

LEARNING ENGLISH
FROM DIGITAL GAMES:
Finnish upper secondary school students'
perspective on game-enhanced language learning

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Tiivistelmä – Abstract Tietokoneilla, konsoleilla ja muilla laitteilla pelattavat digitaaliset pelit ovat nousseet niin Suomessa kuin maailmallakin yhdeksi suosituimmista lasten, nuorten ja aikuisten vapaa-ajanviettotavoista. Suurin osa suomalaisista nuorista pelaa tai on joskus pelannut tietokone- tai videopelien englanniksi (esim. tämä tutkimus), ja on samalla saanut mahdollisuuden kehittää englannin kielen taitoaan motivoivalla, merkityskeskeisellä tavalla. Vaikka aiempien tutkimusten valossa näyttää selvältä, että videopelillä on kiistaton positiivinen vaikutus kielen oppimiseen (esim. Chik 2012, Mayer 2014), se, millaisena pelaajat itse kokevat pelien parissa tapahtuvan kielenoppimisen, on toistaiseksi jäänyt vaille vastauksia. Myös laajemman mittakaavan tutkimukset suomalaisnuorten parista puuttuvat. Tämä tutkimus tehtiin tuomaan esiin suomalaisten pelaajien kokemuksia siitä, kehittääkö digitaalisten pelien pelaaminen heidän mielestään englannin kielen osaamista. Tutkimus tukeutuu toisen kielen informaalin, omaehtoisen ja ei-tarkoituksellisen oppimisen tutkimukseen, jossa merkityskeskeinen kielenkäyttö, motivaatio, yhteistyö ja kokeilemalla oppiminen korostuvat. Lähes 800 lukio-opiskelijaa ja peruskoululaista vastasi verkkokyselyyn, joka kartoitti suomalaisopiskelijoiden englanninoppimista digitaalisten pelien maailmassa ja toi esiin paljon mielenkiintoista tietoa pelien ja englanninoppimisen yhteyksistä, mm. mitkä pelit koetaan kielenoppimisen kannalta erityisen hyödyllisiksi, mitä kielitaidon osa-alueita ja kielen piirteitä pelatessa tarvitsee ja oppii, sekä onko poikien ja tyttöjen oppimistuloksissa eroja. Tutkimuksen pääkysymys keskittyi siihen, kuinka merkittävänä tekijänä nuoret kokivat englannin kielellä pelatut videopelit omassa englanninoppimisessaan, ja tulokset osoittavat selkeästi, että digitaaliset pelit ovat merkittävässä asemassa monen suomalaisnuoren englannin osaamisen taustalla. Sukupuolten kielenoppimiskokemuksissa oli havaittavissa selkeä ero poikien hyväksi, mikä selittyi poikien selvästi aktiivisemmalla pelaamisella. Kaiken kaikkiaan selvä enemmistö kaikista opiskelijoista koki saaneensa tietokonepelaamisesta hyötyä englanninoppimiseen. Tutkimus tuo lisäarvoa niin kielenoppimisen ja -opettamisen tutkimuksen kuin pelitutkimuksenkin saralle, hyödyttäen esimerkiksi kielenopettajia ja -tutkijoita, pelikasvattajia ja kaupallisen pelialan toimijoita.	
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1 INTRODUCTION

Digital gaming has become one of the most popular leisure time activities in Finland, engaging, according to research, almost every third citizen. It is very closely related to the everyday life of Finnish families, as two of three Finnish parents have children who play games, and more than half of all parents also play video games with their children. Moreover, 60% of the Finnish adults between 16 and 64 have played a digital game during the past 12 months, and one of four plays them on a weekly basis (ISFE Consumer study 2012). In the light of these statistics it is not wrong to claim that playing video games is a phenomenon that concerns most Finnish households. The transition of digital gaming from a little-known activity with certain requirements of technical expertise and equipment to a world-wide phenomenon of popular culture with no restrictions bound to skills or social status has been relatively fast, taken that consumers could purchase gaming platforms and games only in the late 1970's (The Strong: Museum of Play 2016).

The fast development of more and more efficient and versatile electronic devices designed for recreational uses is also apt to increase the possibilities for learning. The contents and working methods covered in classrooms are challenged by spontaneous, informal, off-school learning based on the learner's personal interests. For some, digital games might merely be a way to escape the stress and responsibilities in the real world, but for some players, digital games may open as a platform to meet the needs of learning new, being engaged in social interaction or being creative. For professionals and institutes at the field of education, the on-going digital revolution may show both as a chance and a challenge; implementing technology into teaching is likely to open new possibilities and forms of learning and teaching, but at the same time educators are required more and more expertise to be able to work with the new technology, let alone to make the most of it.

Digital games are gaining popularity and people of all ages are found sitting and moving at their gaming devices. For many, gaming appears as a passive and rather useless way of consuming time with no intended benefit for anyone but the gaming

industry. However, a number of complex cognitive processes have been proved to occur when a player is engaged with certain types of games, and when this kind of cognitive processing takes place, learning is likely to happen (see e.g. Mayer, 2014). A skeptical reader may question this and ask what actually is the claimed learning outcome that games are said to produce. According to a number of studies, e.g. Chik (2012), Reinhardt and Sykes (2012), and Reinders and Wattana (2012), video games benefit language learning in many ways, as, for instance, providing the players with vocabulary and letting them to communicate with each other, with all actions taking place in a meaningful context. Language – both spoken and written – being an important medium of meanings in most games, it is no wonder that remarkable second language learning potential lies right on the screen.

The main motivation for this study was, first of all, my own interest in digital games. I never was an active gamer but rather a somewhat casual one, and most games I used to play were in English and, to my own experience, benefitted my English significantly, especially in terms of vocabulary, ‘ear’ for language, and motivation to study. I had noticed that many games contained a vast amount of language that I found useful; there were words, phrases and structural items that were easy to adapt to use after having been encountered during a gaming session. Other game-related content on the internet, including game-dedicated fan pages, additional game material, fan fiction, blogs and much more (which Apperley and Beavis (2011) name *paratexts*) also caught my attention. Apparently a great language learning potential existed in that media as people interested in certain games were writing such texts and creating such content of their own accord. As my own experience of digital games as a tool of language learning was absolutely positive, I wanted to see if other people with interest in digital gaming found that same potential at the same age (13-20).

The present study was also motivated by a device already mentioned in this chapter, the ultimate resource and nuisance of many teachers: the smart phone. Having noticed how much time the target generation spent at the glare of their pocket-sized screens I became interested in the applications and content they were consuming.

Apparently it was the social media and the games that constituted a significant proportion of their screen time, but would these short-term gaming episodes benefit the players' language skills in any way, and if they did, what were the games that featured such benefit and how would the benefits show, if at all? Personally I do not have much experience of mobile games, and those of which I do certainly did not include a notable amount of language elements. Nevertheless, I saw it reasonable not to exclude mobile games and gamers from the study.

As mentioned above, a lot of potential and material for research is seen to exist around the gaming phenomenon, but how about the gamers themselves – do they realize themselves that they are potentially acquiring a language while they play? What kind of linguistic skills or language items do they recognize to have levelled up – or do they? Even though a number of studies of different methods and points of view have been carried out, the gamer perspective still encompasses uncovered questions. Player view is the perspective the present study aims to inspect, the focus being on upper secondary school students mainly between 16 and 19 years of age. In short, the present study will ask students themselves about their gaming practices and language learning-related effects of playing video games. A total of 779 students from 14 Finnish upper secondary schools and secondary schools answered an online questionnaire about their gaming habits and experiences in Spring 2015. The aim of the questionnaire, conducted in Finnish, was to gather and analyze their perceptions of the usefulness of gaming for their English language learning. The questions focused on the frequency and duration of gaming sessions, nature of English skills required during playing games, nature of language learnt from games, nature of possible everyday benefit of the language acquired from games, and the game genres and brands. Most questions were of multiple choice type, and the data gathered by this kind of questions were inspected by means of quantitative analysis. The informants were presented also a few open-ended questions in which they were able to further elaborate their responses beyond the reach of multiple choice options. The open data was analyzed by qualitative means, mainly separately from the multiple choice data.

The following chapters will provide a little insight into what digital games are and how they are seen in previous research (Chapter 2), the role of English in the present-day world as a global language (Chapter 3), and the concept of learning and its relation to computer games in previous research (Chapter 4). Chapter 5 will discuss the research questions and the process of conducting the study, and Chapter 6 will present and analyze the results of the survey. Finally, the study will be concluded in Chapter 7.

2 DIGITAL GAMES

This chapter will discuss the nature, history and terminology of digital gaming, providing a brief summary on previous research on games, including game classification, playing statistics and views on games in education.

Digital gaming is a popular culture entertainment phenomenon which has attracted growing numbers of enthusiasts for a few decades. It is an irremovable part of the present day popular culture, as gaming is among the most popular free time activities of different age groups worldwide. The first computer-based video game, *Spacewar!*, was created around 1962, the famous arcade tennis game Pong was developed in 1972, and commercial, off-the-shelf video games gained expanding popularity later on the same decade (The Strong: Museum of Play 2016). At the beginning of video game history, gaming required certain expertise and equipment and thus was available for and known of by very few enthusiasts. The technical development of devices required for gaming, the growing interest in digital games as a form of leisure time activity and the on-going depress in consumer prices have, however, made games and user-friendly gaming equipment available for anyone to be purchased. Thus, playing digital games is an activity which is no more bound to gender, age, social class, location or any other factor. Games and digital games have been proved to benefit learning in various ways (see e.g. Mayer 2014), but the potential of digital gaming for language learning purposes has been discovered and studied only for a relatively short period. Digital games from the perspective of learning will be discussed in greater detail in Chapter 4. Next sections will discuss

games by having a look at early and recent attempts to define *game*, *digital game* or *play* and different models of game classification.

2.1 Digital games, video games, computer games – what is the difference?

The definitions of *a game* in four internet dictionaries (OED, MOT Collins, MacMillan, Merriam-Webster) clearly form a picture of a leisure time activity with an entertaining, competitive and rule-governed nature. As shown in the quotations below, four different online English dictionaries, Oxford English Dictionary (OED), MOT Collins English Dictionary, MacMillan English Dictionary and Merriam-Webster online dictionary, only present minor distinctions between *a computer game* and *a video game*. The distinctive factors are mainly related to the devices used in the course of playing. (Note: *digital game* was not used as a term in any of the involved online dictionaries.)

Definitions by Oxford English Dictionary (<http://www.oed.com/>):

Game: 1) Amusement generally. 2) An activity played for entertainment, according to rules, and related uses.

Computer game: A game played on a computer or with computers, esp. one involving graphics and operating in real time; a software package for such a game.

Video game: A game played by electronically manipulating images displayed on a television screen.

Definitions by MOT Collins English Dictionary
(<https://mot.kielikone.fi/mot/jyu/netmot.exe>):

Game: 1) An amusement or pastime; diversion. 2) A contest with rules, the result being determined by skill, strength, or chance.

Computer game: Any of various games, recorded on cassette or disc for use in a home computer, that are played by manipulating a mouse, joystick, or the keys on the keyboard of a computer in response to the graphics on the screen.

Video game: Any of various games that can be played using an electronic control to move points of light or graphical symbols on the screen of a visual display unit.

Definitions by MacMillan English Dictionary:

<http://www.macmillandictionary.com/dictionary/>):

Game: 1) An activity that you do for fun that has rules, and that you can win or lose. 2) A type of sport. 3) A particular event in which people take part in a competition.

Computer game: A game that is played on a computer.

Video game: A game in which players use electronic controls to move images on a screen.

Definitions by Merriam-Webster online English Dictionary (<http://www.merriam-webster.com/dictionary/>):

Game: A physical or mental activity or contest that has rules and that people do for pleasure; a particular occurrence of a game.

Computer game: Not found.

Video game: An electronic game in which players control images on a television or computer screen.

The terms *video game* and *computer game* have been used more or less interchangeably in previous research on gaming (Sundqvist and Sylvén 2012: 189), and therefore, taking into account how the dictionary entries above define them, it is not wrong to say that either these two are parallel-level terms or *video game* is found as a hypernym for *computer game* because of the specific and thus exclusive nature of the word *computer*. Additionally, *digital game* and *television game* are often used as synonyms for *video game* (Mäyrä 2008: 52). The present study will use the term *digital game* as a general term to refer to all digital games played on a screen of a television, computer, console, or a handheld (mobile) device. When games played on computers are discussed, the term *computer game* will be used, and if games played mainly on game consoles such as Sony PlayStation, Nintendo GameCube or Microsoft Xbox are

discussed, the term *video game* will be used. (However, *video game* and *computer game* will also be used occasionally as synonyms for *digital game* in order to avoid repetition.)

2.2 Defining *game* and *play*

The first attempts to describe games and playing (other than digital) were made in the early 1900s, and regardless of the fact that digital games as we know them did not yet exist, the concept of playing games as a recreational, non-profit activity was becoming known. Therefore, it is interesting to see how the definitions of games from the early 20th century meet the modern gaming phenomenon. According to sociologist and philosopher Roger Caillois' (1961: 12-26) classification there are four fundamental categories of games: *agôn* (contest), *alea* (chance), *mimicry* (simulation), and *ilinx* (vertigo). Competitive games, which are the first category, would include such games as chess, athletic sports and cock fights; games of chance cover activities in which the fortune has a greater stake than individual skill, including gambling; mimetic games, like child's play, acting, or the likes, contain a dramatic aspect, where the player is trying to imitate someone or something else; and games of the *ilinx* category, some examples of which are found in amusement parks, are played in pursuit of vertigo.

This categorization may have been accurate at its time, but now it certainly has its flaws as it fails at including modern games in a straightforward way. It would seem that a multiplayer role-playing computer game played in a tournament, for example, would be difficult to categorize within just one category, as it is likely to include elements of both *agôn* and *mimicry*. Caillois (1961: 72) shows how his categories can be combined to pairs or even trinities to better describe the qualities of different games, giving the example of a horse race, which is a competitive game for the jockeys, having an imitative aspect with the jockeys being clad in their riding suits, and existing as a pretext for betting, which is a game of chance. To describe the continuum from rule-lacking turbulence to rule-governance he also establishes a scale from *ludus* (rule-based) to *paidea* ('uncontrolled fantasy'), which illustrates how strictly a game is circumscribed by rules or other conditions (Caillois 1961: 27). So,

games are either strictly controlled, completely free-form, or something in between. However, most video games, commercial board games and generally all games with a fictional element still fail to fit in this classification as they are both ruled and make-believe, states Juul (2011: 13). He goes on stating that rules determine an area where they apply, thus separating the game from the rest of the world. He also suggests that fiction is likely to create new worlds which are different from the real world, and that “The space of a game is part of the world in which it is played, but the space of a fiction is outside the world from which it is created” (Juul 2011: 164).

To answer the question of what a game is, Juul (2011: 36-43) presents a structural formalist *classic game model* with six features. According to him a game is

- “1. a rule-base formal system;
2. with variable and quantifiable outcomes;
3. where different outcomes are assigned different values;
4. where the player exerts effort in order to influence the outcome;
5. the player feels emotionally attached to the outcome;
6. and the consequences of the activity are optional and negotiable.”

He argues that having all these features is necessary and sufficient for something to constitute a game. These features work on three different levels, which are “the level of the game itself, that of the player’s relation to the game, and that of the relation between the activity of playing the game and the rest of the world” (Juul 2011: 36-43). By comparing the definitions of game by Caillois and Juul it can be stated that the nature of games has somewhat changed, now including elements (like that of fiction) which did not necessarily exist as such at earlier times. One could also suggest that the increased amount of free time people now have has something to do with the issue.

Whitton (2010: 23-27) also presents an extensive definition of the most focal characteristics of games, including

1. competition (“the goal is to achieve an outcome that is superior to others”),
2. challenge (“tasks require effort and are non-trivial”),

3. exploration (“there is a context-sensitive environment that can be investigated”),
4. fantasy (“existence of a make-believe environment, characters or narrative”),
5. goals (“there are explicit aims and objectives”),
6. interaction (“an action will change the state of play and generate feedback”),
7. outcomes (“there are measurable results from game play (e.g. scoring)”),
8. people (“other individuals take part”),
9. rules (“the activity is bounded by artificial constraints”), and
10. safety (“the activity has no consequence in the real world”).

She highlights the importance of interaction, as it allows the learners to identify misconceptions and test their understandings. Furthermore, she acknowledges that there is space for learning in games and states that providing feedback is a key element, as it is difficult for learners to improve their skills without feedback identifying their areas for improvement (Whitton 2010: 31).

Juul (2011: 1) describes the ‘half-real’ (or alternatively ‘half-fictional’) nature of digital games by arguing that even the events are located in a fictional world, they are at the same time real with real rules to be interacted with and the real event of winning or losing a game; from committing these real actions in a fictional world, he says, it follows that playing a video game is interacting with real rules in a fictional world. The Finnish game researcher Frans Mäyrä (2008: 52) finds that when digital games are concerned, the key term is *interactivity*. He sums it up noting that interactivity is “what games are and what they do, at the very core of gameplay”. He goes on saying that the experience of “genuine and rewarding interaction” is achieved with very few software applications other than digital games. This is particularly true with present day technology, which can provide us with very realistic conditions. Mäyrä also makes the notion that the interactivity of gameplay is not the only necessary condition for games, but interpretative activity by the participating player should also be involved (2008: 53).

So, when games are concerned, the activity in which they are used is *play*. Again, I will provide an early definition by Caillois (1961: 9-10), who states that gaming is an activity which is, first of all, free, which means that playing is not obligatory. It also needs to be separate from the surrounding world by setting the limits of space and time in advance, and uncertain so that the course of play nor the result of it should not be made beforehand. He also acknowledges the unproductive nature of playing, meaning that playing should not create any goods, wealth, or new elements. Finally, the rule-governed and make-believe nature of *play* are stated, meaning that new 'legislation' within the activity is created through certain conventions and that the players are aware that their actions are occurring in a second reality or in a free unreality (Caillois 1961: 9-10). This half-a-century-old definition meets, to some extent, also the modern idea of *play*, as it has similarities to that of Klabbers (2009: 11-12), who sees that in order to have *meaningful play*, a framework of form, content, and context is required.

In the light of the examples presented above, it seems that there is and has been a broad agreement for more than half a century on the rule-based and make-believe nature of games, and especially so when modern digital games are concerned.

2.3 Digital games in previous research

As Mäyrä (2008: 3) notes, not all concepts useful in describing one game suit the other, because the term *game* may refer to different kinds of games, be it a thousand-year-old board game or a contemporary hyper-realistic first-person shooter (FPS) video game. It may therefore be necessary to specify that in the present study from this point on, by *game* reference is made only to digital games played on different electronic devices. Mäyrä (2008: 6) also points out that game research with any games on focus has actually been carried out for more than a hundred years, including example studies on, for instance, the games that North American Indians used to play, but the focus of game research has been on digital gaming for a significantly shorter period. The field of digital game studies is indeed a relatively young but also a largely expanding one. Reasons for the growing interest in game studies are seen to relate to the popularity of games themselves, the commercial success of the games

industry, or both (Mäyrä 2008: 4). Moreover, the on-going design and production of new, visionary devices with better performance together with firmly dropping consumer prices ensure that no decrease in game development, consumer gaming time or material for game studies is to be predicted. Therefore the study of game design and development has become an expanding field of game studies (e.g. Juul 2011: 18).

So far it has been difficult to give a clear-cut definition for game studies. Mäyrä (2008: 6) defines game studies on a general level as “a multidisciplinary field of study and learning with games and related phenomena as its subject matter”. However, he also goes on to note that organizing this diversity of matters into a systematic entity of theories and methodologies and discussing it in academic means and purposes makes it complicated to provide a more precise definition, and suggests that therefore understanding about the initial emergence of game studies and the central questions of the field is required. (Mäyrä 2008: 6.)

Present-day ludologists and game researchers appear to have a more positive take on their subject than their predecessors, as playing and games are seen more and more as a source of learning and a platform for co-operation and communication. In earlier days it was not quite so, and the usefulness of play has been questioned by, for instance, Caillois (1961: 5), who states that playing is an example of wasting time, energy, ingenuity, skill, and money. On the other hand, he does not include professional athletes such as cyclists or actors in the category of players but rather regards them as workers, who have to think in terms of personal benefit and success, similarly to a number of present-day digital gamers, who do not only play for amusement but also for a living,

In terms of research, games can be approached from several different perspectives (see e.g. Juul 2011: 15), of which I will briefly view two, *ludology* and *narratology*.

Ludology, the social scientific approach, sees games in connection with and influencing the people using them; it sees that due to their nature of making people actively take part in play games have unique qualities which separate them from other media which do not require such active participation. Even suggestions of

naming the study of games as ludology have been presented even in early game research (see Caillois 1961). The other approach in turn, narratology, discusses games as a category of stories or a medium of storytelling. A kind of denial of the aforementioned interactive qualities of games characteristic to some narratologists has stirred much controversy (see e.g. Aarseth 1997, Apperley 2006). Apperley (2006: 20) notes that also the intertextual quality of video games should be acknowledged, as they are “played in negotiation with, and through understanding of, other video games”.

2.4 Categorization of digital games

Similar to other media, also computer games are subject to classification or categorization into genres. Due to their interactive and multiplayer-inclusive nature and availability on several platforms, classification can be carried out based on different aspects of the game. Apperley (2006: 11-19) suggests that only a few categories are needed to cover all games and presents categories of Simulation (including e.g. sports, flying and driving, and life and city simulations), Strategy (dividing into real-time (RTS) and turn-based (TBS) categories and including games with a strategic element and often played from a general god’s-eye-view), Action (dividing into first-person shooter (FPS) and 3rd-person action games), and Role-Playing Games (RPG) (which often are closely tied to the fantasy genre in literature). He also makes the notion that it is “crucially important -- to think each individual game as belonging to several genres at once” (Apperley 2006: 19) and acknowledges that new “messy” categories emerge and cross the traditional game genre boundaries (Apperley 2006: 20).

A more complex way of classification is used by the Entertainment Software Association (ESA), which uses several, partly overlapping, categories in a statistic presenting numbers of sold game copies. They count action games, shooter games, sport games, family entertainment games, adventure games, role-playing games, racing games, fighting games, casual games, strategy games, children’s games, flight games, arcade games and other games as distinct game genres. (ESA 2013: 8.) From the perspective of a game researcher this categorization may not make much sense,

but, on the other hand, the needs of entertainment business must be very different from those of game studies. Nevertheless, ESA's genre division showcases that there really is no straightforward way of categorizing games, and the result may vary depending on which quarter is responsible of carrying it out.

As Peterson (2012: 71) puts it, massively multiplayer online role-playing games (MMORPGs) "are a genre of network-based role-playing game where large numbers of individual players interact within a graphically rich and permanent 2D or 3D virtual world that is usually based on a fantasy theme." In such a game, the player appears in a role of a (fictional) character, which is represented by an *avatar*. Other characteristics of MMORPGs include complex virtual environments and social organizations, real-time interaction with other players, and character development through accomplishing in-game tasks (*quests*), often in collaboration with other players. MMORPGs have been recognized to be of significant value for computer-assisted language learning (CALL) and the research of it in that they provide arenas suitable for language learning, creating opportunities to engage in interaction which has been seen beneficial for second language acquisition (SLA) (Peterson 2012: 71).

