games to learn English in school

The results (Figure 4.8) show that 49% of the participants think that video games can be used to learn English in school. Only 3% responded that they do not think video games can be used to learn English in school, while the rest of the participants were uncertain and did not know.

While many of the participants were more motivated by the teaching method, it remained to see whether they actually felt like they learned anything by using video games in school. The following question asked the participants to what extent they learned by using video games in teaching.

To what extent did you learn by using video games in teaching?

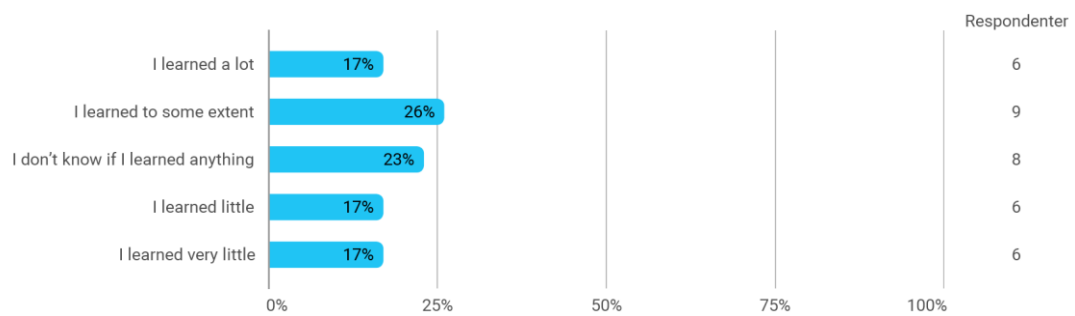


Figure 4.9: Learning from video games

As the results show (Figure 4.9), the participants were quite divided in their answers to this question. While 43% responded positively and said that they either felt like they learned a lot or to some extent by playing video games, about one third of the participants (34%) felt that they did not learn as well from the teaching method. There was also a large portion of participants (23%) who were unsure to whether they had learned anything.

The participants were also asked to write down the reason why they either learned or did not learn. Following are some answers from those who felt like they learned from the teaching method:

I learned more English, and I learned how to use information to solve a task. (16)

Among other things, there was a lot of English text in the game that was read for us and [that we] understood. (17)

I learned the history quicker and more in-depth than I would have if I had just read it. (18)

We got to follow a history from start to end in our own pace. We also got to be as thorough as we wanted [...]. (19)

One participant felt like it was difficult to know whether he had learned something:

I am not sure [whether I learned something], but it was better than reading the game or something like that. (20)

There were also those who felt like they did not learn as much from the teaching method:

It did not feel like I learned anything new. I am not sure why, but it could have been because [the game] was not difficult enough. (21)

What is it to learn? I know how to play. (22)

I did not quite understand it. I like it better and think it is more interesting to watch a documentary or listen to a PowerPoint. (23)

A reason for the lower results for learning outcomes could be that some pupils struggled to notice whether they had learned anything. Since video games is a new teaching tool without its own assessment practises or competence aims, some pupils struggled to see how video games could benefit their grades and learning:

[Video games] are good for those who struggle with motivation, but for most pupils the biggest part about English is the grade (not that it is fun), and I therefore think that other teaching methods where you learn more are better. (24)

One participant also thought that the project was too short to gain any learning outcomes. According to this person, video games need to be a regular introduction in teaching to get any effect:

I feel like video games are more of a long-term process in terms of learning (from my own experience). I do not feel like a small project like this is enough for most to get any outcomes. If, however, this became a regular introduction in teaching and long-term, I would see good learning outcomes like better English pronunciation and making people interested in historical events. (25)

By using a multivariate analysis, it was also possible to check whether there were any differences in the pupils’ perceived learning outcomes across the digital game groups.

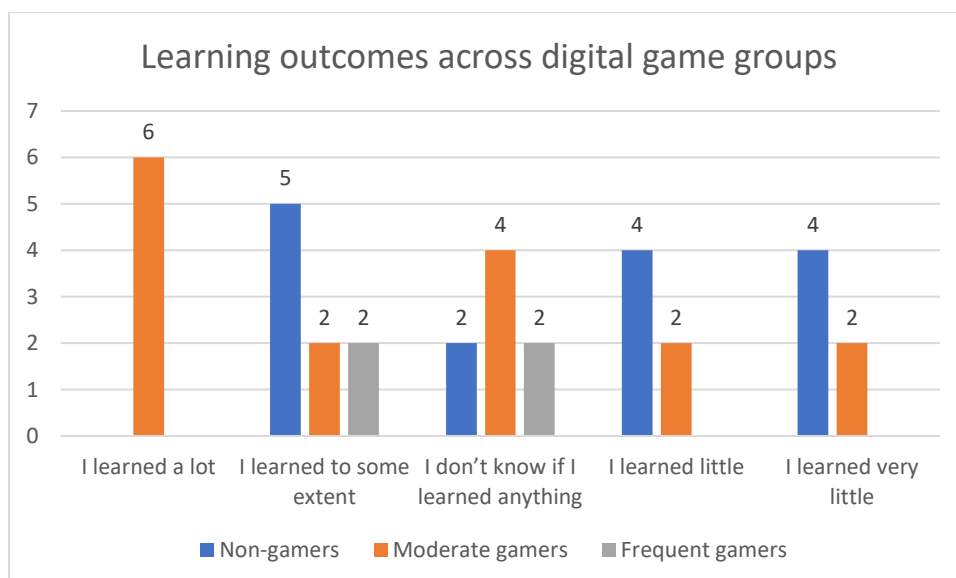


Figure 4.10: Learning outcomes across digital game groups

As figure 4.10 shows, all six participants who felt like they learned a lot from the teaching method belonged to the moderate gamer group. The frequent gamers were divided between learning to some extent or not knowing whether they learned anything, while the non-gamers were spread between learning to some extent and learning very little.

4.2 Interviews

4.2.1 Interview overview

The interviews were conducted in the week following the project. The aim of the interviews was to add additional information to the questionnaire data, or as Dörnyei (2007) puts it, “adding flesh to the bones” (p. 171). The interviews were designed with the research questions and questionnaire results in mind. They were also semi-structured and carried out in Norwegian to make the setting more comfortable and less stressful for the interviewees.

It was decided to conduct the interviews in the original groups from the project. There was a total of four interviews, with two groups from each class. To secure the anonymity of the participants, the names of the participants were replaced with letters and numbers. Group A and B were pupils in their third year in upper-secondary (VG3), while group C and D were first year pupils (VG1). As Table 4.3 shows, the participants were made up of five girls and three boys.

	Group A (VG3)	Group B (VG3)	Group C (VG1)	Group D (VG1)
Participant 1	Boy	Girl	Boy	Girl
Participant 2	Boy	Girl	Girl	Girl

Table 4.3: Groups and participants in interviews

The results from the interviews have been categorised and presented like the questionnaire results. Only questions and answers that were believed to provide more insight to the questionnaire results or research questions have been included. All of the interview quotations were translated by the researcher (original quotations can be found in Appendix 7).

4.2.2 Motivation

When asked about their motivation during the project, there was a general agreement among the groups that they felt more motivated by the teaching method. While there were several reasons to why they were motivated, the most frequently mentioned reason was that the motivation was larger because the video game was a new and different teaching method that differed from what they were used to:

Group C, participant 2:

It was very motivating, and it was much more fun to do something different than just watching a teacher's presentations and tell us to do tasks.

Group A, participant 2

The fact that it was different than what I am used to was what made it motivating for me.

Group D, participant 1

We were more motivated when we could try something that we had not done before.

Besides being new and different, some participants also expressed that they were more motivated because the video game provided them with an activity where they could control and move around on their own premises:

Group C, participant 2

I like games where you can move around, and it was something you could do in this game, which almost made it feel like you were in the room.

Group D, participant 2

It makes me much more interested in classes when I can do something myself and on my own premises. I was at least much more motivated by being able to think that "okay, now we are going to play a game in class", than "okay, now we are going to write a text".

One participant also said that she was more motivated because video games felt like they were doing something physical:

Group D, participant 1

I think that when you do something physical, when you get some activities in lessons, you get more motivated.

The participants were also asked whether they noticed any change in motivation among the other pupils in class. Many of the participants felt like the atmosphere was different compared to normal lessons, and some noticed an increase in their classmates' engagement:

Group A, participant 1

I noticed that people laughed, and some were very engaged in the game. More than they usually are in class. Usually you tend to sit quietly in class, but during this project I got the impression that those who tend to be more quiet were much more engaged.

Group B, participant 1

Those I talked with were like, "I wonder what happens next class", and it was more talk about it [the game]. My experience was that people were more positive towards it.

