

**FINNISH UPPER SECONDARY SCHOOL STUDENTS'  
PERSPECTIVES ON THE BENEFITS OF GAMING FOR  
THEIR ENGLISH PROFICIENCY**

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Tiivistelmä – Abstract <p>Digitaalisten pelien pelaaminen on Suomessa ja maailmalla yksi suosituimmista ja nopeimmin kasvavista vapaa-ajan harrastuksista. Suurin osa suomalaisista nuorista pelaa tai on joskus pelannut digitaalisia pelejä englanniksi, jolla on myös havaittu olevan positiivisia vaikutuksia englannin kielen oppimiseen niiden motivoivan ja merkityksellisen luonteen ansiosta (esim. Chik 2020, Reinhardt 2018).</p> <p>Tämä tutkimus keskittyy selvittämään millaisena suomalaiset lukiokäiset nuoret kokevat yhteyden pelaamisen ja englannin kielen oppimisen välillä ja millaisia kieleen liittyviä taitoja pelien avulla opitaan. Tutkimus pyrkii myös selvittämään miten miesten ja naisten koetut pelaamisen hyödyt eroavat toisistaan.</p> <p>Tutkimus toteutettiin verkkopohjaisena kyselynä ja siihen osallistui 87 opiskelijaa, joista 52 oli naisia ja 32 miehiä. Tulokset taulukoitiin sukupuolen ja annettujen pelaamistietojen perusteella. Selvä enemmistö kaikista vastaajista koki, että pelaamisesta on hyötyä englannin kielen oppimiselle. Miehet kokivat saaneensa peleistä enemmän hyötyä kuin naiset, joka selittyy miesten aktiivisemmalla pelaamisella. Tulosten perusteella peleistä opitaan monenlaisia kielellisiä taitoja, joista yleisimmät ovat sanasto, luetun ymmärtäminen, murteet ja sanonnat.</p> <p>Digitaalisten pelien pelaaminen koettiin olevan hyödyllistä kielenoppimisen kannalta, joten aihealuetta tulisi tutkia lisää. Digitaalisia pelejä tulisi pyrkiä hyödyntämään oppimateriaalina sen oppimispotentiaalin vuoksi.</p>	
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# 1 INTRODUCTION

Digital games are closely related to the everyday life of Finnish citizens, as almost every third report playing games and two out of three Finnish parents have children who play games. Although children and teenagers are the most active players, playing games is also a popular leisure time activity among other people. According to ISFE consumer study (2012), more than half of the Finnish adults between 16 and 64 have played a digital game during the past 12 months. Prensky (2007: 106) indicates that one of the reasons for the immense popularity of digital games is their interactivity, which engages players in the action. Well-designed and popular games are engaging because they include rules and goals, they are interactive and adaptive, and give instant feedback while being fun and telling a story. Games can be played on a number of different platforms, such as computer, console and mobile. Out of these, mobile games are the most popular, because mobile games allow users to play for shorter durations while having occasional breaks (Pelaajabarometri, 2015: 3-4). Digital games are not only the fun of teenagers and children, as the average age of a gamer in Finland is 38. However, those who do not play any digital games at all are 65 on average. Activity in playing games decreases with age (Pelaajabarometri, 2015: 3-4).

Digital games are mainly created for entertainment and leisure time activity, but there also lies great potential for language learning. An increasing number of studies, such as those by Chik (2012), Sundqvist (2009) and Reinhardt, (2018) argue that digital games can benefit language learning in several ways, for instance, by letting the player to communicate with each other and with the game world in a meaningful context. As language – both spoken and written – is an integral medium of meanings in almost any game, it is no wonder that digital games have a great potential for second language learning.

As recent research increasingly sees games as a useful tool for second language learning, (e.g. Chik (2012) and Reinhardt (2018)), there is an increasing number of

research on *game-enhanced* language learning, which studies commercial digital games and their benefits for second language (L2) acquisition. *Game-enhanced* language learning studies digital games as a useful environment for informal language learning. The field aims to investigate how commercial games can facilitate L2 learning and how this information could be utilized in formal pedagogical contexts.

The present study focuses on gamers themselves – how do they see the connection between gaming and English skills and what language skills do they learn as a result of gaming? Is their learning accidental or intended? Are there gender differences in the learning outcomes and gaming habits? The aim of this thesis is to analyze the perceived usefulness of gaming for English proficiency. The focus is on Finnish 16- to 19-year-old upper secondary school students. In the study, a total of 87 students answered an online questionnaire that asked about their gaming habits and experiences on the connection between digital games and language learning. The questionnaire consisted mostly of multiple-choice questions, which were examined by means of quantitative analysis. A few open questions were also presented to give the respondents a chance to elaborate their answers. The open questions were analyzed by qualitative means.

The following chapters will attempt to define digital games and play (Chapter 2) and how digital games are connected to learning (Chapter 3). Chapter 4 will discuss the research questions and the process of conducting the study, and Chapter 5 will present and analyze the results of the questionnaire. Finally, key findings are presented and the study will be concluded in Chapter 6.



## 2 DIGITAL GAMES

According to Mäyrä et al. (2016), digital gaming is an important part of the present day popular culture, which has increased in popularity in recent years. Mäyrä et al. (2016) continues that gaming is one of the most popular free time activities among different age groups all over the world. Juul (2011: 3) explains that compared to other media, such as television, film and books, the history of digital games is relatively short and thus its potential for language learning has been studied for only a short period. Digital games and learning will be discussed in more detail in chapter 3 and the next section will attempt to define and categorize digital games.

### 2.1 Defining and categorizing digital games

Digital games are not easy to define as they come in many different forms and some are more complex than others. Despite the challenge, many different attempts to define digital games have been made. As the present study is mainly concerned with informal learning through recreational play, the study will focus primarily on digital games sold to consumers, rather than educational games designed for institutions or schools. The present study will first attempt to define games on a broad scale but will then shift to digital games as forms of entertainment.

Erkkilä (2017: 13-15) attempted to define digital games by searching different definitions to games in different online dictionaries, OED, MOT Collins, MacMillan and Merriam-Webster. He used generally known keywords to refer to games, such as *a video game, a computer game, and a game*. Erkkilä (2017: 13) summarized that based on the results, a game is rule-based, competitive and entertaining form of media. Sundqvist and Sylvén (2012: 189) explain that there is not much difference between the terms *video game* and *computer game* and are therefore often used interchangeably in research. Mäyrä (2008: 52) argues that computer, console and mobile games are often referred to merely *digital games*, as it is an umbrella term usually used to refer to all

kinds of games. The present study will use the term *digital game* as a general term to refer to all digital games played on different devices.

Juul's (2011: 36-43) presents his *classic game model*, which introduces six features which are necessary for any kind of game.

1. A rule based formal system. Games have rules which must be well-defined.
2. Variable and quantifiable outcome. The rules of the game should allow different outcomes.
3. "Valorization" of outcome. Some outcomes are better for the player than some others.
4. Player effort. Player can affect in the outcome.
5. Attachment to outcome. The player may feel differently depending on the outcome.
6. Negotiable consequences. The consequences are optional and debatable.

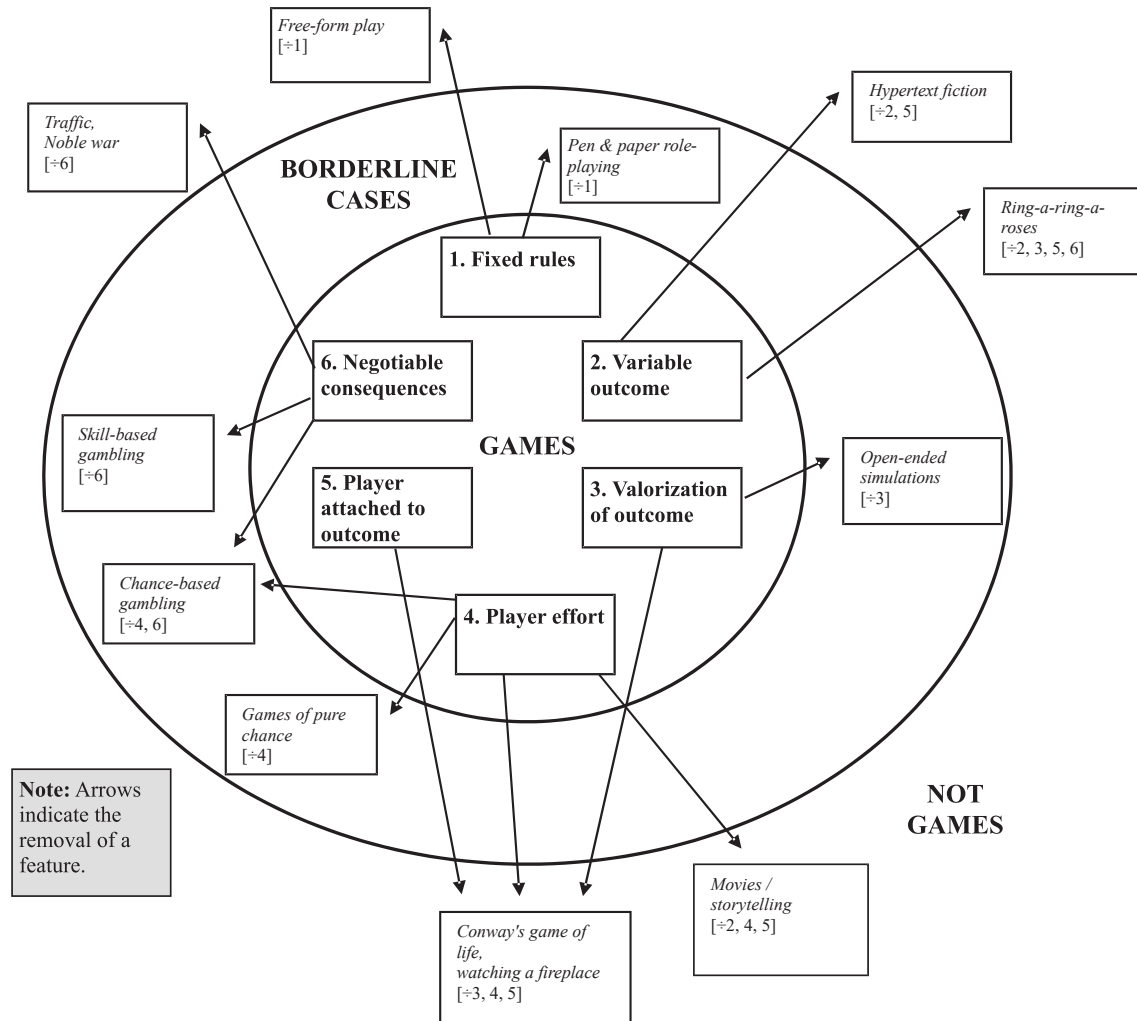


Figure 1: The game diagram. Reproduced from “The game, the player, the world: looking for a heart of gameness” by Juul, J., 2003, Level Up: Digital Games Research Conference Proceedings, p. 39.

In Figure 1, Juul (2003: 8) categorizes games, borderline cases and non-games by their qualities. Games are in the inner circle, borderline cases, which cannot be seen fully as games or non-games, are in the middle and non-games are outside. The function of the different numbers after different media in the figure above is to indicate the lack of certain elements in the media, making them non-games.

For example, movies are not considered games because they lack variable outcome (2), player effort (4) and player attached to outcome (5). Even those falling completely outside of the set of games may have some elements that are typical for games. Ring-a-ring-a roses singing play has fixed rules (1) and player effort (4), which are typical for games, but lacks all other game elements (2, 3, 5, 6). According to Juul’s game

model, even simulation games such as SimCity fall outside the inner circle of games because it has no explicit goals. However, Juul's game model is quite strict in terms of what is a game, borderline case and non-game, as many would acknowledge SimCity as a game and it is even sold as a game in stores.

Similar to other media, such as books or movies, digital games are categorized in many ways. Games are often classified based on their different aspects and platforms that are used. Apperley (2006: 11-19) discusses four major categories that are seen the most often: Role-Playing Games (RPG), action, strategy, and simulation games.

In Role-Playing Games (RPG), such as in The Witcher -series, the player usually takes control of a fictional character and develops it to become stronger and more advanced. Reinhardt (2018: 92) explains that this genre is often full of interaction with a vast game world and usually involves completion of tasks or quests. Action games are commonly divided into first-person shooters (FPS), such as Counter-Strike and 3<sup>rd</sup> person action games, such as the Grand Theft Auto -series. FPS games present the game from a first-person perspective, where the player sees everything through the game character's eyes, whereas 3<sup>rd</sup> person games place the camera slightly above and behind the game character. Action games often require quick reaction time and hand-eye coordination. Simulation games are designed to simulate real world activities such as living and managing household, playing sports, driving, or flying, such as in life simulation The Sims -series or FIFA football simulation game -series. Finally, strategy games are divided into two categories: real-time (RTS), such as Age of Empires -series and turn-based (TBS), such as Civilization -series. Real-time strategy games allow the players to play the game in real time, while in turn-based strategy games players must take turns to play. They include elements such as planning and smart thinking and are often played from above, often referred as god-eye-view.

Apperley (2006: 19-20) states that only rarely a digital game can be said to belong to one category. It is common that a digital game includes elements from several different categories. Traditional game genres are challenged by new categories that emerge by

mixing several categories together. Reinhardt (2018: 92) explains that MMORPG (massively multiplayer online role-playing game), like World of Warcraft, is one such hybrid genre which mixes other categories together. Its themes are often based in fantasy and usually involve character development, completion of quests, teamwork and interaction with other players or non-player-characters, (NPC) which may facilitate language use and learning. NPC is a game character that is controlled by the computer instead of the player with a preprogrammed behavior. According to Peterson (2012: 71), MMORPGs are recognized to be of significant value for computer-assisted learning (CALL) as they have been seen beneficial for L2 learning mainly because of their interaction and teamwork -based nature, which encourages to communicate in English.