The present study will not observe game genres as fixed entities but sees it possible to include a game in several genres at once; here, it is not necessarily a certain genre, a certain topic or a certain angle of player viewpoint that matters, but rather the characteristics of the games that represent it. By this I mean that as a game may incorporate a multiplayer game option, utilize a third-person point of view and include elements from several thematic genres such as fantasy, adventure and shooting, it would not be suitable to classify a game encompassing all aforementioned attributes exclusively in a multiplayer genre or a 3rd person shooter genre, as it would also fit in other categories.

2.5 The picture of a *gamer*

A rather common stereotype of an active video game player is, according to my personal experience, that of an obese, introverted teenage man with tendency of being asocial and lacking practical skills needed in everyday life. However, as the

popularity of games seems to have grown among all age groups (see e.g. Sihvonen & Mäyrä 2009), gamers now come from a variety of social backgrounds around the world, including both male and female players in different age groups (Mäyrä 2008: 26). The Entertainment Software Association (ESA 2013) reports that 58 % of Americans play video games, the average age of game players being as high as 30 (in their more recent report from 2015 the average age is 35). In 2013, under 18-year-olds constituted 32 % of game players, 18-35-year-olds constituted 32 % and the remaining 36 % constituted of 36-year-olds and older (ESA 2013: 2). In comparison, ESA's statistics from 2015 show that the share of older players has grown, as in 2015 only 26 % of all players were underage, 30 % were between 18 and 35, 17 % were from 36 to 49 years and 27 % of all players were over 50-year-olds (ESA 2015). In 2015, 44 % of all players were female and women over 18 years represented a portion of 33 %, whereas, in comparison, boys at the age of 17 and younger formed only 15 % of all players (ESA 2015). As the number of female gamers is increasing and no age group forms an evident majority, it is no more valid, if it ever has been, to claim that "a typical gamer" is a teenage male.

The report by Entertainment Software Association (ESA 2013) also reveals something about the games that American citizens buy and play and the gaming devices they use. Their data shows that of all online games that Americans play the biggest share is formed by puzzle, board game, game show, trivia, and card games, which total a 34 % portion. Action, sports, strategy and role-playing genres constitute 26 %, casual and social games take 19 %, and a 14 % portion is covered by 'multi-player universe' and 'persistent' genres. Of all gaming devices, 68 % of U.S. households plays on their console (e.g. PlayStation or Xbox), 63 % on their PC, 43 % on their smartphone, 37 % on a dedicated handheld system as PlayStation Portable (PSP), and 30 % on other wireless devices. Moreover, 62 % of gamers were reported to play games with others, either in-person or online. The best-selling video game or computer game genres by units sold in 2012 were action and shooter games, both of which had a share larger than 20 percent. Sport games had about 15 % share of all sold game copies, and the remaining portion was divided between family entertainment, adventure, role-

playing, racing, fighting, casual, strategy, children's, flight, arcade and other games (ESA 2013).

The Interactive Software Federation of Europe (ISFE) also published a survey from 2012 in which they presented data on gaming habits and practices in Europe, including Finland. Their overview of gaming claims that "60 % of the online population aged 16 to 64 years old in Finland have played a [digital] game in the past 12 months" (ISFE 2012). Also, every fourth adult was found to play games on a weekly basis. When sorted by gender and age, males aged 35-44 formed the largest group of digital gamers, but the gamer profile was, nevertheless, rather evenly distributed in terms of age and gender. However, the age group on the focus of the present study, people between 16 and 19, consisted only 8 % of those who had played a game within the last 12 months. In this light it is practically wrong to claim that digital games only belong to teenage players. Apparently gaming is an issue very close to family life and parenting anyway, as the study found out that 67 % of respondent parents had children who played games, with 52 % of parents also playing games with their children. Furthermore, parents of game-playing children were more likely to find gaming informative or educational and family orientated than parents whose children did not play digital games (ISFE 2012).

Because the term *gamer* can refer to a person who professionally practices his skills in a certain video game several hours a day as well as to someone who has a few games on mobile phone which he occasionally plays, a more detailed definition is needed to separate more and less experienced players from each other. Mäyrä (2008) makes a distinction between *casual gamers* and *hardcore gamers*, noting that it is yet difficult to define this difference between the two groups. He goes on to explicate that the former (even if vague) category refers to people who might invest heavily in terms of time and money into playing, but there is something (perhaps the occasional nature) in their playing preferences which makes them fall into this category; I assume that for hardcore gamers, game-playing is more than a mere hobby. Anyway, casual gamers are likely to "form the 'invisible majority'" (Mäyrä 2008: 27).

As a reader experienced in gaming may well know, games are often likely to cause at least slight addiction. Previous research acknowledged this as well, and is able to point out several factors which attract players to play a game again and again. Mäyrä (2008: 132) suggests that in MMORPGs, these may include a desire to be immersed in a fantasy world, to annoy other players, to accumulate power or to form relationships. The appeal of group strategy and coordination may also attract players to play the game again and again. In multi-user domains (MUDs), the holding power may be the player's achievement in the game, the desire to explore the game further, the socializing potential, and possible imposition upon others (Mäyrä 2008: 132).

Whitton (2010: 38-39) discovered three primary motivations why people choose to play games on their leisure time. Firstly, she states that games provide mental stimulation which challenges the player and attracts to play again; secondly, games involve social interaction and thus enable competition and collaboration; and thirdly, certain games let the players achieve physical goals, such as do physical exercise or practice hand-eye coordination. She also found out that to occasional players, the motivation to play was none of the above, but their main reason to play was usually to alleviate boredom and to facilitate social situations.

2.6 Serious games and vernacular games

This section does not intend to discuss the topic in detail, but aims to clarify what key terms are focal in the present study. Language learning and learning in digital games will be discussed in Chapter 4.

When speaking of games designed specifically for language learning purposes, we also make a distinction between *educational games* (also *Games for Learning* or, in line with not having entertainment as number one priority, *serious games*) and *vernacular games* – the former referring to games and simulations that are intended to promote learning (Mayer 2014: 4) and the latter referring to “commercially available popular games not designed purposefully for L2 learning purposes” (Reinhardt and Sykes 2012: 32). This distinction is straightforward, as it is easy to define whether a game has been designed for educational purposes or not (p. 34). The present study does

not aim to take educational games into consideration when the perceptions of high school students on the impact of gaming on their L2 learning are surveyed, but will focus only on vernacular games, which, for the most part, are commercial entertainment games. This was also made clear for the survey informants in the questionnaire (appendix 1).

To point out some elementary distinctions, Reinhardt and Sykes have created a framework. First, there is the distinction between the terms *game-enhanced*, which is associated with vernacular games, and *game-based*, which is associated with educational and L2 learning purposed games. (A language learning and teaching approach called *Game-Based Learning*, GBL, indeed exists.) Secondly, it is also distinctive whether the focus of research is on L2 learning or L2 pedagogy (Reinhardt and Sykes 2012: 33). The present study explores game-enhanced L2 learning, as in-class, teacher-prompted learning sessions are not covered, but the focus is only on the students' unprompted free-time activities which exclude the use of specifically educational games.

2.8 The role of mobile information technology in schools

The advantages of technical development, including the availability of internet-connectable and portable devices, easy access to information, fast information transfer and easy adaptation of technical solutions to learner and teacher uses, has made such technology an important means of current-day teaching and assessment in schools in Finland and around the world. The transition from pen-and-paper methods to electronic and digital writing has been relatively fast, considering that although in early 1990s not all Finnish classrooms had an electronic workstation, the first electronic matriculation examinations in Finnish upper secondary schools are to be carried out in 2016. Not only has the transition taken place within classrooms, but also in the students' everyday life: in 2015, 89 % of Finnish youths and young adults between 16 and 24 years used internet several times a day, and 96 % of the same age group said to have used internet on smart phone outside home and work (Tilastokeskus 2015). The smart phone is no longer a luxury but it has become a necessity. As a result, more and more people have internet access and unlimited

means of communication literally in their pockets. Even if teachers in some schools may be struggling with their students' in-class smart phone use, the continuous presence of mobile information technology also has its positive sides: for instance, although a teacher may not suppose or require students to have brought along a smart phone, tablet, laptop or other portable device to work with, those who own such a device will, to my experience, prefer their own equipment over that provided in the classroom. Furthermore, many Finnish schools have decided to provide their students with their own personal laptops or tablets. The presence of handheld workstations and constant access to online information reduce the temporal and local restrictions of learning, enabling other solutions of modern technology, such as distance education, digital learning and teaching environments, game-based teaching projects, and spontaneous, off-school or leisure time learning via digital games and other digital media.

As the education digitalizes and is no more bound to a specific location or a specific time, it is no wonder that researchers want to know more of the learning potential of digital games, which are among the top interests of people in school age.

3 ENGLISH, MODERN MEDIA AND THE FINNISH YOUTH

This chapter aims to provide a view into how digitalization has influenced the practices of language use at the 21st century by very briefly discussing the role of English in present-day Finland and the new forms and attributes of communication and literacy that have emerged as a result of the digital revolution.

3.1 English as the digital *lingua franca*

English has taken a major role in everyday life of many Finnish people. Modern technical solutions, including smart phones, gaming consoles and news and social media applications bring English close to everyone willing to keep up with the times and make it essential to be able to understand or interact in it. This relation between

the technology-driven modern media and English as a *lingua franca* has been discovered by a number of studies. Paakkinen (2008) has noticed that in Finnish TV and magazine advertisements, English input is available in small amounts but frequently. In addition, Piirainen-Marsh (2008: 136) acknowledges that digital gaming and its by-products are one of the most central contexts in which Finnish children meet English.

Why do non-native English speakers promote the use of English then? A reader with experience in internet use has most probably noticed that finding information, ordering consumer goods or interacting with other people online is often easier or simpler when conducted in English. As e.g. Lee (2016) shows, Internet use did begin from the United States of America, which is a major reason for the broad use of English as a *lingua franca* on the internet. English is not, as big a language on the internet as many think: the relative amount of English web content has decreased by 25 percentage points (from 80 to 55) between 1998 and 2012, and only less than 30 per cent of internet users worldwide speak English as their first language (Lee 2016: 118). However, there is no accurate and reliable way to measure the linguistic diversity of the internet, as Lee (2016: 129) points out. Nevertheless, Leppänen & Nikula (2008: 9-10) find that the spread of English is likely to make international communication and cooperation easier. As for us Finnish people, practical issues are not the only excuse for communicating in English, but the reason behind the use of English in primarily Finnish contexts may also be due to the process of building one's personal imago. Firstly, choosing the global language symbolizes trendiness and internationality (Paakkinen 2008: 326-327), and secondly, it indicates one's expertise in gaming (or other fields) and reflects their feelings and attitudes (Piirainen-Marsh 2008: 162-163).

The use of English is likely to have its pros and cons. At a personal level it may be expected to result, for instance, in improved personal fluency and courage to use the language. E.g. Leppänen (2008) has discovered that many Finnish people use English fluently beside their mother tongue, as English now belongs to their everyday language repertoire (Leppänen 2008: 229). In addition, it is likely that as people get used to hearing and speaking English, international and interlingual communication

would be easier and less frightening to start when needed. However, the spread of English not only appears as a positive matter, but is also a cause of concern, as it is sometimes seen as a threat to native languages and as a possible cause for inequality due to people's different capabilities to understand and produce English (Leppänen & Nikula 2008: 9-10).

3.2 Digitalization as a remodeler of communication

Digitalization has caused a significant proportion of communication to take place on-screen. As a result, people are able to interact in real time from remote locations, being dependent on the internet. *Computer-mediated communication* (CMC) occurs on an increasing number of different devices, applications and platforms designed to diversify, simplify and expedite the interaction process. The development of CMC has been rapid: email was invented in the early 1970s, the World Wide Web was launched in the 1990s and the so-called *web 2.0*, a multitude of platforms used for collaborative and social operation, often titled as *the social web* or *the social media*, emerged at the very beginning of the third millennium (see, e.g., Heyd 2016: 90). As a consequence of digitalization, the conventions of language use have had to adapt to the requirements and limitations of the digital media, resulting in the emergence of digital 'genres', also described with terms such as *text types*, *discourse types*, *styles*, *registers* and *socio-technical modes* (Heyd 2016: 88).

The communication millennials (and also the previous generation) carry out may not be itself fundamentally different from what their ancestors did, but as the medium is now different, communication takes new forms and emphasizes different aspects and skills. Even though fluent use of pen and paper is still appreciated, one may no more need handwriting in their everyday life. Similarly, smooth use of shortcut keys or emoticons (or emojis), immediate responding and rapid swapping from one medium to another were not as relevant skills at times of handwritten communication. The digital media urges more playful and more creative way of language use; as e.g. Nishimura (2016: 106) points out, abbreviations, unconventional spelling, acronyms and emoticons are very common features and, in certain discourses, even a convention. Smart phones and other devices also make people

used to *multitasking*, letting people participate multiple modes of communication in tandem (Lee 2016: 129). On the other hand, the constant presence of smart phones may result in asocial behavior as it prevents one from being truly present at the physical location they are at. As Spilioti (2016) puts it, "Discourses orienting towards a dystopian digital reality often portray text-messaging, e-mail, Twitter and other digital media as impoverished forms of social interaction. In such media accounts, digital communication appears to lack the genuine and warm aura of face-to-face interaction is said to cause the deterioration of existing social relationships" (Spilioti 2016: 136).

Quite naturally, digitalization also has an effect on classroom literacy practices. As e.g. Vaarala (2014: 134) notes, reading and writing and the ways in which we read and write are changing, and the smartphone is one of the factors of this change. Pencil, grid paper, hardback prints and linear reading are yielding for touch screen, portability and hyperlinks, which, in turn, is changing language learning and teaching as well. Thomas (2012: 20) even notes that there is research-based evidence that especially young males have begun to reject print-based reading, and suggests that re-engagement could take place when their individual interests or 'passionate affinity spaces' were met. This could mean, for example, the utilization of fanfiction and/or video game related materials or electronic devices. It is important for educators to realize that the constant accessibility of the internet and the social media is opening new venues and possibilities both for off-school and in-class second language learning. This view is contrasted by a small-scale study carried out by Chik (2012: 100-101), who discovered that most teacher respondents found all video games as "violent commercial products and time-wasting" despite of or due to their little exposure to games; what is more, teachers who did not play video games themselves did not regard the in-game English or the games' pedagogic potential as very remarkable issues. In addition, games were regarded as unsuitable for young players because of their commercial purpose. Obviously, the teacher's attitude plays a significant role in classroom, which is noticed by Vaarala (2014), who suggests that utilization of social media in teaching requires the teacher to abdicate her power and

to listen to and follow the students' desire in a learning context (Vaarala 2014: 151-152).

4 LEARNING IN DIGITAL GAMES

This chapter will present a brief insight into a few theories related to why and how learning is likely to occur when playing digital games is in question. In addition, the characteristics or attributes which make video games beneficial for learning, and some earlier studies which show that digital games indeed have promoted learning will also be discussed.

4.1 Theories on how games benefit learning

Mayer (2014) lists four theories according to which games facilitate learning. The first of them is the *reinforcement theory* which was developed by E.L.Thorndike and is based on the idea that "behaviors that are followed by satisfaction to the learner are more likely to be repeated in the future under the same circumstances, and behaviors that are followed by dissatisfaction to the learner are less likely to be repeated in the future under the same circumstances" (Mayer 2014: 64). The reinforcement theory is easily put into practice in digital games: not only games for learning but also vernacular games often utilize the kind of reinforcing feedback which benefits learning. For instance, when having been given a clue, if the player makes a mistake or chooses wrong, a punishment may follow with the clue given again (e.g. "The kitchen is not there - go into the kitchen!"); if the player succeeds, positive feedback will be given together with a text to reinforce the correct action.

The second theory listed by Mayer (2014) is the *schema theory*, which was established by Jean Piaget in around 1926. According to this perspective, Mayer writes, the learner needs to construct a mental mode of the issue to be learnt, and in order to become an expert in a field of study he is required to learn categories and concepts. In educational game development the schema theory is seen as an important

framework, but letting players to interact with a simulation and not providing guidance and instruction is generally inefficient (Mayer 2014, 65-66). Although the idea of conceptual information is focal in learning the relationships between concepts in many theoretical subjects, e.g. the English grammar, it may not be the best approach to study spontaneous, informal learning through games.

On the contrary, one theory which many games, especially certain fast action games, can be seen to support, is the *automaticity theory*. Mayer (2014) explains that it builds on the idea of procedural knowledge when learning new or improving learned skills, encompassing a transition from cognitive to associative and finally to autonomous stage. According to this approach, a procedure is first in declarative form; then it is encoded as a step-by-step process (which still needs to be thought about), and finally it is encoded as an automatic step-by-step process (Mayer 2014: 67). A game where the player needs to learn certain key combinations (often referred to as *combos* in game slang), often performed in fast pace, in order to proceed from one level to another, would serve as a simple example of this kind of learning.

The fourth theory listed by Mayer (2014) is the *social learning theory*, which was developed by Albert Bandura in 1970s, gained popularity in the 1980s, and which features the concept of *strategic knowledge*. This theory states that people learn what to do when they are able to watch what and how other, more experienced people do (Mayer 2014: 68). In practice, the player may learn from the game itself, as many modern video games provide the player with on-screen agents or co-operating computer-run characters to set an example or to give clues how to finish a task, from co-operating online players, or from a player playing on the same screen in the same physical environment. Evidently, many multiplayer games possess a massive potential for social and collaborative learning. What is important, the skills to be learned need not be those which the player is required to master before proceeding in the game, but the social learning theory is also a useful approach to observe how teenagers learn English when they play online with other players. Therefore, this perspective into learning is definitely focal for the present study as well.

Whitton (2012) sees that games used in education have plenty to do with constructivist, experiential and collaborative approaches to learning. She (2012: 11) states that educational games, first of all, build on constructivist theories which find that by actively engaging in learning the learners construct or shape their own knowledge or conception about a subject. Games also provide meaningful contexts for the activity of playing, require problem-solving skills, and enable social negotiation, which are all focal principles in constructivism (Whitton 2012: 11-13). Secondly, games are excellent platforms for experiential learning: it is a remarkable characteristic of games that they enable the players to test their own hypotheses safely, see the consequential effects, and then react again based on the outcome. Thirdly, the collaborative aspect is shown in the forms players can contribute to the game: there are multi-user networked games (or massively multiplayer online games, MMORPGs) which enable simultaneous participation of even thousands of players; playing may take place together or one at a time on the same device; and there are online game communities devoted to certain games to which the players can belong and connect (ibid.: 12-13). This idea of collaboration, as well as the social learning theory discussed above, is very close to Vygotsky's (1926) idea of the *zone of proximal development* (ZPD), which refers to the range of tasks where the learner is capable of operating himself and where he needs assistance from those on a more advanced level; in gaming environment this means that the player needs support or an example from an advanced player in order to be able to finish certain mission or tasks independently. Gee (2003: 209) builds on the concept of ZPD as he presents a principle which he calls the *Regime of Competence*. According to him, games provide learners with opportunities that are doable and challenging, but not impossible, which makes the players operate at the outer edge of their skills.

Salen et al. (2011: 32) approach the social aspect of gaming as they suggest that the use of games for learning applies the view that learning is a social event which is mediated by contexts and situated practices, and therefore learning is not bound to a specific location or time, but takes place in different contexts within particular domains.

There has also been discussion on suitable terminology regarding video game-generated, spontaneous, off-school learning. Sundqvist (2009: 25) suggests *extramural language learning* to be used as an umbrella term; with this, reference is made to the English that learners come across with or use outside of a classroom. She elaborates that when extramural learning is concerned, “no degree of deliberate intention to acquire the target language is necessary on the part of the learner” (Sundqvist 2009: 25). Sundqvist and Sylvén (2012: 192-193) also present several terms with which to refer to different ways of *naturalistic learning*, of which gaming, characterized by aforementioned attributes, is an example. They refer to naturalistic learning also with the terms *self-directed naturalistic learning*, *out-of-class learning*, and *unintentional learning*. When focus is specifically on the acquisition of vocabulary, they suggest speaking of *incidental learning*. They also make the notion that “when the actual learning process takes place in a non-instructional context outside of school, it is an example of informal learning” (Sundqvist and Sylvén 2012: 192-193).

4.2 Game characteristics which promote learning

What such attributes do games have which make them beneficial for learning? Before taking any attributes into personal observation, let us first present a set of game characteristics which, by Whitton (2012: 14-17), have a positive influence on learning. First of all, the playful nature of games is more likely to spark innovation, creativity and new ideas than a more ‘boring’ way of learning; secondly, as there is always the opportunity of re-attempting, a failure in a game is never definitive; thirdly, games create engagement: they cover interesting topics, sustain motivation in different ways (e.g. featuring collectibles, such as equipment or qualities for the character), set new, easy-enough-looking challenges, and stimulate curiosity with secrets to be uncovered; fourthly, games practice *scaffolding* in that they are easy to start as plenty of resources and support is available, but as the difficulty increases, the support decreases and the player becomes more independent; fifthly, games provide the player with feedback: when the player tries something, relevant feedback follows immediately, guiding the player to eventually find a suitable way to solve the tasks; the feedback may utilize multimodality and occur as a hint or a clue, as a failure or

success, or as a direct verbal feedback on how the player should approach the task; and lastly, games help the player to improve her digital literacy: the mass of information input is vast and games help players advance their skills of identifying, evaluating and focusing on the relevant information (Whitton 2012: 14-17). The second of the points above, re-attempting opportunity, has been discussed also by Gee (2012: xii), who explains that games “reduce the cost of failure so that players will explore, take risks, seek alternative solutions and try new styles of play and learning”. In other words, they encourage players to play or use language innovatively and to try such ideas or language patterns which may be unfamiliar for them.

Meaning-centeredness is another attribute of games which has been studied to promote learning. Gee (2012: xii) states that games are likely to focus on well-ordered problems. In their key principles for designing video games for foreign language learning, Purushotma, Thorne and Wheatley (2008; in Thomas 2012: 23) emphasize the meaning-centered nature of in-game instruction, arguing that it is important to have instructions which ensure that learners’ primary focus is on meaning and secondary focus on form. Also Blake (2011: 22) acknowledges the importance of instructions and notes that in the light of previous research it is clear that vocabulary acquisition is significantly impacted by explicit instruction.