One participant from group C mentioned that she believed people got more motivated because they probably played video games on their spare time. She also said that it was more motivating for her because she could walk around in the game, which made her feel like she was in the room:

Group C, participant 2

I think it can be a bit fun because there are probably many in class who play on their spare time, and since they can do it in class it becomes more fun.

Interviewer: But you do not play much on your spare time?

Group C, participant 2:

No

Interviewer: So, was there anything that made it more motivating for you?

Group C, participant 2

When I play, I like games where you can walk around. Yes, and that was something you could do with this game.

Interviewer: So that you could move around?

Group C, participant 2

Yes, you kind of felt like you were in the room.

4.2.3 Learning outcomes

In terms of learning outcomes, the participants were first asked whether they felt like they had learned any English by playing video games outside of school. While group C and D did not feel like they had learned much English from video games, group A and B felt like their English had improved because of playing games. Interestingly, participants from both group A and B mentioned interactivity as a reason to why they had learned English from video games:

Group B, participant 2

I have learned a lot. Most of my English have come from games. Especially from interactive games like we have used now, where we have to solve tasks and listen, perhaps speak English, and maybe read some too.

Group A, participant 1

It is [learning from video games] a bit like the experience we had in class now too, which is that we have these different interactions that make it easier to remember the words we encounter. [...] it is perhaps this experience that helps us remember things better.

When it comes to learning outcomes from playing video games in school, the participants were a bit unsure to whether they felt like they learned more from video games compared to other teaching methods:

Group C, participant 1:

I do not think I would say that there was so much better learning outcome, but the advantage with games is that you pay more attention when they speak. [...] I think that you get more focus on things that happened and a better understanding when they speak and how it was.

Nonetheless, many participants mentioned advantages of learning with video games. One benefit that was mentioned a lot was that it was easier to remember things from video games:

Group A, participant 2:

If you can manage to make it [video games] into a fun thing where you are introduced to events and other things, it makes it a lot easier to remember because you get these visual memories that you can relate to and use later.

Group B, participant 2:

I agree that when things are visualised for you, you do not have to use a lot of energy to figure out and picture how things are. [...] you get more immersed, and it [video games] leaves more of an impression. You remember things better.

Several participants also mentioned the game's interactions as a reason to why they remembered things better:

Group A, participant 2:

I viewed the experience we had in class like we have these different interactions that make it easier to remember words that we encounter.

Group D, participant 2:

In a way I feel like you get details that you otherwise would not get. Instead of in a movie, where you do not have control over anything that happens and it is just a camera and the main person doing things for you, in a game you get to explore things [...] which you kind of need to be able to follow the story.

Group D, Participant 1 (in response to participant 2's statement):

Yes, this is true, to be a part of the game, that you do it yourself in a way. You get carried away.

Interactivity was also mentioned by the participants in group B when they were asked if there were any types of games they felt like they learned more from. They also brought up the benefit of having information presented through more than one mode:

Interviewer: Are there any types of games that you learn more from than others?

Group B, participant 2:

Interactive games like we have used now, where you have to do things and maybe solve some tasks, and where you listen to and maybe speak English, maybe even have

to read some too. For example, it was very good that there was a voiceover when you picked up a letter in the game so you could both read and listen at the same time.

Group B, participant 1:

I agree [with participant 1], the games where you get both voiceover and can read it yourself make it possible for people to acquire the information differently, which I think was pretty good.

Besides interactivity, the participants stressed the importance of including additional tasks when working with a video game in school. According to these participants, the supplementary tasks helped them learn more from the game:

Group B, participant 2:

I really liked that there were tasks included with the game, which helped us check whether we really remembered anything.

Group D, participant 2:

Those types of games where you actually work with the game afterwards, where you have to work with the story afterwards, makes it more rewarding. Then we understand that we learn something from this, compared to when you just play the game.

Group D, participant 1:

It is the same as if you watch a movie, then you will get more out of it if you work with it afterwards. So, if you play a game without diving into it afterwards, you do not achieve the same function. If you have a teaching plan after playing the game, then I think you can learn a lot.

4.3 Summary

The results from the two research methods seem to have uncovered some trends among the participants that should allow for a further discussion of the two research questions. The questionnaires resulted in both numerical and non-numerical data about the participants' motivation and learning outcomes, while the interviews contributed with data relevant to the understanding of these results. A more detailed and thorough discussion of the results will be presented in the next chapter.

5. Discussion

This chapter discusses the results in relation to the research questions. The structure of the chapter is similar to the results section, with section 5.1 focusing on motivation while section 5.2 focuses on learning outcomes. Although the results from the current study serves as the primary argument in the chapter, the discussion will also include the research and theories presented earlier in the thesis. The third and final section of the chapter (section 5.3) considers the limitations of the thesis.

5.1 Motivation

One of the aims of the thesis was to study the motivational effect of using video games as a teaching tool for English in school. The research question asked, “To what extent does the educational use of video games motivate pupils’ English learning?”. As the theory presented earlier in the thesis has shown, motivation plays a big part in pupils’ ability to learn language. While more motivated pupils do not necessarily result in better learning outcomes, theories suggest that “performers with high motivation generally do better in second language acquisition” (Krashen, 1982, p. 31). Earlier studies on video games and learning support this theory and have found that learners who played video games were motivated and acquired more vocabulary compared to those who learned by reading texts (See section 1.1.3, Vahdat & Behbahani, 2013). Therefore, motivation in the present study was relevant to determine the suitability of video games as teaching and learning tools in school.

Results from the current study revealed that there was an increase in motivation with 60% of the participants reporting that they were more motivated by playing video games compared to other teaching methods (Figure 4.4). As mentioned in the theory section, Crookes and Schmidt (1991) claim that a change and variety of activities can play a big part in classroom motivation, and many of the participants in the current study mentioned that their motivation had increased because the video game was a new and different teaching method. In fact, this was the most stated reason by the participants as to why they were motivated, which is evident from one participant’s answer: “The thing that motivated me the most was that it was something new and that it was not normal teaching” (14) . Crookes and Schmidt (1991) also mention that less orthodox teaching techniques can benefit classroom motivation, and that too regular classroom routines with texts that use the same format for each unit might result in boredom (p. 235). This was also the case in this study, as one of the

participants in the interviews thought “It was very motivating, and it was much more fun to do something different than just watching a teacher’s presentations and tell us to do tasks” (Group C, participant 2).

Besides being new and different, some participants were motivated because they could move around and be active in the game. One participant said that “I like games where you can move around, [...] which almost made it feel like you were in the room” (Group C, participant 2), while another participant mentioned that “I think that when you do something physical, when you get some activities in lessons, you get more motivated” (Group D, participant 1). Based on the participants’ responses, there seem to be a connection between motivation and the ability to be active and move around. Although the video game in the present study did not allow any physical movements or activities outside of the game, it did require interactions from the players. When it comes to video game interactivity, Natkin (2010) writes that “the fact that the player exerts effort in order to influence the outcome, and feels attached to the outcome is the core point” (p. 161). A participant from the interviews said that she got carried away because she had to do things in the game: “[...] to be a part of the game, that you do it yourself in a way. You get carried away” (Group D, participant 1). Earlier research supports the notion that interactivity and motivation are connected, as Kang & Tan (2014) and Tüzün et al. (2009) both found that teaching with interactive educational games resulted in significantly higher motivation.

Another possible explanation for the increased motivation could be that video games are less intimidating and more familiar to some pupils. One pupil wrote that the video game had rebuilt her motivation because she felt like she had more to contribute with:

It was fun, and now my motivation has been rebuilt. We used to learn about a lot of things I did not know, and then I felt that I had little to contribute with, but when we played it was different. (12)

Darvasi (2016) mentions that a common problem when working with traditional teaching tools is that pupils often feel unqualified to state their own opinions. Since pupils often know more about video games than their teachers, it could feel less intimidating to work with and thus increase their motivation because they feel like they can contribute more. This could result in more self-confident learners, which is something Krashen (1982) advocates as important for language acquisition. In this case the pupil felt like she had more to contribute with which is why the teaching method became more motivational for her.

5.1.1 Intrinsic motivation?

A distinction between intrinsic and extrinsic motivation was discussed earlier (see section 2.1.2). Malone & Lepper (1987) claim that people engage in intrinsically motivating activities “for its own sake, rather than in order to achieve some external reward or avoid some external punishment” (p. 229), and a majority of the participants in the current study answered that the main reason why they play video games is that they are fun (Figure 4.2). A relevant question for this thesis was whether video games would still be intrinsically motivating when used for learning in school. While the participants were not asked directly about intrinsic motivation, 77% of the participants answered that they liked teaching with video games to a great extent or to some extent (Figure 4.3). Since the current study measured overall motivation, it is difficult to claim that the teaching method was intrinsically motivating. However, many participants said that they liked the activity, which is a criterion for something to be intrinsically motivating. One participant mentioned that he noticed “that people laughed, and some were very engaged in the game. More than they usually are in class” (Group A, participant 1), and another participant mentioned that she “liked the game, and it is easier to pay attention and write an assignment based on something that is fun” (7). Although the video game was played at school, it did not seem to affect the enjoyment and fun aspect that one sees outside of school. Earlier studies also support the theory that video games are intrinsically motivating at school, with both Kang & Tan (2014) and Tüzün et al.’s (2009) studies reporting an increase in intrinsic motivation when using video games as educational tools.