Reinhardt (2018: 93) introduces another hybrid genre, multiplayer online battle arena (MOBA), the most popular games of this genre being League of Legends and Dota 2, which are especially popular among professional players in eSport tournaments. In MOBA's two teams of players compete against each other on a battlefield, in which each player controls a game character. Reinhardt (ibid.) continues that its fundamental elements, such as coordinating with team, risk-taking and comprehending rules are beneficial for L2 learning.

According to Juul (2011: 15), games can be studied from several different perspectives and I will introduce two of them, *narratology* and *ludology*. Narratology perceives games as stories or a medium of storytelling and does not see the interactive elements of games as important. Ludology, on the other hand, means the "study of games". Juul (2011: 16) argues that ludology appreciates the unique qualities that digital games have, such as interactivity which enables the players to participate and influence in ways that is not possible for other media. Juul (2011: 16) continues that ludology has often been seen distancing itself from narratology, trying to form digital game studies as its own academic field. The present study approaches game studies from the perspective of ludology.

In the next section, the field of digital game studies is introduced. The evidence of game-derived language learning is discussed in sections 3.4 and 3.5.

## 3 LEARNING ENGLISH THROUGH DIGITAL GAMES

### 3.1 The field of digital game studies

For a long time, digital games have been studied under the framework of computer-assisted language learning (CALL), but after games became more popular, a new research branch, digital game-based language learning (DGBLL), has emerged to be its own field of research with conferences, journals, and organizations (Juul, 2011: 11). DGBLL sees language learning to be motivating by the games' nature and competition. According to Peterson (2012: 71), many researchers of DGBLL have increasingly studied the role of online role-playing games as they are seen especially beneficial for language learning. Prensky (2007: 145), defines digital game-based learning as "any marriage of educational content and computer games." Its idea is to combine digital games with diverse educational content to compete with traditional learning methods in terms of learning outcomes and educational value. Prensky (2007) sees that in order to produce effective educational game design, it is important to balance between fun and education value.

Reinhardt & Sykes (2012: 32-33) have made a distinction between Digital game-based language learning (DGBLL) and game-enhanced L2 learning and pedagogy. DGBLL pedagogy uses games designed specifically for learning and game-enhanced pedagogy uses vernacular games (commercial/entertainment games) either in formal or informal contexts. Reinhardt & Sykes (2012: 34-36) explain that game-enhanced research studies L2 learning from vernacular games and is interested in how these commercial games can facilitate L2 learning and how this information could be utilized in traditional pedagogical contexts. In game-enhanced L2 learning playing the game is the main focus and learning is thus informal and incidental, rather than intentional. The present study aims to investigate the benefits of game-enhanced learning in informal, outside school contexts and will therefore focus on game-enhanced learning from vernacular games.

According to prior studies (e.g. Prensky 2007; Reinhardt & Sykes 2012), using digital game-based learning in pedagogics would mean utilizing educational games in formal activities, such as in school, contrarily to game-enhanced learning which would introduce formal educational activities to recreational digital game play.

According to Moreno-Ger et al. (2008: 2), there are three different approaches to educational games. The first is edutainment, which mixes entertainment and education together. Content is the most important and playability is added afterwards. This approach is criticized (see e.g. Koster 2004) as its entertainment value is often low, which diminishes motivation and engagement, resulting in low learning experience. Moreno-Ger et al. (2008: 3) introduces the second approach, which uses existing games for education. These games are former commercial games not originally designed for educational purposes. They are utilized because of their well-designed models that may have educational value if modified properly. Prior studies (see e.g. Starr 1994; Squire & Barab 2004) show that there are successful examples where commercial games are utilized as educational tools. The most notable advantage is their cost-effectiveness. The most famous examples are SimCity and Civilization series, although they were not used specifically for language learning purposes. Squire & Barab (2004) used Civilization game sessions as part of history class and included discussion and reflection sessions after game sessions. Finally, Moreno-Ger et al. (2008: 3) explain that some games are created specifically for educational purposes. However, their challenge is to make the games simultaneously fun and educational. Moreover, massive budget and extensive risks often hinder the eagerness to design games for education.

Prensky (2007: 147) indicated that one benefit for using digital game-based learning in school is that by putting the learner in the game world, the learner has a context which adds engagement that is seen as a beneficial factor for L2 learning. Another benefit is the interactive learning process, which can take many forms depending on the learning objectives.



Digital game-based learning works only when engagement and learning are both high. The problem here is that commercial games are typically high engagement/low learning, whereas the ideal for educational games are high engagement/high learning. Prensky (2007: 150) believes that best results occur when both levels are high and that is why digital game-based learning can be useful in education. Both these dimensions must be considered. Too much emphasis on learning and the learners fall into boredom and by focusing only on engagement reduces learning results. Bringing games into classrooms would require thorough pedagogical analysis on how to best combine entertainment and learning. It is not an easy task to achieve the optimal level on the Prensky's figure below.

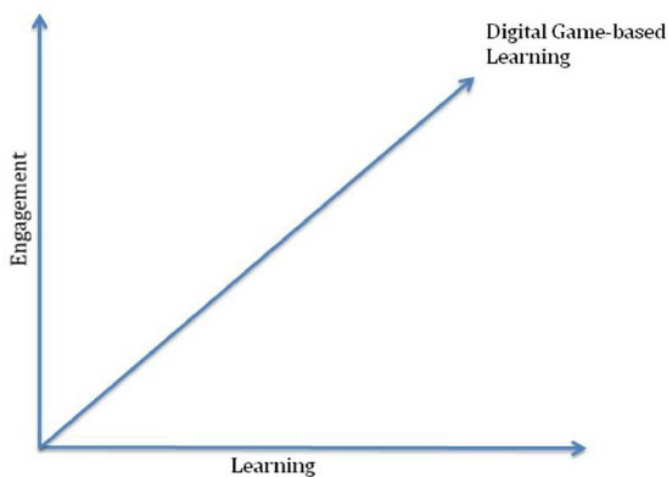


Figure 2: The relationship between engagement and learning in digital game-based learning. Reproduced from: "Digital game-based learning" by Prensky, M., 2007, Paragon House, p. 150.

### 3.2 Theories on how games promote learning

Researchers have tried to identify mechanisms through which games may promote language learning. For example, Mayer (2014) examined theoretical learning aspects which were developed outside the context of games. Mayer uses these aspects to explain how games promote learning. The first theory Mayer (2014) presents is the *reinforcement theory*, originally developed by E.L. Thorndike. It is based on a hypothesis that repeated exposure leads to automaticization. Behaviors that are rewarded are more likely to be repeated, and behaviors that are penalized are less likely to be

repeated in the future. For instance, a player may receive a warning, stating “if you move to this area, other players may attack you”. If the player cannot read the warning and is killed, he knows not to enter the area again. Conversely, if the player does something good, they would be rewarded and thus encouraged to do it again. Reinhardt (2018) continues that feedback that given in time is key to reinforcement, so that the player knows what caused the penalty or the reward.

Mayer (2014) introduces second theory, the *schema theory*, which was developed by Jean Piaget in 1926. Mayer explains that learning occurs when mental models, schemas, are formed and after categories and concepts are learned.

*Automaticity theory* is especially typical for action games, which require fast reaction time and certain key combinations. According to Mayer (2014), this theory is based on the concept of procedural knowledge when learning new skills. It includes a transition from cognitive to associative and finally to autonomous stage. In this process learning is first in declarative form, shifting to step-by-step process which still needs cognitive deliberation. Finally, the process is an automatic step-by-step process, such as key combinations in an action game (Mayer, 2014: 67).

The *social learning theory* is the fourth theory Mayer (2014) introduces. It was developed by Albert Bandura in the 1970s. This theory means that people learn by watching what other more experienced people do. In games the player can learn from non-player characters (NPC) which can give clues or information what to do next. The player can also learn from other players in online environments or from other players sharing the same screen in the same physical environment. Multiplayer games offer the best possibilities for social learning because they are highly social by nature. The social learning theory is useful for understanding how students learn English when they play digital games with other players.

These theories show that different games support learning differently and whether the game is played alone or with others. Piirainen-Marsh and Tainio (2009) investigated

that playing digital games together facilitated language learning differently than playing alone, as the participants repeated the game characters' utterances. This repetition may improve vocabulary learning and interaction may help to improve communication skills. Therefore, it can be argued that the participants in the study utilized Bandura's *social learning theory*.

### 3.3 Informal and formal learning

This section will define informal learning and discusses how learning through digital games relate to it.

Jay Cross (2007) explains that formal learning is the official and traditional learning method that happens, for example, in schools and learning courses. It is often rigid, scheduled and based on curriculums. Goals are usually set by teacher. Conversely, informal learning occurs outside school and is not based on curriculums and learning may happen incidentally and in ways that are not planned beforehand. However, goals can be set intentionally by the learner. Informal learning is close to the concept of *extramural learning* by Sundqvist (2009: 25), which is an umbrella term for language learning occurring outside the classroom. Extramural learning is a broad concept that covers many common terms used to describe informal learning, such as incidental, unintentional, and autonomous learning. Sundqvist (2009: 25) explains that talking with a foreigner in the street is an example of extramural learning, as it occurs outside the classroom and involves a L2 learning situation. Using foreign language in digital games is typically studied as extramural activity.

However, Cross (2007) argues that the gap between formal and informal learning is not as big as it seems, as schools can introduce less formal activities such as play in education. This is what digital game-based learning intends to do (see e.g. Prensky 2007; Moreno-Ger et al. 2008). Vice versa, with digital game-enhanced learning, formal elements can be implemented to otherwise informal activities, such as in playing

digital games and trying to learn unfamiliar vocabulary by listing them on a paper. Perhaps different teaching methods help students to learn more efficiently.

Reinhardt (2018: 12) states that autonomous informal learning outside traditional curriculums is important as it promotes L2 learners' life-long learning opportunities. Reinhardt (2018: 135) continues that extramural L2 gaming is beneficial for learners as they perform better in formal L2 assessment compared to non-gamers.

Livingstone (2001) provides a third term, non-formal learning, which situates in-between formal and informal learning. For example, voluntary adult education courses would be categorized as non-formal learning according to Livingstone.

Moreover, Cedefop (2009) provides definitions for formal, non-formal and formal learning based on the official guidelines of the European Centre for the development of Vocational Training.

Formal learning is learning that occurs in an organised and structured environment (e.g. in an education or training institution or on the job) and is explicitly designated as learning (in terms of objectives, time or resources). Formal learning is intentional from the learner's point of view. It typically leads to validation and certification (Cedefop, 2009: 73).

Non-formal learning is learning which is embedded in planned activities not always explicitly designated as learning (in terms of learning objectives, learning time or learning support), but which contain an important learning element. Non-formal learning is intentional from the learner's point of view (Cedefop, 2009: 75).

Informal learning is learning resulting from daily activities related to work, family or leisure. It is not organised or structured in terms of objectives, time or learning support. Informal learning is mostly unintentional from the learner's perspective (Cedefop, 2009: 74).

Based on these definitions above, digital game play that occurs through the player's own leisure time activity would be informal learning. The learning is not based on curriculums and is incidental and spontaneous. The main motivation to engage in digital game play stems from the player's own will to play and thus the learning is unintentional. However, a foreign language learner may engage in digital game play in order to improve their language skills and use games as a tool to learn, for example

by listing unfamiliar words while playing or communicating with others to improve conversation skills.

### 3.4 Game elements that promote learning

According to Chik (2012), there are three main aspects of digital game activities with language learning potential. First, there are in-game texts, such as dialogue between game characters or instructions on screen. Second, interaction with other players provides opportunities and motivation for English language use. Finally, participation in game-related discussion forums and seeking information online are perceived as important ways of learning through digital-game related activities. From this we can see that digital games provide different activities to language learning as almost all games include language-based texts, along with online communities.

Reinders (2012: 2), indicates that successful games have many similarities to successful teaching, as they both create environments with explicit objectives and they both give feedback for the learner. Games and teaching place learners at the center of the learning process.

Digital games have different elements that may affect L2 development. Vandercruyssen, Vandewaetere and Clarebout (2012) identified seven game-elements in their review article. They listed presupposed benefits of the game elements based on the work of numerous scholars, such as Akilli (2007), Hays (2005), Prensky (2007) and Wilson et al. (2009).

<b>Game elements</b>	<b>Presupposed benefits</b>
Fun or enjoyability	Enjoyment, pleasure, motivation
Rules	Structure
Goals and objectives	Motivation, stimulation
Interactive/interaction	Being active, interacting with others

Outcomes and feedback	Learning, informing about progress
Problem solving/competition/challenge	Adrenaline, excitement, creativity
Representation/story/fantasy/context	Emotion (enthusiasm), stimulation

Table 1. Game elements. Adapted from “Game-Based Learning: A Review on the Effectiveness of Educational Games. In: Cruz-Cunha, M. M. (ed.), Handbook of Research on Serious Games as Educational, Business, and Research Tools” by Vandercruysse et al. 2012, p. 6.

### **Fun or enjoyability**

According to Koster (2004: 40), fun from games arises from the pleasure of learning and comprehension. Every game is a challenge, which rewards the players for learning and mastering a new skill. Koster continues that the best games are those that are complex enough to keep the new data coming for the brain to continue learning for as long as possible. If the game is too easy, such as tic-tac-toe, the game becomes boring very quickly.

### **Rules**

According to Juul (2003: 36), games have rules which means that the player is limited by artificial constraints. Rules provide a structure for the game and helps the player to understand what is possible and impossible. Reinhardt (2018: 126-127) continues that with rules it is possible to force players in a specific direction, for example, to cooperate with each other. A game can be designed in a way that it is impossible to proceed without communication. For example, a player may need to comprehend instructions on screen in English to proceed, which may be beneficial for L2 acquisition.