The role of social interaction is, for many video game players, an irremovable part of the gaming experience (see e.g. Piirainen-Marsh & Tainio 2009). The social dimension must also be one of the most significant reasons why games are found to generate and promote learning, as already mentioned in the previous section. This game-derived learning outcome may or may not be linguistic, but as the present study will later show, human-human interaction is in a very significant role in terms of game-facilitated language learning. Peterson (2012: 70) refers to an earlier study, in which MMORPG players managed their interaction by assuming an active role in it and even utilized different discourse management strategies to facilitate output coherence. Furthermore, the players claimed to have gained valuable fluency practice. Sometimes the social aspect of gaming is manifested as *affinity groups*, as

Gee (2003) names them; this means that the players of a certain game have mutual goals and practices and thus they form communities in which they play, discuss, share and associate with each other. The interaction taking place in these game-related social contexts is, particularly from the perspective of language learning, a great possibility for the group members to acquire language and literacy skills, as the players may write, read and review fanfiction, game wikis and walkthroughs, and create and upload gaming videos and pictures for others to comment and review. Apperley and Beavis (2011) name these kind of gaming-related activities *paratexts*. Leppänen (2008: 209) notes that fandom is not only a global but also a translocal phenomenon, and discovers that many Finnish fans use English even when they are writing on a Finnish web page and for Finnish fans.

By the dimension of social interaction in and around games, digital games are also likely to have an effect on learners' willingness to communicate. As Reinders and Wattana (2012) explain, even though L2 acquisition may benefit from mere exposure to L2 input, potential access to input does not, in itself, necessarily mean that the input is going to result in a response, but the learner must also be willing to produce the response. Furthermore, previous research has shown that willingness to communicate affects the likelihood of learners improving their productive L2 skills, as learners with that willingness are more active interactants, which means more frequent language use, greater potential to develop language proficiency, and eventually greater language proficiency (Reinders and Wattana 2012: 160-162). A slightly similar notion is made by Reinhardt and Sykes (2012), who explain that interest-based engagement in games is likely to increase L2 learning motivation so that the players are more likely to learn the language in order to play the game than vice versa. This makes learning autonomous and incidental (Reinhardt and Sykes 2012: 36). In this sense, it would be more beneficial for one's English skills to play interesting commercial video games in English than uninteresting games designed for educational purposes.

Good games do, as Whitton (2012) already pointed out above, create engagement. This is agreed by Gee (2012: xiii), who claims that "good games can lower the

affective filter by creating engagement and situations where learners' fears are bypassed" and that computer games encourage players to be active and critical rather than passive, which in turn may be beneficial for learning (Gee 2003: 207). Chik (2012: 102) makes the notion that gameplay enjoyment is in many cases the primary motive for improving one's English skills and the reason why commercial games are preferred over educational games. A game which succeeds in capturing the players at the screen for hours at a time cannot be very uninteresting. Although from the perspective of a gamer's parent the engagement and affection games create may not be merely a positive matter, as there will always be "more reasonable ways to consume one's leisure time", as I have heard many parents express. Therefore, I want to encourage the parents of the game-playing youth to spend some time together with the player around the game and reflect what the player appears to have learned and what there still remains that could be learned.

Nevertheless, engagement in games is created in many ways, of which narrativity, which in gaming refers to how games are used to tell stories, is a central means. Not only is a game with a good storyline likely to keep players interested, but it also gives them tools of language to reason and explain what they are doing. The narrative dimension in games is so important an element of gameplay that some games could actually be called stories which the players can participate and control. The story and possible cut-scenes (which can be text-based, still images or cinematic) give the player information about the conditions, objectives and actions there will be available, but the storyline may also restrict the space, actions or other options there are available. The narrative aspect of games can be seen as a valuable resource for L2 learning, as in-game narratives are often multi-channeled (visual, aural) and the content is likely to include crucial information for advancing in the game. Cut-scene narratives are also, in case the player keeps failing and needs to restart the level, likely to be shown a number of times, which enables learning by repetition.

In terms of language in video games, there is more than narrativity which is likely to help the players learn the language. Games are also said to "situate meaning", which means that they associate words with images, actions, goals and dialogue (Gee 2012:

xiv). Thus, language is connected to something concrete, which makes it easier for a player to later take it into use. Games may also be beneficial in that they provide a vast amount of vocabulary. E.g. in the life simulation game *The Sims* there is a lot of everyday vocabulary, such as household items, mood words and action verbs. Reinhardt and Sykes (2012: 37) even suggest further study to see *The Sims* or another such vernacular game being played with an integrated add-on dictionary.

4.3 Studies with evidence of game-generated learning

Mayer (2014) analyzed previously published academic papers which had compared the learning outcomes between groups taught through video games and through conventional media. As a summary, he states that fields of science and second-language learning showed as promising domains for teaching the content through video games, as the video game groups clearly outperformed the comparison groups, taught through conventional media, in these areas. Use of video games in teaching appeared beneficial in four out of five case studies, including kindergarteners and college students learning vocabulary, seventh-graders learning to speak and listen, and elementary school students learning English skills involving reading, writing, speaking and listening (Mayer 2014: 235-237). Among all media comparison studies analyzed by Mayer, adventure games proved to be most efficient and quiz and puzzle games least efficient for learning; moreover, college students and adults did benefit the most from the use of games in teaching, and respectively, elementary school children benefited the least.

Chik (2012: 109) reports that the gamers who participated her study identified three main areas of gaming to possess language learning potential: primarily the multimodal in-game texts, secondarily online gaming platforms which provided interactional opportunities, and finally, participation in discussion forums. From this we can see that autonomous utilization of paratexts around games is a potential resource for enhancing the language learning that gameplay is likely to facilitate and also in itself a way to learn a language.

In his master's thesis, Uuskoski (2011) examines the connection between gaming and English grades, and finds out that the most active gamers or *hardcore gamers* (playing over 15 hours a week) in average appeared to have higher English grades than those who played less or not at all (Uuskoski 2011: 31). Of game genres included in the study, role-playing games show the most apparent connection with good grades, followed by massively multiplayer online games, strategy games and shooter games; on the other hand, as the correlation between these genres and the playtime amount is also strong, it is difficult to say whether it is really the type of game or the amount of play which has more significant influence the players' English grades (Uuskoski 2011: 32). Nevertheless, certain game types, including adventure games, sports games and driving games, show very weak connection with good English grades, which suggests that these genres are not optimal for informal learning purposes (Uuskoski 2011: 32-33).

In a study by Sundqvist (2009) it was found out that boys preferred playing games like World of Warcraft (WoW) and girls preferred playing games like (The Sims). Boys also played more than girls, benefiting from doing so, as girls' gaming did not contribute significantly to their L2 acquisition. Sundqvist and Sylvén (2012: 198-199) later discovered that in a sample of 102 grade 5 students, boys spent slightly more time on extramural English activities in general than girls did, and significantly more time playing English games than girls did. They also performed better than girls in terms of vocabulary, even though girls tended to be generally better in languages than boys.

5 THE PRESENT STUDY

A quantitative approach with qualitative observation of the open-ended questions was seen the most ideal perspective for the present study in order to be able to utilize both mass data and the individual gamers' personal experiences. In addition, a survey was seen to be a suitable design for the study, as it excels in providing a quantitative, cross-sectional description of attitudes and opinions of a population (Creswell 2014: 13). More importantly, with this large a sample of informants (779),

the generalization from the sample to the population would not be inappropriate. A questionnaire with open-ended and closed questions was found to be the most suitable measure to carry out the survey and collect the data, as it enables the collection of a large sample of data without missing the informants' personal opinions.

5.1 Research questions and hypotheses

As many of the aforementioned studies (e.g. Mayer 2014, Chik 2012, Gee 2003) clearly show, there lies a great potential for language acquisition in digital games. In contrast of the researchers' perspective, it would be interesting to know what the players themselves think about the issue. Do they find that the language learning potential of computer games actualizes in their own play and results in improved English performance, or is the claimed game-derived language acquisition merely a marginal issue for them, and if language acquisition is claimed to have taken place, what are the aspects of language that are caught? To find out what the upper secondary school students have to say on these issues, the present study is asking the following research question:

1: Do Finnish upper secondary school (*lukio*) students experience that digital games benefit their English skills?

To discover more detailed information on the phenomena behind the language learning potential of digital games, the following sub-questions are also asked:

1.1: What kind of language use do English video games require from the players?

1.2: What aspects or items of language are acquired as a result of play?

1.3: Do the frequency and duration of playing influence the experienced language acquisition?

1.4: Are there gender-based differences either in playing habits or experienced learning outcome?

5.2 Data collection measures

To gather informants for the study, principals of a total of 21 upper secondary schools in Finland were contacted and asked for permission for conducting the survey in their schools. The schools were neither selected one by one nor drawn in random, but instead they were picked uniformly from a ranking list of 441 Finnish high schools made by the Finnish broadcasting company YLE (2014). It was then observed whether the high schools within the selection portrayed sufficient geographical and proportional diversity. As the sample included both large (with up to 500 students) and small (with up to 100 students) schools which were distributed quite evenly in northern, southern, western and eastern cities and counties, the sample was accepted as a descriptive one. Permissions were granted by 15 schools, and a contact person, being either the principal, a secretary, or an English teacher, was appointed for each school. Each contact person was sent a hyperlink leading to the online survey to be forwarded to the students by e-mail or an intranet communication system, such as Wilma. The sharing and spreading of the survey hyperlink was controlled or restricted by no other means than a notice to involved teachers that students were not allowed to forward it. Therefore, the possibility of redundant or non-target answers becoming included and thus distorting the data remained, but considering the total number of answers (779), the relatively short period of time during which the survey was accessible, teacher supervision, and the fact that messing up the data would not have benefitted anyone, that possibility was not considered as a real risk.

According to Lankoski and Björk (2015: 4), the systematic design of a game study not only encompasses planning how the informants are sampled and recruited and how the data is gathered and analyzed, but also how the data is anonymized, stored after the study and finally destroyed. They also suggest conducting a pilot study to check that the design works as intended. In the present study, no personal details of which the respondents could be identified were asked. The respondents were not given personal identification numbers either, as it was not seen necessary and it would have required broader collection of certain personal details. So, none of the answers

could be traced back, not even at the level of the school or region they were given in. The survey was put into practice on an online survey platform Kyselynetti (www.kyselynetti.com), which was also used to conduct a small-scale (32 respondents) pilot study in January 2014.

5.3 The questionnaire

The inquiry was conducted in Finnish, as that was found the only appropriate language to collect information from Finnish pupils and students. The questionnaire was divided in eight sections of which each was placed on a separate page. The first section concerned background information and the second eliminated non-players from the pool, directing them to a separate set of questions. Then, in the third section, gaming frequency and duration were investigated. This was followed by sections four and five, which introduced questions concerning the games in which informants had used English, the skills of language needed in and learned from gaming, and the experienced influence of gaming on language learning. The sixth section was about the possible distinctions between learning in the oral and written aspects of language and the possible benefits of game-derived skills of language to English studies or everyday life. The questions in the seventh section, discussing the believed benefit of digital gaming, were responded to by non-players only. Finally, section eight acted as a control point which tracked how many respondents actually finished the questionnaire and provided the contact information of the researcher. Most questions were mandatory, but open questions were made optional in order to prevent respondents quitting the query too early due to inability to express their thoughts and to reduce the number of irrelevant responses. The questions are presented in English below section by section. Below, optional questions, which did not require a response by the informant in order to carry on, are marked with 'optional'. The original Finnish query with all instructions included is found in Appendix 1.

So, the questionnaire was begun by asking the respondents a few background details. This first page of the questionnaire included the following questions:

1) *Do you speak English as your mother tongue?*

Yes/No

2) *Age.*

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

3) *Gender.*

Male / Female

4) *Your latest English grade in secondary school on a scale of 4 to 10.*

4 / 5 / 6 / 7 / 8 / 9 / 10 / If else, what?

The second page only introduced one question,

5) *Do you play or have you ever played English video games on a computer, console, web browser or mobile device?*

Yes/No

which was asked to separate those who have no experience of gaming and to direct them onto a different set of questions (19 and 20). Respectively, if respondents answered Yes to question 5, they carried on to question 6 but skipped questions 19 and 20 at the end.

On the third page the respondents were to provide more detailed information on their playing habits in terms of frequency and duration of playing.

6) *If you play or have sometimes played computer games (other than educational ones), which of the following options describes your gaming the best?*

a) I play once a month or less.

b) I play once a week or less.

c) I play many times a week.

d) I play every day or almost every day.

7) *When you play computer games, for how long do you USUALLY play on that day?*

a) Maximum half an hour.

b) Maximum an hour.

c) Maximum two hours.

d) *Maximum four hours.*

e) *More than four hours.*

Game brands, skills of language needed in gaming, and the helpfulness of playing for English learning were asked in the next section. Question 11 was a key question of the present study.

8) *What games have you played in which you have used or from which you have learnt English?*

(Open answers, optional.)

9) *Has any game been, in your opinion, of specific benefit for learning English? If yes, please name it here.*

(Open answers, optional.)

10) *What skills of English language have you needed in games? Choose one or more.*

a) *Speaking.*

b) *Listening comprehension.*

c) *Writing.*

d) *Reading comprehension.*

e) *Oral conversation skills.*

f) *Written conversation skills.*

g) *If else, what?*

The skills included in question 10 featured written and spoken comprehension, production and conversation skills, because both written and spoken receptive and productive skills are widely acknowledged to be the key areas of language proficiency. Communication skills, both written and spoken, were also included, but the Finnish term *keskustelutaidot* that was used in the questionnaire translates best as conversation skills or discussion skills, so *conversation skills* will be used instead of *communication skills* in this paper.

11) *Which of the following statements describes you the best?*

a) *Gaming has not helped to learn English at all.*

b) *Gaming has helped a little to learn English.*

- c) *Gaming has helped significantly to learn English.*
- d) *Most of my English proficiency is due to gaming.*
- e) *I do not know if gaming has helped to learn English.*

On the next page the respondents could specify which aspects or areas of language proficiency they had learned or where they had improved as a result of gaming. In question 12, the answer options were not chosen by any scientific method or theory, but

12) *What kind of areas of language have you learnt or what have you improved in when gaming in English? (Multiple choice.)*

- a) *Words.*
- b) *Expressions, idioms, phrases.*
- c) *Spelling.*
- d) *Stylistic matters and registers, e.g. what kind of language it is conventional to use in different situations.*
- e) *Dialect or slang.*
- f) *Grammar.*
- g) *Language history.*
- h) *English culture-related issues.*
- i) *Speaking.*
- j) *Pronunciation.*
- k) *Translation.*
- l) *Conversation skills.*
- m) *Reading.*
- n) *If else, what?*

13) *Here you can specify what skills you have learnt or improved when gaming. (Open and optional.)*

The following section discussed the benefits of gaming in school and studies and elsewhere. Question 14 was included mainly to compare whether the experienced benefits of gaming took place around either spoken or written language skills.

14) Which has gaming improved more, your spoken or written language skills?

- a) Only spoken.
- b) Mostly spoken.
- c) Both spoken and written.
- d) Mostly written.
- e) Only written.
- f) None.

15) Have the skills you have acquired through video games benefited you at school or in your studies?

- a) Not at all.
- b) Very little.
- c) Somewhat.
- d) A lot.
- e) Substantially.

16) Do you feel that gaming ENHANCES your English STUDYING, in other words, it helps you study English more efficiently at school as well? If yes, how? (Open and optional.)

17) Have the skills you have acquired through video games benefited you elsewhere outside games and studies?

- a) Not at all.
- b) A little.
- c) Somewhat.
- d) Substantially.

18) If you feel that the skills you have acquired through video games have benefited you outside the games, please tell how you have utilized these skills. (Open and optional.)

If the respondents had answered 'No' to question 5, they were directed to this final set of questions. Informants with experience in gaming did not answer the following questions at all.

19) *To what extent do you believe English computer games benefit learning the language?*

- a) Not at all.*
- b) A little.*
- c) Somewhat.*
- d) Substantially.*

20) *If you believe that playing computer games facilitates learning English, please describe what kind of skills you believe the players learn or improve. (Open and optional.)*

The last section including only Question 21 did not, as mentioned earlier, present actual questions but was used as a checkpoint to control if all respondents made it to the end. The frequencies and distribution of responses to each question will be examined, analyzed and discussed in Chapter 6.

6 STUDENTS' PERSPECTIVE ON THE INFLUENCE OF GAMING ON THEIR LANGUAGE PROFICIENCY

This chapter will provide a quantitative overview of the results of the multiple choice questions. Following this, a more detailed quantitative analysis of the statistical results will be given. After the quantitative analysis, a qualitative insight into the data will be provided via analysis of the open-ended questions. This chapter will proceed question by question, discussing each briefly and also presenting the respective figures. Chapter 6.8 will then examine the statistical relationships between certain factors, such as gender, latest English grade, playing frequency and duration, and experienced game-enhanced language learning. All results will be discussed in relation to the research questions in Chapter 7.

A total of 779 respondents began answering the query (appendix 1), and 585 of them (75.1 %) proceeded all the way to the checkout point (21), which indicated the respondents that the inquiry was completed. Considering that the last mandatory

question for gamers was answered by 592 respondents, and the last mandatory question for non-gamers was answered by 63 respondents, a total of 655 respondents out of 779 can be seen to have reached their last 'meaningful' mandatory questions. From this it can be calculated that 15.9 % of all respondents abandoned the query prematurely. Questions 5, 6, 8, 12, 14, 19 and 21 each began a new page in the survey, and a small decline in the number of respondents can be seen every time there was a transition to the next page. The respective numbers of respondents for each question are seen below in Figure 1, which is included here to illustrate the slight decline in the number of respondents and to remind the reader of the inequality of the number of responses to each question. Please note also that non-gamers were directed from question 5 to question 19.

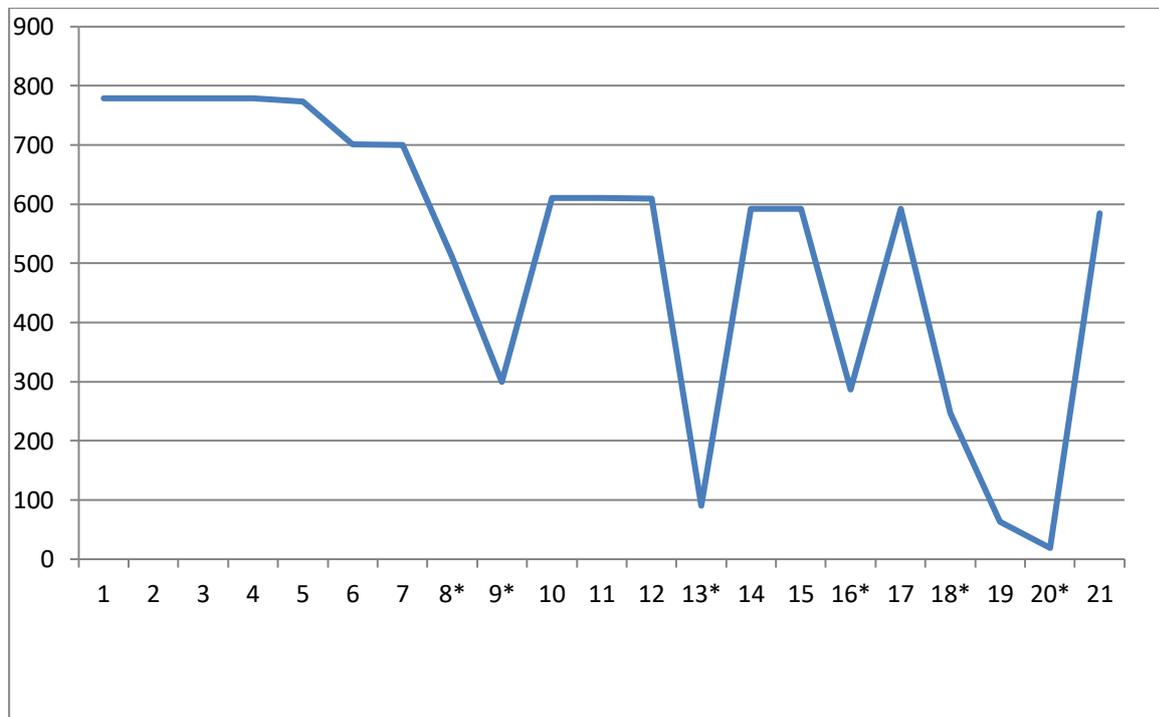


Figure 1: Number of respondents per each question.

6.1 Informant background statistics

This section will examine the background details that the respondents gave of themselves. Possible distinctions between e.g. male and female informants will be discussed under respective questions.

As the present study discusses English learning, those who speak English as their mother tongue do not belong to the target group. The first question was included to find out if a remarkable share of all respondents were native English speakers and to be able to separate their answers from the data if necessary. As it turned out, there were not many native English speakers in the sample pool, which is shown in Table 1. Most of them were men (11 out of 16) and they were not of a particular age group. Unsurprisingly, 68.8 % of them had had a “very good” (“kiitettävä”) or better English grade in their last comprehensive school report, as four out of 16 reported to have had a ten and seven out of 16 reported to have had a nine. 14 out of 16 native English speakers proceeded to the question set designed for gamers, and 11 of game-playing English natives (78.6 %) reported to play English video games every day or almost every day. No other qualities of this piece of the data were found to be remarkable, and due to the low number of respondents with English as their mother tongue it would not be statistically applicable to compare their responses to those of non-native origin.

Table 1: Number of native and non-native English speakers among informants.

	Number	Percentage
Native English speakers	16	2.1
Non-native English speakers	763	97.9

Due to school age in Finland beginning at the age of 7 and lasting for nine years, a typical Finnish upper secondary school student is between 16 and 18 years of age, which is also reflected in the responses to question 2. Lower age options were added because of the original intention to include comprehensive school students in the target group, and in case there were teachers who would like to take the query with both secondary and upper secondary school classes (which also happened to realize). Age groups of 19 and 20+ were added to give voice also to those students who had had extra years before beginning upper secondary and to ensure that possible senior age students integrated in ordinary junior upper secondary school classes could take the query as well. In the quantitative analysis, the age groups between 13 and 15

years were treated as a single group, similarly to age groups from 19 up. The numbers of respondents belonging to each age group is shown below in Figure 2, from which it can be seen that almost four fifths of all informants were 16-to-18-year-olds at the time.

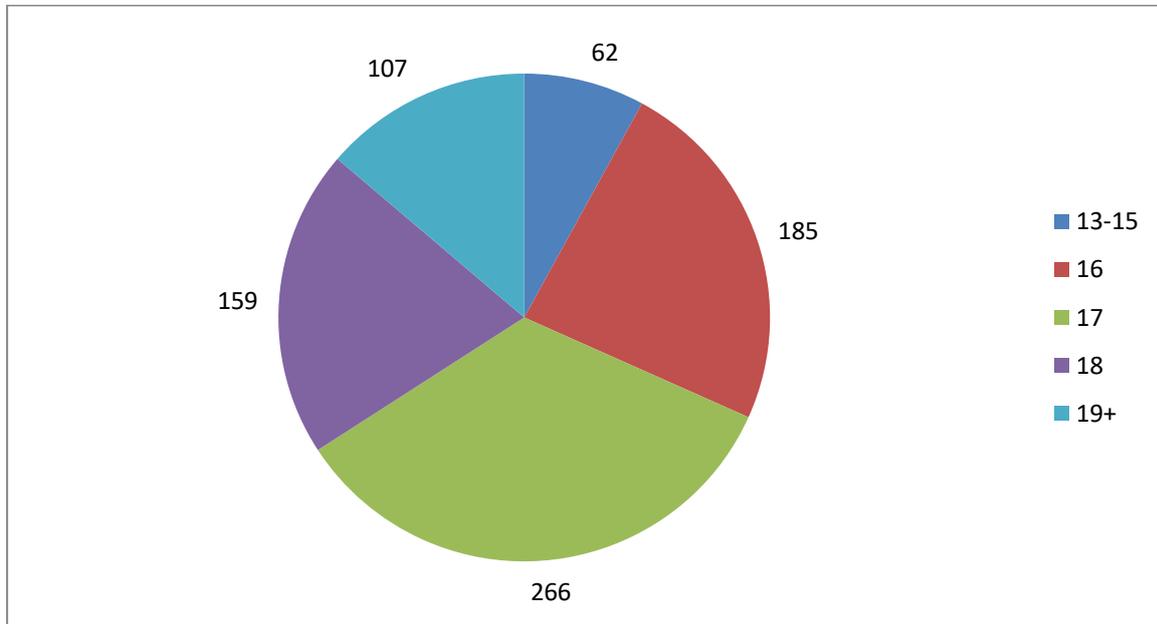


Figure 2: Informant age distribution.