5.1.2 Motivation for all?

The results also showed that there were some differences in motivation across the digital game groups (Figure 4.5). All of the four frequent gamers reported that they became somewhat more motivated by playing video games, while those who were much more motivated belonged to the moderate gamers and non-gamers groups. However, those who were less motivated or not motivated were five non-gamers and one moderate gamer, which indicates that people who have experience with or play video games find them more motivating in school. One explanation could be that those who were less experienced with video games found them more challenging, which can reduce motivation. As one participant explained, “I think [the game] was difficult which made it less motivating” (15).

Another theory that can help explain why the unmotivated participants were predominantly non-gamers is Henry's (2013) theory of the "authenticity gap" (see Section 1.1.1). As reported in Sundqvist & Olin-Scheller's (2013) study, when the gap between pupils' in-school and out-of-school activities gets too big it often results in discouraged and demotivated pupils (p. 329). Many of those who were more motivated by playing video games were frequent gamers and moderate gamers, which could be because the teaching method helped reduce the "authenticity gap" for them. However, since video games did not reduce the "authenticity gap" for the non-gamers, it is possible that they felt less motivated because the teaching method did not reduce the gap between their in-school and out-of-school activities. Research has shown that authentic learning material is crucial for pupils' motivation (Henry 2013; Henry, Sundqvist & Thorsen, 2019, p. 77), and since the learning material would feel more authentic to those who play video games outside of school, it is natural that their motivation increased more. This was also mentioned by a participant in the interviews, who said that "I think it can be a bit fun because there are probably many in class who play on their spare time, and since they can do it in class it becomes more fun" (Group C, participant 2).

5.1.3 A poor assessment method?

While many participants liked the teaching method, some participants expressed that they struggled to see how video games were relevant for their grades. One participant explicitly said that "[the game] does not have specific learning goals that are relevant for our grades" (10), while another said that "I did not like video games because it is a poor method to assess". It is not surprising that some pupils struggle to view video games as proper teaching and assessment tools, especially since the current English curriculum (ENG1-03) does not mention video games in any of its competence aims. This is problematic not only because it is harder for teachers to use video games in education, but also because many video games require alternative assessment practises that has not yet been developed. However, with the introduction of video games in the new English subject curriculum (ENG01-04) the problem with assessment practises might disappear. The new curriculum requires teachers to include alternative teaching tools, which will hopefully encourage development of new and more suitable assessment practices. This could also be helpful for those pupils who are worried about their grades and perhaps are more extrinsically motivated.

5.2 Learning outcomes

The study also aimed to examine how video games affect pupils' learning outcomes with the research question: "What effects does the educational use of video games have on pupils' perceived learning outcomes in English?". The findings of the study suggest that many participants learned from the teaching method, while others felt it to be less beneficial for their learning outcomes. The results (Figure 4.9) revealed that 43% of the participants felt like they learned from using video games at school, while 34% responded that they did not learn much. There was also a large portion of participants who were uncertain about their learning outcomes (23%). Although the results are not as one-sided compared to the results on motivation, they indicate that many participants did in fact experience learning outcomes during the short study. The discussion in the following sections will explore these results and try to answer why some pupils experienced higher learning outcomes than others.

5.2.1 Remembering through interactions

One of the benefits of video games is that they allow for player interactions, which is something several participants mentioned as a reason for why they learned more. When participants were asked what type of video games they learn more from, many answers included interactivity: "... especially from interactive games like we have used now" (Group B, participant 2). Interactivity was also mentioned when the participants were asked about the learning outcomes from in the current study "... we have these different interactions that make it easier to remember words that we encounter" (Group A, participant 1). One of the criteria when selecting a video game for the study was to find a game with appropriate amounts of interactions, because research has found that too many interactions can hinder learning (deHaan et al., 2010). Although the results from the present study were spread between learning and not learning, more participants felt like their learning outcomes benefited from the teaching method compared to those who did not. With interactivity being mentioned by several participants, the results seem to correlate with earlier research that has shown positive correlations between interactivity and learning outcomes (see Ritterfeld et al., 2009).

As mentioned in the theory section (section 2.1.3), interactivity and feedback in video games are closely related. Several participants mentioned that interactivity made it easier to

remember words and understand the game: “I think that you get more focus on things that happened and a better understanding when they speak and how it was” (Group C, participant 1). Whitton (2014) mentions that video games “respond swiftly to a player's actions and provide relevant feedback” (p. 145), which could very well be the reason why many participants felt like they understood the game better: “I learned the history quicker and more in-depth than I would have if I had just read it” (18). While it is difficult to claim that feedback was a reason for some pupils improved learning outcomes, it could have been a contributing factor. In *Gone home* there is a feedback mechanism built into the game, which tells players what they have to do and lets them know when they are doing something wrong. Malone & Lepper (1987) claim that performance feedback is important in building intrinsic motivation, which is one of the factors mentioned by Krashen (1982) as being important for language acquisition.

5.2.2 A multimodal teaching tool

Several of the participants who felt they learned more from using video games said that they remembered things better. A common denominator among the participants' answers was the advantage of having information presented in more than one way. One participant said that “it was very good that there was a voiceover when you picked up a letter in the game so you could both read and listen at the same time” (Group B, participant 2). One of the benefits of video games is their ability to present information in multiple modes, which can result in a more meaningful and satisfying whole (Gee, 2007b, p.106). This view is supported by multimedia learning theories which suggest that people use one visual and one verbal channel to process information (Mayer, 2009), and claim that learning is better when both channels are used (Moreno & Mayer, 2007). One participant mentioned that it was easier to understand the text in the game because it was read: “there was a lot of English text in the game that was read for us and [that we] understood” (17).

Earlier research on multimodality and learning outcomes supports the findings from the current study. Both studies presented in section 2.1.4 found that multimodal learning environments resulted in better learning outcomes compared to unimodal methods (Guichon & McLornan, 2008; Ritterfeld et al., 2009). Guichon & McLornan (2008) even suggest that “learners should be exposed where possible to input that is multimodal” (p. 91) because of the learning effects. A pupil in the present study said that “... when things are visualised for you,

you do not have to use a lot of energy to figure out and picture how things are. [...] You remember things better” (Group B, participant 2). Earlier research and the participants’ responses both seem to indicate that multimodality is an important educational property of video games, and something that leads to improved learning outcomes.

One participant mentioned that “Games where you get both voiceover and can read it yourself make it possible for people to acquire the information differently, which I think was pretty good” (Group B, participant 1). Stockwell (2010) explains that “having multiple modes withing a single task allows learners to choose according to their specific needs and preferences” (p. 87), which is a reason why multimodal teaching tools like video games can benefit teaching in larger groups. Learning styles theories suggest that people have different sensory learning preferences, and finding teaching tools suitable for larger classrooms can thus be difficult. Results from the current study revealed that some pupils experienced good learning effects, while some preferred different teaching methods. Nevertheless, many pupils enjoyed the teaching method and got more motivated by it, which is similar to the findings of Sankey, Birch & Gardiner (2011) who found that many students preferred and enjoyed learning resources with additional representations of content more. Their study, however, did not find these teaching methods to result in comprehension gains.

5.2.3 Additional tasks

In addition to the video game, the current study utilized a set of additional tasks, and several participants mentioned that including additional tasks outside of the video game was beneficial for their learning. When using commercial games for educational purposes, Van Eck (2009) stresses the importance of extending “the context of the game world to the content that occurs outside of the game itself” (p. 4). This was also the purpose of the additional tasks, as they were thought to improve the learning outcomes of the game by combining playing with learning. The tasks could very well be a reason why some pupils experienced more learning from the teaching method. With several participants claiming that the tasks helped them learn, they at least seem like an important component when using video games in teaching. One participant said that games “where you have to work with the story afterwards, makes it more rewarding. Then we understand that we learn something from this, compared to when you just play the game” (Group D, participant 2).

5.2.4 *Different learning outcomes*

There could be several reasons why there was a spread in learning outcomes in the study. A possible theory was that there would be differences across the digital game groups, but a multivariate analysis showed that this was not the case. In fact, there were only minor differences in learning outcomes across the digital game groups (Figure 4.10). However, those who learned a lot from the teaching method all belonged to the moderate gamers, while most of those who learned less were non-gamers. While it is difficult to draw any conclusions from the analysis, there was a tendency of non-gamers learning less from the teaching method, and moderate gamers learning more.