### **Interactive/interaction**

Bartle (1996) categorized players depending on their interests or motivations for playing games. He discovered that there are different styles of playing. Some players wish to interact with the other players and some wish to interact with the gaming environment. Of course, often these playing styles mix. Reinhardt (2018: 22) explains that gaming is not only hobby of the obese, introvert young males as often

stereotypically seen as half of those who play the most play games with others. Moreover, majority of those who play multiplayer games play games socially. As internet connection becomes more available and faster all over the world, social interaction is easier to include in games than before. According to Peterson (2012: 90), interaction in MMORPG (massively multiplayer online role-playing games) provides players an environment that is both engaging and beneficial for L2 acquisition. Peterson continues that this game genre is especially rich of interaction because they are played with other players and communication and teamwork are usually beneficial for achieving goals in the game. Players can interact with others via chat and voice, for example. Poštić and Rudic (2017) discovered that interacting with the virtual game world enhances players' language skills, because of the constant need to understand what is going on and what to do next. This circumstance motivates the player to actively examine unfamiliar words and phrases.

### **Outcomes/feedback**

According to Reinhardt (2018: 80), the interactive nature of games is connected to feedback. By giving positive, neutral, or negative feedback, games recognize the player's actions and transmits the feeling of interactivity. According to Gee (2013), most games have integrated systems of giving feedback in real time. Feedback is given based on what worked and what did not so that the player can adjust the playing style constantly. For example, dying in most games is a very efficient way of giving feedback for the player that they have failed and need to make changes. Reinhardt (2018: 105) continues that well-designed game feedback is relevant, given in time and just enough is the most efficient. Feedback should also be focused on player's specific need.

Gee (2005: 11) introduces another form of feedback that may be useful for learning that is only found in games. It is the fact that digital games provide information on demand and just in time. This means that players do not have to read long manuals to get started as games provide information when needed without the player ever having to pause and interrupt the flow of the game. Gee (2005: 11) explains that this is especially useful for learning as the players can instantly put their knowledge in practice.

Whitton (2012: 11-13) states that digital games are remarkable platforms for experiential learning as they do not have consequences in real life. The digital world is a safe environment where the players can test their own hypotheses without the fear of failure and can then react again based on the outcome. Reinhardt & Sykes (2012: 47) state that pedagogics would benefit from implementing similar type of feedback that games use to see mistakes as part of the learning process rather than failure.

### **Competition/challenge/problem solving**

According to Gee (2005: 10), games provide learners with tasks that are doable and challenging but not impossible. He calls this the *regime of competence*. For optimal learning, learners operate at the outer edge of their skills, but still inside their level of competence. Gee (2013) explains that games provide various options for players to customize their playing experience. A common method is changing the difficulty level of the game, which enables every player to operate within their outer edge of skills.

Gee (2005: 10-11) states that digital games are good for learning because they force players to constantly develop as new challenges are introduced as they progress. Gee calls this *the cycle of expertise*. When the challenge becomes more difficult, the players have to think new ways of playing the game, often leading to integrating new styles with the old. Gee believes this provides rhythm and flow between practice and new learning and may even promote life-long learning.

### **Representation/story**

Many digital games include complex storylines, immersive game worlds and character development, which are seen to be beneficial for L2 learning. Reinhardt (2018: 83) explains that “a narrative has a beginning, a change of state, and an implied end, with various, somewhat predictable elements like characters, settings, plots, themes and point of view”. However, even simple games that do not have a storyline may evoke



narrative elements in the minds of the players. For instance, chess does not have narrative but involves representation of queens and other medieval characters. Reinhardt (2018: 84) states that “narrative is how we create and share memories and knowledge”. He continues that stories are important for learning as they provide a context with which new information can be related. Giving learners a list of words to memorize is not a very efficient way of learning as there is no context at all where learners can relate to. For example, *The Witcher 3* is a highly immersive digital game with complex characters and rich storyline. The player can explore the vast medieval fantasy world and may encounter, for example, a crying woman lying in the dirt, asking for help to find his missing daughter. These encounters usually include rich dialogue between the player and the game character, which provides context and motivation for L2 learner to understand the situation. Van Eck (2006: 4) continues that digital games are effective for L2 learning as the learning takes place in meaningful contexts unlike formal, conventional learning that occurs outside of those contexts.

L2 learning by playing digital games is just one aspect as especially popular digital games have large, social communities that can facilitate L2 learning. This also applies to single-player games as has been studied previously for example by Piirainen-Marsh & Tainio (2009). According to Gee (2013), Players often participate in discussion related to games they play. Some even participate in gaming-related events and produce and share their own content online. Within a gaming community, it is common that its members share knowledge and instructions related to the game and learn from others. Gee (2013) describes gaming and online communities as affinity space because it lacks the typical hierarchy and formality to traditional communities. In affinity space, anyone can produce content and people are related to each other through their shared interests and they are not separated by age or expertise. For example, classroom communities are led by the teacher who is also in charge of producing the material for students to consume, whereas in affinity space anyone is free to produce and consume content. However, the present study will use both community and affinity space as terms in referring to digital game groups because of the popularity of community as a term. Online gaming communities provide a great opportunity for people to socialize

and share their knowledge on video digital games and learn from others. As digital games, the language of the most online communities is English. Digital games as a hobby give opportunities for learning English language both through playing games along with participating online communities with other players.

### **3.5 Game-derived language learning studies**

In his literature review, Mayer (2014) examined the learning outcomes between groups taught through conventional media and digital games by investigating previous academic papers. The hypothesis of digital games promoting learning was successful in four out of five case studies, as groups utilizing digital games in teaching surpassed the comparison groups, which were taught through conventional media. Mayer (2014: 235-237) argues that the results were promising, as kindergarteners and college students reported learning vocabulary, elementary school students learned English reading, listening, speaking, and writing, and seventh-graders learned speaking and listening skills. After Mayer had analyzed all media comparison studies and different digital game genres, adventure games were reported to be most beneficial for L2 acquisition and puzzle games the least beneficial. In addition, elementary school students were found to benefit the least from the use of games in teaching, whereas adults and college students benefited the most.

Sundqvist (2009) studied the effect of recreational play of digital games for L2 acquisition. 72 Swedish 9<sup>th</sup> grade students participated in the study. The study consisted of oral speaking tests, language diary, written essay, and vocabulary level test. The study was longitudinal, carried on for 10 months. The study used both interviews and questionnaires and was thus both qualitative and quantitative. It was found out that contact with English through recreational play improved Swedish ninth grade students' language skills. Those, especially boys, who spent more time in extramural English activities had also better oral proficiency and vocabulary skills than their peers. Moreover, they were also more confident in speaking English (Sundqvist 2009: 200). In addition, Sundqvist (2009) discovered that boys preferred

playing multiplayer role-playing games, such as World of Warcraft and girls preferred single-player games, such as The Sims. Sundqvist (2009) recognized that girls' gaming was not as beneficial to L2 acquisition than boys' gaming, as their preferred games require such different language skills. Boys also played more than girls. Sundqvist and Sylvén (2012) compared the results of three studies regarding digital games and L2 acquisition and found out that despite girls on average do better in languages than boys, they were outperformed by the boys in terms of vocabulary.

According to a literature review by Veltri et al. (2014), men play digital games more than women, both in term of frequency and duration. Men also start playing games earlier in their life than women. Boys' childhood activities lasted longer than girls', indicating that boys have a biological tendency to play for longer periods (Veltri et al. 2014: 3). Moreover, men and women were found to prefer different types of games, as men play more action and simulation games and were more competition oriented than women. However, men were also more prone to get addicted to digital games than women, which may be one reason why men also spend more time playing games.

Reinders & Wattana (2012) conducted a study which examined sixteen students at a university in Thailand. The study investigated foreign language learners' development and willingness to communicate in EFL situations through playing a MMORPG game with other players. The participants' language use in the game was recorded and analyzed using discourse analysis and their responses to a questionnaire were analyzed using descriptive statistics. It was found that digital games encouraged more interaction in the L2, as the learners' willingness to participate in EFL increased as they continued playing the game (Reinders & Wattana, 2012: 183). However, those who considered their EFL skills to be poor did not show any improvement after participating in the game. Their EFL use was minimal and they used emoticons as much as possible. This suggests that digital games may motivate and encourage already high-proficiency EFL students but it seems that shy and below average EFL students do not benefit much from DGBLL.

S.Suh et al. (2010) investigated the effectiveness of massively multiplayer online role-playing games (MMORPG) in English as a second language in elementary school by comparing gaming group to a regular group. There were 302 participants from five schools in South Korea. Both groups completed a survey and tests in order to compare the students' achievements. Different variables, such as prior knowledge, motivation for learning, self-directed learning skills and game skills were analyzed in the study. The results imply that the gaming group produced higher scores in listening, reading, and writing than the group taught with regular methods. Prior knowledge of games and motivation for learning were factors that positively affected English learning through digital games. S.Suh et al. (2010) argue that based on these results, MMORPGs have a potential role in benefitting English skills.

Piirainen-Marsh and Tainio (2009) examined Finnish boys from 10 to 14 years of age, who played a video game together (Final fantasy X). The game sessions involved 2-4 participants at a time. Piirainen-Marsh and Tainio focused on how the boys repeated the game characters' utterances. Data for the study was drawn from video recordings and it was analyzed by conversational analysis. The game play was collaborative and shared learning experience where the linguistic details of the game were used as a flexible resource. Piirainen-Marsh and Tainio (2009) argue that linguistic and interactional skills can be improved by playing, as digital games often repeat same key words in voiced dialogue and written messages. This repetition may improve vocabulary learning and interaction with other players helps to improve interactional skills. Repetition allows the players to play with different registers and accents and may thus improve language skills. Being able to understand and reproduce utterances from the game is important as then the players transfer the utterances into their vocabulary and are able to use them in other contexts too. However, digital games may involve many types of situations and are not necessarily always a social activity and may not involve language at all. Piirainen-Marsh and Tainio (2009) elaborated that digital games have potential for language learning and showed how versatile language learning through games can be.

Uuskoski (2011) examined 495 Finnish upper secondary school students and their gaming habits and English grades by analyzing quantitatively student responses from a questionnaire. Uuskoski's study is a central source for the present study as his angle is similar to mine. However, the present study will focus more on the perspectives of the students regarding digital games and language learning and also includes open questions for the participants to elaborate and is thus partially qualitative. As Uuskoski's study was conducted 10 years ago, games, gaming platforms and gaming habits may have changed, which is why this rapidly growing area is important to study intermittently. For example,

Uuskoski (2011) found a statistically significant positive correlation between time spent playing digital games and high English grades. Certain types of games, especially role-playing games, were connected to higher English grades. Moreover, gamers themselves felt that playing digital games had improved their English skills: 89% of those who played over 15 hours a week reported that gaming had improved their English skills by quite much or very much. However, even smaller amounts of gaming can be beneficial for English skills. 78% of those who played up to 5 hours a week reported that gaming had improved their English skills to some extent. Vocabulary was the language skill that was most often improved by gaming, then came reading, listening, writing, and finally speaking in that order. Uuskoski suggests that games may not be the only explanation for high English grades, as a correlation was found between English grades and active participation in other extramural English activities. It is possible that those who play a lot also spend time browsing the internet and participating in international online game communities, affinity spaces, which were discussed earlier in this study in section 3.4.

Uuskoski (2011) also examined gender differences, reporting that boys had on average significantly higher English grades than girls and suggests gaming has a massive role in this. These results are in line with other studies (e.g. Sundvist 2009). Interestingly, Uuskoski (2011: 43) found that despite boys outperformed girls in terms of English grades, girls outperformed boys in mother tongue and Swedish grades. Perhaps the

immense popularity of digital games among boys explains this difference between genders. Uuskoski (2011: 32-33) argues that certain game genres are more beneficial to L2 acquisition, as he found out that role-playing games, massively multiplayer online games, strategy games and shooter games correlated with English grades stronger than sports games and driving games. In addition, Reinhardt & Sykes (2012: 36) state that role-playing and adventure games contain more language use and narrative elements than other game genres, suggesting that they are better environments for L2 acquisition than some other genres. These observations suggest that certain games may provide better opportunities for L2 acquisition and may be more optimal for informal learning purposes than some other games.

Digital game players use constantly various different language learning strategies both consciously and unconsciously and often the purpose is not to learn but to advance in the game. Juul (2011: 5) argues that playing a game is fundamentally a learning experience, as the goal is to overcome challenges provided by the game. Being able to interact with the game world and other players is often required to proceed in games, which usually means that English language skills are needed. Language learning in games can be explicit, as a player may write down unfamiliar words, but learning can also be implicit, as a player may choose to read in-game-texts more than needed to improve their reading comprehension. Bytheway (2015) studied vocabulary learning strategies in MMORPGs and examined players and their reported learning strategies. The 15 strategies were as follows:

1. interacting with players
2. playing in English
3. reading in-game information/pop-ups
4. looking up words in dictionaries/Google
5. noticing frequency/repetition of words
6. requesting/giving explanations
7. equating image/action to word
8. recognizing knowledge gap and selecting words for attention

9. receiving/ giving feedback
10. noticing in other contexts and adding to existing knowledge
11. guessing from context
12. using word to learn word use
13. observing players
14. selecting words for attention
15. adding to existing knowledge

Gamers in MMORPGs create and use several different strategies to learn vocabulary autonomously and without teacher supervision. Bytheway (2015) concluded that some of the learning strategies above are similar to the strategies used in formal learning contexts in schools, for example *looking up words in dictionaries/Google* and *guessing from context*. While Bytheway's study focused on vocabulary learning, most of these strategies can be beneficial to learning other language skills, for example grammar through *reading in-game information/pop-ups*.

As many scholars (e.g. Chik 2012; Gee 2003; Sundqvist 2009) have shown in this chapter, digital games have potential for language learning. Many of the studies discussed in this chapter have focused on one genre, massively multiplayer online games (MMORPG) as it has been seen to be especially beneficial for language learning because of its interaction and teamwork-based nature (see e.g. Peterson 2012). Most of the studies so far have focused on mainly digital game-based language learning (DGBLL), which studies the use of games in formal, educational contexts whereas the present study aims to investigate the benefits of game-enhanced learning in informal, outside school contexts. As gamers themselves have not been studied much, the present study aims to find out how players see the connection between gaming and English language skills and what language skills are reported to be developed as a result of gaming. Gender differences regarding gaming habits and perceived benefits of gaming will be also discussed.

## **4 PRESENT STUDY**

This chapter will begin with introduction of the aims and research questions, followed by data collection and the questionnaire, introduction of the participants, and finally, the methods of analysis.