In terms of the respondents' gender distribution it can be claimed that there is no bias in the data, as it very exactly reflects the ratio of boys and girls born yearly in Finland (see e.g. THL 2012: 7), as portrayed in Table 2.

Table 2: Informant gender distribution.

Gender	Number	Percentage
Male	400	51.3
Female	379	48.7

Question 4 (*Your latest English grade in secondary school on a scale from 4 to 10*) is an important source of background information, as it is the only measure in the present study to provide classified and comparable data of the informants' English proficiency, which their other answers then can be contrasted to. Naturally, one cannot ensure the accordance of the methods used in the assessment of each student,

but as a whole, the latest English grade is an easy and comprehensive way to measure the level at which the informants are in terms of their knowledge of English.

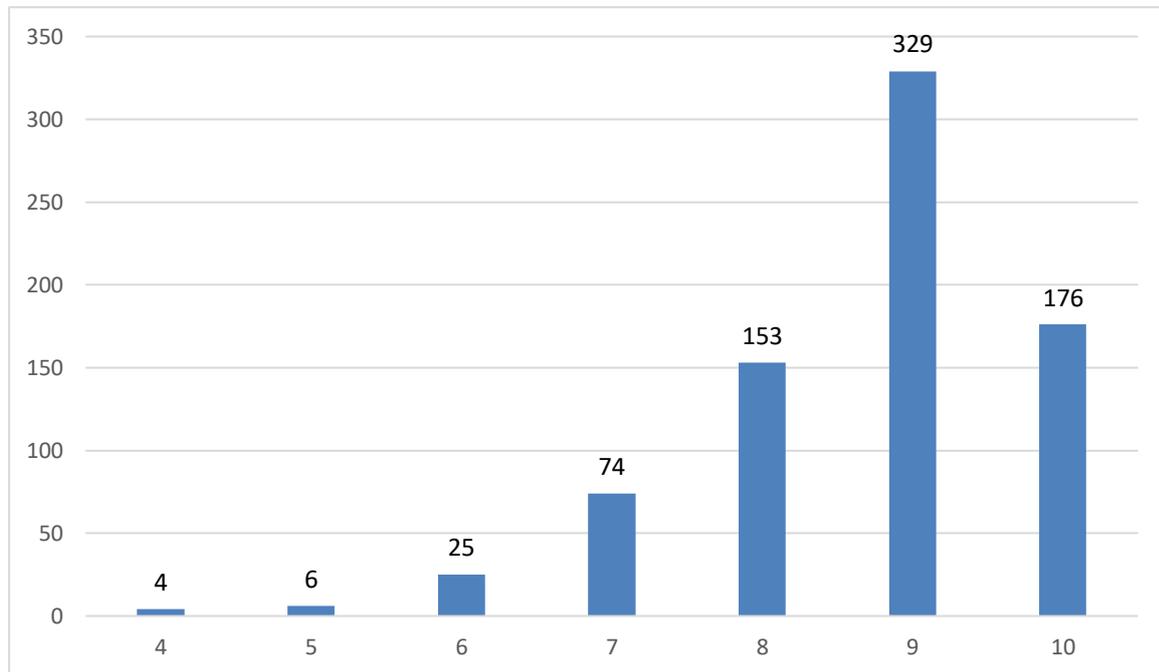


Figure 3: Latest English grade in comprehensive school.

Almost two thirds of all respondents reported to have either very good or excellent grade (a nine or a ten) in English. In Finland, there are about 60 000 comprehensive school graduates every year (Tilastokeskus 2014), and usually it is the pupils with good grades in theoretical subjects who are most likely to apply to upper secondary. In 2014, 57 900 pupils finished their comprehensive education, only 1.5 % of whom not applying to any educational institution, and 45 % of men and more than 60 % of women applying primarily to upper secondary school (Tilastokeskus 2014). Bearing this in mind, the informants' relatively high average English grade should not be thought of as a bias but rather as a quality characteristic to upper secondary school students. In addition to the responses included in Figure 3 (below) there were 12 open responses, a few of which were based on the International Baccalaureate scale, a few on a scale from one to five and a few on some other kinds of scales; additionally, few inappropriately expressed written responses were given. All responses not fitting on the scale from 4 to 10 are excluded from Figure 3 and will, in later comparisons, be included in an "Else" category.

Only 62 (8.0 %) of all respondents claimed to have no experience in digital games in English and were thus directed to a different set of questions. The majority, 711 respondents (92.0 %) carried on to the question set designed for gamers. Not having played digital games was a feature more typical to girls than to boys, as only 7 out of 396 boys (1.8 %) claimed to not have played digital games in English, whereas the same number with girls was 55 (14.6 % of all girls).

6.2 Frequency and duration of playing

Playing English digital games on a computer, game console or a handheld device appears to be a very common activity among young people, as in Question 6 there were 279 of 701 respondents (39.8 %) claiming to play every day or almost every day.

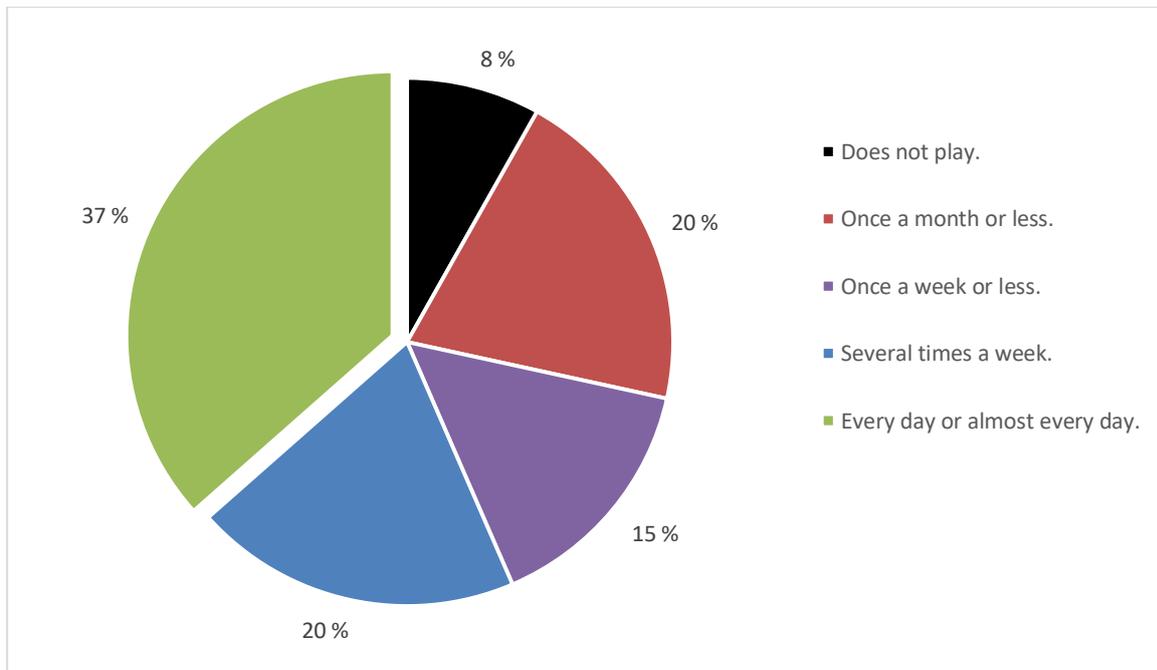


Figure 4: Frequency of playing: distribution of all informants.

When the four answering options were combined into two larger categories, 38.5 % (270) said they did play in maximum once a week, and 61.5 % (431 people) played several times a week or even daily. Remembering that there were 62 informants (8.1 % of all respondents) who had no experience in gaming, these numbers tell that 35.4 % of all informants played once a week or less, and 56.5 % played several times a week or daily. Evidently, a clear majority of upper secondary school students are rather active gamers. The frequency of playing games is shown in Figure 4, which

also includes respondents with no gaming background. A statistical analysis between boys' and girls' playtime distribution and learning experience will be presented in section 6.8.

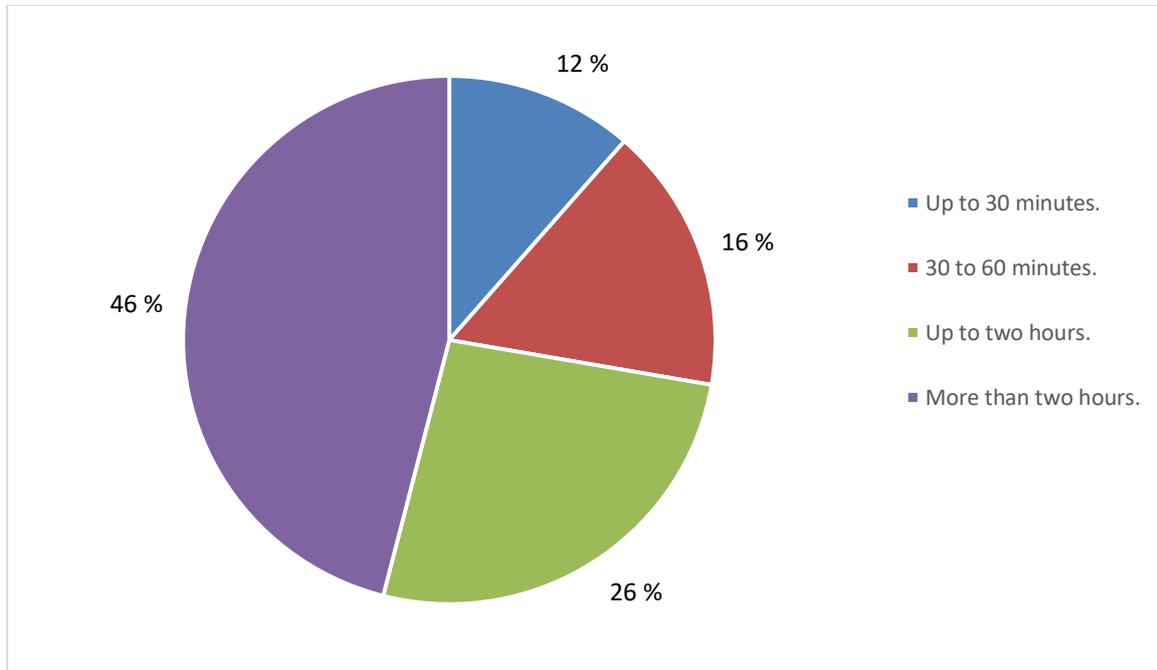


Figure 5: Duration of play: distribution of all informants.

Question 7 comprehended, in search of accuracy, five options for playtime selection. Out of the 322 players who admitted playing more than two hours at a time, 64.6 % told they played every day or almost every day. Most importantly, the plus-two-hour gamers saw that playing video games had benefitted their English skills. Out of the said 322 plus-two-hour players, 282 people did not quit the survey before question 11, and 38.7 % of them claimed that most of their English proficiency had been acquired from games and 44.7 % stated that playing had been of substantial help to learning English. These benefits were seen in formal education as well: 268 plus-two-hour gamers answered question 15, and 65.3 % of them thought that English skills learnt from games had been of plenty or substantial help for their English studies, and only 6.7 % thought that playing had only been a little beneficial or not beneficial at all. Merging the two options at each scale end together might make it slightly easier to read the results: 46.0 % of game-playing students said they played more than two hours at a time, 26.3 % usually played more than one but less than two

hours, and 27.7 % played an hour or less at a time. The distribution of approximate duration of one playing session is shown in Figure 5.

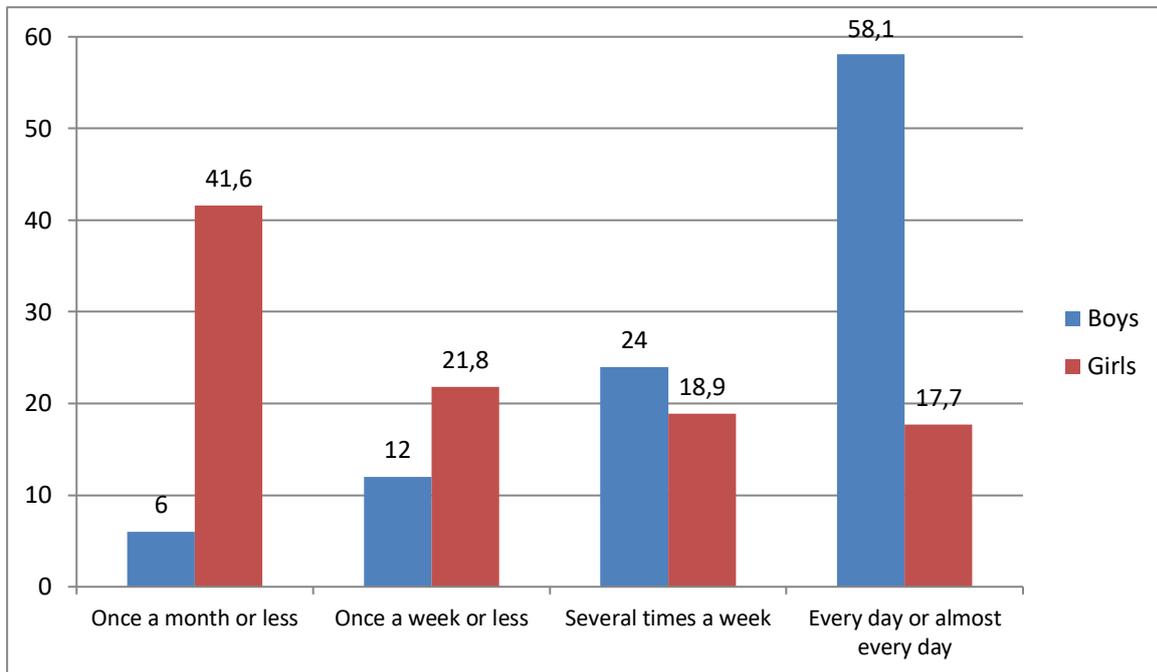


Figure 6: Frequency of play: percentage of respondents by gender.

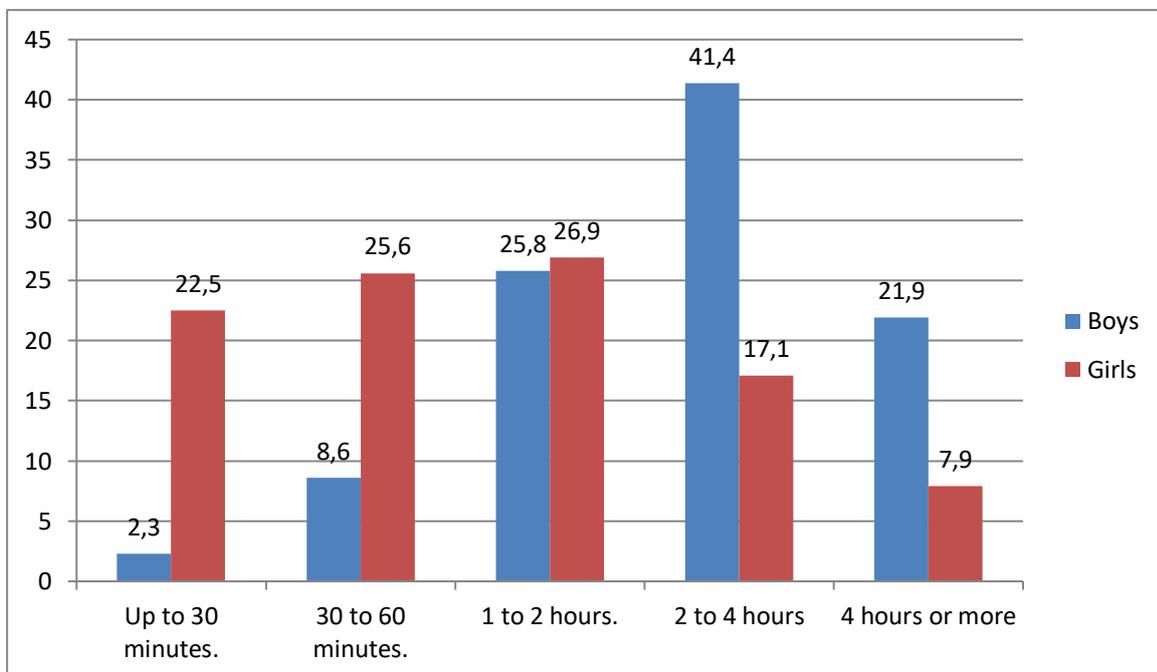


Figure 7: Duration of play: percentage of respondents by gender.

Boys were unquestionably more active gamers than girls, as 58.1 % of boys and 17.7 % of girls played on a daily basis; likewise, 6.0 % of boys and 41.6 % of girls stated

that they only played once a month or less. The actual game playing time spent at the screen divides the genders in a similar way. When boys switch on their gaming devices, 63.3 % of them play more than two hours at a time, whereas 25.0 % of girls play as much. 10.9 % of boys would play one hour in maximum, and 48.1 % of girls would finish within the same time limit. The frequency of gaming by gender is shown in Figure 6, and the approximate duration by gender in Figure 7.

Players with the longest gaming sessions not only appeared to be the most frequent players, but they also claimed to have gained the most benefit for their English from the games they played. The statistical analysis of these factors will be presented in section 6.8. Now, the following section will discuss the open-ended student responses concerning which games they had played and which games they believed having had a particularly positive influence on their English skills.

6.3 Game brands, their popularity and usefulness for English learning

Question 8 (*What games have you played in which you have used or from which you have learned English?*) was an optional one, but it amassed a total of 510 responses nevertheless, 56.1 % by boys and 43.9 % by girls. Female respondents were a little more restricted to answer this optional question than male respondents, as 71.5 % of video game-playing boys and 59.1 % of girls stated their opinion. Some of the answers were very brief, only addressing a game or two by name, but there were also lists with over a hundred video game publications included. Even though this question required nothing else but the game names, many respondents provided more detailed information on their gaming background and English learning nevertheless. Since the number of all different games, game versions, game expansion packs, game genres and gaming devices mentioned was so large, and some of the game-playing respondents skipped this particular, optional question, it was not seen useful to provide that list here in alphabetical, genre-based or any other order. What is more, as discussed earlier in the present study, the classification of games into game genres is not always a very straightforward task, and as it might not have brought any additional value relative to finding out how video game playing affects language learning, such extensive classification covering all responses

in question 8 was not carried out. Instead, a brief overview of this part of the data, including only the most frequently mentioned games and game genres, and samples of student responses will be provided.

Certain game names, brands and genres kept repeating over and over again.

Amongst the most commonly named first-person shooter (FPS) games there were Counter Strike (also referred to as CS) series, especially Counter Strike: Global Offensive (CS: GO), Call of Duty (CoD) series, Battlefield (BF) series, Far Cry series, and Team Fortress. Not many sports games and driving simulators were mentioned, but FIFA football games, NHL hockey games and Need for Speed car racing simulators had a number of appearances. Action and adventure games, some of which may be a little complicated to categorize into unequivocal genres, were represented by Grand Theft Auto (GTA) series, The Elder Scrolls (TES) series, especially The Elder Scrolls V: Skyrim, Assassin's Creed series, Ratchet & Clank series, Crash Bandicoot series, Mass Effect series, and The Legend of Zelda (TLOZ) series. Several role-playing games appeared in student responses quite often as well, like Final Fantasy, which is a fantasy role-playing game series, and massively multiplayer role-playing games (MMORPGs) World of Warcraft (WoW or WOW), Runescape, and Lord of the Rings Online (LOTRO). Also, massively multiplayer online strategy game Clash of Clans, life simulation game series The Sims and multiplayer sandbox game Minecraft were mentioned a number of times. Finally, there were a number of appearances by the real-time strategy (RTS) game series Age of Empires (AoE), turn-based strategy game series Civilization (Civ), especially Civilization V, and multiplayer battle arena games League of Legends (LoL) and Dota 2. The following quotations highlight the versatility of games portrayed in the student responses. The original Finnish replies are written in italics and then translated into English if necessary. Translations are mine.

"Civilization V, Battlefield 4, The Elder Scrolls V: Skyrim." (Boy, 17.)

"Crash Bandicoot pelisarja, Ratchet & Clank pelisarja, Super Mario pelisarja, Sonic pelisarja, Metroid pelisarja, Sly Cooper pelisarja + paljon muuta Star Wars, X-men yms pelit"

"Crash Bandicoot series, Ratchet & Clank series, Super Mario series, Sonic series, Metroid series, Sly Cooper series + many more, Star Wars, X-men etc. games." (Boy, 18.)

"Lista olisi niin pitkä että sen kirjoittaminen veisi enemmän kuin 15 min. Esim. CS go, LoL, etc"
 "The list would be so long that writing it down would take more than 15 minutes. E.g. CS go, LoL, etc." (Boy, 17.)

"GTA, Fallout, Skyrim, Call of Duty, FIFA, NHL" (Boy, 18.)

Even though male respondents had a higher responding percentage than female ones, having played a large collection of video games was not only typical to boys, as there were also several girls who had written an excessive list of games they had played, amongst them a girl with 85 different games listed. Boys seemed to tend to write down actual lists of games they had experience of, and girls, in turn, were more likely to display the genres or other ways of game classification to explain what type of games they had been in touch with. On the one hand, the girls' combined list of games included the same most popular genres and hit games as the boys' equivalent, even if not in such great numbers, but on the other hand, people who seemed unable to name specific games or genres were more often girls than boys. In general, both genres showed knowledge and correct use of gaming terminology, evidence of interest in several games and game genres, and ability to analyze the effects of gaming on language learning. The following quotations are here to demonstrate the issues stated above.

"Räiskintä (kun ikä riittänyt), strategia, hiekkalaatikko ja muita pelejä"
 "Shooting (when of enough age), strategy, sandbox and other games." (Girl, 18.)

"Jotain seikkailu/tarinapelejä suurimmaksi osin."
 "Some adventure or narrative games for the most part." (Girl, 18.)