In addition to explaining the improved learning outcomes, learning styles theories might also be a reason why some pupils experienced smaller learning outcomes. Some pupils in the present study struggled to understand the game, while others just did not like it. Whitton (2014) explains that “learners are all different, with diverse game preferences and learning styles, and it cannot be assumed that all students will react to a game in a uniform manner” (p. 175). Some participants preferred other teaching methods and did not like using video games: “I did not quite understand it. I like it better and think it is more interesting to watch a documentary or listen to a PowerPoint” (23). Pupils might not experience the same learning effect from video games because of their learning style, and more traditional teaching methods, perhaps even unimodal teaching methods, might suit some learners better. Whitton (2014) explains that “for any game some learners may find it appropriate and stimulating, while others will feel that it is boring and a waste of time” (p. 175).

When Squire (2005) attempted to teach a history class using the strategy game *Civilization III*, he experienced that many of his pupils questioned why they should play the game because they did not feel like they learned history by playing it. Some participants in the current study struggled to see how the video game improved their English skills: “What is it to learn? I know how to play” (22). The quote shows that the participant felt like the video game was more about playing and less about learning. Even though the teaching plan included specific learning aims and separate tasks that focused on learning, it is clear that one has to be even clearer with the learning goals and bring them up more often. Egenfeldt-Nielsen (2006) emphasizes that it is important “not to confuse learning how to play video games and accidentally learning from video games with a targeted educational effort of video games” (p. 186), which seems to be what happened to some pupils in the study. Another argument that was made was that “it was difficult to show what you really know, and [the game] does not

have specific learning goals that are relevant for our grades” (10). As mentioned earlier (section 2.1), one of the aspects that separates commercial games from educational games is that the learning goals are indirect rather than direct. This makes commercial games more difficult to use for learning purposes, and while traditional teaching methods often come with a big educational focus and built-in learning goals, commercial games require educators come up with their own goals and bring them to the pupils’ attention. The advantage with commercial games is that they tend to be more motivational (Egenfeldt-Nielsen, 2006), and while the current study did find that many were more motivated by the video game, it also showed that many struggled to learn from it.

One participant wrote that he felt like the project was too small and short for pupils to experience learning outcomes: “I feel like video games are more of a long-term process in terms of learning (from my own experience). I do not feel like a small project like this is enough for most to get any outcomes” (25). The short amount of time and participants’ limited experience with video games could be a reason for the spread in learning outcomes. If the project had lasted longer, some participants might have experienced better learning effects. According to the participant, video games have to become “a regular introduction in teaching” (25) to result in good learning effects. Hopefully, this is something that will happen with the introduction of the new English subject curriculum (ENG01-04), which mentions games in one of its competence aims and extends the term “texts” to all types of expressions that convey a message.

5.3 Limitations

The current study has a number of limitations. First, as mentioned in the validity section, the researcher was also the teacher for some of the participants, which could have impacted the results. Second, the relatively low number of participants (39/35) makes it difficult to generalise the results of the study. Ideally, the study would have contained a larger sample size and included participants from different schools. In addition, because of the study’s uneven gender distribution, the results are less representative to boys than girls. A larger sample size might have reduced the gender gap and would have made the results more representable to a larger portion of Norwegian pupils. A third limitation was the short time of the study (only two weeks), which could have limited the pupils’ ability to achieve higher motivation and learning outcomes from the teaching method. Some pupils expressed that it

was difficult to compare video games to other teaching methods with only two weeks of teaching. While two weeks was enough time to complete this project, a longer test period with various video games would certainly have contributed to the results. However, since this project was conducted during regular teaching hours, there were certain limitations to how much time one could expect from schools and teacher with an already full curriculum and busy schedule. A fourth limitation was the lack of comparable teaching methods and control groups. Ideally, the teaching method would have been compared to other groups with similar teaching plans containing different teaching tools. This would have allowed for a comparison in motivation and learning outcomes across different teaching methods.

The final limitation to this study is researcher bias. The fact that the researcher has experience with and likes video games, could have impacted the interpretation of the results. Although the researcher has tried to be as objective as possible when conducting the study, it is impossible to fully object one's own biases, and therefore, the reader should be aware of this when reading the thesis.

6. Conclusion

The objective of the current thesis was to answer the two research questions related to video games and its effect on motivation and learning outcomes. The thesis started with a review of existing research on video games and learning, the educational properties of video games and the new English subject curriculum. A two-week study of 35 (39 in pre-study) Norwegian upper-secondary pupils who were taught English using the video game *Gone Home* was then conducted. Research data was collected before and after the project using questionnaires and interviews, with the goal of addressing the two research questions.

- To what extent does the educational use of video games motivate pupils' English learning?
- What effects does the educational use of video games have on pupils' perceived learning outcomes in English?

6.1 Conclusion of results

First, the thesis investigated the motivational effect of using video games in education. The results showed that compared to other teaching methods, 60% of the participants either got much more (23%) or somewhat more (37%) motivated by playing video games in class. Considering that the participants only played the video game for two weeks, the results suggest that teaching with a commercial story exploration video game can result in higher motivation. The study's qualitative data also revealed that the biggest reasons for the increase in motivation was due to the video game being a new teaching method and something that offered variety in teaching, and because of the interactions in the game. The motivational findings contribute to the field of existing research which has found that variety (Crookes and Schmidt, 1991) and interactivity (Kang & Tan, 2014; Tüzün et al., 2009) are essential parts for motivation.

Furthermore, the analysis of the participants gaming habits and motivation revealed that there is a tendency for pupils with gaming experience to be more motivated compared to pupils who do not play. The reasons for this division was not explored by the thesis, and due to the low number of frequent gamers in the study it is difficult to make any claims. However, research suggests that authentic learning materials result in higher motivation (Henry 2013; Henry, Sundqvist & Thorsen, 2019), and a possible explanation could therefore be that gamers find video games to be more authentic since they play on their spare time.

Results on learning outcomes found that several participants felt like they learned from the teaching method, but also that some perceived the method to be less beneficial for their learning outcomes. 43% responded that they either learned a lot (17%) or to some extent (26%), while 34% learned little (17%) or very little (17%). Although the results are lower compared to motivation, they indicate that teaching with a commercial video game can positively affect pupils learning outcomes. The results also show that the pedagogy is not for everyone, and some pupils might benefit more from traditional teaching methods. In addition, the participants' qualitative answers and interviews revealed that interactivity and multimodality are some of the most beneficial educational properties of video games, and that including additional tasks made it easier to learn from the game.

The study also found that there are several factors that can negatively affect both motivation and learning outcomes when teaching with a video game. First, among the unmotivated pupils the most common answers were related to the game's difficulty and relevance for their grades. Both of these factors are also mentioned by other researchers (Whitton, 2007; Van Eck, 2009) and they are therefore important aspects to consider when teaching with a game. If it gets too difficult or teachers fail to connect the game to learning goals or competence aims, it will probably reduce the motivational effects of the game. Second, when it comes to the pupils who learned less from the teaching method, the most frequent answers indicated that the participants struggled to see how they would learn English from the game. Similar reasons were reported by earlier research (Squire, 2005), and it seems like commercial games require more effort from educators to bring the learning aspect up and forward to the pupils' attention. To be successful teaching tools, at least to some extent, pupils have to feel that the video game is relevant and something that they can learn from.

6.2 Practical and pedagogical implications

Despite the limitations to this study (section 5.3), the results can be considered valuable for deciding the degree to which video games are suitable to use for teaching purposes, and whether they can improve motivation and learning outcomes for pupils in upper secondary schools in Norway. The purpose of this study was never to provide unrelenting evidence, but instead contribute to the growing field of research on the potentials of educational use of video games. Readers of the thesis should keep in mind that the research measured the participants' perception of the teaching method, and not actual acquisition of knowledge. The

study also utilized a single player exploration game, and other video games might not have the same effects. However, by outlining the educational properties that were successful with this video game, other teachers will hopefully find it easier to identify suitable video games and tasks to use in schools.

Additionally, with rapid technological developments and a new English subject curriculum, there is a growing need to incorporate alternative and up-to-date teaching methods that satisfies both students and new competence aims. The importance of varying classroom activities is mentioned by Crookes & Schmidt (1991), and the findings of the current study show that teaching with video games create a variety that is appreciated by many pupils. Even though new teaching methods can be difficult to use and often require more effort from teachers, the results from the current study show the value of mixing up methods. While the learning outcomes did not see considerable improvements, the motivational increase should encourage more use of non-traditional teaching methods.

6.3 Suggestions for further research

Compared to other pedagogies, there is very little research on video games and education. With the current thesis only covering the perception of pupils' motivation and learning outcomes, there is still a need for further research in both areas. Further studies might want to focus more on actual learning outcomes to see how video games hold up against other pedagogies. By using control groups and comparable teaching methods, it would allow for a comparison between teaching methods and for one to see how video games compare to the effects of traditional methods.