### **4.1 Aims and research questions**

This study explores the perceptions of Finnish upper secondary school students on how digital games have benefitted their English language learning. The goal is to find whether gaming in English actualizes in perceived benefits in English language skills and in improved grades. The study aims to find what are the language skills the participants report having learned. The present study also aims to find if there are gender-differences regarding English grades and gaming habits.

The present study aims to answer the following research questions:

- 1: How do Finnish upper secondary school students see the connection between gaming and English skills?
- 2: What language skills do upper secondary school students report having learned as a result of gaming?
- 3: What kind of gender differences are there regarding gaming habits, English grades, and perceived benefits of gaming for English learning?

### **4.2 Data collection and the questionnaire**

The study was conducted by a survey with a quantitative observation with open-ended questions to include a qualitative perspective for the present study. The aim is to utilize the participants' verbal data in addition to numerical data. Survey method was chosen because it is a fast and efficient way of collecting large amount of



information that could provide insight into how games benefit English language learning. A possible drawback of the survey is that it is difficult for the participants to go into details when they answer as the questions are rather short and easy to answer. However, that is why a few open questions were implemented so that the participants have a possibility elaborate their answers (Dörnyei & Taguchi 2009: 9). The survey was conducted in Finnish as it was the only reliable language to collect answers from Finnish students.

The students studied in this thesis are from one upper secondary school from western Finland. The sample includes 87 16-20-year-old upper secondary school students. The responses were collected in January 2021 during their English lessons by teachers. The survey was conducted via Google Forms, and the survey's hyperlink was shared to two teachers who then shared the link with the students at the beginning of four different English lessons. All the 87 participants were physically present during filling the survey. Sharing the hyperlink to non-targeted people was possible, but considering the short time period during which the survey was available and considering that disrupting the data would not have benefitted anyone, the risk was minimal.

Identification of participants is impossible as no personal details were asked. Therefore, it was not seen necessary to give personal identification numbers to the respondents.

The first five questions ask the participants' background information, such as mother tongue, age, gender, whether they play digital games or not and their latest English grade in upper secondary school. The rest of the questions ask gaming frequency, games where English is learned and perceived benefits of gaming for English skills, for example. After certain questions, the participant is given a chance to elaborate their answers freely. The specific list of questions can be seen in Appendix 1.

The distribution and frequencies of responses will be discussed and analyzed in chapter 5.

### 4.3 Methods of analysis

The responses to closed questions were analyzed descriptively in Excel. The results were analyzed based on the information provided by the respondents and their reported gaming habits. The results were summarized into tables and figures.

Descriptive statistics was chosen to describe the basic features of the data in the study. Trochim (2006) points out that with descriptive statistics it is possible to manage large amounts of data relatively easily. As the present study acquired 87 answers, descriptive analysis was the most sensible way of analyzing the data. Descriptive analysis was chosen over inferential statistics because the present study simply describes what is going on in the sample population, instead of drawing conclusions from an entire population of Finnish upper secondary school students.

As the present study is based partly on qualitative data, it was important to include qualitative methods of data analysis as well. The responses to open questions were analyzed by utilizing qualitative content analysis. According to Krippendorff (2013: 24), the aim of the content analysis is to analyze the content of the participants' answers in a manner that different researchers would be able to draw the same conclusions from the same data.

As Krippendorff (2013: 25) points out that in content analysis the analyzed text can be any kind of communication, ranging from webpages and written text to speech, for example. In the present study, the texts that are analyzed are the participants' answers in the survey. The texts are translated from Finnish to English and they are verbatim; grammatical errors and other mistakes are retained to minimize the risk of misinterpretation.

In the present study, the aim of content analysis is to find in detail what kind of games the participants play, what are the reported language skills that are learned and how the participants have utilized their skills outside the context of games and school. With

open questions the participants are given a chance to elaborate their answers to relatively constricted and short closed questions.

## **5 STUDENTS' PERSPECTIVES ON THE BENEFITS OF GAMING FOR THEIR ENGLISH PROFICIENCY**

This chapter discusses and analyzes quantitatively the results of the multiple-choice questions and will include qualitative insight based on analysis of the open-ended questions. This chapter will proceed question by question in the order they were presented to the participants in the survey.

### **5.1 Respondents' background statistics**

The present study is concerned in discussing English learning and therefore those who speak English as their mother tongue do not belong in the target group. The first question functioned as a means to discover native speakers and to exclude them from the data if necessary. It turned out that out of the 87 respondents none were native English speakers. However, the survey did not ask whether the respondents were native Finnish speakers.

A typical Finnish upper secondary school student is 16-18 years old as the school begins in Finland at the age of 7 and lasts for nine years. Age groups for 19 and 20+ were added to give an option to answer for those who began upper secondary later or were exchange students. The numbers of respondent belonging to each age group is shown below in Figure 3. Almost half of the respondents were 18, because the teachers I contacted passed the survey possibly for the English classes they had on that specific day and they happened to be older students' classes.

Respondents' gender distribution below in Figure 4 is aligned with the typical gender distribution of the Finnish upper secondary school. In this data 63% are women and 37% are men. According to Patio (2015), 61.5% of the Finnish upper secondary school students are women and 38.5% are men.

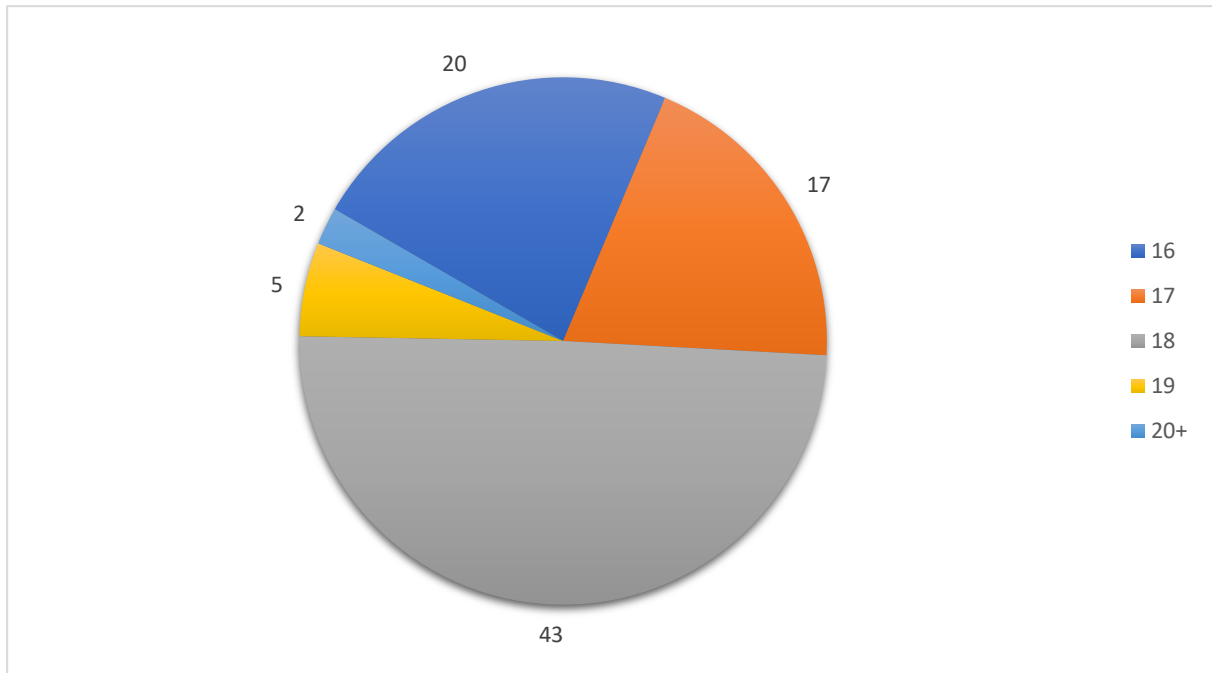


Figure 3: Respondent's age distribution.

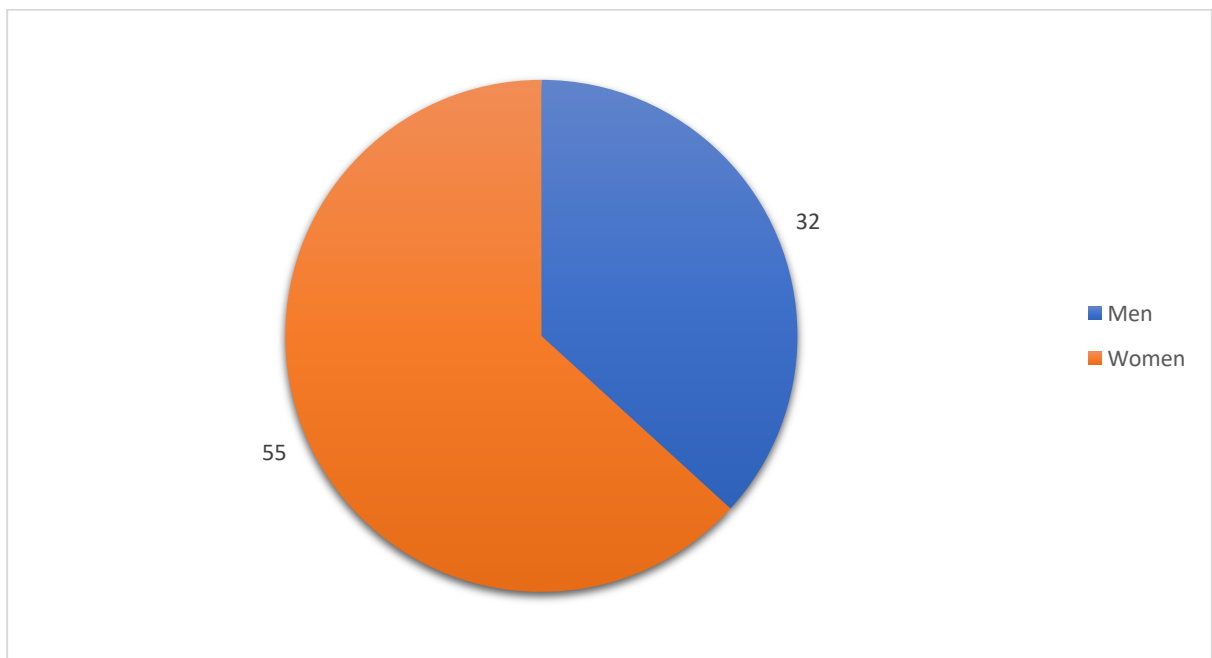


Figure 4: Respondent's gender distribution.

Question 4 asked the participants' latest English grade. The question provides important data about the respondents' level of English which can be then contrasted to other questions. Almost two thirds of the respondents reported to have good or better (8, 9 or 10) grade in English, as can be seen in Figure 5 below.

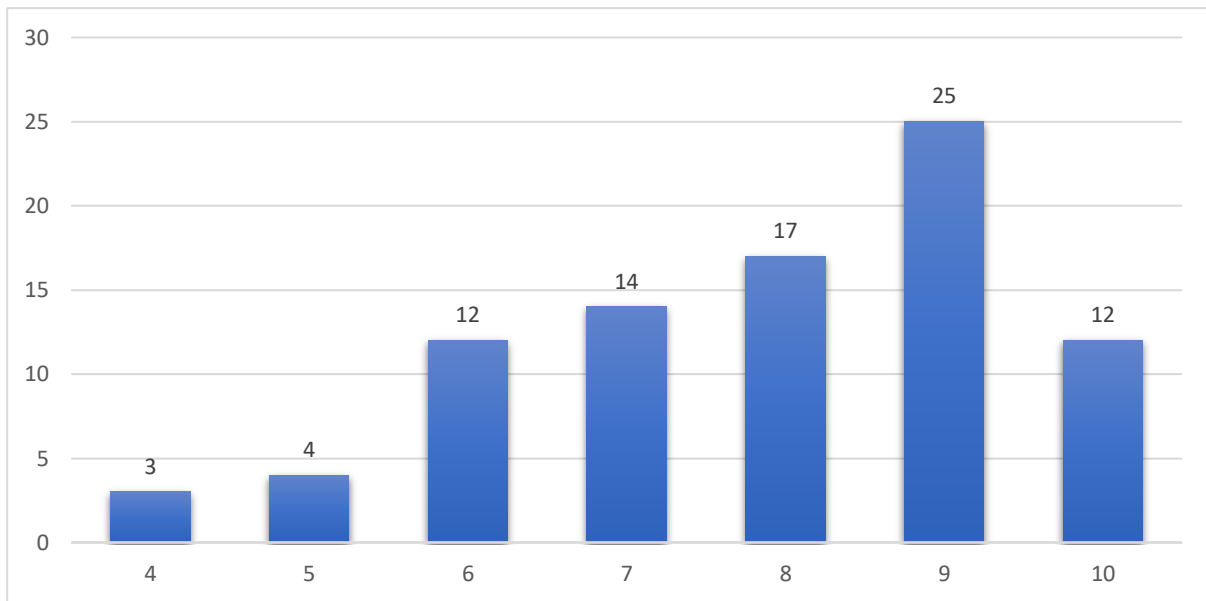


Figure 5: Latest English grade in upper secondary school.

## 5.2 Duration and frequency of playing digital games

Majority, 82 out of 87 (94.3%) respondents reported to have played a digital game in English. They were directed to the next question, whereas the rest were directed straight to the question 17. Every one of those 5 who had never played a digital game in English were women (9.1% of all women).

From Figure 6 below we can see that playing English digital games appears to be very popular among the respondents, as almost every fourth respondent played every day or almost every day. When the two most active gaming categories are combined, 37 of 87 (40%) respondents played either several times a week or even daily. 30 of 87 (34%) respondents played only once a month or less.