"Nimiä en muista mutta ne on ollu jottai seikkailupelejä jossa ne kaikki ohjeet tulee englanniksi tai sitte joku semmonen juttelupeli jossa jutellaan englanniksi."
 "I don't remember names but they've either been some adventure games with all instructions in English or some talking game where you chat in English." (Girl, 16.)

"Pelejä, joissa olen käyttänyt ja joista olen oppinut englantia, on arviolta lähemmäs sata kappaletta, joten en aio luetella niitä. Ne ovat olleet lähinnä RPG-, FPS- ja MMORPG-pelejä."
 "In estimation there are close to one hundred games in which I have used and from which I have learnt English, so I'm not going to list them. For the most part they have been RPGs, FPSs and MMORPGs." (Girl, 17.)

"Olen pelannut 'timanttipelejä' ym. yksinkertaisia pelejä pääasiassa puhelimella."
 "I have played 'diamond games' and other simple games mainly on my phone." (Girl, 17.)

"Pelejä, joissa rakennetaan kaupunkia ja omaa empiiriä."
 "Games in which you build a city and your own empire." (Girl, 17.)

"Auto pelit, 'tanssi peli'"
 "Car games, a dance game." (Girl, 18.)

"RoPE:t (TES:t, Mass Effectit, Fallout 3) pikäilti. Jonkin verran RTS- ja FPS-pelejä laidasta laitaan (CnC:t, CoD:t, BF:t, CS:t ...)"

"Mainly role playing games (TES, Mass Effect, Fallout 3). All sorts of RTSs and FPSs (CnC, CoD, BF, CS ...)" (Boy, 20+.)

As seen in these examples, categorizing games into genres and describing their thematic or technical nature was a very common feature in girls' responses, which may be a sign of girls' lesser dedication or greater ignorance to certain game brands. The girls' way of describing the games they had played was contrasted by the tendency of boys to list the actual game brands, as illustrated by the last example above. Both genres totaled a versatile assortment of different games, but in general, the same individual games (which were mostly FPS games) were repeated more often in boys' than girls' responses.

Less than half of the respondents, 63.0 % of whom were boys, answered question 9, which aimed to find out if there were certain games which had been experienced to be of particular help in learning English. Boys being more apt to share their thoughts did not seem to result in biased data, as the same game brands and the same kind of thoughts were expressed by girls as well. The most frequently mentioned game was definitely Runescape (45 mentions) which was followed by World of Warcraft (22), League of Legends (16) and Skyrim (15).

"Runescape, koska sitä tuli nuorempana pelattua paljon. Sain hyvän pohjan englannin oppimiselle."

"Runescape, because I played it a lot when I was younger. I got a good basis for learning English." (Boy, 18.)

"Runescape edelleen ehdottomasti, tuskin nykypäivänä toimisi samanlaisena työkaluna mutta muu online peli mihin nuori voi upottaa aikaa jo nuoresta"

"Still absolutely Runescape, today it hardly would work as such a tool anymore, but other online games with which the youth can start consuming time already when young." (Girl, 18.)

The present study was unable to unequivocally find out why Runescape was so clearly found to be the most efficient enhancer of the players' English skills, but the two examples above, along with many more responses, suggest that this may be due to the popularity of the game among this age group, the online cooperation opportunity it featured, and the overall time that had been spent playing it.

A number of respondents were able to analyze which aspects of games they found helpful for language learning. The possibility (or need) to communicate in English,

interactive or reciprocal nature of communication, teamwork and co-operation, and social relationships and communities developed around games and game-related phenomena were aspects that came up again and again.

"Kaikki sellaiset pelit, jotka laittavat pelaajan vuorovaikuttamaan muiden pelaajien kanssa. Erityisesti jos pelaajan on pakko kommunikoida, kirjoittaa tai puhua mikrofonin kautta muille pelaajille englanniksi. Pelit, jossa tarvitaan yhteistyötä (ARMA, Rust, MTA) saattavat pelaajan tilanteeseen, jossa toisten pelaajien kanssa on pystyttävä kommunikoimaan selvittääkseen hengissä. Usein pelit sisältävät jonkin verran uusia sanoja ja pelaamalla uusia pelejä, voi laajentaa sanavarastoa. Moninpeleistä voi saada kavereita, joiden kanssa saattaa keskustella esim. Skypeä, joka taas ruokkii englannin oppimista entisestään."

"All games which make the player interact with other players. Especially if the player has to communicate, write or speak through microphone to other players in English. Games in which co-operation is needed (ARMA, Rust, MTA) will place the player in a situation in which they need to be capable to communicate in order to survive alive. Games often contain some new words and by playing new games one can extend their vocabulary. Multiplayer games may give you friends with whom to chat e.g. in Skype, which then boosts your English learning even more." (Boy, 18.)

"Mmorpg tyypiset pelit. Kommunikaatio / kansainvälisten peliyhteisöjen johtaminen nettipeleissä."
 "MMORPGs. Communication / leading international game communities in online games." (Boy, 20+.)

"Runescape auttoi ala-asteella suurella sanavalikoimalla ja se laajensi englannin sanavarastoani erittäin paljon. Eniten englannin kielen osaamista olen oppinut peleissä joissa on mahdollista kommunikoida (lähinnä kirjallisesti) toisten ihmisten kanssa, eli kaikki yllämainitut paitsi GTA. Lisäksi sellaiset yksinpelit pelit kuten GTA joissa on paljon tarinankerronta hetkiä videomuodossa, ovat opettaneet paljon kuullunymmärtämistä."

"At primary school age, Runescape helped with a large selection of words and it expanded my vocabulary very much. I have learnt most about English in games with the possibility to communicate (mostly in written format) with other people, so all aforementioned [games] except GTA. In addition, single player games like GTA with a lot of narrative cinematics have taught listening comprehension a lot." (Boy, 16.)

"vaatii tiimityöskentelyä"

"[One that] requires teamwork." (Boy, 20+.)

"Monin pelattavat netti roolipelit. Pelien yhteisöön kuuluminen saa käyttämään englantia myös pelin ulkopuolella."

"Multiplayer online role games. Belonging to a game community makes you use English also outside the games." (Girl, 16.)

Storylines that keep the player interested, masses of dialogue or vocabulary, and in-game cinematics often used to indicate a transition within the game were noticed to bring a significant degree of meaningful, learnable language into gameplay. In addition, some students had noticed that merely the constant exposition to language or the player's interest in the game was, regardless of the game, likely to result in language acquisition.

"Kaikki videopelit, joissa on paljon cinematischeja, mutta erityisesti näistä roolipelit. Mass Effect on ollut aika nasakka, ja väitän, että jos olisin sitä lapsena pelannut, olisin saanut hurjasti apua englannin

oppimisessa. Videoropeissa on se etu, että kielen käyttö on vuorovaikutteista: päätät itse, miten reagoit hahmon puheeseen, etkä vain seuraa passiivisesti vierestä. Vastatakseni täytyy ymmärtää, mitä on juuri sanottu. --"

"All video games with lots of cinematics, but role games in particular. Mass Effect has been quite the real deal, and I dare to say that had I played it as a child I would have got a great deal of help with learning English. Video role games have the advantage of interactive language use: you don't just watch but you decide yourself how you react to a character's line of speech. In order to reply one has to understand what has been said. --" (Girl, 18.)

"Wii pelit ovat aika opettavaisia. Ja kaikki pelit, jotka kiinnostavat erityisen paljon tehostavat englannin kielen oppimista kyseisestä pelistä."

"Wii games teach quite much. And all games which interest you particularly much enhance English learning in the game in question." (Girl, 16.)

"Niitä on niin monia, että on vaikea muistaa... ylipäättänsä kaikki pelit joissa on ollut englantia ovat olleet minulle hyödyllisiä. Eri peleistä saa hyvin erilaista sanastoa ja voin sanoa, että se on auttanut minua suuresti lukion englanninopiskelussa."

"They are so many that it's difficult to remember... In the first place, all games that have involved English have been useful for me. You get all kinds of vocabulary from different games and I can say that has helped me very much in upper secondary school English studies." (Boy, 17.)

"Silent Hill, Resident Evil, käytännössä mikä tahansa peli, jossa on paljon dialogia, ohjeita tai muistiinpanoja jotka pitää lukea ymmärtääkseni tarinaa ja edetäkseni siinä."

"Silent Hill, Resident Evil, practically any game with lots of dialogue, instructions or memos which need to be read to understand the story and to proceed in it." (Girl, 18.)

In responses to questions 8 and 9, quite a few respondents had a clear perception on how their playing had affected their linguistic competence and what did or did not help them to learn English. Other media, as watching programs online or listening to music, were also referred to. The following replies are included in order to illustrate how some respondents were able to analyze their media use and playing habits, the effects of playing on language learning, and what aspects of gaming had been helpful for them.

"enemmänkin televisio-ohjelmat"

"More likely TV programs." (Girl, 17.)

"-- Paljon oppimista tapahtui myös peliyhteisöjen keskustelupalstoilla. --"

"-- A great deal of learning occurred on online game forums, too. --" (Boy, 19.)

"Iso osa peleistä on englanninkielisiä ja vuosien saatossa ei kyllä ole jäänyt mieleen mitään peliä mistä olisi oppinut englantia paremmin kuin toisesta. Ylipäättään se että joutuu lukemaan ja ymmärtämään onnistuakseen pelissä on opettanut, ja suurimmassa osassa peleistä mitä olen pelannut asia on ollut näin. Itsellä musiikin kuuntelu ja sanojen kääntäminen suomeksi on ollut myös iso, ellei suurempi osa englannin oppimista."

"A majority of games is in English and in the course of life no game has stuck in my mind as a better source of learning English than another. Yet having to read and understand to succeed in a game has taught [me English], which is true with most games I have played. For me, listening to music and translating the lyrics into Finnish has been in language learning a big, if not even more eminent factor [than playing games]." (Boy, 15.)

"Lähes kaikissa peleissä. Uusimmissa peleissä (kuten Far Cry 4) oppiminen jää vähäiseksi suomenkielisen käyttöliittymän vuoksi."

"In almost all games. In newer games (as in Far Cry 4) learning is scanty because of Finnish user interface." (Boy, 17.)

"Oikeastaan kaikki pelit joita pelaan/olen pelannut ovat olleet englanniksi. Jos jossain pelissä on suomen kielinen asetusvaihtoehto (esim. Assassin's Creed), niin vaihdan sen yleensä englanniksi."

"Actually all games I play or have played are in English. Be there a Finnish language option in a game (e.g. Assassin's Creed) I usually switch it into English." (Girl, 17.)

"Pienempänä opin englantini pääosin näiden pelien kautta: Rayman 3, Dragon Fable, Club Penguin, Neopets + kaikenmaailman nettipelit. Nykyään pelaan pääosin pelini englanniksi, mutten opi niistä enää paljoa uutta. Sana tai fraasi sieltä täältä saattaa tarttua mukaan, mutta muuten olen oppimiskäyrän loppupuolella."

"When I was younger I learnt my English mostly from these games: Rayman 3, Dragon Fable, Club Penguin, Neopets + all kinds of online games. Nowadays I play mostly in English but don't learn much new anymore. A word or a phrase here and there may be caught, but otherwise I'm at the end of my learning curve." (Girl, 18.)

6.4 Skills of language and their improvement due to gaming

Question 10 (*What language skills do you think you have needed when you have played video games? Choose one or more.*) aimed to find out whether language use during game playing sessions involves written or spoken language, whether it is merely receptive or also productive, and if it is of conversational nature.

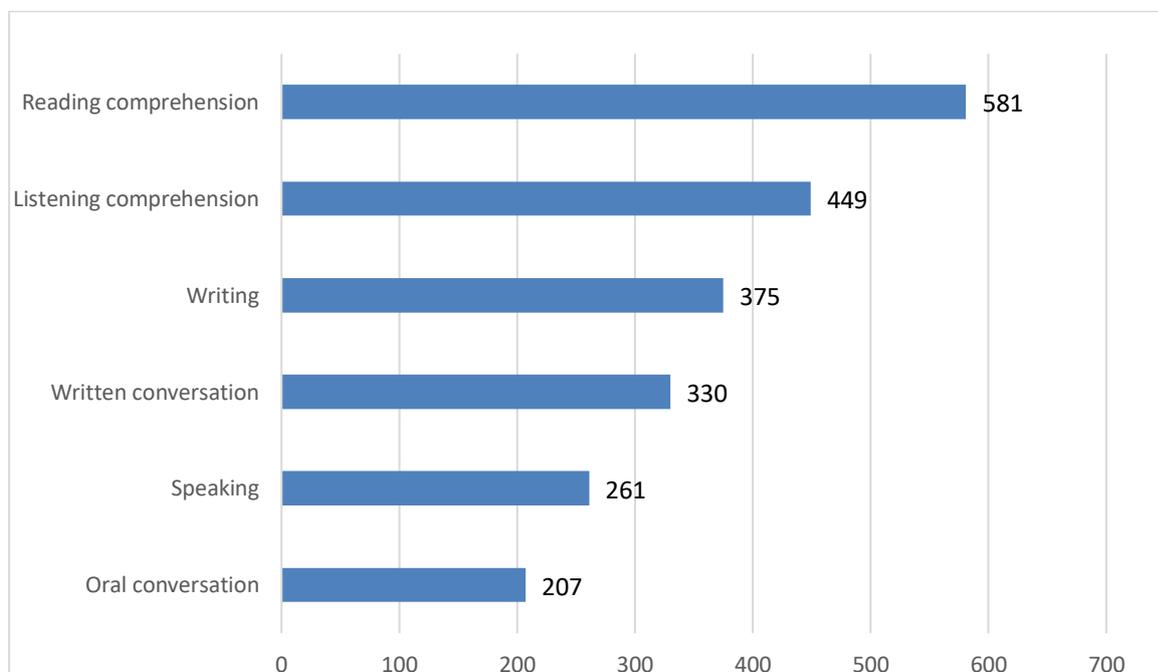


Figure 8: Language skills needed in play: all informants.

Written language being the standard way of giving instructions and setting objectives in video games, it should not be unexpected that the most commonly needed language skill was reading comprehension, which had been needed within games by 95.1 % of 611 game-playing students (see Figure 8). Listening comprehension was the second most needed skill with a share of 73.5 % of gamer students. However, a modern gaming session is not all about one-way input, as 61.4 % of respondents had also had to produce written English and 42.7 % of respondents had had to produce spoken English. In addition, more than half of the respondents (54.0 %) had been involved in a written conversation and 33.9 % of them in a spoken conversation, which indicates that playing video games is also a social event. To sum up, written language skills were put into use in commercial games more commonly than spoken language skills, and comprehension skills more commonly than productive skills. More than half of all digital game players had at some point been involved in an in-game conversation that was more likely to be written one than a spoken one. These questions did not separate human-with-computer and human-with-human conversations, but did include both interaction between the player and artificial intelligence (AI), and interaction between two or more human beings. Figure 8 showcases what skills of language had been needed the most. Clearly, gaming is an activity that provides the player with plenty of input, but it also encourages one to reciprocal communication.

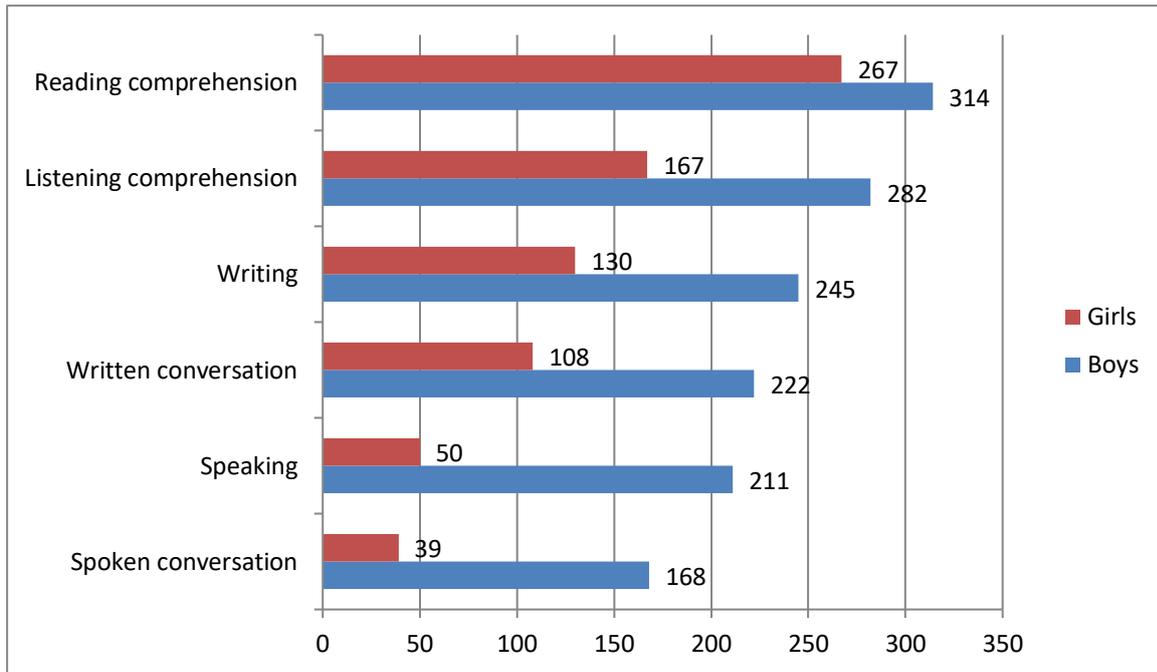


Figure 9: Language skills needed in play: numbers by gender.

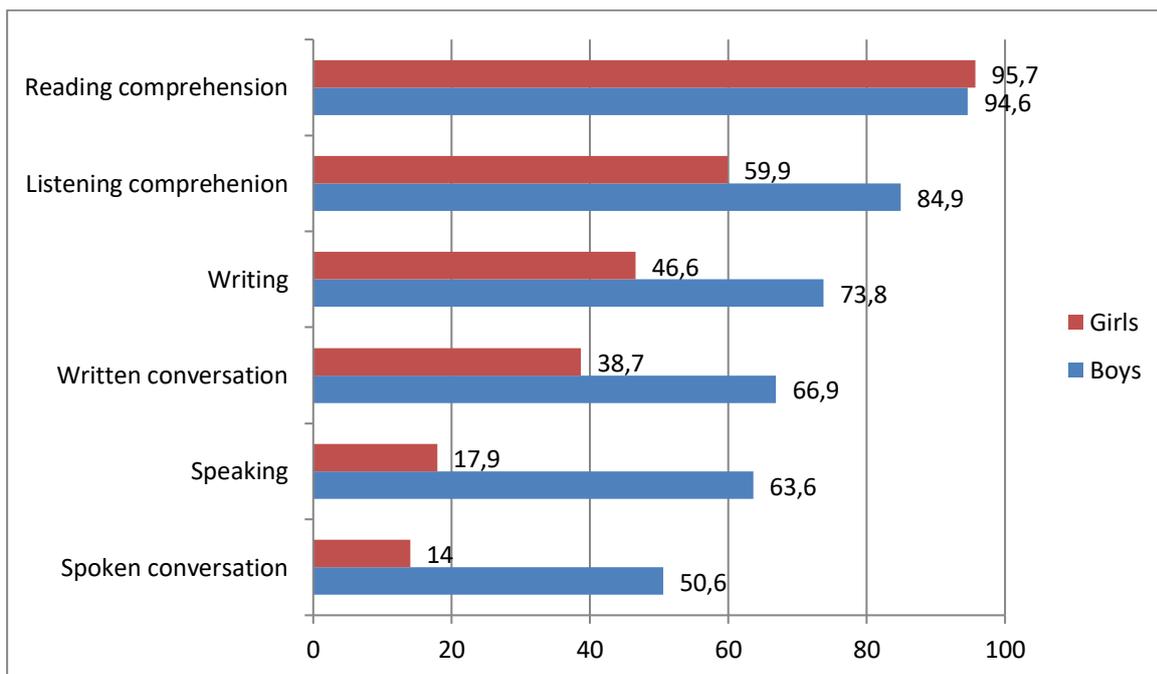


Figure 10: Language skills needed in play: percentages by gender.

The order of the most frequently needed language skills did not change when the genders were observed separately, but there was some variation in how great a share of each gender had used each skill in gaming. Figure 9 portrays the total numbers of each gender selecting each option, and Figure 10 illustrates how large a share of each gender had chosen them. Reading comprehension was the only skill in which girls scored a higher percentage than boys, as 94.6 % of boys and 95.7 % of girls thought

they had needed this skill when they played video games. The clearest distinctions were seen in speaking and spoken conversation: during gameplay, 63.6 % of boys and 17.9 % of girls had had to speak in English, and 50.6 % of boys and 14.0 % of girls had been involved in a spoken discussion in English. The difference between boys' and girls' selections in the rest of the options (listening comprehension, writing, written communication) in question 10 was around 25-28.2 percentage points (see Figure 10). For example, each skill had been put into use by more than every second boy, but only the skills of reading and listening comprehension had been used by the same proportion of girls.

At this point the present study will not proceed directly to Question 11 but will observe the results of Questions 12 and 13 first, returning back to 11 only then. So, when asked in Question 12 (*What kind of areas of language have you learnt or what have you improved in when gaming in English?*) to specify what skills had been learnt or which skills had improved when playing video games, it became clear that vocabulary in terms of words (90.6 % of 609 respondents) and phrases and idioms (73.9 %) was the most improved area of language. The next largest categories were reading (66.8 %), dialect or slang (59.1 %) and pronunciation (52.7 %).