One of the findings in the study was that there seems to be differences in motivation and learning outcomes across the digital game groups. While these differences were too small to draw any conclusions in the present study, future research might want to investigate these tendencies. A possibility is to use different games to see if some games or genres are better suited for specific game groups. By doing so, a clearer image of who benefits more from the teaching method might be obtained. In addition, the research might open the possibility for educators to use specific video games based on their class' video games experience.

Furthermore, while the present study used a commercial exploration game, it would be interesting to see if other video games result in different outcomes. Considering that the study

found interactivity to be an important factor for learning, one could study the effects of using games with varying degrees of interactivity in school. If one has access to multiple games, it would be interesting to compare learning effects when teaching with video games that require large amounts of interactions and games that require fewer interactions. This would make it possible to make stronger conclusions regarding the effects of interactivity in games.

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Appendix 1. Teaching plan

Teaching plan

	Lesson plan	Activities
Lesson 1	<p>Before playing</p> <ul style="list-style-type: none"> • Install game on all computers • Complete post-study questionnaire <p>In the game</p> <ul style="list-style-type: none"> • Explore “front porch” and “foyer” • Complete introduction tasks 	<p>In the first lessons all the participants had to complete the post-study questionnaire.</p> <p>Once in the game, the pupils were only allowed to explore the two first rooms while completing the introduction tasks (Appendix 2)</p>
Lesson 2	<p>Before playing</p> <ul style="list-style-type: none"> • Discuss answers to the introduction tasks • Inform participants about the in-depth study tasks <p>In the game</p> <ul style="list-style-type: none"> • Free exploration in the game • Take screenshots and notes while playing 	<p>In the second lesson, pupils were asked about their answers to the introduction tasks and informed about the upcoming in-dept study tasks (Appendix 2).</p> <p>The pupils were allowed to explore the game freely, but they had to take screenshots and notes that could be used as evidence (support) in the in-depth study tasks.</p>
Lesson 3	<p>Before playing</p> <ul style="list-style-type: none"> • Decide on one of the three in-depth study tasks <p>In the game</p> <ul style="list-style-type: none"> • Continue the gameplay while taking notes and screenshots for the tasks 	<p>In the third lesson, the pupils had to decide on which of the tree in-depth study tasks they wished to choose.</p> <p>The pupils still had to take screenshots and notes to use in the tasks.</p>
Lesson 4	<ul style="list-style-type: none"> • Continue working with in-depth study tasks 	<p>In the fourth lesson, most of the pupils should be either finished or near finished with the game. All groups have to start writing the text or start on the oral presentation.</p>
Lesson 5	<ul style="list-style-type: none"> • Finish the game and deliver the in-depth study tasks. • Complete the post-study questionnaire 	<p>In the fifth and last lesson, the pupils had to complete and deliver the in-depth study tasks.</p> <p>Afterwards, the pupils had to complete the post-study questionnaire</p>

Appendix 2. Short introduction and in-depth study tasks

Short introduction tasks

1. The Foyer

As you explore the mansion's foyer, collect the information requested in the chart below. For each response, take a screenshot to show where you discovered the requested information.

Description	Response	Screenshot evidence
(Example) Avatar's name	(Example) Kaitlin Greenbriar	(Example)
Father's full name		
Mother's full name		
Sister's full name		
Family's prior address		
Family's current address		
Mom's college roommate		
How long does it take mom to get to work?		
Where does mom work?		

2. Timeline

Combining evidence from both the porch and the foyer, fill in the appropriate date and corresponding screenshot in the spaces provided.

Event	Exact Date	Screenshot Evidence
Katie leaves for Europe		
Family moves to new house		
Katie returns from Europe		

3. Sam

- What item triggers Sam's journal entry entitled "At the New House"? Does this sort of voiceover affect the realism of the story?
- Write points/notes discussing anything you know about Sam based on what you have discovered in the porch and in the foyer

In-depth study tasks

Choose ONE of the tasks (1, 2 or 3).

Each task has a guide/tasks you should complete while playing the game. In addition, each task has a key question(s) that you are to answer in an oral presentation or written text after you have finished the game.

When you are finished with the game, make a presentation or written an essay where you answer the key question(s). The presentation or essat should include an introduction, middle part and ending, and be between 8-10 minutes or 500-600 words. Remember to include your own screenshots from the game.

NB: Make sure that your presentation or text makes sense to an "uninformed reader" (a person who has not played the game).

1. Character Trackers

Each character tracking assignment includes one major (M) and two minor (m) characters. Select one of the three tracking assignments.

1. Terrance Greenbriar (M), Uncle Oscar (m), Dr. Richard Greenbriar (m)
2. Janice Greenbriar (M), Rick (m) and Katie (m)
3. Sam (M), Lonnie (m), Daniel (m)

Using the blank **Character Tracking Sheet** provided, create one for each character you are following and fill them in as you play. Consider the following as you track your characters:

1. a) Take substantial point-form notes on any important facts you discover about the character. You should have about 20-25 points for a major character (M) and 5 – 15 points for minor characters (m).
1. b) Collect as many screenshots relevant to the characters you can find. You may want to create sub-folder in your “Gone Home Screenshots” folder to deposit the screenshots relevant to each of the characters you track.

Key Question: How has the major character changed over the course of the story? Is s/he better off at the end of the game than they were at the beginning? How?

"Gone Home Character Tracking Sheet

Character's Name:

Character's Picture:

Character's Occupation:

Common types of documents associated with the character:

Point form Notes:

Your collected notes should be enough to tell the story. Make sure your notes focus on: the character's personality; a chronology of important events; any hobbies, habits or pastimes a character may have and how they relate to other characters."

2. 1995 Archeology

Gone Home takes place in [1995](#) and the developers went to great lengths to design the household to be as historically accurate as possible. As you explore the house, screenshot any items or environmental features that reinforce and lend credibility to the historical setting of the story.

Once you have completed the game, choose 10 artifacts that are historically accurate and help create the 1995 atmosphere. For each item, provide the following:

1. A screenshot of the item.
2. A description of the item
3. Where it was found, who owns it, etc.
4. 2 – 5 sentences based on research that proves that the item in question is a legitimate artifact from 1995.

Key Questions: How did the historical setting of 1995 affect the game? How would the game have changed if it were to take place today?

3. Riot Grrrl Music

Music is an important component of *Gone Home*. Aside from the environmental music used to enhance the game, Sam's interest in the Riot Grrrl music scene opens a window to a unique musical movement from the 90's.

Before proceeding, read this Wikipedia article on Riot Grrrl:

http://en.wikipedia.org/wiki/Riot_grrrl

Once you begin your exploration of the house, track and note the following:

1. Take screenshots of relevant tapes, posters, magazines or any artifacts that relate to or reference this music scene.
2. Take 20 – 25 point form notes on how the Riot Grrrl scene enriches and adds to the story in general, as well as how it affects Sam in particular. Ideally, you will take notes any time you find a reference to this musical movement.
3. Create brief profiles on all the bands featured or mentioned in the game.

Key Questions: How did this style of music work well with both the geographic and historical context of the game? Why is this style of music a genuine expression of Sam's journey in the story?

Appendix 3. Questionnaires (in Norwegian)

Pre-study questionnaire

Kjønn?

Gutt

Jente

Hvilket årstrinn går du på?

VG1

VG2

VG3

Hvilken av disse aktivitetene bruker du mest tid på utenfor skolen?

- Lese (bøker, magasiner, aviser osv)
- Spille dataspill (konsoll, PC-spill, mobilspill)
- Se på film
- Se på serier
- Høre på musikk
- Annet

Omtrent hvor mange timer i uken bruker du på å spille dataspill?

- 0 (Spiller ikke)
- 1-5 timer
- 5-10 timer
- 10 timer eller mer

Nevn de tre dataspillene du spiller mest

Hva er hovedgrunnen til at du spiller dataspill?

Er spillene du spiller på norsk eller engelsk?

- Norsk
- Engelsk
- Annet språk
- Spiller ikke

Hvor ofte kommuniserer du på engelsk når du spiller dataspill?

- Ofte
- Av og til
- Sjelden
- Aldri
- Spiller ikke

Hvordan kommuniserer du på engelsk når du spiller?

- Ved å skrive
- Ved å snakke
- Via videochat
- Jeg kommuniserer ikke på engelsk når jeg spiller
- Jeg spiller ikke

I hvor stor grad føler du at du lærer når du spiller dataspill

- Jeg føler jeg lærer mye
- Jeg føler jeg lærer noe
- Jeg vet ikke om jeg lærer noe
- Jeg føler jeg lærer lite
- Jeg føler at jeg ikke lærer noe

I hvor stor grad tror du at dataspill har forbedret engelskkunnskapene dine?