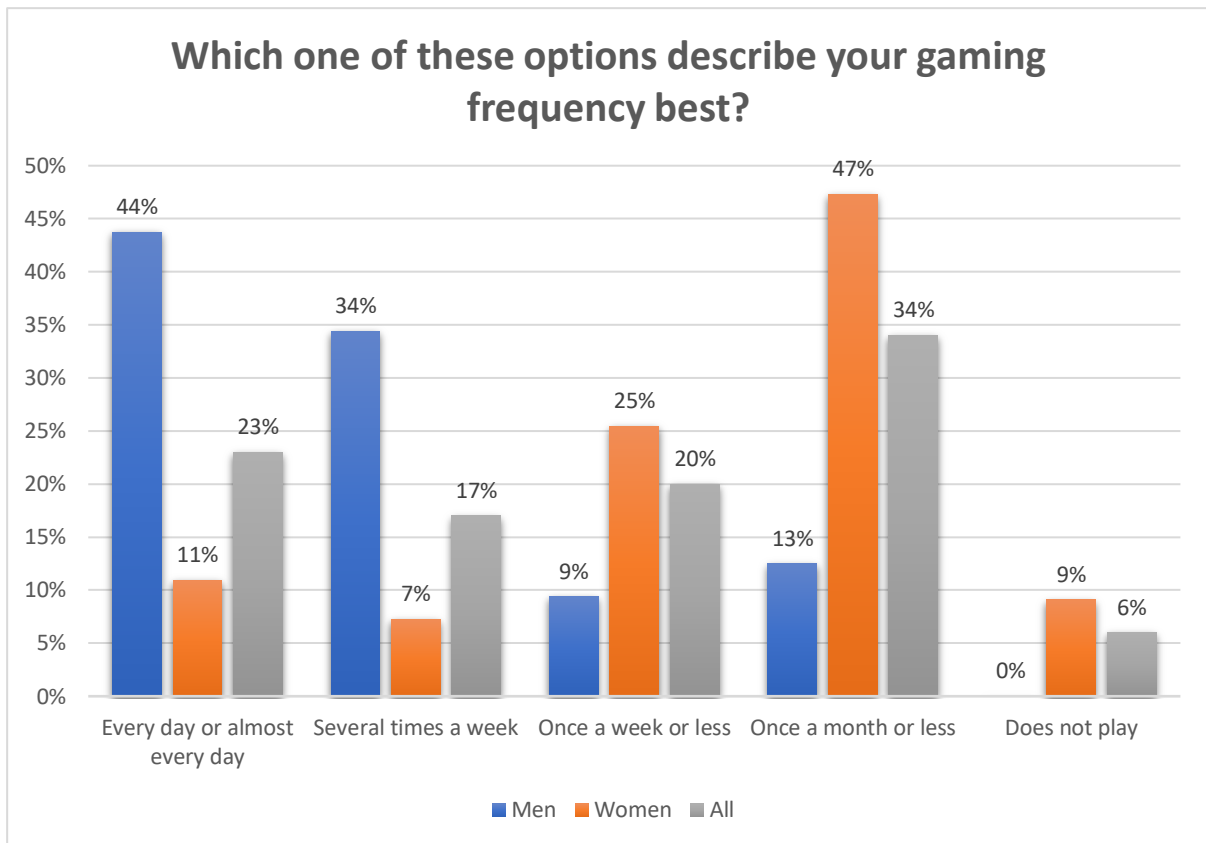


Figure 6: Frequency of playing.

Those who do not play are excluded from Figure 6. The most common answer for the duration of play was 1-2 hours, which was answered by 27 of 82 (33%) respondents. Of those who play, 56 of 82 (68.3%) played 1 hour or more. 8 of 82 (9.8%) played longer than four hours.

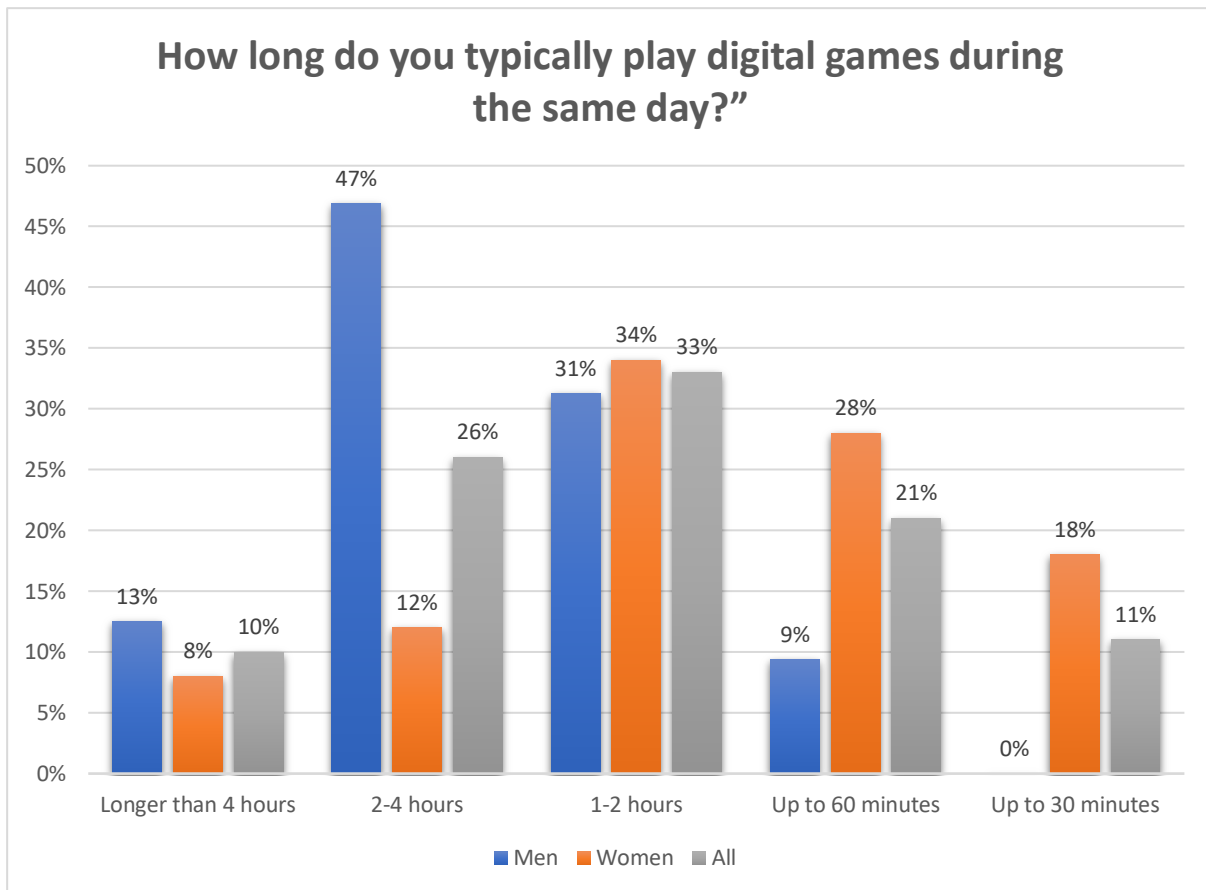


Figure 7: Duration of play.

As can be seen from Figure 6 and Figure 7, men played evidently more in terms of both frequency and duration, whereas women were more casual gamers. Almost half, 44% of men played every day or almost every day, while 11% of women played as much. 46% of the women played maximum of one hour a day, while only 9% of men played as much. 60% of men played over 2 hours and only 20% of women were as active gamers. It seems that gaming is highly polarized, as men played extensively more than women. The results are in line with prior studies, as Veltri et al. (2014) argue that men play digital games more than women and that men also start playing games earlier in their lives. However, Veltri et al. (2014) also found that men are more likely to get addicted to digital games than women, which may be one explanation why men play more.



### 5.3 Preferred games and their usefulness for English learning

Question 8 asked what were the games in which the player has needed or learned English. It was an optional question, but a total of 70 responses were collected. Most of the answers were brief, mentioning only a couple of games by name but there were some more in-depth responses. Next the most frequently mentioned games and genres, and student responses will be discussed.

Among the most popular first-person shooter (FPS) games were *Counter Strike* (often referred to as CS), *Fortnite*, *Overwatch*, *Call of Duty* (CoD) series, *Rainbow Six: Siege*, and *PlayerUnknown's Battlegrounds*. Action and adventure games amassed a number of responses, including games such as *Assassin's Creed* series, *The Witcher 3*, *Red Dead Redemption 2* and *Grand Theft Auto* (GTA) series, which is often difficult to categorize. Multiplayer online battle arena (MOBA) games were also often mentioned, especially *League of Legends* (LOL) and *Dota 2*. Sports games or driving simulators were rarely mentioned, but *FIFA* football games, *NHL* hockey games, *Need for Speed* and *Gran Turismo* car racing simulators were mentioned. Multiplayer sandbox game *Minecraft* and life simulation game series *The Sims* were often mentioned. Finally, a number of mobile games were mentioned, such as Online multiplayer game *Among Us*, massively multiplayer online strategy game *Clash of Clans* and mobile farming game *Hay Day*. Next, some of the quotations from the participants are introduced to emphasize the versatility of games in the student responses. The original Finnish replies are in italics and are translated into English. Translations are mine and.

1. "*Minecraft, League of legends, CS: GO, Overwatch.*" (Man, 18.)
2. "*Rainbow Six: Siege, Modern Warfare 2/3, GTA V.*" (Man, 18.)
3. "*Among Us, PUBG mobile, Hay Day.*" (Woman, 18.)
4. "*Rpg pelit kuten Assassin's creed ja Witcher.*"  
"Rpg games like Assassin's creed and Witcher." (Woman, 17.)
5. "*Fifa-pelisarja, Call of Duty-pelisarja, Fortnite.*"  
"Fifa -series, Call of Duty -series, Fortnite." (Man, 20+.)
6. "*Mm. CS: GO, Valorant, League of Legends. Periaatteessa kaikki pelit mitä olen pelannut.*"

"For example, CS: GO, Valorant, League of Legends. Basically every game I have played" (Man, 16.)

The last participant (6) thinks that every game he has played has been in English and has been useful for his language learning. It seems that majority of gamers tend to play games from certain categories. For example, those who played FPS games often played also other war or action games (2). However, there were exceptions, as the penultimate response (5) above demonstrates, the gamer played both sports games and FPS games.

Even though men played more frequently than women, games are not only the hobby of men, as there were some women who played as much and often the same games as men. For example, there was a woman who played *League of Legends*, *Overwatch*, *Assassin's Creed: Odyssey* and *Rainbow Six: Siege*, games that are highly represented in men's responses. Women seemed to tend to explain more the genres or types of games they play rather than write down actual lists, like men did. This may be a sign of having a more casual viewpoint to gaming. Those who were unable or unwilling to specify the games they play were more often women than men. However, there were some girls who played extensive amounts and the same games as boys.

1. "*Pikkuveljen sotapelejä tietokoneella ja pleikalla*"

"My little brother's war games on computer and Playstation." (Woman, 20+.)

2. "*Sims pelejä, erilaisia puhelinsovelluspelejä esimerkiksi Candy Crushia ja sitten esim Fortniteä.*"

"Sims games, different mobile games and for example Candy Crush and then again for example Fortnite." (Woman, 18.)

3. "*Erilaiset kansainväliset chat-pelit, video- ja pc-pelit, joiden kielenä englanti.*"

"Different international chat games, video and pc games that are in English." (Woman, 19.)

Question 9 asked "Which games were especially useful for English language learning?" The same games that were listed in the question 8 appeared in these responses too. Especially the games that required communication or comprehension of English to succeed (or proceed) were mentioned.

1. "*Pelit, joissa pitää kommunikoida tiimiläisten kanssa yleensä englanniksi mm. CS: GO, Valorant.*"

"Games that require communication with team members mostly in English, for example, CS: GO, Valorant." (Boy, 16.)

2. *"World of Warcraft koska siinä tulee juteltua paljon guildilaisten kanssa."*  
 "World of Warcraft because there you get to talk a lot with guild members." (Boy, 16.)

3. *"Counter-Strike: Global Offensive, koska siinä täytyy kommunikoida joukkuelaisten kanssa, jotka ovat yleensä jostain muusta maasta."*  
 "Counter-Strike: Global Offensive, because there you have to communicate with team members who are usually from some other country". (Boy, 16.)

4. *"Growtopia. Jos kyseisessä pelissä haluaa edistyä niin englantia on pakko osata."*  
 "Growtopia. If you want to advance in the game you must understand English". (Boy, 16.)

As can be seen from the examples above, the respondents perceived communication to be an especially important factor for game-derived language learning. Teamwork and co-operation encourages the players to communicate to succeed. Peterson (2012) argues that games that encourage the players in teamwork and communication can be especially useful for language learning. Indeed, Reinders & Wattana (2012) investigated that foreign language learner's willingness to communicate in EFL situations increased through digital game play. It is interesting that the respondents explained why the games were useful for English learning, although the question merely asked them to state games that had been especially useful for English. Perhaps they had grasped that the intention of the survey was to find a connection between gaming and language learning and thus they wanted to elaborate how and why the games were beneficial.

As can be seen from the last quotation (4), one student had seen English as an important skill in order to progress in a game. Poštić and Rudic (2017) found that the players' willingness to succeed and proceed in games seems to work as a motivator to use and learn English. The constant need to understand what is happening in the game world and what to do next drives the players to actively examine unfamiliar words and phrases, for example.

Majority of digital games are only available in English, but some games offer an option to play in Finnish. However, some players are so used to playing games in English that they preferably avoid the Finnish option, which may benefit their English skills.

*"Melkein kaikki pelit, joita olen ikinä pelannut ovat olleet englannin kielisiä ja täten olen tottunut niihin ja en edes nykyään pelaa mielelläni Suomalaisia pelejä."*  
"Almost every game I have ever played have been in English and so I am used to it and I don't nowadays even preferably play Finnish games. (Boy, 17.)

#### **5.4 Language skills that digital games require and improve**

In Figure 8, of all respondents, 58% of the students experienced that gaming had benefitted their English learning either substantially or a lot. 6% did not play at all and 8% were unable to say whether gaming has benefitted their English learning or not. Only 2% of all respondents claimed that playing games had no impact at all on their English learning.