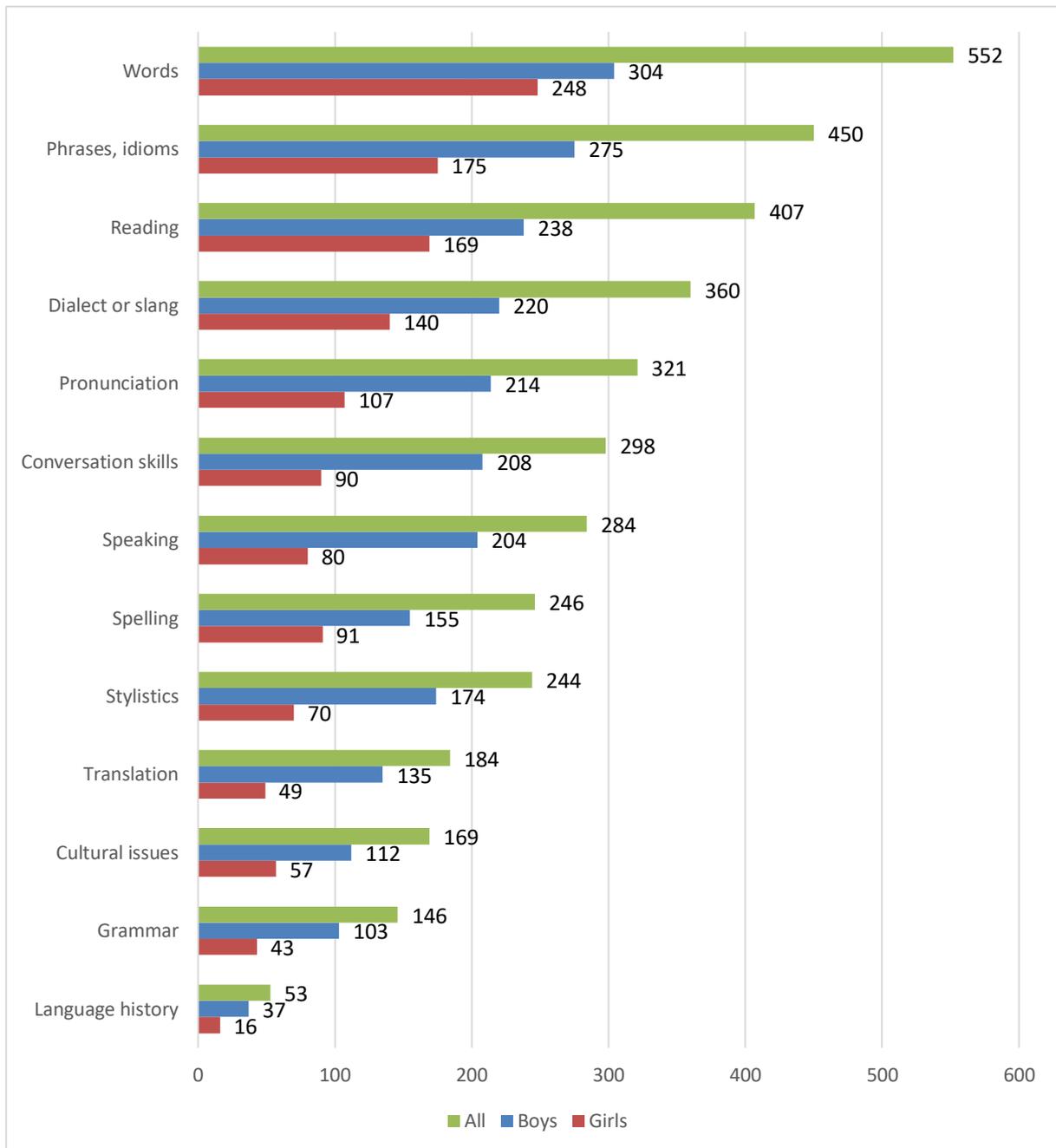


Figure 11. Skills of language improved in play: number of all respondents and by gender.

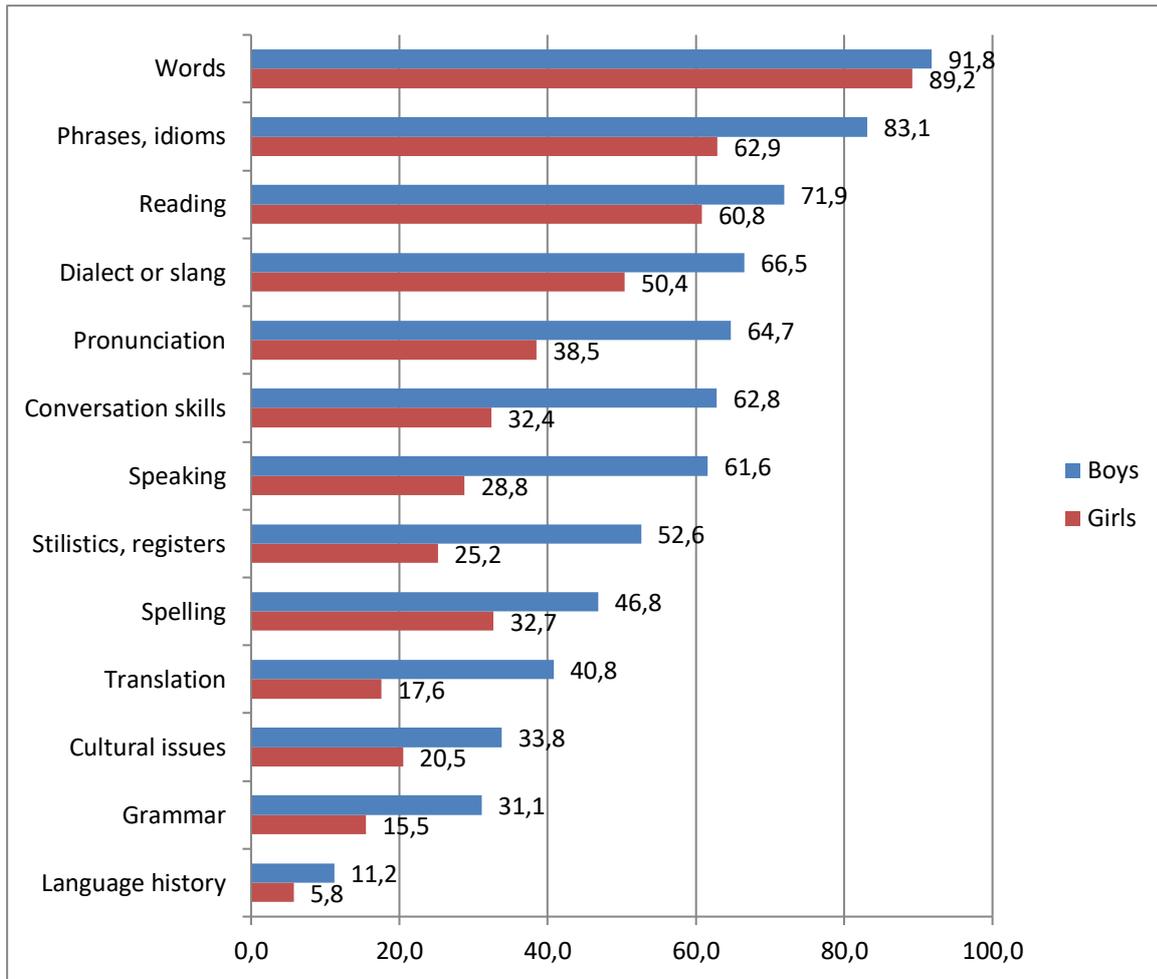


Figure 12: Skills of language improved in play: percentages by gender.

Boys had a tendency to choose more options than girls, and speaking and conversation skills showed, again, to have the largest differences between boys and girls: 61.6 % of all boys and 28.8 % of all girls found that their ability to speak English had improved in consequence of gaming, and 62.8 % of boys and 32.4 % girls saw development having taken place in their conversation skills. Knowledge of language history, grammatical know-how, knowledge of English-speaking cultures, and translation skills were believed to have improved the least. Taken that most games are likely to provide and repeat a plenty of grammatical structures in in-game phrases, it is slightly surprising that only 24.0 % of respondents had noticed improvement in their knowledge of grammar. Figure 11 illustrates what skills had been found to improve the most due to gaming, and Figure 12 shows how great a share of boys and girls thought they had improved in each skill.

In the open question 13 (*Here you can specify what skills you have learnt or improved when gaming.*), which was an optional one, 90 respondents elaborated on what they thought they had learned, giving more precise details on e.g. what kind of vocabulary had been acquired and how the improved grammatical performance was found. The quotations below illustrate how some of the respondents saw the issue.

"Sanoja oppii erilaisia ja paljon sellaisia mitä ei koulussa opi."

"You learn different kinds of words and a lot of such which you don't learn at school." (Girl, 17.)

"Tietyn aihepiirin sanat ja sanonnat, kuten maatalous tai ihmissuhteet."

"Thematic words and phrases, as those of agriculture or relationships." (Girl, 18.)

"En oppinut oikeastaan kielioppiasioita vaan pikemminkin niin, että jos lause oli väärin kirjoitettu se ei vaikuttanut loogiselta. En osannut alunperin selittää miksi jokin asia on väärin, se vain kuulosti väärältä koska olin lukenut ja kuullut niin paljon oikein kirjoitettua englantia eri medioiden kautta. --"

"I didn't actually learn grammar issues but rather so that if there was a sentence with an error in it, it didn't seem logical to me. At first I couldn't explain why something was wrong, but it just seemed incorrect because I had read and heard so much correctly written English through different media. --" (Boy, 15.)

"Lapsena opin peleistä paljon sanoja, ilmaisuja ja lauserakenteita, joita opin hyödyntämään soveltaenkin. Nykyään kommunikointi englanniksi pysyy yllä ja vahvistuu verkon kautta pelattavissa moninpeleissä."

"As a child I learnt a lot of words, expressions and sentence structures which I learnt to apply. Nowadays, communication in English is maintained and improved by online multiplayer games." (Boy, 16.)

"Chat ominaisuus on kehittänyt puhekieltä."

"The chat feature has improved [my] spoken language." (Girl, 16.)

"Erityisesti luontevan ja sulavan keskustelun käyminen on kehittynyt videopelejen ansiosta. Esimerkiksi millaisia fraaseja ja idiomeja on hyvä käyttää missäkin kontekstissa."

"Especially having a natural and fluent conversation has improved thanks to video games. For instance, which phrases and idioms to use in which context." (Boy, 17.)

"Pelit ovat lisänneet englannin kielen luontevuutta minulle ja erityisesti kiinnostusta opiskella englantia koulussa."

"For me, games have improved the ease of English and in particular my interest in studying English at school." (Boy, 16.)

"Ymmärtää asian, vaikka ei osaa kääntää aivan sanasta sanaan :)"

"You understand the idea even though you're not able to translate every word. :)" (Boy, 18.)

The improvement of reading comprehension, active and passive vocabulary and "ear for language" were, as shown by the previous comments, common themes to appear in the informants' answers. Furthermore, improved fluency, ease and "a natural touch" in language use were mentioned a few times as well. These responses make it easy to suggest computer games to be used as a material in second language reading and discussion classes.

"kiroileminen ja pään aukominen"

"Swearing and provoking." (Boy, 17.)

"harvemmin niistä oppii paljoa. muutamia sanoja sieltä täältä mutta siihen se yleensä loppuu."

"You seldom learn much from them. A few words from here and there but that's usually all about it." (Boy, 16.)

On the other hand, games were not seen unequivocally beneficial. As seen above, some respondents thought they had acquired plenty of swear words or the likes, and some thought that they never saw much learning occur through games. Despite of these doubtful contributions, the majority of responses to Question 13 portrayed remarkably positive language learning experiences.

6.5 Experienced benefit of gaming

Now that we have seen what areas and skills of language young game players need and improve during game-play, it is time to see how the respondents saw the overall influence of games on their English language learning throughout their game-playing history. Question 11 (*Which of the following statements describes you the best?*) was answered by 611 respondents, 357 of whom stated that playing video games had been a major factor in their English learning process, either being the main source of all English learning or being of significant help. See Figure 13 for all percentages.

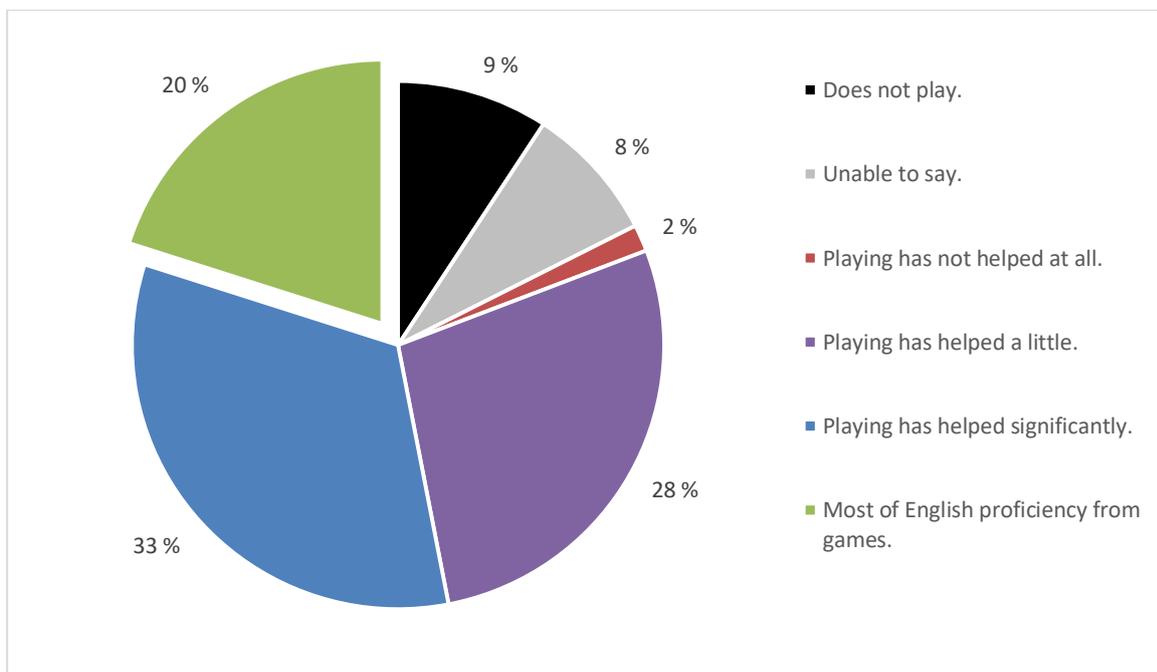


Figure 13. Experienced benefit of gaming for English learning: all informants.

When non-players were included in this data, there was a share of 53.0 % (357 out of 673 informants) claiming that gaming had indeed been beneficial for their English. As 9.2 % of all remaining informants did not play digital games at all, 8.3 % were unable to say anything about their game-derived improvement in English, and 27.7 % thought gaming had helped them learn English a little, only 11 respondents (1.6 % of all respondents, 1.8 % of game players) remained to see no beneficial influence of gaming on their English learning. These numbers were seen above in Figure 13.

Taken that male informants consumed substantially much more time playing video games than female informants, it is also understandable that boys were, in general, more apt than girls to think that gaming had benefited their language learning. The distribution of responses by gender is shown in Figure 14.

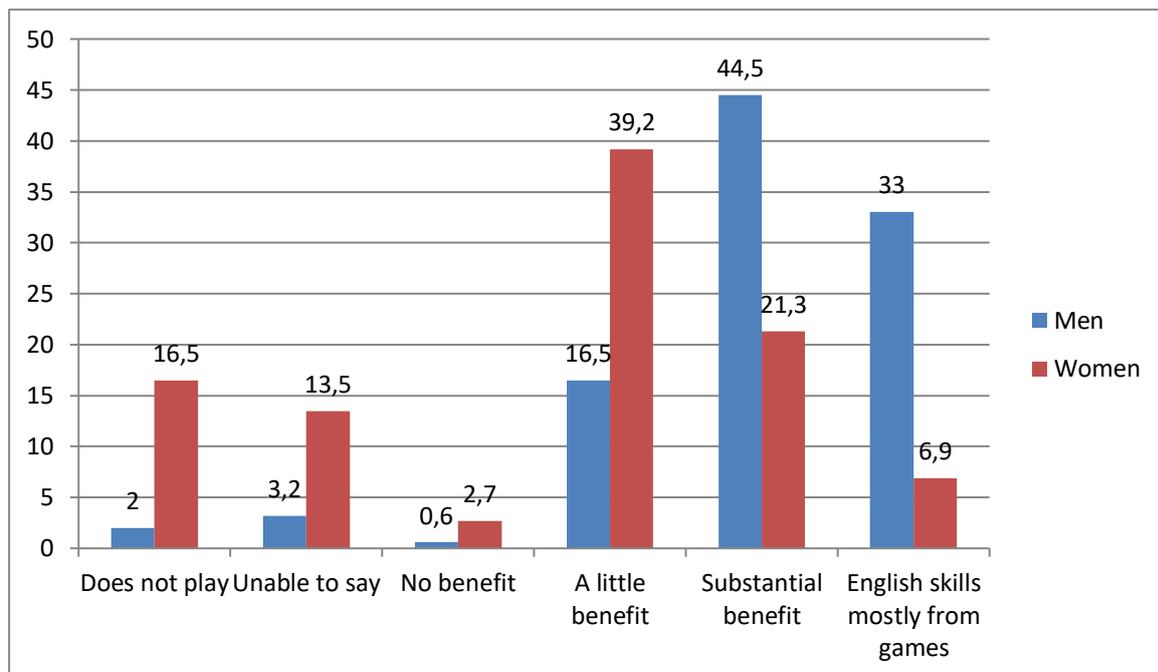


Figure 14: Experienced benefit of gaming for English learning: percentages by gender.

To briefly sum up the outcome of Question 11, it can be said that more than three out of four male respondents and about two out of seven female respondents (non-gamers included) saw that gaming had been significantly useful for their language acquisition. In contrast, the number of players who considered gaming non-beneficial for English learning was marginal. The striking difference between the two genders' selections in this question will be discussed in more detail in section 6.8, where a cross-tabulation of these two questions will be carried out.

Question 14 (*Has playing video games been more beneficial for your oral or written language skills?*) was included in order to find out if the experienced benefit of gaming for English learning reflects the actual use of these two fundamental aspects of language, which was measured by Question 10. The students' responses clearly show that the players who think their written skills have gained more benefit from playing video games in English are more than those who perceive that their written skills have not improved as much as their oral skills.

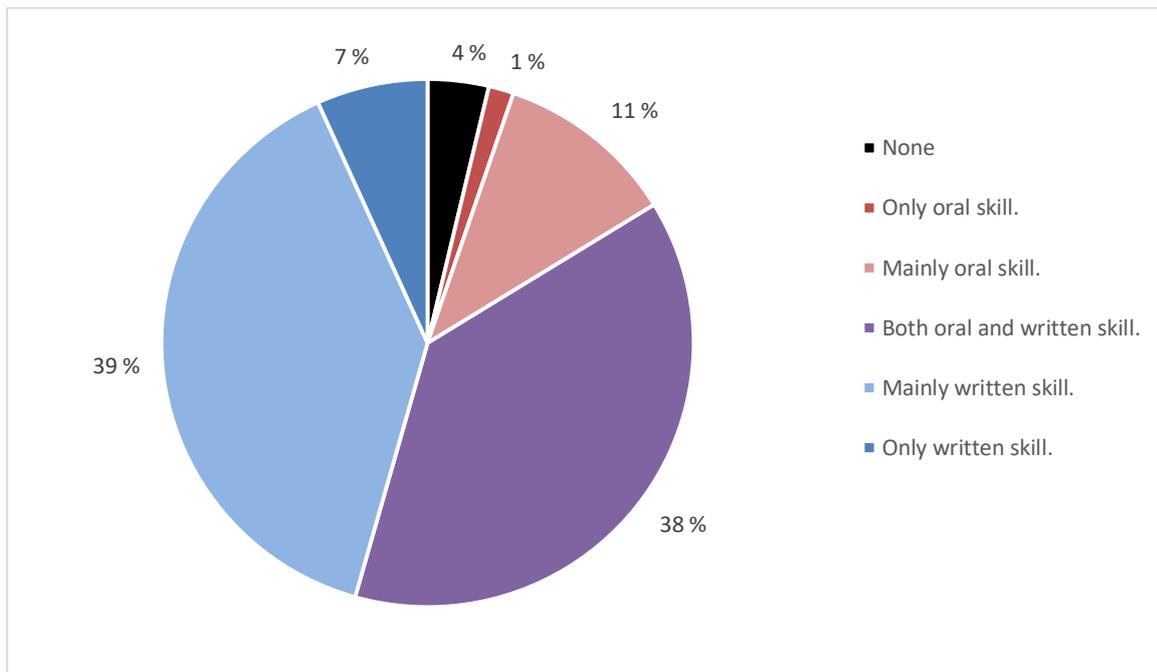


Figure 15. The more developed aspect of language skills: all respondents.

As shown in Figure 15, in which blue stands for written and red for oral skills, 74 out of 592 respondents (12.5 %) claimed that playing video games has been more beneficial for their oral English skills, and 270 of them (45.6 %) found their written skills having benefited more. The rest either could not see a difference between the improvement of their oral and written skills, or did not see that a considerable benefit would exist. Almost a third of the people who chose "None" showed proof of game-deriving language learning in their earlier answers anyway, which suggests that this question may have been difficult to comprehend.

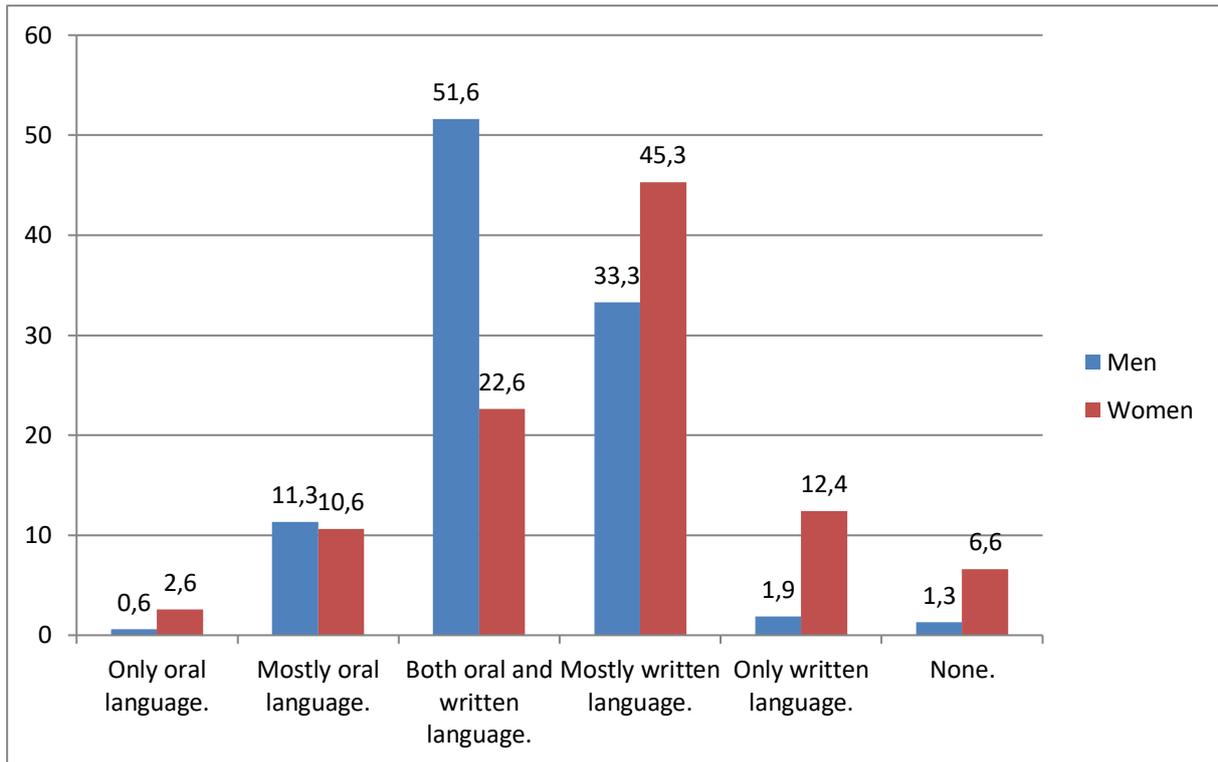


Figure 16: The more developed aspect of language: percentages by gender.