- Jeg tror dataspill har forbedret engelsken min mye
- Jeg tror dataspill har forbedret engelsken min noe
- Jeg vet ikke om dataspill har forbedret engelsken min
- Jeg tror dataspill har forbedret engelsk min lite
- Jeg tror ikke dataspill har forbedret engelsken min
- Jeg spiller ikke dataspill

Tror du at dataspill kan brukes til å lære engelsk i skolen?

- Ja
- Kanskje
- Nei
- Vet ikke

Hva er dine forventninger til å spille dataspill i engelskundervisningen?

Post-study questionnaire**Kjønn?**

- Gutt
- Jente

Hvilket årstrinn går du på?

- VG1
- VG2
- VG3

Hvilken av disse aktivitetene bruker du mest tid på utenfor skolen?

- Lese (bøker, magasiner, aviser osv)
- Spille dataspill (konsoll, PC-spill, mobilspill)
- Se på film
- Se på serier
- Høre på musikk
- Annet

Omtrent hvor mange timer i uken bruker du på å spille dataspill?

- 0 (Spiller ikke)
- 1-5 timer
- 5-10 timer
- 10 timer eller mer

I hvor stor grad likte du å bruke dataspill i undervisningen?

- Jeg likte undervisning med dataspill i stor grad
- Jeg likte undervisning med dataspill i noen grad
- Jeg vet ikke om jeg likte undervisning med dataspill
- Jeg likte undervisning med dataspill i liten grad
- Jeg likte ikke undervisning med dataspill

Hva var det du likte / ikke likte ved bruk av dataspill i undervisningen?

I hvor stor grad lærte du ved å bruke dataspill i undervisningen?

- Jeg lærte veldig mye
- Jeg lærte noe
- Jeg vet ikke om jeg lærte
- Jeg lærte lite
- Jeg lærte svært lite

Hvorfor lærte du / hvorfor lærte du ikke?

Ble du mer eller mindre motivert av å spille dataspill på skolen?

- Jeg ble mye mer motivert av å spille spill
- Jeg ble noe mer motivert av å spille spill
- Jeg vet ikke om jeg ble motivert av å spille spill
- Jeg ble mindre motivert av å spille spill
- Jeg ble ikke motivert av å spille spill

Hva var det som var / ikke var motiverende ved dataspill?

Ranger undervisningsmetodene etter hvor motivert du blir av dem

Ranger typen undervisning ved å flytte alternativene

1 2 3 4 5

Undervisning med bøker /
teksterUndervisning med film / serier /
musikkUndervisning med foredrag /
PPT / tavle

Undervisning med spill

Andre undervisningsmetoder

Ranger undervisningsmetodene etter hvilken metode du lærer best av

Ranger type undervisning ved å flytte alternativene

1 2 3 4 5

Undervisning med bøker /
teksterUndervisning med film / serier /
musikkUndervisning med foredrag /
PPT / tavle

Undervisning med spill

Andre undervisningsmetoder

Syntes du dataspill burde brukes mer i undervisningen?

- Ja
 Nei
 Vet ikke

Hvorfor / Hvorfor ikke?

**Har du noen kommentarer til undervisningsopplegget eller denne typen undervisning?
Var det noe spesielt du likte godt eller ikke likte?**

Appendix 4. Questionnaires (translated to English)

Pre-study questionnaire

Gender?

Boy

Girl

What year are you in high school?

Year 1

Year 2

Year 3

Which of these activities do you spend most time on outside of school?

Reading (books, magazines, newspapers etc)

Playing video games (consoles, computer games, phone games)

Watch movies

Watch series

Listen to music

Other activities

Approximately how many hours do you spend per week playing video games?

0 (I don't play)

1-5 hours

5-10 hours

10 hours or more

Name the three video games you play the most

What is the main reason why you play video games?

Are the games you play in Norwegian or English?

- Norwegian
- English
- Other language
- I don't play video games

How often do you communicate in English when you play video games?

- Often
- Sometimes
- Rarely
- Never
- I don't play video games

How do you communicate in English when you play?

- By writing
- By speaking
- By video chatting
- I don't communicate in English when I play
- I don't play video games

To what extent do you feel like you learn when you play video games?

- I feel like I learn a lot
- I feel like I learn something
- I don't know if I learn anything
- I feel like I learn little
- I don't feel like I learn anything

To what extent do you think video games have improved your English skills?

- I think video games have improved my English skills a lot
- I think video games have improved my English skills to some extent
- I don't know if video games have improved my English skills
- I don't think video games have improved my English skills very much
- I don't think video games have improved my English skills at all
- I don't play video games

Do you think video games can be used to learn English in school?

- Yes
- Maybe
- No
- I don't know

What are your expectations for playing video games in English lessons?

Post-study questionnaire**Gender?**

- Boy
- Girl

What year are you in high school?

- Year 1
- Year 2
- Year 3

Which of these activities do you spend most time on outside of school?

- Reading (books, magazines, newspapers etc)
- Playing video games (consoles, computer games, phone games)
- Watch movies
- Watch series
- Listen to music
- Other activities

Approximately how many hours do you spend per week playing video games?

- 0 (I don't play)
- 1-5 hours
- 5-10 hours
- 10 hours or more

To what extent did you like using video games in teaching?

- I liked teaching with video games to a great extent
- I liked teaching with video games to some extent
- I don't know if I liked teaching with video games
- I liked teaching with video games to a small extent
- I did not like teaching with a video game

What did you like / dislike about using video games in teaching?

To what extent did you learn by using video games in teaching?

- I learned a lot
- I learned to some extent
- I don't know if I learned anything
- I learned little
- I learned very little

Why did you learn / why did you not learn?

Were you more or less motivated by playing video games in school?

- I became much more motivated by playing video games
- I became somewhat more motivated by playing video games
- I don't know if I got more motivated by playing video games
- I was less motivated by playing video games
- I was not motivated by playing video games

What about video games made it motivating / less motivating?

Rate each teaching method based on how motivated they make you

Rate each teaching method by moving the alternatives

1 2 3 4 5

Teaching with books / texts

Teaching with movies / series /
music

Teaching with lectures / PPT /
blackboard

Teaching with video games

Other teaching methods

Rate each teaching method based on how much you learn from them

Rate each teaching method by moving the alternatives

1 2 3 4 5

Teaching with books / texts

Teaching with movies / series /
music

Teaching with lectures / PPT /
blackboard

Teaching with video games

Other teaching methods

Do you think video games should be used more in teaching?

- Yes
- No
- I don't know

Why / Why not?

Do you have any final comments or opinions about this type of teaching?

Was there anything particular you liked / disliked?

Appendix 5. Interview guide (In Norwegian)

Start/intro:

Informere om hvordan intervjuene vil foregå og hvordan de vil bli brukt i oppgaven (transkribert og anonymisert).

Spørsmål 1

- Hva er dine erfaringer med dataspill utenfor skolen?
- Har du lært noe engelsk av å spille spill utenfor skolen?

Spørsmål 2

- Har du hatt noen erfaring med bruk av dataspill i undervisning tidligere?

Spørsmål 3

- Hvilke forventninger hadde du til bruken av dataspill i undervisning før dette opplegget?

Spørsmål 4

- Hvordan er dine erfaringer etter undervisningsøkten vi nå har hatt med dataspill?
- Stemte erfaringene dine med forventningene?
- Var det noe som overrasket deg?

Spørsmål 5

- Hvordan vil du si at motivasjonen til å lære i engelskundervisningen var for deg og dine medelever ved bruk av dataspill?
- Var den bedre eller dårligere sammenlignet med andre undervisningsmetoder? Hvorfor/hvorfor ikke?

Spørsmål 6

- Hvordan var læringsutbytte fra undervisningen med dataspill sammenlignet med andre undervisningsmetoder?
- Lærte dere mindre/mer av å spille dataspill i undervisningen? Hvorfor?

Sluttkommentar

- Har du noen kommentarer eller tanker rundt bruken av dataspill i undervisning til slutt?

Appendix 6. Interview guide (Translated to English)

Start/intro:

Inform the participants about how the interviews will be conducted and how they will be used in the thesis (transcribed and anonymised)

Question 1

- What are your experiences with video games outside of school?
- Have you learned any English from playing video games outside of school?

Question 2

- Do you have any prior experience with video games in teaching?

Question 3

- What expectations did you have to the use of video games in teaching before this project?

Question 4

- What are your experiences with the teaching project we just finished using video games?
- Did the experience match your expectations?
- Did anything surprise you about the teaching method?

Question 5

- How would you describe the motivation for yourself and your fellow pupils to learn while playing video games in the project?
- Was it better or worse compared to other teaching methods? Why/why not?

Question 6

- How was the learning outcome from teaching with video games compared to other teaching methods?
- Did you learn more or less by playing video games in teaching? Why?