Considering how much more time men consume playing digital games than women, it is understandable that the experienced benefit of games for English learning is higher for men than women. The results are notable, as 82% of men experience that games have helped them to learn English either substantially or a lot. It is also notable that there were no male participants who had experienced that gaming had not helped them at all. Even though there are substantial differences between men and women regarding language learning from games, still 74% of the women who played reported that gaming had benefitted them at least a little.

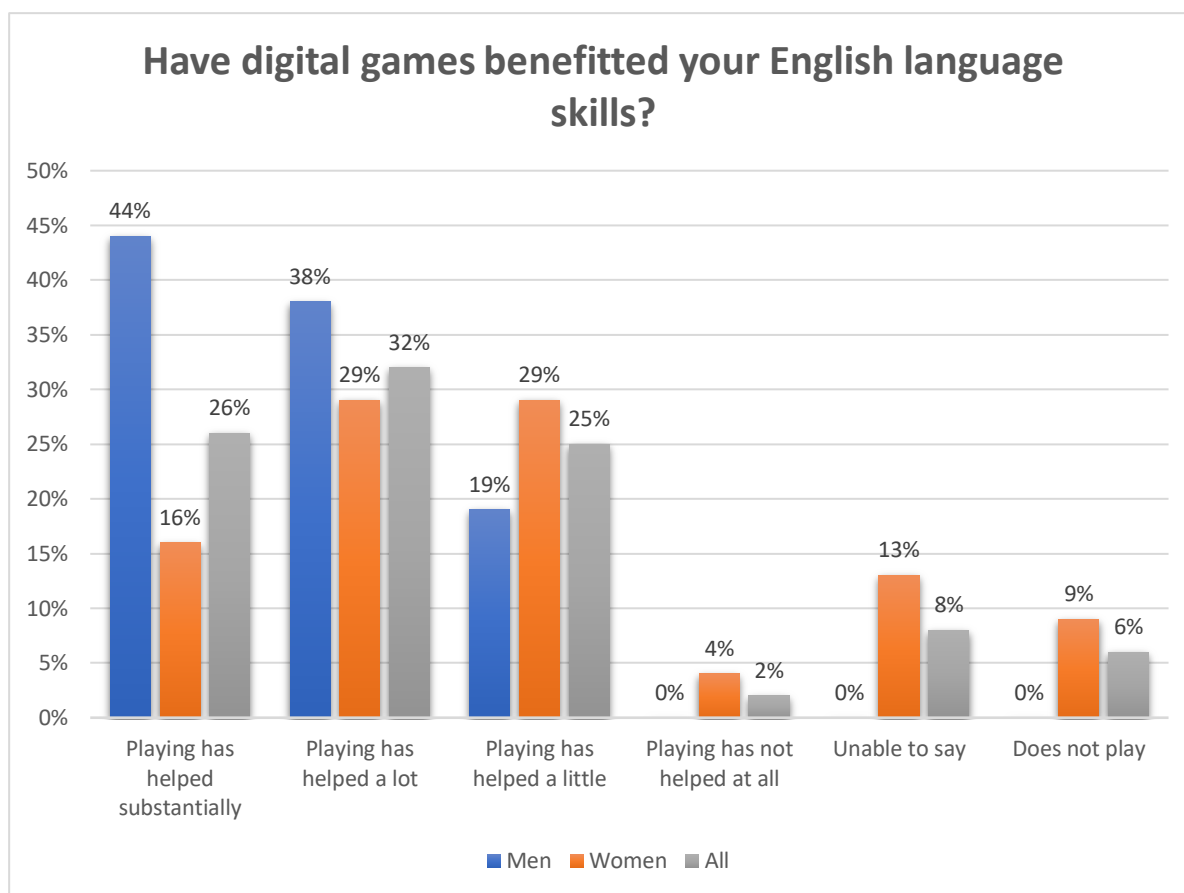


Figure 8: Student opinions on the benefit of gaming for their English proficiency.

Figure 9 below illustrates which language skills the students report having needed in games. As games usually consist of written text in the form of instructions and objectives, it is not surprise that reading comprehension was the most commonly needed language skill in games. 78 out of 82 (95.1%) gamers had needed reading comprehension when playing commercial digital games. Games often include movie-like cutscenes or communication with other players, which may be an explanation for listening comprehension being the second most needed skill in games with a share of 69.5% of gamer students. Gaming is also often productive communication, as 58.5% of gamer students reported having produced written English and 37.8% had produced spoken English. This indicates that gaming is often a social event and not always just passive, receptive activity. As a summary, written language skills are needed more commonly than spoken, and gaming encourages more often to utilize receptive skills than productive skills.

The order of the most frequently needed language skills in games did not change when men and women were compared. Women needed reading comprehension more often (98%) than men (91%). The most indisputable differences were related to listening and spoken skills. 81% of men and 58% of women reported having needed listening comprehension in games, and spoken skills were reported having needed by over half of the men, 56%, compared to women's share of 24%. The results indicate that men play more socially than women. As was presented earlier in this study, men play typically more action, RPG and shooter games than women, games that often encourage players in teamwork situations and communication. Similar results were found by Sundqvist (2009) and Uuskoski (2011), who argued that women's gaming was not as beneficial for language acquisition than men's gaming, which may be due to the fact that women typically play more passive games, such as *The Sims*, which does not require teamwork or communication with other players. Moreover, Sundqvist (2009) found that boys who spent a lot of time playing were more confident in speaking English and they had better oral proficiency than those who did not play as much.

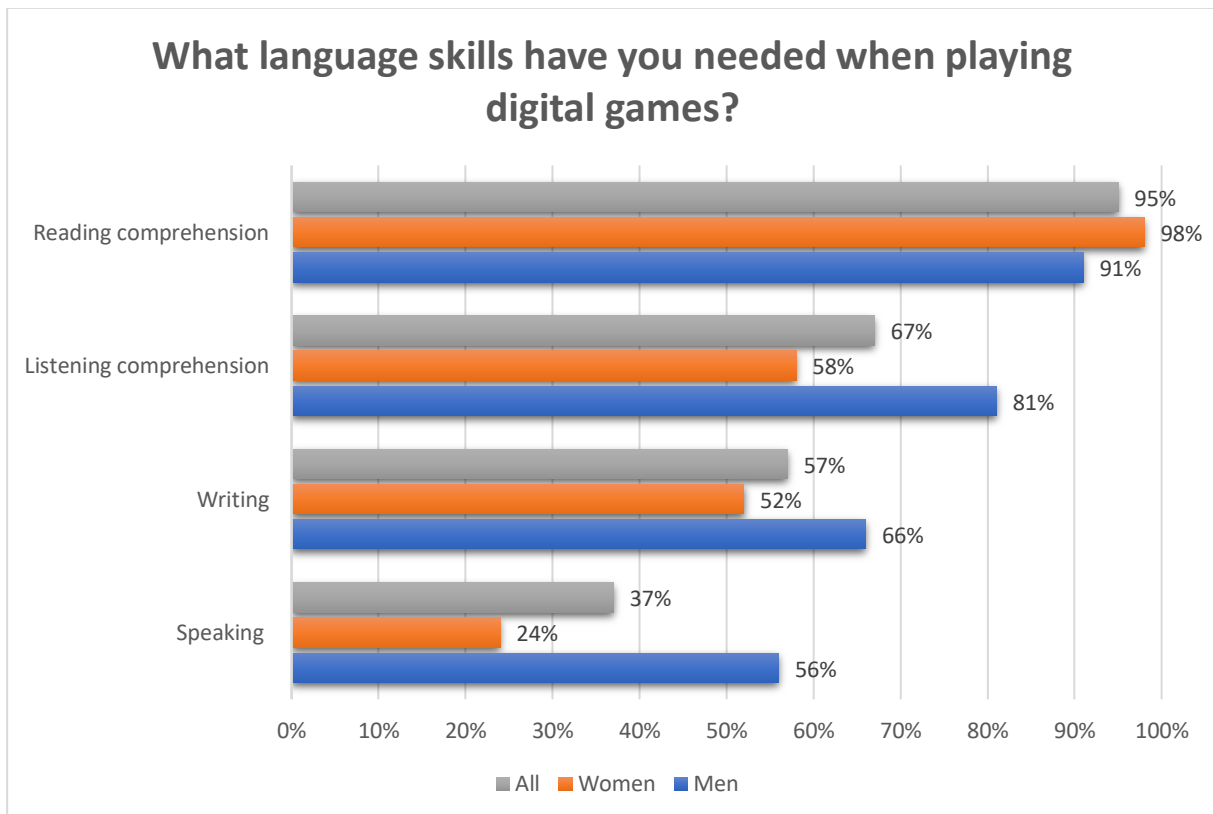


Figure 9: Language skills needed in games.

Figure 10 illustrates which linguistic aspects were reported having improved as a result of gaming. The most frequently improved skill was vocabulary (90%) followed by reading (68%). The next frequent categories were sayings, idioms, and phrases (66%), dialect or slang (45%), conversation skills (45%) and pronunciation (43%). Gaming did not only improve language skills but also improved the cultural knowledge of 32% of the respondents.

The most striking differences between men and women were conversation-, speaking- and spelling skills. 59% of all men and 36% of all women thought that their conversation skills improved as a result of gaming. Cultural knowledge, spelling and grammar were improved the least. Only 12% of women and 31% of men believed that gaming had improved their grammar, which is quite low number considering games often include in-game phrases and grammatical structures. One possible explanation for this is the player's rush to advance in the game so the focus is on the meaning of the text and not the form. The reason why men reported having learned grammar almost three times more often than women may once again stem from the fact that the games men prefer usually involve more communicative aspects. As can be seen from Figure 10, men reported having needed more listening and speaking skills than women which may result in men becoming more aware of the role of grammar in games.

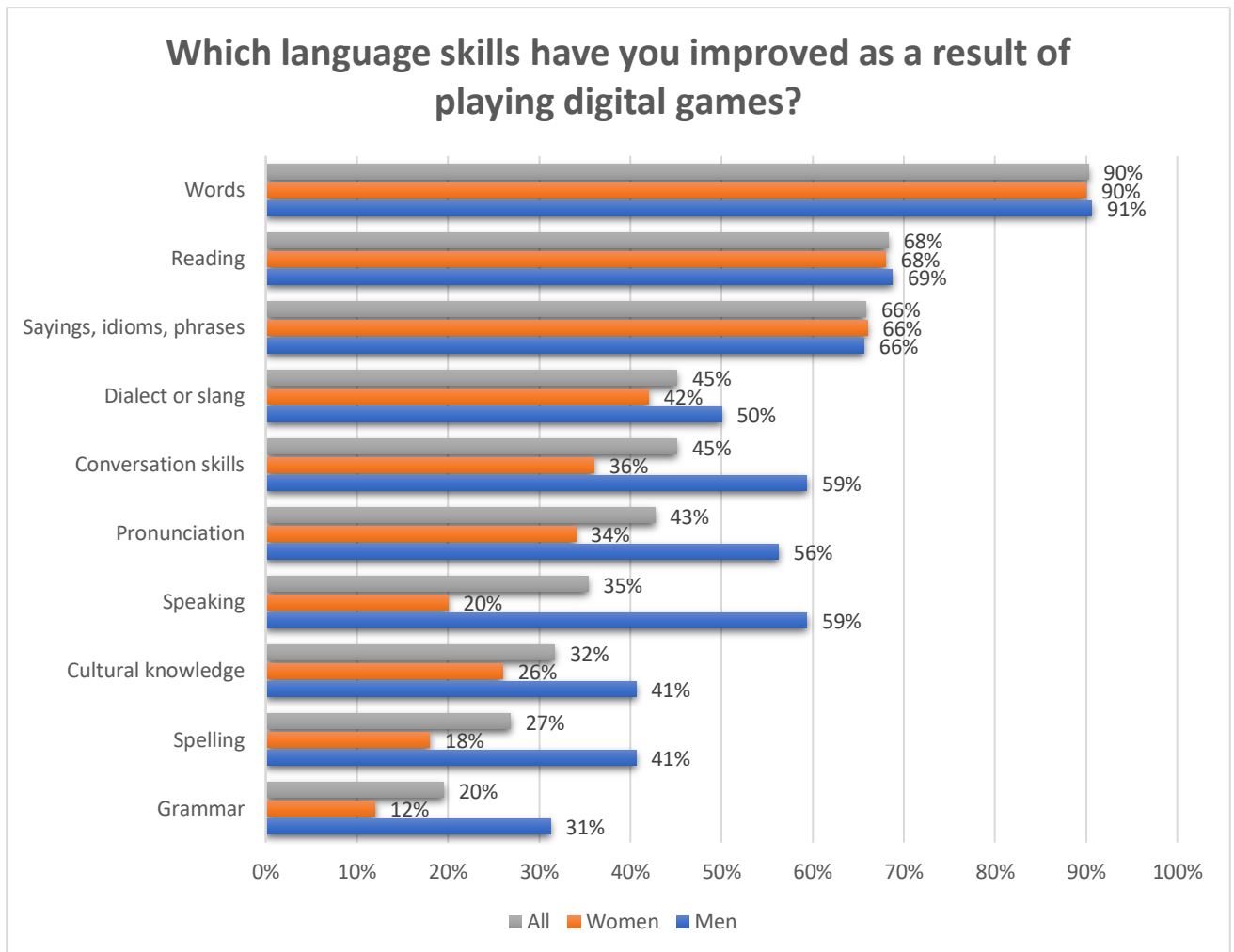


Figure 10: Language skills that were improved when playing digital games.

In the open question 13 the participants elaborated in their own words on what kind of language skills they had learned. As the question was optional, it yielded only 8 responses. The following quotations illustrate some of them.

1. *"Murteita on huomattavasti helpompi ymmärtää, kun voice chatissa vihaiset pelaajat huutaa ympäri maailmaa."*

"Dialects are significantly easier to understand when in voice chat angry players shout all over the world." (Woman, 18.)

2. *"Eryityisesti lyhenteitä."*

"Especially abbreviations." (Woman, 19.)

3. *"Monia sanoja."*

"Many words." (Woman, 17.)

4. *"Sanat suurimmissa osin."*

"Mostly words." (Man, 18.)