As to the results of this question by gender, also portrayed in Figure 16, 164 out of 318 boys (51.6 %) and 62 out of 274 girls (22.6 %) chose the happy medium and stated that both aspects had been improved; out of the same group, 112 boys (35.2 %) and 158 girls (57.7 %) saw more improvement on the written skills, and 38 boys (11.9 %) and 36 girls (13.1 %) on the oral skills. In summary, girls were more certain that video gaming had mainly affected their written proficiency, whereas boys seemed more likely to find development in both aspects.

6.6 Benefits of gaming for English studies and extramural English

As previous chapters have undeniably shown, Finnish upper secondary students benefit from playing digital games in terms of learning English. Let us have one more point of view on the issue and observe whether the informants see any game-derived benefit in their English use outside of the world of digital gaming, either at school or outside of it. Question 15 (*Have the English skills learnt from video games benefited you at school or in studies?*) was answered by 592 respondents, but as the answering options

appeared to be slightly overlapping, it might be reasonable to unify them into bigger concepts for observation. Please see Figure 17 for the percentages by each answering option, and the post-figure text for a more generalized presentation of the results.

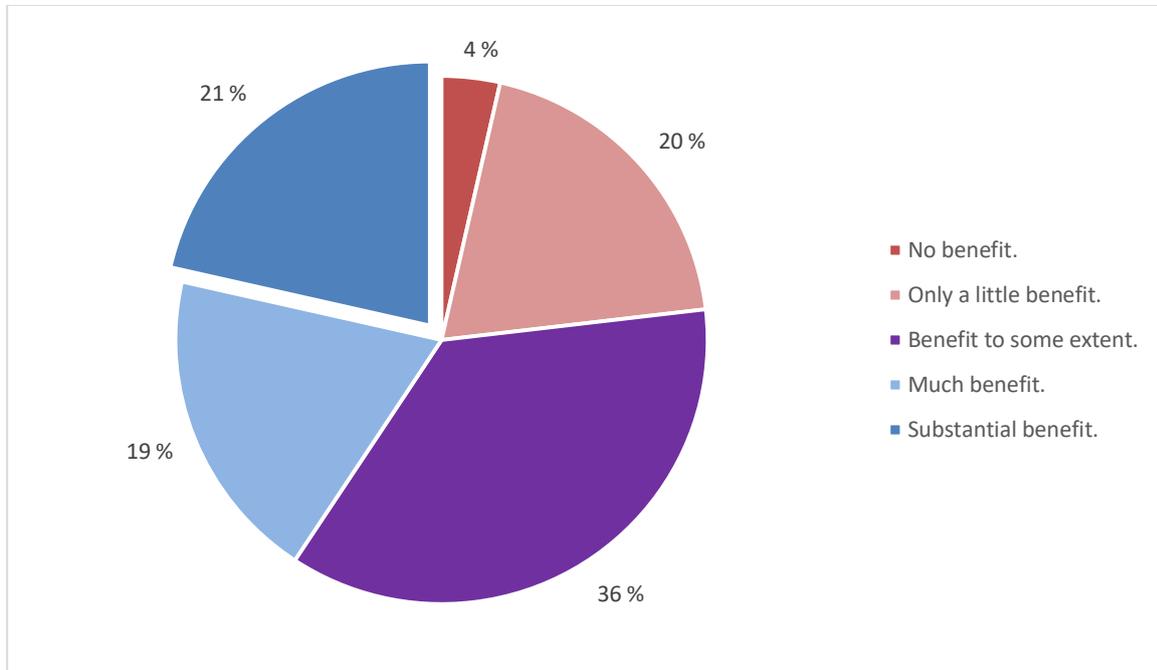


Figure 17. Experienced benefit of play for in-school English performance.

As a result of merging the “a little” and “to some extent” categories together, it can be seen that 55.7 % (330 out of 592) of game-playing students alleged that video games had benefited their performance at school with respect to their English skills only a little or to some extent. Similarly, 40.7 % said that the benefit for their school performance had been great or significant (see Figure 17). If the 62 non-players are involved in the calculation, the portion of those who claimed to gain plentiful benefit from gaming for language studies is 241 out of 654, which is 36.9 % of all informants, and the portion of those who reported to benefit at least “to some extent” totals 69.6 %. Considering this, language teachers should definitely encourage their students to play computer games on foreign languages, as playing is likely to benefit also the students’ in-class performance and learning outcome.

A closer examination on the one fifth (127 of 654 respondents, including non-players; dark blue in Figure 17) who claimed to have gained a substantial benefit for their school performance shows that a vast majority of them plays daily or almost daily (74.8 %) and/or more than two hours at once (83.5 %). Every one of them also agreed

that either playing video games has helped them significantly in learning English or that most of their English skills were acquired from video games. In addition, 77.2 % of them thought that game-originated English skills had been substantially beneficial for them in terms of other than game- or study-related areas of life as well.

In Question 15, both genders admitted that playing video games had been useful for them also when studying English at school, though the positive impact of games on formal education language learning displayed more prominently in the answers of male respondents. 125 of 318 boys (39.3 %) and 205 of 274 girls (74.8 %) thought that English learnt with games had been very little or to some extent beneficial for them in terms of studying, and 190 boys (59.7 %) and 51 girls (18.6 %) found it very helpful or substantially helpful. To add on these, playing video games did not benefit only language learning at school, but the skills learnt and developed during gaming were seen as beneficial also elsewhere. A total of 250 boys out of 318 (78.6 %) and 131 girls out of 274 (47.8 %) thought that English skills learnt from games were helpful also in other areas of life. Most commonly mentioned situations included trips abroad, speaking to foreign acquaintances, and surfing and communicating on the internet. The following paragraph will discuss Questions 16 and 17 and areas of positive influence in more detail.

The open and optional Question 16 (*Do you think that playing video games ENHANCES your English STUDIES, i.e. helps you study English more efficiently at school?*), was answered by 287 respondents and observed the influence of video games played on free time on the informants' linguistic performance in formal education. Even though a few informants denied the possible benefits of playing for studying, most found that game-acquired language did indeed benefit their classroom performance and made learning easier. Subconscious, unintended language acquisition during game playing sessions was mentioned a number of times, and many students also stated that games had certain entertainment value which increased their desire to learn more. As a matter of fact, increased motivation to study English was the most commonly mentioned gaming benefit for classroom work.

"No.onhan se mukavampi opiskella kun osaa asioita tai sanoja jo ennestään."

"Well, it is for sure more pleasant to study if you already know things or words.' (Girl, 16.)

"Kyllä. Sanavaraston on paljon laajempi, kuin monilla muilla. Lisäksi olen tottunut kuuntelemaan natiivi- sekä toisena kielenä puhuvia, joten ymmärrän monenlaista ääntämistä. Koska olen puhunut englantia paljon, ääntäminen on helppoa. Lauserakenteet ja sanonnat tulevat automaattisesti päältä, kun niitä on kuullut toistettavan tarpeeksi monesti."

"Yes. I have a much larger vocabulary than most people. What is more, I am used to hear English spoken as a native or second language, so I understand many kinds of pronunciation. Pronouncing is easy because I have spoken English so much. Sentence structures and phrases come out automatically when you have heard them repeated often enough." (Boy, 18.)

Consistent with responses to earlier open-ended questions, some informants acknowledged that the entertainment value of video games and being constantly exposed to language input were some of the reasons why gaming was so efficient for language acquisition:

"Kyllä, pelaamalla oppii huomaamatta ja opitut asiat välittyvät väkisin oppitunnille."

"Yes, playing makes learning unintentional and the things you learnt inevitably transfer to classroom." (Boy, 18.)

"Mielestäni hyvin keskeinen seikka englannin opiskelussa on kyseisen kielen kuuleminen ja kuunteleminen. Pelien parissa se ei tunnu ollenkaan opiskelulta"

"I think hearing and listening the language is a very focal matter in studying English. When you play it does not feel like studying at all." (Boy, 18.)

"Siinä oppii aika huomaamatta asioita, joten sitten koulussa kun tarvitsee tiettyjä taitoja, niin huomaa yht'äkkiä, että sitähan osaakin jo ne asiat."

"You learn things rather unintentionally, so when you need certain skills at school you suddenly realize that you already know those things." (Boy, 20+.)

On the contrary, as seen in Figure 17, not all respondents found playing beneficial for in-school English studies. Some respondents suggested that it was not in-school studying in particular that gained benefit, but learning in general, and some did see game-playing result in beneficial outcome in spite of studying itself not becoming more effective. Some thought that due to games they were taking English classes more casually, and games were even accused of making English classes at school boring by having first helped to learn so much that in-school English no more provided challenges. The following examples highlight these perspectives.

"En koe, tosin on englannin opiskelu on paljon mielekkäämpää, kun sitä osaa jo hyvin pelaamisen ansiosta."

"I don't think so, though studying English is much more worthwhile when I already know it well thanks to playing." (Boy, 17.)

"Englannin jo osaaminen etukäteen vie kaiken mahdollisen ilon pois englannin opiskelusta koulussa. Englannin oppitunnit ovat puuduttavan helppoja ja en ole oppinut yhtään mitään moneen vuoteen. Pelaaminen siis haittaa englannin opiskelua koulussa tältä kannalta."

"Knowing English in advance takes all possible joy from studying English at school. English classes are mind-numbingly easy and I have not learnt anything for many years. From this perspective, playing games impedes English studies at school." (Boy, 16.)

"Ei tehosta opiskelua itsessään, mutta erillisesti tehostaa oppimista."

"Does not enhance studying itself, but separately enhances learning." (Girl, 17.)

"Pelaamisen kautta oppiminen ja koulussa oppiminen ovat olleet – ainakin minulle – täysin irrallisia oppimiskokemuksia."

"Learning via playing and learning at school have - at least for me - been totally unconnected experiences of learning." (Boy, 20+.)

Despite a wide array of thoughtful answers, Question 16 was not uniformly unambiguous, as some respondents apparently interpreted it as if playing was intended to take place at school, and quite clearly stated that if games, e.g. 'Kahoot!', were used as a teaching method, they would learn English easier. This was not the intended meaning, however. As most respondents understood, the question was about the connection between games played on free time and experienced in-class language learning performance.

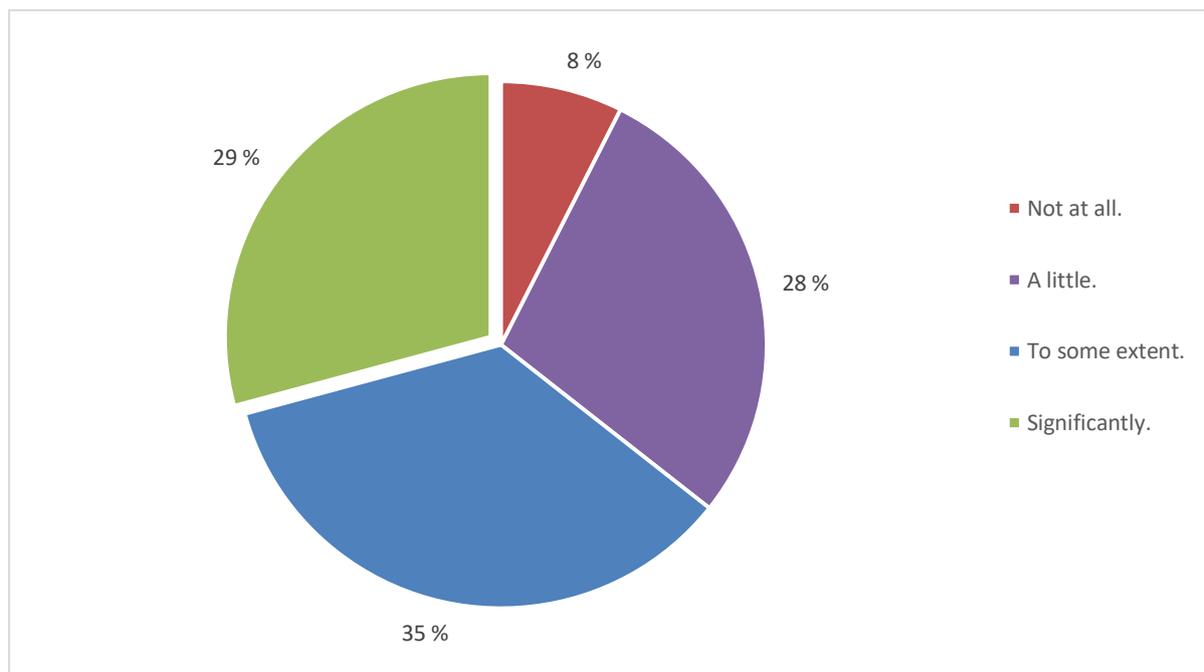


Figure 18. Experienced benefit of play for English skills in off-school use.

The impact of digital games on informants' extramural English use was discussed in Question 17 (*Have the skills you have acquired through video games benefited you elsewhere outside games and studies?*), which was answered by 592 respondents. As displayed in Figure 18, 29.2 % (173) of them reported having gained substantial benefit, 35.1 %

(208) had experienced benefit “to some extent”, and 28.2 % (167) found only a little benefit. 7.4 % (44 respondents) did not see any benefit of this kind at all.

When the 62 non-players are added to this sample, we notice that 173 of all remaining 654 informants (26.5 %) believed that playing digital games in English had benefited their English in real life in a significant measure, and one of two informants belonging to this quarter (49.1 %) thought they had learnt their English specifically from digital games.

How, then, did the game-derived linguistic benefit realize in the real-world language use? According to responses to Question 18 (*If you feel that the skills you have acquired through video games have benefited you outside the games, please tell how you have utilized these skills.*), travelling abroad and meeting travelers everywhere were the most common frames for using game-derived English:

“Olen keskustellut ulkomailla englanniksi.”

“I have discussed in English abroad.” (Boy, 16.)

“ulkomaanreissut. kouluissa opetetaan kyllä kielioppia mttä tositilanteet ovat eri asia”

“Trips abroad. At school we are taught grammar but real-life situations are a different thing.” (Boy, 16.)

“Internetissä ja ulkomailla puhuttaessa sanavarasto on laajempi.”

“When talking on the internet and abroad [my] vocabulary is larger.” (Boy, 17.)

“Matkailu, turistien neuvominen, kesätyöt. Jatko-opinnoissa (hakiessa ja opiskeluaikana) tulen hyötymään.”

“Travelling, guiding tourists, summer job. It will pay off also when I apply to a school and study there.” (Boy, 19.)

The benefits of game-derived language learning were also seen in the use of modern and traditional media. Some respondents also acknowledged the relationship between knowing English and searching information:

“Katsonut elokuvia ja sarjoja englannin kielellä tai englanniksi tekstitettyinä.”

“[I have] watched movies and series in English or with English subtitles.” (Boy, 17.)

“Sosiaalisessa mediassa ja ja englanninkielisiä artikkeleita lukiessa peleistä on ollut hyötyä.”

“Games have been useful for using social media and reading English articles.” (Girl, 16.)

“Olen käyttänyt kielitaitoani ulkomailla ja keskustellessani ulkomaalaisten ihmisten kanssa. Olen lukenut kirjallisuutta englanniksi ja suomen kielen ollessa niin pieni kieli, englannin kielen osaaminen tuntuu lähes välttämättömältä nykymaailmassa, jos haluaa vastauksia kysymyksiinsä liittyen lähes

mihin tahansa. Luen englannin kielistä tekstiä ja kommunikoin englanniksi päivittäin suuria määriä. Tulen lähes aina ymmärretyksi ja ymmärrän lähes kaiken, minkä englanniksi luen/kuulen."

"I have used my language skills abroad and in conversations with foreign people. I have read English literature, and as Finnish is such a small language, knowing English feels a necessity in the modern world if one needs answers to almost any question. I read English texts and communicate in English daily and much. Almost every time I am understood and I understand almost all that I read or hear in English." (Girl, 17.)

"Esimerkiksi englanninkielisiä tekniikkaan liittyviä ohjeita lukiessa"

"For instance when reading technical manuals in English." (Girl, 18.)

Some respondents acknowledged the improvement of certain communicative skillsets, as speaking "actual" language, pronunciation, comprehension skills and written communication, and many of them were able to analyze how this was shown in their language use.

"Ääntäminen ja monimutkaisten lauseiden muodostaminen."

"Pronunciation and forming complex sentences." (Boy, 17.)

"Yleinen englannin ymmärrys on minulla todella hyvää. Englannin kielistä keskustelua ei ole kovin hankala seurata, en tarvitse tekstityksiä ohjelmissa/elokuvissa, helppo asioida englannin kielisillä foorumeilla, helpottaa englannin opiskelua koulussa. --"

"In general I understand English very well. It is not very difficult to follow English conversation, I don't need subtitles in programs/movies, it is easy to communicate on English forums, [and it also] eases English studies at school. --" (Boy, 18.)

"Kirjoitettujen keskustelujen käynti on vaivatonta."

"Having written conversations is effortless." (Boy, 18.)

"Keskustelutilanteissa ja käännöstilanteissa, sekä kulttuurissa ja historiassa ja kouluesitelmää tekiessä. Peleistä oppinutta englannin taitoa pystyy hyödyntämään oikeastaan kaikessa."

"In communicative and interpretative situations, when concerning culture and history, and when preparing presentations for school. Actually one can utilize the English learnt from games in everything." (Girl, 18.)

"Useimpia nuorison käyttämiä slangi sanoja en ole koskaan kuullutkaan oppitunneilla. Käytin Englannissa ollessani muiden nuorten kanssa puhuessani lukuisia peleistä oppimiani sanoja."

"Most slang words I have never heard at school. When I was in England I used lots of words I had learnt from games when I talked with other young people." (Girl, 16.)

"Minulla on paljon englannin kielisiä kavereita ja pelien avulla olen oppinut puhumaan heidän kanssaan englannin kielen slangia jota käytetään keskusteluissa jatkuvasti ja olen tullut ymmärretyksi."

"I have a number of English-speaking friends, and with the help of games I have learnt to speak English slang which is used in conversations all the time, and they have understood me." (Girl, 17.)

Casual speaking, small talk, maintaining a conversation, and even interpreting skills were also mentioned in the answers. Quite a number of answers reflected multiculturalism in work and human relationships.

"Yleisesti kun oppii kieltä, niin oppii myös jotenkin puhumaan, niin voi ylläpitää keskustelua yllä."

"If you learn a language in general you also learn to speak more or less, which then helps you maintain a discussion." (Boy, 20+.)

"Keskustelemme useasti perheenjäsenieni kanssa englanniksi. Pelien kautta ääntäminen ja aksentit ovat helpompi oppia."

"We often discuss in English with my family. Pronunciation and accents are easier to learn through games." (Girl, 18.)

"Toimin usein tulkkina vanhempieni työasioissa kun ollaan yhteydessä ulkomaille. Keskustelu on molemminpuolin ymmärrettävää."

"I often act as an interpreter for my parents when they have foreign business contacts. Communication is reciprocally accessible." (Girl, 17.)

"Olen hyödyntänyt taitojani keskustellessani serkkuni miehen kanssa, joka tulee Belgiasta. Ainakin hän on ymmärtänyt minua ja myös belgialainen vaihto-oppilaamme on ymmärtänyt minua."

"I have utilized my skills in conversations with my cousin's Belgian husband. At least he has understood me and also our Belgian exchange student has understood me." (Girl, 17.)

There were also a number of responses which concerned work and hobbies. For some, fluent English had already provided access to working life.

"Olen vetänyt karatetreenejä englanniksi ja osa sanoista on videopeleistä opittuja."

"I have run karate training sessions in English, and some of the words I had learnt from video games." (Girl, 16.)

"Ainahan sitä jotakin oppii, mutta hankala nyt eritellä. Ensimmäisenä tuli mieleen rynnäkkökiiväärin käsittely, armeijassa se ei ollut mikään vieras esine vaan tiesin toden teolla kuinka lipaanvaihdot ja lataamiset tapahtuvat, kun sotasimulaattoreita ja räiskintäpelejä oli pelannut."

"You always learn something, but it's difficult to specify. First in my mind was handling an assault rifle; back in the army it didn't feel unfamiliar for me but I really knew how to change the ammo clip and reload the gun, as I had been playing war simulators and FPS's." (Boy, 20+.)

"--[Olin] yliopiston biologisella laitoksella TET:issä. Siellä englantia puhuvan kanssa tein töitä, sekä TET- jakson loppupäässä oli kansainvälinen lääketieteen konferenssi, jossa puhuttiin englantia."

"--I did my workplace learning at the biological department at a university. I worked with an English-speaking person, and at the end of the training there was an international medical conference, which was held in English." (Boy, 17.)

"Olen (lyhyestä iästäni huolimatta) tehnyt töitä englanninkielen parissa. Työskentelen IT-alalla freelancerina ja välillä täyspäiväisenä työntekijänä ja tarvoitsen työssäni huomattavasti englantia, koska se on pääkommunikointikieleemme."

"I have, despite of my low age, worked with the English language. I'm working on IT as a freelancer and occasionally as a full-time worker and in my job I need English a lot, because it is our main language of communication." (Boy, 18.)

There were also respondents who realized it was difficult or impossible to specify how certain skills have been learnt or developed, recognizing that diverse use of media and on-screen communication are in general a remarkably potential source of language learning.

"Yksittäisiä peleistä opittuja juttuja on paha lähteä erottelemaan, koska toimivat lähinnä taustavaikuttajina yhdessä mm. musiikin ja kirjallisuuden kanssa yleisen kielitaidon, luetun- ja kuullunymmärtämisen sekä sanaston vahvistajina."

"It's difficult to specify things learnt from individual games, because they rather act as background factors together with, say, music and literature, to improve general knowledge of language, reading and listening comprehension, and vocabulary." (Girl, 18.)

"On vaikea erotella, mitkä taidot ovat tulleet videopeleistä ja mitkä muualta internetistä. Väitän, että kokonaisuudessaan sähköisestä oppimisesta saatu osaaminen on auttanut aivan hemmetisti, olkoon sitten vaikka keskustelufoorumeilla, chateissa yms. vuorovaikutuksessa."

"It is difficult to separate which skills have been learnt from video games and which from elsewhere on the internet. I purport that all e-learning-based knowledge in its entirety has been a heck of a help, be it online forums, chats or else communication." (Girl, 18.)

There were 44 respondents out of 592 (7.4 %) who found neither games nor the skills learnt through them beneficial outside language classes or gaming in Question 17. To support this point of view, not many arguments were provided.

"Ei ole ollut, käytän englantia lähinnä ainoastaan koulussa ja peleissä. /_\"

"[They] haven't been [helpful], I use English mainly at school and in games only." (Boy, 17.)

To sum up the discussion in this section, it can be argued that playing digital games in English benefits both in-school English studying and off-school English use in several ways. It not only makes language use easier and more effortless, but also benefits certain areas of language studies and communication, such as communication skills, comprehension skills, media use and information search. Game-derived language skills were also reported to increase language learning motivation, help in tourism and travel-related issues, and open doors to working life. Finally, these benefits were not exclusively game-related features, but regular use of other forms of modern media was also seen to have similar effects on the informants' language skills.

The examination of gamers' responses ends here. The following chapter will discuss the non-players' views on video games and language learning, after which it is time to conclude the present study.