Final comments

- Do you have any final comments or thoughts about the use of video games in teaching?

Appendix 7. Questionnaire and interview extracts in Norwegian

Questionnaire extracts

Jeg tror det blir gøy og gjøre noe annerledes enn og bare sitte og skrive i boka/på PC (1).

Jeg tror det blir gøy og gjøre noe nytt og annerledes i timen. (2)

Jeg tror det blir interessant å prøve noe nytt. (3)

Jeg tenker at dette kan være en spennende måte å lære seg engelsk på. Veldig mange som ikke liker å sitte og pugge ord og setninger så tenker at dette kan være en positiv måte å få inn engelsk på. Tenker kanskje at det ikke vil gi like mye engelsk kunnskaper som det å sitte å pugge. (4)

Jeg likte at vi tok bruk av en ny type virkemiddel for å lære noe (istedenfor bøker og tekster, osv.). (5)

En annen læringsmetode som ikke innebar å lese gjennom en tekst eller tolke et bilde på papir. (6)

Jeg likte spillet, og det er lettere å følge med og skrive en oppgave ut ifra noe som er gøy. (7)

Gøyere å finne informasjon gjennom et spill enn å lese seg til det. (8)

I liked that it simulates how one interacts with a language in real life to some extent (Originally written in English). (9)

Det var vanskelig å vise hva man faktisk kan, har ikke spesifikke læringsmål som er relevante for karakter. (10)

Jeg likte ikke dataspill fordi det er en dårlig måte å ha vurdering på. (11)

Det var gøy, og nå har motivasjonen min bygget seg opp igjen. Før lærte vi om masse jeg ikke kunne, og da følte jeg at jeg hadde lite og hjelpe med, men når vi spilte var det noe annet. (12)

Det er en kreativ måte å lære på, og man trenger ikke å bare sitte stille og følge med på læreren. (13)

Det som motiverte meg mest var at det var noe nytt og at det ikke var normal undervisning. (14)

Jeg syntes det var vanskelig og det gjorde det mindre motiverende. (15)

Jeg lærte mer engelsk, og lærte å bruke informasjon for å løse en oppgave. (16)

Blant annet så var det mye engelsk tekst i spillet som vi fikk lest og forstått. (17)

Jeg lærte historien raskere og mer i dybden enn jeg ville ha gjort om jeg hadde lest den. (18)

Vi fikk følge en historie fra start til slutt i vårt eget tempo. Fikk også være så nøye vi ville. (19)

Jeg er ikke sikker, men det var bedre enn å lese gjennom spillet eller noe sånt. (20)

Føles ikke som om jeg lærte noe nytt. Vet ikke helt hvorfor, men kan være fordi det ikke var vanskelig nok. (21)

Hva er det å lære? Vet jo hvordan jeg spiller. (22)

Skjønte det ikke helt, liker bedre og synes det er mer interessant med for eks. å se dokumentar eller høre på ppt. (23)

Det passer bra for de som strever med motivasjon, men for de aller fleste hvor det strengt talt det viktigste med engelsken er karakteren (ikke at det er gøy) tror jeg det passer bedre med andre undervisningsmetoder hvor man lærer mer. (24)

Jeg føler at dataspill er en mer langvarig prosess i forhold til lærdom (ut i fra egen erfaring). Jeg føler ikke at et lite prosjekt som dette er nok for flesteparten å få noe utbytte. Hvis dette derimot ble en vanlig introduksjon i undervisning og langvarig kan ser jeg læregunstige utfall som å bedre engelsk-tale og interessere folk i historiske hendelser. (25)

Interview extracts

Group C, participant 2:

Det var veldig motiverende og det var gøyere og gjøre noe annet enn å bare se en lærer gjøre presentasjoner og si at vi skal gjøre oppgaver da.

Group A, participant 2

Det at det var annerledes enn det jeg er vant med det var det som var motiverende for meg.

Group D, participant 1

Når vi kunne prøve noe som vi ikke har prøvd før så var vi litt mer motivert med en gang.

Group C, participant 2

Jeg liker spill hvor man kan gå rundt, og det kunne man gjøre med dette spillet, som nesten gjorde at det følte som vi var i rommet.

Group D, participant 2

Det gjør meg med en gang mye mer interessert i selve undervisningen når man kan gjøre noe selv og på dine egne premisser. Jeg ble i hvert fall veldig mye mer motivert av å kunne tenke at "okei, nå skal vi spille spill i timen" enn å liksom "okei vi skal sitte å skrive en tekst".

Group D, participant 1

Jeg tenker når man gjør på en måte noe fysisk, altså med en gang får på en måte litt aktivitet inn i timer så blir man jo mer motivert.

Group A, participant 1

Jeg la i hvert fall merke til at folk flirte og at de var veldig engasjerte i spillet. Mer enn det de pleier å være ellers i timene. Fordi ofte pleier man jo å sitte stille, men under dette prosjektet fikk jeg inntrykk av at de som pleier å være stille de var mye mer engasjert.

Group B, participant 1

De jeg snakket med var liksom, «jeg lurer hva som hva vi skal gjøre neste time», og det var mer snakk rundt det. Så sånn som jeg opplevde det så var det folk mer positive til det.

Group C, participant 2

Jeg tror det kan være litt gøy fordi det er jo mest sannsynlig mange i klassen som spiller i fritiden, og at de får gjøre det i timene så blir det gøyere.

Group C, participant 2:

Nei.

Group C, participant 2

Sånn når jeg spiller da så liker jeg spill der man kan gå rundt. Ja, og det kunne man gjøre med dette spillet.

Group C, participant 2

Ja, du følte liksom at du var I rommet da.

Group B, participant 2

Jeg har lært mye. Mesteparten av min engelsk har kommet fra spill. Spesielt interaktive spill som vi har gjort nå, der vi må gjøre litt ting og løse kanskje oppgaver og hvor du hører også, kanskje snakker Engelsk, kanskje også må lese litt selv også.

Group A, participant 1

Det er på en måte slik jeg så på den erfaringen som vi hadde i klassen også, som er at vi har disse ulike interaksjonene som gjør det enklere for oss å huske ordene som vi er borti da. [...] det er kanskje den opplevelsen som gjør at man husker ting bedre.

Group C, participant 1:

Jeg vil jo ikke si at det kanskje var så mye bedre læringsutbytte, men fordelene med spill er at man får mer fokus når de snakker [...] Jeg syntes du fikk mer fokus på det som skjedde så du fikk en mer forståelse av når de snakka og hvordan det var.

Group A, participant 2:

Hvis man klarer å gjøre det om til en gøy sak hvor du blir introdusert for disse hendelsene og andre ting, så blir det mye enklere å huske siden da har du også disse visuelle bildene som du kan relatere deg til eller som du kan komme på igjen senere.

Group B, participant 2:

Jeg er enig i det at på en måte ting blir visualisert for deg, du trenger ikke å bruke masse energi på å tenke og se for deg hvordan det er. [...] man lever seg på en måte litt mer inn og det setter litt mer inntrykk. Man husker det bedre.

Group A, participant 2:

Jeg så på den erfaringen som vi hadde i klassen at vi har disse ulike interaksjonene som gjør det enklere for oss å huske ordene som vi er borti da

Group D, participant 2:

På en måte så føler jeg at nå at du får med deg detaljer som du vanligvis ikke ville fått med deg. I stedet for i en film, hvor du på en måte ikke kontroll over noe som skjer, det er egentlig bare kamera og hovedpersonen som liksom gjør alt for deg, mens i et spill så kan du med en gang liksom utforske ting [...] som du på en måte trenger for å kunne følge selve historien.

Group D, Participant 1 (in response to participant 2's statement):

Ja, det er sant, så det med å liksom være med i spillet, altså at du gjør det selv på en måte. Du blir revet med.

Group B, participant 2:

Interaktive spill som vi har brukt nå, som vi må gjøre ting og løse oppgaver og hvor du hører også, kanskje snakker Engelsk, kanskje også må lese litt selv. For eksempel det var veldig bra at det var både voiceover når brevet stod foran deg i det spillet så du både kunne lese og høre på.

Group B, participant 1:

Jeg er enig [med deltaker 1], spillene når du både får voiceover og du kan lese det selv så får du på en måte for folk til å ta det inn litt forskjellig, så jeg syntes egentlig det var ganske bra.

Group B, participant 2:

Jeg syntes det var veldig bra at de også hadde oppgaver til det spillet som etterpå hjalp oss å sjekke om vi faktisk hadde fått med oss noe.

Group D, participant 2:

Sånne type spill hvor du faktisk jobber med selve spillet etterpå, hvor du må jobbe med historien etterpå, får du mer utbytte av det. Da skjønner vi at vi kan lære noe av dette, men hvis vi spiller bare for å spille så er det kanskje ikke akkurat så veldig mye man får ut av det.