In the open responses words were the most commonly improved language skill, as shown also earlier in the study. The first response illustrates how versatile game-derived language learning can be, as one student reports that understanding different dialects can be improved when playing with other players from all over the world.

## **5.5 Benefits of digital game play for in-school and off-school environments**

The previous sub-chapters have shown that most Finnish upper secondary school students participating in this study think that digital games have helped them to learn English. This section aims to find out how digital games benefit students in school and outside it.

Figure 11 illustrates how digital games have helped the respondents in school or studies. One third of the students experienced that gaming benefitted their school performance either by “much” or “substantially”. Only 4% experienced that gaming did not benefit them at all. If those who reported to benefit at least “to some extent” are combined, a total 73% experienced that gaming was useful for their English performance in studies. Gender differences are massive. 94% of men reported the benefits of gaming to be beneficial at least “to some extent” whereas only 60% of women answered similarly.

A closer examination of the data shows that 70% of those who claimed to have benefitted significantly played digital games every day or almost every day. 88% of those who benefitted substantially also played usually over four hours a day.

Figure 11 shows only the subjective experiences of the participants.

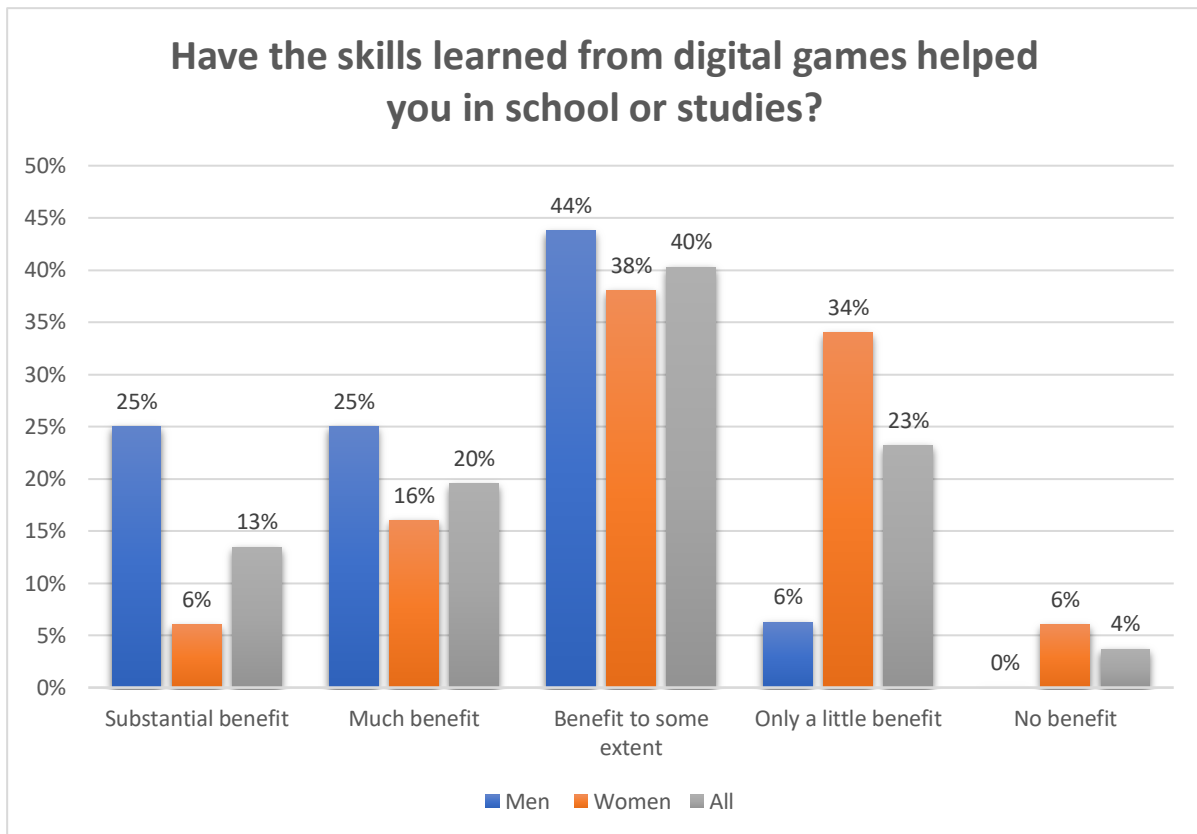


Figure 11: Benefit of gaming for school performance.

Figure 12 below shows the connection between time spent playing digital games and the actual English grades. Those who played 2-4 hours at a time had the highest average of 8.67 while those who did not play at all had the average grade of 6.4. The average of all responses was 7.85. Men's average, 8.56, was higher than women's 7.44, one explanation possibly being men's tendency to play games in English more frequently and longer than women.

These results are in line with Uuskoski (2011), who found that men had better average grades in English than women. However, he also found a statistically significant negative correlation between playing a lot of digital games and having higher Swedish grades, which suggests that English is the language that gamers have a special relationship with.

It is interesting that men had higher average grades than women even if they played as much in some cases. For example, those men who played maximum of one hour at a time had an average grade of 8.67 while women who played as much had an average

grade of 6.93. Uuskoski (2011) argues that certain games are more beneficial to L2 acquisition than some other games, typically role-playing games, strategy games and shooter games and he found that these genres are typically favoured by men. However, there is not much difference between the grades of men and women when gaming for over 2 hours at a time. Perhaps this suggests that those women who play a lot play games that are beneficial for L2 acquisition when again women who play less play more casual games that do not require that much language use. Another possible explanation is that perhaps gaming affects men and women differently, for example, perhaps men are engaged more in games and therefore learn more language, or then women interact with other players somehow differently, which affects language learning. The limitations of the present study do not allow to investigate this further. The number of responses were relatively small (87) and a more thorough research would require inferential statistics. Clearly, further research is needed regarding the matter.

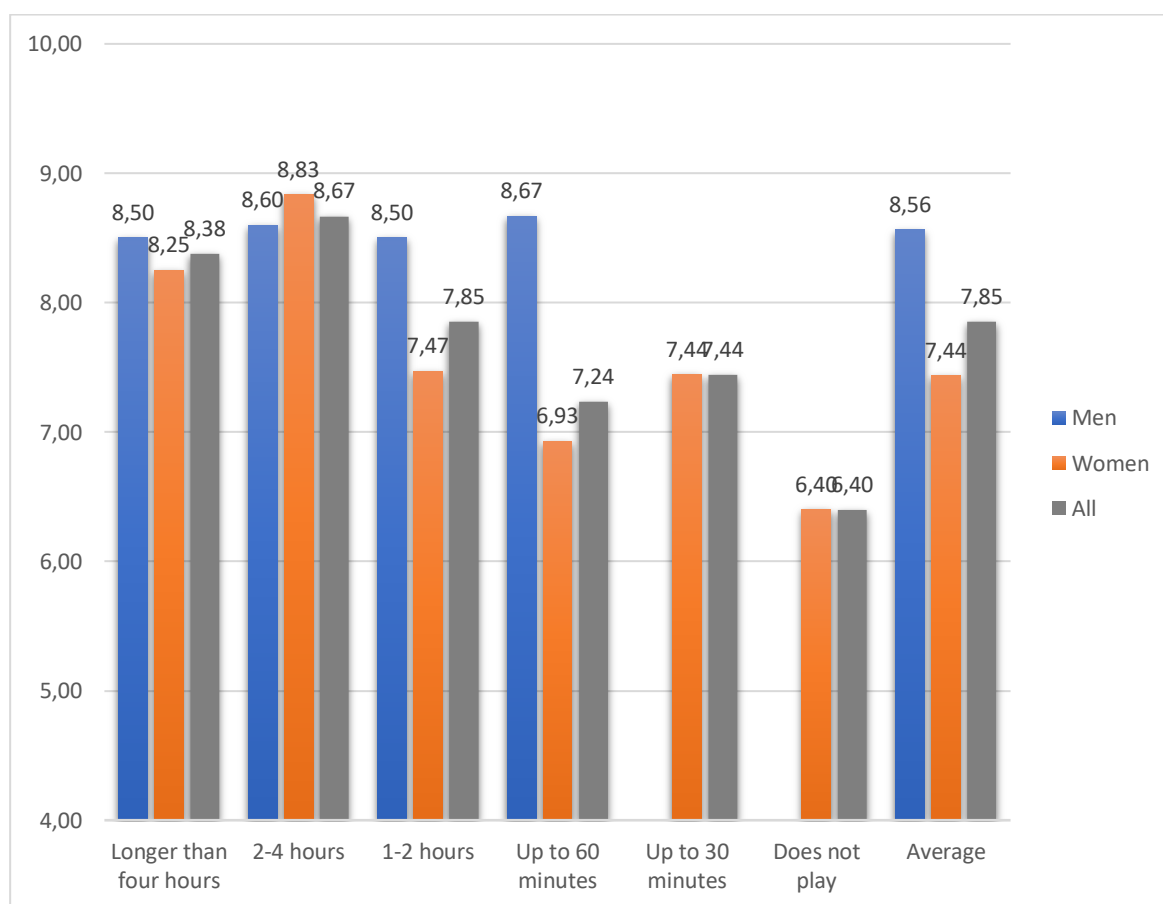


Figure 12: Playing time and English grades.

Figure 13 below shows how useful digital game-derived language has been outside games or studies, for example in home, travelling or free time. The results are once more convincing, as 23% reported having gained “substantial” benefit, 45% claimed that games had been beneficial “to some extent” and 28% experienced “a little” benefit. Only 4% did not experience benefits at all, all of which were women. However, it seems that the differences between men and women are not here as massive as they were earlier in Figure 11 which presented reported benefits of gaming for studies. Here 18% of women reported having gained “substantial” benefit for English skills outside games or studies, whereas the number was 6% for school or studies. Moreover, in Figure 13, men and women reported having gained benefit “to some extent” almost as much for English skills outside games or studies, men’s number was 47% and women’s 44%. However, the results between Figure and 11 and Figure 13 are not completely comparable, as the former had five options to choose from and the latter had four options. The results suggest that casual gaming, which is more typical for women than men, has more advantages to language skills outside studies rather than for studies. Perhaps the students perceive that studies require more advanced language skills that casual gaming does not improve. Perhaps more frequent, “hardcore” gaming is needed to improve language skills in studies.

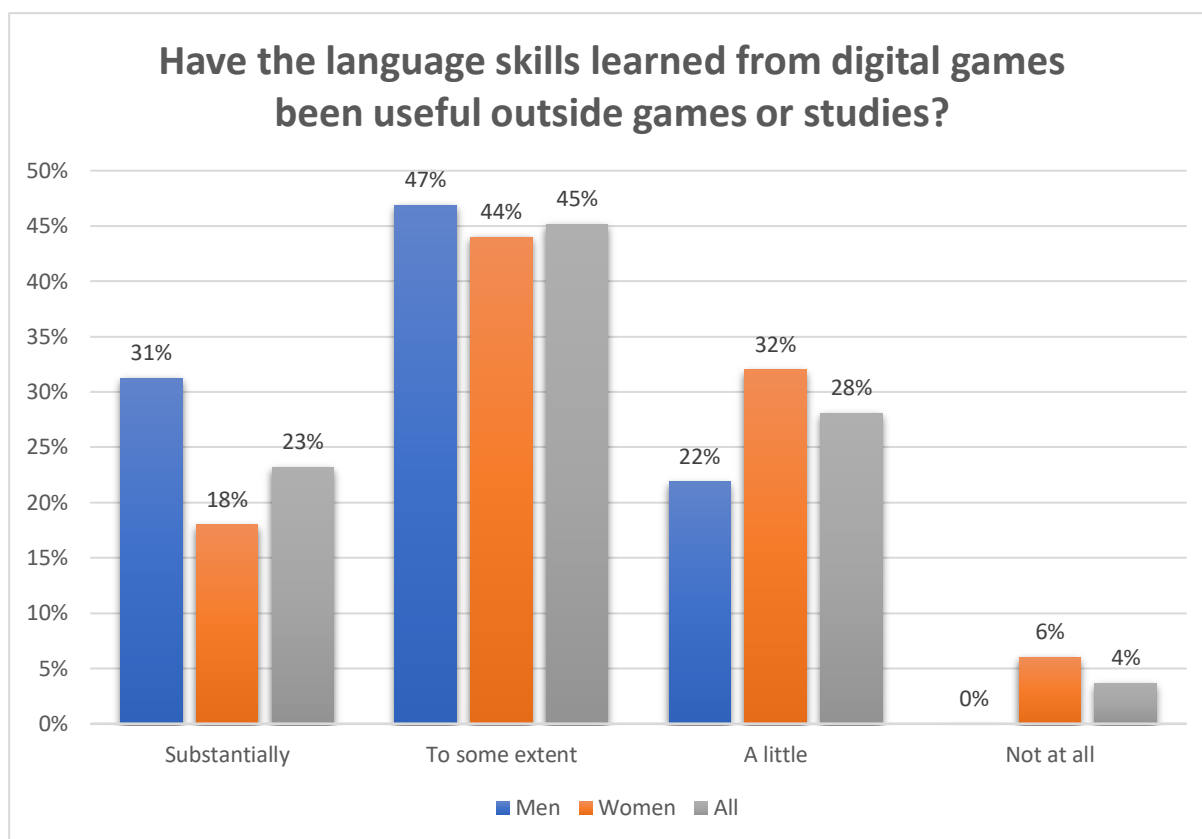


Figure 13: Benefit of gaming for English outside games or studies.

To get more insight about how games exactly were beneficial, the students were asked optional open question 16, in which they could elaborate the experienced benefits. The question yielded 43 answers out of 82 possible, meaning the response rate was 52.4%.

As the responses below suggest, using different media and communicating on the internet was a common situation for game-derived language use:

1. *"Internettiä käyttäessä pystyn ymmärtämään ja kommunikoimaan ihmisille maailmanlaajuisesti pelien kautta opitulla englannilla. Nykyään hyödyn englannista päivittäin internetissä."*

When using the internet I can understand and communicate with people globally with the English I have learned from games. Nowadays I benefit from English every day on the internet." (Man, 18.)

2. *"Ymmärtää paremmin Englannin kielisiä videoita."*  
 "To understand better English videos." (Man, 17.)

3. *"YouTubessa ja muissa sosiaalisissa medioissa on helpompi keskustella toisten kanssa kun on enemmän slangiperäistä sanavarastoa. Vuoropuhelun opettelusta on ollut hyötyä matkalla Lontooseen."*

"On YouTube and other social media it's easier to discuss with others when you know more slang-based vocabulary. Learning dialogue has had also been useful for a trip in London." (man, 17.)

Game-derived English seems to be a great asset in everyday life, as the respondents reported being able to communicate online with people all over the world.

Another common area of game-derived language use was travelling and communication abroad:

4. *"Ulkomailla on paljon mukavampi keskustella muiden ihmisten kanssa, kun on joka päivä kuullut ja lukenut englantia."*

"It's much nicer to talk with other people abroad when you have heard and read English every day." (Woman, 18.)

5. *"Perhe matkoilla ulkomailla vastannut keskustelusta englanniksi."*

"On family holidays abroad I have been in charge of conversation in English." (Man, 16.)

6. *"Puhunut ulkomaalaisten ihmisten kanssa ulkomailla sekä kotipaikkakunnalla."*

"I have spoken with foreigners abroad and in my home town." (Man, 16.)

The responses suggests that game-derived English is beneficial in real-life situations outside the game world, for example on holidays abroad.

Quite many answers reflected human relationships and communication skills.

7. *"keskustelutilanteissa tietää erilaisia sanoja/sanontoja."*

"In conversations you know different words/phrases." (Man, 18.)

8. *"Muille ihmisille (ei suomalaisille) puhuminen esimerkiksi FaceTimessa, snapchatissa ja ennen koronaa kasvotusten."*

"When talking with other people (non-Finnish) for example on FaceTime, Snapchat and before corona face to face." (Woman, 16.)

9. *"Olen puhunut englanninkielisten ystäväieni kanssa ja voinut käyttää joitain uusia sanoja tai sananmuotoja."*

"I have spoken with my English friends and was able to use some new words or phrasing." (Woman, 17.)

According to the responses above, game-derived English may improve the conversations as quite many respondents reported having learned different sayings or new words that can be used in conversations face to face or online.

There were also responses in which games were seen beneficial for working life. In one answer game-derived English was used to cover the lack of other language skills.

10. *Töissä englantia ruotsinkielisille asiakkaille kun en osaa hyvin ruotsia*

"In work English for Swedish customers because I can't speak Swedish very well". (Man, 16)

To sum up, the respondents reported that digital game-derived language can be beneficial in several ways both in-school English studying and in off-school English environments. In addition to benefitting the reported English language skills and English grades, game-derived English was reported to be useful when travelling, communicating, working, and using different media. Indeed, in Figure 13 above 68% of all respondents reported that digital games had been beneficial at least to some extent for their English outside games or school.

Question 17 was answered by those who had not played digital games in English. They were asked how much they think that digital games help in learning English. Out of five students who had never played any games in English, four students believed that games benefit English skills “to some extent” and one “substantially.” The non-players were therefore quite positive towards game-derived language learning. In the last open question the non-players elaborated their answers, and all of the four responses presented that vocabulary was the most commonly benefitted language skill. The non-players’ intuition was in line with the perceptions of gamers, as 90.2% of the actual gamers reported that digital games had improved their vocabulary in Figure 10.

## 6 CONCLUSION

### 6.1 Discussion and conclusions

The present study set out to study Finnish upper secondary school students' perspectives on game-derived language learning and what kinds of language skills they think are needed in, and improved through, gaming. It has also examined the differences between male and female players regarding their gaming habits and experienced benefits. The study was conducted through an online questionnaire with both closed and open-ended questions, which were answered by 87 mostly 16-to-18-year-old upper secondary school students from a school in Western Finland. The data was analyzed by both quantitative and qualitative means, the former being descriptive analysis and the latter content analysis. Statistical significance of the quantitative results was not analyzed. The most important results of the multiple-choice questions were presented as tables and figures.

The first research question aimed to answer how the participants see the connection between gaming and English skills. The participants experienced that playing digital games had been beneficial for their English skills both in-school and off-school contexts. Majority of the gamers felt that gaming had benefitted their English skills substantially. Even most of those who played only once a week felt that gaming had been beneficial to some extent, suggesting that even smaller amounts of gaming can be beneficial for learning English language.

The second research question asked which language skills were reported to be learned as a result of gaming. The students reported that vocabulary was the language area most often improved by gaming, followed by reading; sayings, idioms and phrases; dialect or slang; conversation skills and pronunciation. Written language skills were more commonly needed in games than spoken skills, as reading comprehension was the most commonly needed skill in games, followed by listening comprehension, written English production and lastly, spoken English production.



Finally, the third research questions aimed to examine gender differences regarding gaming habits, English grades, and perceived benefits of gaming for English learning. Interestingly, men seemed to use and learn spoken language in games more often than women, which may be due to the different game genres and games male players prefer. Men also reported being more active gamers and reported acquiring more language than women as a result of gaming. Playing digital games also seemed to have a connection with actual English grades in school. Those who reported having played 2-4 hours at a time had an average grade of 8,67, the average grade of all participants being 7,85. The participants who did not play at all had an average grade of only 6,4, although there were only 5 participants who had never played games in English. Men had an average English grade of 8,56 and women 7,44, which may be due to the fact that men play extensively more than women in terms of frequency and time. Men also typically play games that have higher potential for language learning, such as role-playing, adventure and shooter games. The results are not statistically significant but still show that digital games have potential for language learning also in formal school environments. However, more thorough and large-scale research is needed to validate the results presented here.

The present study also presented a few flaws and restrictions. The size of the data and the chosen method of descriptive statistics do not allow the present study to make reliable generalizations from an entire population. However, some differences in the study, such as English grades between genders, seemed quite notable and it would be important to study more thoroughly in future research. Another flaw is that perhaps a more careful survey design might have been needed, as some choices might have been difficult for the respondents to distinct from each other, such as “substantially” and “a lot” or “to some extent” and “a little”. In addition, the answering options did not stay uniform between the questions, which made the comparison between questions needlessly harder.

As a summary, the students reported that gaming is beneficial for English language learning and many different skills were reported to be learned as a result of gaming.

There are certainly other factors in addition to games that result in higher English grades, such as active participation in online communities, but games are definitely one explanation.

This subject implicated several ideas for further research. For further research, it is important to discuss how schools could benefit from the potential games have for language learning and how game platforms could be utilized in formal, educational contexts. In pedagogics, considering the differences between men and women regarding game-derived language learning is important, as it affects greatly in how education should be organized. As women often play different games and genres than men and learn different language skills, how the education should be organized to benefit both genders? Also, more research is needed why men seem to learn more English even when gaming frequencies are similar. Do men engage more in games and therefore learn more language, or do women interact with other players differently, which affects language learning? Moreover, how the language learning potential of digital games are perceived by different age-groups, for example, by children below school age or by elderly people? Finally, are the benefits of gaming most influential when gaming is organized with educational aims, instructions and feedback or should it be homework-based and self-directed? Plenty of questions arise from this subject, which means it is an important subject to study more.

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## APPENDICES

### Appendix 1: Online survey



## Pro gradu -työ: Onko digitaalisista peleistä hyötyä englannin oppimisessa?

Hei ja tervetuloa vastaamaan kyselyyn!

Kyselyn tarkoituksena on selvittää, mitä mieltä koululaiset ja opiskelijat ovat digitaalisista peleistä englannin oppimisen välineenä. Jos olet 13-20 vuotias ja pelaat tai olet pelannut englanninkielisiä konsoli-, tietokone-, selain-, tai mobiilipelejä, olet juuri oikea henkilö vastaamaan kyselyyn. Kysely on osa pro gradu -tutkimusta, joka tehdään Jyväskylän Yliopiston kielten laitoksella. Yhteystietoni löytyvät kyselyn lopusta.

Kyselyssä tärkeää on, että vastaat rehellisesti omalla mielipiteelläsi - oikeita tai väriä vastauksia ei ole. Vastaathan siis niin tarkasti kuin mahdollista, jotta saataisiin luotettavin mahdollinen tutkimustulos.

Henkilöllisyystiedoista sinulta kerätään ainoastaan sukupuoli ja ikä. Muita henkilöllisyystietoja tai muitakaan tietoja, joista sinut voitaisiin tunnistaa, ei kerätä. Kerättyjä vastauksia ei luovuteta eteenpäin ja niitä käytetään vain tähän tutkimukseen. Vastauksia säilytetään salasanasuojatun tietokoneen kovalevyllä, ja ne tuhotaan kun tutkimus on valmis.

Tässä linkki tietosuojailmoitukseen johon voit halutessasi tutustua:

<https://1drv.ms/w/s!AuAEciXCBvewhLYNm2hL-yTUvhaPCg?e=LTCmVL>

Vastaaminen vie noin 10-15 minuuttia. Suoritathan kyselyn loppuun asti, jotta vastauksesi tallentuvat.

Kiitos paljon ajastasi!

**Perustiedot**

Puhutko englantia äidinkielenäsi?

- Kyllä
- En

Ikä

- 13
- 14
- 15
- 16
- 17
- 18
- 19
- 20+

Sukupuoli

- Mies
- Nainen

Viimeisin englanninnumerosi asteikolla 4-10

- 4
- 5
- 6
- 7
- 8
- 9
- 10



### Pelaamistottumukset 1/2

Pelaatko tai oletko joskus pelannut englanninkielisiä konsoli-, tietokone-, selain-, tai mobiilipelejä? (Jatkossa näitä kaikkia nimitetään digitaalisiksi peleiksi). Erityisesti kielenoppimiseen tarkoitettuja opetuspelejä tai sovelluksia, kuten "Duolingo" tai "Worddive", ei oteta huomioon.

- Kyllä
- Ei

### Pelaamistottumukset 2/2

Mikä seuraavista kuvaa pelaamistasi parhaiten?

- Pelaaan kerran kuukaudessa tai harvemmin
- Pelaaan kerran viikossa tai harvemmin
- Pelaaan useita kertoja viikossa
- Pelaaan joka päivä tai lähes joka päivä

Kuinka kauan YLEENSÄ pelaat digitaalisia pelejä saman päivän aikana?

- Enintään puoli tuntia
- Enintään tunnin
- Enintään kaksi tuntia
- Enintään neljä tuntia
- Kauemmin kuin neljä tuntia

### Englannin kieli digitaalisissa peleissä

Mitä sellaisia pelejä olet pelannut, joissa olet käyttänyt tai joista olet oppinut englantia?

Oma vastauksesi \_\_\_\_\_

Mikä peli on ollut erityisen hyödyllinen englannin oppimisessa? Jos on, nimeä se/ne tässä.

Oma vastauksesi \_\_\_\_\_

Mitä englannin kieleen liittyviä taitoja olet mielestäsi tarvinnut pelatessasi? Valitse yksi tai useampia?

- Luetun ymmärtäminen
- Kirjoittaminen
- Kuullun ymmärtäminen
- Puhuminen
- Muu: \_\_\_\_\_

Koetko, että digitaalisten pelien pelaamisesta on ollut apua englannin kielen oppimisessa?

- Hyvin paljon apua
- Melko paljon apua
- Vähän apua
- Ei lainkaan apua
- En osaa sanoa, onko pelaaminen auttanut englannin oppimisessa

Mitä seuraavista englannin kielen osa-alueista olet mielestäsi oppinut pelatessasi digitaalisia pelejä? Valitse yksi tai useampia. Tarvittaessa voit tarkentaa vastaustasi seuraavassa kysymyksessä.

- Sanonnat, idiomit, fraasit
- Sanat
- Kielioppi
- Oikeinkirjoitus
- Lukeminen
- Kulttuurintuntemus
- Puhuminen
- Ääntäminen
- Keskustelutaidot
- Murre tai slangi
- Muu: \_\_\_\_\_

Halutessasi tähän voit täsmentää, millaisia englannin kieleen liittyviä asioita olet oppinut pelatessasi digitaalisia pelejä.

Oma vastauksesi \_\_\_\_\_

Ovatko digitaalisista peleistä oppimasi taidot auttaneet sinua koulussa tai opiskelussa?

- Merkittävästi
- Paljon
- Jonkin verran
- Hyvin vähän
- Ei ollenkaan

Onko digitaalisista peleistä oppimistasi taidoista ollut sinulle hyötyä muualla kuin peleissä ja opiskeluissa, esim. kotona, internetissä, matkoilla tai vapaa-ajalla?

- Paljon
- Jonkin verran
- Vähän
- Ei ollenkaan

Jos koet, että peleistä oppimistasi taidoista on ollut hyötyä pelien ulkopuolella, kerro miten olet hyödyntänyt taitojasi. (Esim. mitä taitoja olet käyttänyt, miten usein, missä tilanteissa).

Oma vastauksesi

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#### Kysymykset niille, jotka eivät ole pelanneet englanninkielisiä pelejä

Kuinka paljon uskot, että digitaalisista peleistä on hyötyä kielen oppimisessa?

- Merkittävästi
- Jonkin verran
- Vähän
- Ei ollenkaan

Jos uskot, että digitaalisista peleistä on hyötyä englannin kielen oppimisessa, kuvaile, millaisia taitoja uskot pelaajien oppivan?

Oma vastauksesi

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#### Kysely on nyt suoritettu loppuun. Kiitos osallistumisestasi!

Jos haluat antaa palautetta kyselystä tai esittää kysymyksiä kyselystä tai tutkimuksesta, voit ottaa yhteyttä tutkijaan tai tutkimuksen ohjaajaan:

Tutkimusta suorittaa Aleks Hemminki - [aljasaha@student.jyu.fi](mailto:aljasaha@student.jyu.fi)

Tutkimusta ohjaa Teppo Jakonen - [teppo.jakonen@jyu.fi](mailto:teppo.jakonen@jyu.fi)

- Kyllä, haluan päättää nyt kyselyn