Group D, participant 1:

Det er det samme som hvis man ser en film, så får du mer utbytte av filmen hvis jobber med filmen etterpå. Så hvis du spiller et spill uten å gå inn i spillet etterpå så er

det ikke samme funksjon. Hvis man har et opplegg etter man har spilt, så kan man kanskje lære en god del vil jeg si.

Appendix 8. NSD approval letter

NSD sin vurdering

Prosjekttittel

Masteroppgave engelsk. Bruk av dataspill som læringsverktøy i engelskundervisning

Referansenummer

216034

Registrert

07.01.2019 av Lasse Aaberg - lassa13@student.uia.no

Behandlingsansvarlig institusjon

Universitetet i Agder / Avdeling for lærerutdanning

Prosjektansvarlig (vitenskapelig ansatt/veileder eller stipendiat)

Jan Erik Mustad, jan.e.mustad@uia.no, tlf: 47913010

Type prosjekt

Studentprosjekt, masterstudium

Kontaktinformasjon, student

Lasse Aaberg, lasse392@hotmail.com, tlf: 95055214

Prosjektperiode

04.03.2019 - 01.07.2020

Status

25.10.2019 - Vurdert

Vurdering (3)

25.10.2019 - Vurdert

NSD har vurdert endringen registrert 24.10.2019.

Vi har nå registrert 01.07.2020 som ny sluttdato for forskningsperioden.

NSD vil følge opp ved ny planlagt avslutning for å avklare om behandlingen av personopplysningene er avsluttet.

Lykke til videre med prosjektet! Med vennlig hilsen NSD

Tlf. Personverntjenester: 55 58 21 17 (tast 1).

28.02.2019 - Vurdert

Vi har mottatt revidert informasjonsskriv. Det er godt utformet.

OPPFØLGING AV PROSJEKTET

NSD vil følge opp ved planlagt avslutning for å avklare om behandlingen av personopplysningene er avsluttet.

Lykke til videre med prosjektet!

Tlf. Personverntjenester: 55 58 21 17 (tast 1)

27.02.2019 - 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 27.02.2019. Behandlingen kan starte.

MELD ENDRINGER

Dersom behandlingen av personopplysninger endrer seg, kan det være nødvendig å melde dette til NSD ved å oppdatere meldeskjemaet. På våre nettsider informerer vi om hvilke endringer som må meldes. Vent på svar før endringer gjennomføres.

TYPE OPPLYSNINGER OG VARIGHET Prosjektet vil behandle alminnelige kategorier av personopplysninger frem til 31.01.2020.

INFORMASJONSSKRIV Informasjonsskrivet er greit utformet, men vi forutsetter at følgende endres/legges til:

- setningen "at lærer kan gi opplysninger om meg til prosjektet" må fjernes fra samtykkedelen av informasjonsskrivet
- du må legge til at deler av datainnsamlingen innebærer observasjon i klasserommet

OBSERVASJON I KLASSEROM Vi minner om at det bare skal samles inn personopplysninger om de elevene som samtykker til deltakelse.

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).

Dersom du benytter en databehandler i prosjektet må behandlingen oppfylle 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 9. Information letter and consent form

Vil du delta i forskningsprosjektet ”Bruk av dataspill i engelskundervisningen”?

Dette er et spørsmål til deg om å delta i et forskningsprosjekt hvor formålet er å finne ut av hvordan spill kan brukes som et læringsverktøy i engelskundervisningen. I dette skrivet gir jeg deg informasjon om målene for prosjektet og hva deltakelse vil innebære for deg.

Formål

Formålet med prosjektet er å forske på hvordan bruk av dataspill kan fremme læring i engelskundervisningen og hvordan spill kan brukes som et læringsverktøy i undervisningen.

Forskningen ønsker å svare på hvordan og hva man kan lære ved bruk av dataspill i undervisningen. Forskningen ønsker også finne ut av om dataspill gir økt motivasjon og fremmer god læring.

Undersøkelsen er en del av en masteroppgave ved Universitet i Agder.

Hvem er ansvarlig for forskningsprosjektet?

Lærerutdanningen ved Universitet i Agder er ansvarlig for prosjektet.

Hvorfor får du spørsmål om å delta?

Du blir spurt om å delta i dette prosjektet fordi din lærer har gitt samtykke til at jeg kan få undervise og gjøre forskning i din klasse.

Hva innebærer det for deg å delta?

Hvis du ønsker å delta i dette forskningsprosjektet vil det innebære at du blir med på et undervisningsopplegg som varer mellom 5-10 undervisningstimer. Undervisningen vil foregå i dine vanlige engelsktimer og du vil spille gjennom dataspillet «*Gone Home*» i løpet av undervisningen. For å være med i undersøkelsen må du svare på to spørreskjema, som vil ta deg ca. 20 minutter. Du må også samtykke til at det kan bli samlet inn data basert på observasjoner av deg under gjennomføringen av undervisningsopplegget. Disse observasjonen vil være anonyme og ikke beskrive deg som deltaker foruten om kjønn og klassetrinn. Du kan også bli spurt om å stille opp på et kort intervju hvor du får noen korte spørsmål om dine erfaringer med undervisningen. Dette intervjuet vil bli tatt opp ved hjelp av lydtekniker og senere transkribert. Det er fullt mulig å være med på prosjektet uten å stille opp på intervju.

Det er frivillig å delta

Det er frivillig å delta i prosjektet. Hvis du velger å delta, kan du når som helst trekke samtykke tilbake uten å oppgi noen grunn. Alle opplysninger om deg vil da bli anonymisert. Det vil ikke ha noen negative konsekvenser for deg hvis du ikke vil delta eller senere velger å trekke deg.

Ditt personvern – hvordan vi oppbevarer og bruker dine opplysninger

Jeg vil bare bruke opplysningene om deg til formålene jeg har fortalt om i dette skrivet. Jeg behandler opplysningene konfidensielt og i samsvar med personvernregelverket.

- Det er kun jeg og min veileder som vil ha tilgang til opplysningene fra denne undersøkelsen.
- Ditt navn vil bli lagret på en egen liste fraskilt fra øvrige data og bli erstattet med en kode slik at ingen uvedkommende får tilgang på dine personopplysninger.

Du vil som deltaker ikke kunne bli gjenkjent i oppgaven. Det eneste som vil bli gitt av opplysninger er hvilket trinn og skole du går på.

Hva skjer med opplysningene dine når vi avslutter forskningsprosjektet?

Prosjektet skal etter planen avsluttes innen 21.12.2019. Personopplysningene dine vil bli anonymisert etter at forskningsprosjektet er over og lagres for etterprøvnbarhet til masteroppgaven er ferdig vurdert. Etter dette vil opplysningene bli slettet.

Dine rettigheter

Så lenge du kan identifiseres i datamaterialet, har du rett til:

- innsyn i hvilke personopplysninger som er registrert om deg,
- å få rettet personopplysninger om deg,
- få slettet personopplysninger om deg,
- få utlevert en kopi av dine personopplysninger (dataportabilitet), og
- å sende klage til personvernombudet eller Datatilsynet om behandlingen av dine personopplysninger.

Hva gir oss rett til å behandle personopplysninger om deg?

Vi behandler opplysninger om deg basert på ditt samtykke.

På oppdrag fra Universitet i Agder har NSD – Norsk senter for forskningsdata AS vurdert at behandlingen av personopplysninger i dette prosjektet er i samsvar med personvernregelverket.

Hvor kan jeg finne ut mer?

Hvis du har spørsmål til studien, eller ønsker å benytte deg av dine rettigheter, ta kontakt med:

- Universitet i Agder - Jan Erik Mustad (veileder) på epost (jan.e.mustad@uia.no) eller telefon: 47913010, eller Lasse Aaberg (student) på epost (lasse392@hotmail.com) eller telefon: 95055214
- Vårt personvernombud ved UiA Ina Dianelsen på telefon 45254401 eller epost (personvernombud@uia.no)
- NSD – Norsk senter for forskningsdata AS, på epost (personvernombudet@nsd.no) eller telefon: 55 58 21 17.

Med vennlig hilsen

Prosjektansvarlig

Lasse Aaberg

Veileder

Jan Erik Mustad

Samtykkeerklæring

Jeg har mottatt og forstått informasjon om prosjektet «bruk av dataspill i engelskundervisningen», og har fått anledning til å stille spørsmål. Jeg samtykker til:

- at data kan bli samlet inn om meg gjennom observasjon i klasserommet
- å delta i spørreskjema
- å delta i intervju
- at mine personopplysninger lagres etter prosjektslutt fram til masteroppgaven er ferdig vurdert

Jeg samtykker til at mine opplysninger behandles frem til prosjektet er avsluttet, senest i slutten av desember 2019

(Signert av prosjektdeltaker, dato)