6.7 Non-players' views

In the two-question set designed for those who had no experience of playing English digital games, responses to Question 19 (*To what extent do you believe English video games benefit learning the language?*) clearly show that non-players' perception on digital games' benefit for language learning is not as positive as the experience of those who play, even though the answer options were not quite the same (Figure 19).

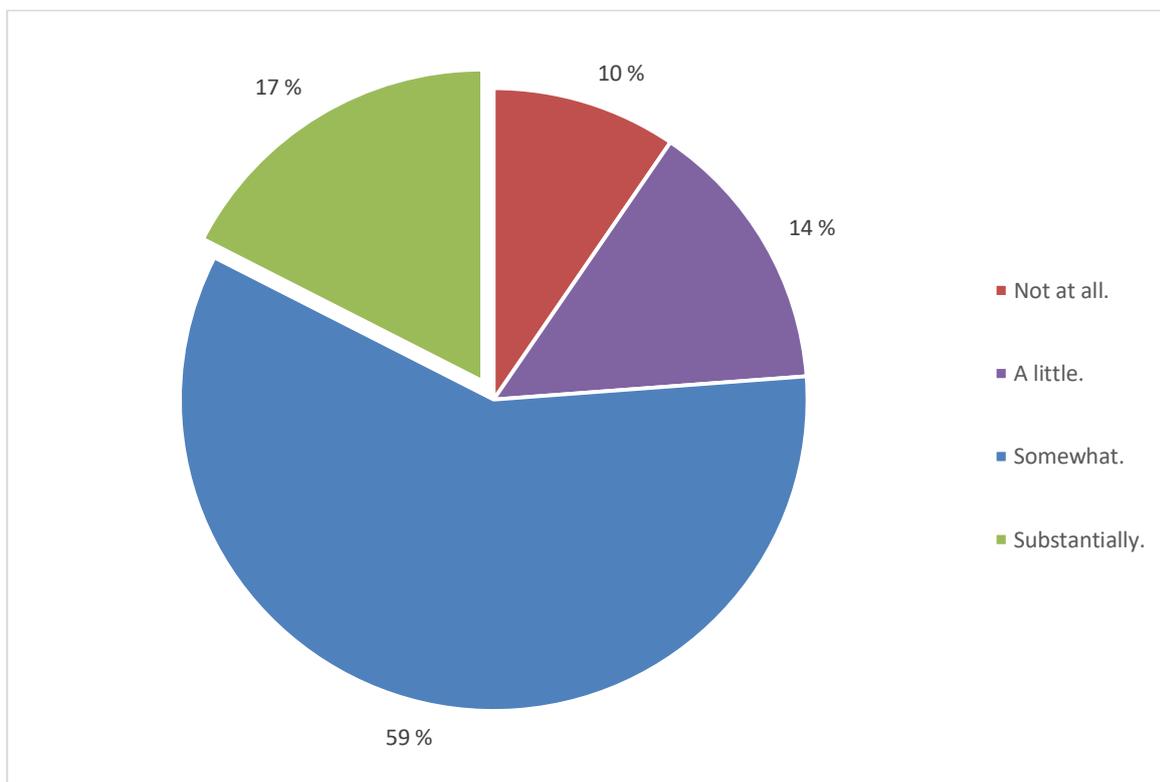


Figure 19. Estimated benefit of play for language learning as suggested by non-players.

Nevertheless, the share of those who believed gaming would be of significant help was only 17.5 %; in comparison, 58.4 % of gamers stated to have gained significant benefit in terms of English learning. Most non-gamers, 73.0 % (46 of 63) thought that gaming would benefit players' language learning "somewhat" or "a little", whereas 30.6 % of gamers chose the "a little" option. The remaining 9.5 % (6 of 63) of non-gamers thought there would be no benefit at all, while this was the actual experience

of 1.8 % of the game players. Figure 19 depicts the division of non-gamers' perceptions, and the players' experience about the issue is displayed in Figure 13.

There were not many suggestions by the non-gamer group to Question 20 (*If you believe that playing computer games facilitates learning English, please describe what kind of skills you believe the players learn or improve.*) as to how they believed game playing would improve one's language skills. Vocabulary, oral communication, cognitive processing and context-related language were among the most frequent answers. It was, for instance, suggested that what gamers learn is game-specific vocabulary, which would not be of importance in real life; however, as the previous section shows, almost one third of gamers thought the gained benefit was not limited to in-game use.

"Lauserakenteet, kielikoroa, puhe-englanti kehittyi, lausuminen, sanavarasto"

"Sentence structures, ear for languages, spoken English improves, pronunciation, vocabulary." (Boy, 17.)

"Kehittää erityisesti sanastoa ja fraasien hallintaa"

"Improves particularly vocabulary and phraseology." (Boy, 18.)

"oppii perusteellisesti varmaan sellaiset sanat joita kussakin pelissä paljon käytetään, ajattelemaan nopeammin kun ei ole aikaa etsiä sanoja sanakirjasta tai kääntäjästä, jos pelaa paljon englannin kielisiä pelejä niin kielestä tulee varmaan luonnollisempi osa arkea"

"One learns thoroughly, I suppose, words which are frequent in the target language, to think faster when there's no time to look up in a dictionary or a translator, [and] if one plays a lot of games in English, the language may become a more natural part of everyday life." (Girl, 16.)

"Ymmärtämään lauseita, oppimaan uusia sanoja, joissain peleissä (verkossa pelattavat moninpelit) kommunikoidaan englanniksi, käyttämään kieltä ongelmien ratkaisuun"

"To understand sentences, to learn new words, in certain games (online multiplayer games) to communicate in English, to use the language in problem solving." (Boy, 16.)

"lyhenteet, 'nettienkku', prepositioilmauksia jne mitä koulussa opetetaan huonosti kuuntelua jos vuorovaikutuksessa muiden pelaajien kanssa videossa ja sanastoa"

"Abbreviations, 'internet English', prepositional phrases etc. which are poorly taught at school. Listening when in video communication with other players, also vocabulary." (Girl, 17.)

"He oppivat pelisanastoa eli ei niin oleellista."

"They learn game vocabulary, which isn't that important." (Girl, 18.)

"Kiroilu ja slangisanat"

"Swearing and slang words" (Girl, 16.)

Question 19 was designed for those respondents who did not play digital games in English themselves in order to create a comparison group to which the gamers'

perceptions on learning benefits, specifically observed in Question 11, could be contrasted. These two viewpoints were, however, very different by nature, as one discusses the issue from the perspective of having actual experience about the topic and another being about giving a guess. Therefore, it was not possible to apply the same answering options to both Question 11 and Question 19, which may make it difficult to compare the results of the respective questions reliably. Furthermore, the number of non-playing respondents was relatively small, for which reason it seems a little inappropriate to draw conclusions from the differences between the playing and non-playing sample pools. Nonetheless, it appears that informants with no experience of playing digital games in English were more skeptical towards the language-learning benefits of gaming, while the gamer group showed strong evidence for the positive influence of game playing on their language learning.

6.8 Key findings

As it was shown in section 6.5, Finnish young people indisputably believe that playing digital games helps them to learn English. The frequencies of student responses to Question 11 (which concerned the experienced gaming-resulted benefit for language learning) were as follows: 3.3 % of game-playing boys were not able to say if gaming had been of any help with learning English, and 17.5 % thought that gaming had been of little or no help at all. A share of 45.5 % believed that playing games had substantially helped them learn English, and 33.7 % had the perception that most of their English skills had been acquired via video games. The corresponding percentages for girls show more hesitance and doubt; 16.1 % of gamer girls couldn't say if playing video games had benefited their language learning, and 50.2 % thought the benefit had been little or non-existent. 25.4 % thought that gaming had benefited them substantially, and the remaining 8.2 % stated that most of their language proficiency was due to playing games. These by-gender statistics were shown in Figure 14.

The answers to Question 11 were placed on a scale from 0 to 3, where 0 stands for "no benefit at all", 1 for "a little benefit", 2 for "significant benefit" and 3 for "most of my English skills are learnt from games". All "unable to say" answers were excluded

from the sample. An independent samples T-test resulted in the boys having a mean score of 2.16 (standard deviation = 0.724, N = 321) and girls a mean score of 1.46 (standard deviation = 0.724, N = 234). The value of significance was 0.000 for both boys' and girls' mean scores, which makes the result statistically significant at the 0.01 level. From this it can be concluded that digital games are an important source of English learning for Finnish upper secondary school students, and even more so for boys than for girls.

What, then, could explain the apparent gap between boys' and girls' learning results? Let us first study the correlation between English grades at school and then return to observe the time used around games. Pearson Correlation value between the responses to Question 4 (English grade) and Question 11 (perception on learning English from games) was as low as 0,077 (with 2-tailed statistical significance at 0,059), from which it can be concluded that the connection between a student's experience of learning English from digital games and his studying performance in English classes is very weak and not statistically significant. The influence of playtime on language learning, on the other hand, became evident via statistical analysis of these factors. Before running the tests, the two first options ("0 to 30 minutes" and "30 to 60 minutes") in Question 7 were merged together in order to set the variables on the same scale as Question 6 and 11 variables; this was performed to achieve similar and comparable scales for these questions. See the used scales below.

Question 6:

- 0 = I play once a month or less.*
- 1 = I play once a week or less.*
- 2 = I play many times a week.*
- 3 = I play every day or almost every day.*

Question 7:

- 0 = Maximum an hour.*
- 1 = Maximum two hours.*
- 2 = Maximum four hours.*
- 3 = More than four hours.*

Question 11:

0 = Gaming has not helped at all in learning English.

1 = Gaming has helped a little.

2 = Gaming has helped significantly.

3 = Most of my English proficiency has been learnt from gaming.

Now, let us present the one-way ANOVA test results for the two genders' answers in questions 6 and 7 – in other words, how often and how much boys and girls reported to play in average. Figure 20 displays a column graph of boys' and girls' playtime mean values, where "0" marks that a respondent used to play once a month or less (in Question 6) and/or maximum one hour at once (in Question 7), and "3" states that he played every day or almost every day (in Question 6) and/or more than four hours per session (in Question 7). The respective numbers are also seen in Table 3 along with standard deviation and sample size information. According to this data, boys played notably more often and longer than girls.

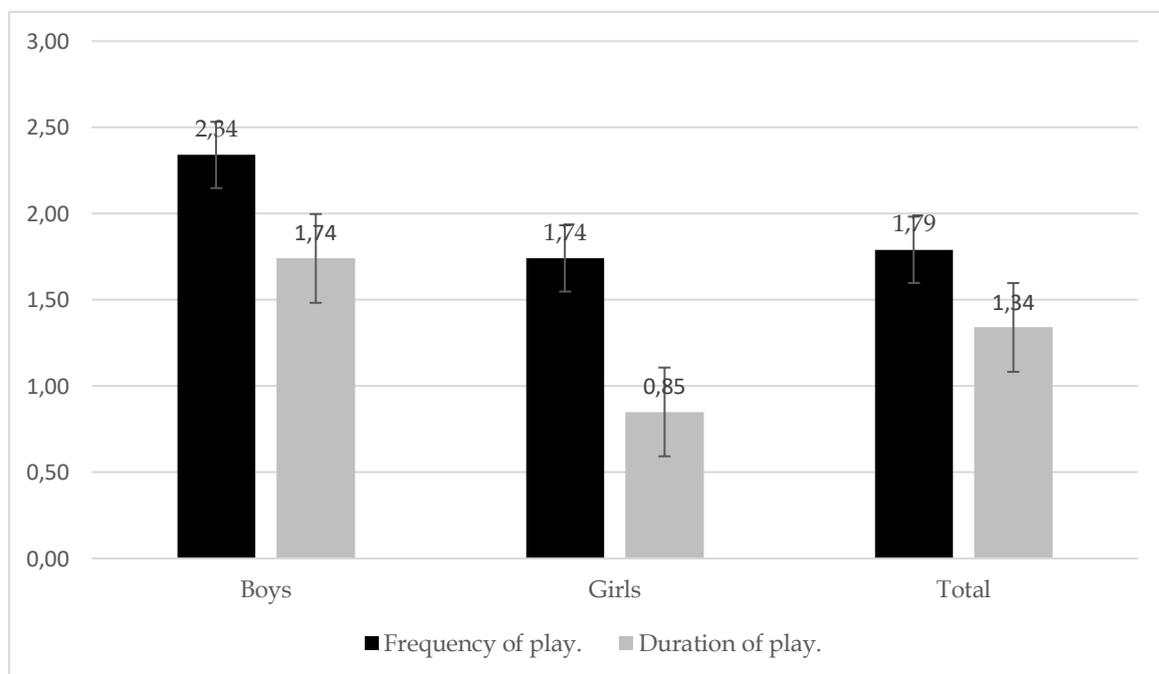


Figure 20: Frequency and duration of play by gender.

Table 3: Frequency and duration of play by gender.

		N	Mean	Std. Deviation
Question 6. (Scale: 0-3)	Boys	384	2,34	,909
	Girls	317	1,13	1,140
	Total	701	1,79	1,185
Question 7. (Scale: 0-3)	Boys	384	1,74	,922
	Girls	316	0,85	0,974
	Total	700	1,34	1,045

As it can be presumed by boys' and girls' playtime and language learning data, there was a notable connection between the two issues. Playing computer games, even if very little, was likely to result in learning English, but if games were played on a daily basis or so, the benefit was likely to be remarkably significant. This tendency was acknowledged via one-way ANOVA tests, the results of which are displayed in Figure 21.

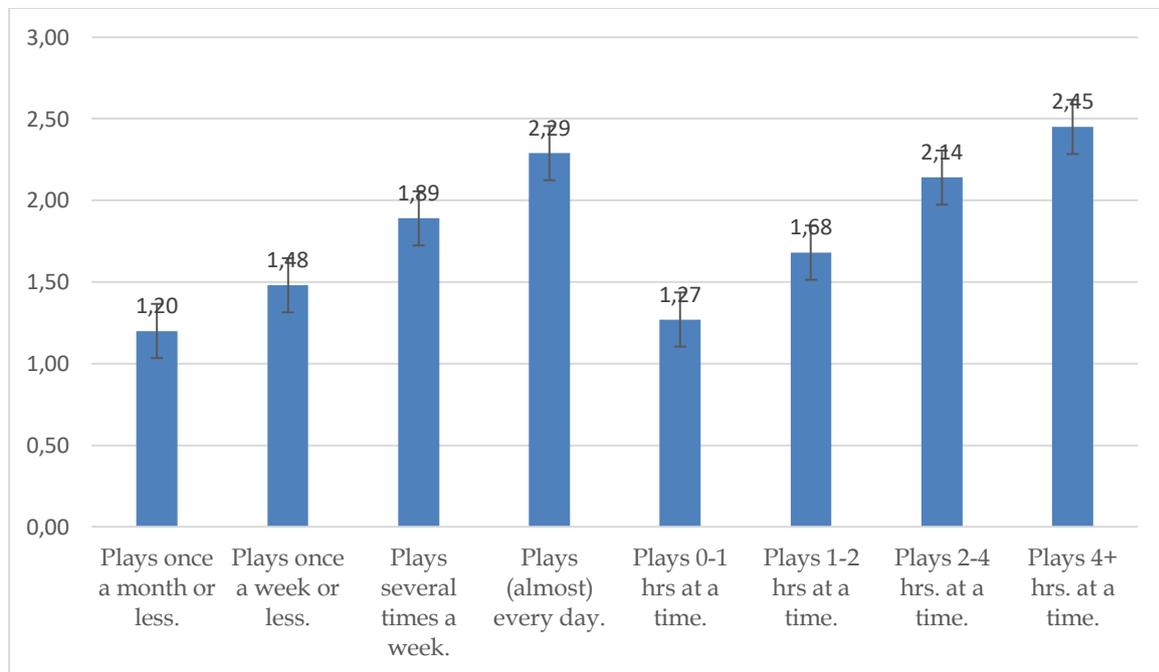


Figure 21: The effect of frequency and duration of play on experienced language learning benefit.

Most importantly, there was a strong correlation between language learning and active playing: the correlation between language learning and frequency of play was 0.536, and between language learning and duration of play it was 0.513, both results scoring a significance value of 0.000, making them statistically significant at the 0.01 level. Secondly, even though the learning benefit of both the high frequency of playing digital games in English and long gaming sessions was clear, none of these factors proved to be significantly more efficient than the other in terms of language acquisition. Figure 21 and Table 4 display the respective mean values and standard deviations of questions 6 and 7 in relation to question 11, all statistically significant at the 0.05 level, and Table 5 shows the strong correlation between playtime and language learning, which was statistically significant at the 0.01 level. (Please note that Figure 21 utilizes the 0-to-3-scale of experienced benefit, not the similar ones of measuring playing frequency or duration.) Based on this set of data it can be argued that the great gap between boys' and girls' game-derived English learning is due to boys' tendency to play more.

Table 4: The effect of frequency and duration of play on experienced language learning benefit.

		N	Mean experienced benefit	Std. Deviation
Question 6.	Plays once a month or less.	105	1.20	0.595
	Plays once a week or less.	88	1.48	0.625
	Plays several times a week.	122	1.89	0.714
	Plays (almost) every day.	240	2.29	0.712
	Total	555	1.87	0.802
Question 7.	Plays 0-1 hours at a time.	131	1.27	0.608
	Plays 1-2 hours at a time.	150	1.68	0.745
	Plays 2-4 hours at a time.	176	2.14	0.707
	Plays more than 4 hours at a time.	98	2.45	0.644
	Total	555	1.87	0.802

Table 5: Correlation and statistical significance between game-derived language learning and playtime.

		6. Frequency of play.	7. Duration of play.	11. Game-derived English learning.
6. Frequency of play.	Pearson Correlation	1	,542**	,536**
	Sig. (2-tailed)		,000	,000
	N	555	555	555
7. Duration of play.	Pearson Correlation	,542**	1	,513**
	Sig. (2-tailed)	,000		,000
	N	555	555	555
11. Game-derived English learning.	Pearson Correlation	,536**	,513**	1
	Sig. (2-tailed)	,000	,000	
	N	555	555	555
**. Correlation is significant at the 0.01 level (2-tailed).				

To sum up, frequently playing youth are evidently receiving a significant bonus of English input and opportunities of language application by gaming compared to their non-playing peers. What is more, the positive influence of games is more typical to boys than girls, which is due to boys' more active game-playing, not because of better performance in formal language learning situations or an aptitude for learning languages. *Serious gaming, hardcore gaming, active gaming*, or whatever be the best term to describe the frequency of and enthusiasm towards playing games, is more popular among boys, and girls are more likely to appear as *casual gamers* in the gaming scene. The present study does not aim to find answer to the question why girls play less, but mere tradition and the current selections of video games in game stores give a reason to conclude that it has for long been more of a male activity. However, recent research shows that the masses of girls are yet to make their entrance to video game scenes with their share of players growing (see e.g. this paper, ESA 2013, ESA 2015).

7 CONCLUSION

The present study has studied Finnish upper secondary school students' perspectives on whether digital games are beneficial for their English learning and what kind of items or aspects of language are needed and acquired during gaming sessions. It has also observed the effect of time used for gaming and certain distinctions between male and female players' playing and learning experiences. The study was carried out as an online questionnaire which included both open-ended and closed questions about gaming practices and language learning. The former included questions about time consumption and played games, and the latter included, for instance, comparison between spoken and written language, specification of aspects or skills of language, and analysis of how playing had helped to acquire language and how the benefit had realized outside games in in-school and off-school everyday life. The questionnaire was answered by 779 informants, majority of whom were 16-to-18-year-old upper secondary school students, but the sample pool also included a minority of younger and older informants. The informants were from 15 different schools from different parts of Finland.

The data was analyzed by both qualitative and quantitative means. All open-ended data was read thoroughly through and examples of the most typical (and sometimes of the most atypical) responses were presented and analyzed. The resulting frequencies of all numerical data (multiple choice questions) were also presented and the most important and significant findings were further analyzed in a statistical analysis software. As a result, it was discovered that teenage players not only regard games as helpful for their language skills, but they are also able to identify and recognize what games have been beneficial and what kind of language or aspects of language have been achieved. Furthermore, statistical analysis showed the indisputable connection between the learning experience and playtime, which proves that playing digital games in English is indeed beneficial for the players' language learning. Generally, games seem to require the use of written language skills more than spoken language, and comprehension skills more than production skills. However, multiplayer online games allow players also to communicate and co-

operate both literally and orally, in real time. There are also game-specific communities, which enable player-to-player communication also outside of the actual playing. Therefore, game selection has an effect on what kind of language the player uses and learns, and the collaborative learning aspect does not exclude games with no multiplayer option. Vocabulary-related areas of language learning seem to benefit the most from playing games, but many more skills of language do benefit as well. Boys also seem to use and learn spoken language in games more than girls, which is mainly due to the game types male players favor. Not only are boys more active gamers, but they also acquire more language from games than girls do.

The present study also presented a few flaws. For instance, a more thorough survey design might have been needed, for example, in Question 15, where it may not have been clear for the respondents what is the distinction between such pairs as “Very little” and “To some extent” or – even more so – between “A lot” and “Significantly”. What is more, the answering options did not stay uniform throughout the survey, but there was needless alteration in the scales of answering options, which made them a little more difficult to analyze and compare.

As a summary, the present study gives strong proof on the connection between time committed to playing and the players’ learning experience, and suggests the language learning potential of both commercial and educational games to be taken into account in the field of language teaching. It is important to discuss how the classroom could benefit from the motivation and competence of game-playing students, how in-game systems or similar platforms can be utilized in language teaching, and what other recreational leisure time activities there are to enhance language learning for those who do not care about game-playing. Furthermore, as mobile technology already enables game-derived language learning with no bounds of location or time, the great learning potential of such mobile solutions should be recognized and discussed more widely among educators and authorities. Hence, a few suggestions for further study also arise. Firstly, how does the language learning potential of digital games realize when people of different age groups are concerned: for example, how do the languages skills of children below school age and with no

experience of formal L2 learning, or elderly people with poor or inexistent L2 skills, develop among digital gaming? Secondly, are the benefits of playing at their most influential when gaming is self-directed, optional and extramural, or could the players get more out of playing in terms of language acquisition if the gaming was organized and the actual gaming event was carried out with educational aims and professional instruction and feedback? Thirdly and finally, could certain (either existing or future) games work as a platform for cross-curricular learning, where the educational purposes and aims of various school subjects meet? To answer these questions, plenty of experimental study is required to be carried out.

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APPENDICES

Appendix 1: Online questionnaire.



Pro gradu -työ: Onko tietokonepeleistä hyötyä englannin oppimisessa?

0 %

Hei ja tervetuloa vastaamaan!

Jos olet 13-20-vuotias koululainen tai opiskelija ja pelaat tai olet pelannut englanninkielisiä tietokone-, konsoli-, selain- tai mobiilipelejä, olet juuri oikea henkilö vastaamaan tähän kyselyyn. Kyselyn avulla pyritään selvittämään, mitä mieltä koululaiset ja opiskelijat ovat tietokonepeleistä englannin oppimisen välineenä. Kysely on osa pro gradu -tutkimusta, joka tehdään Jyväskylän Yliopiston kielten laitoksella. Tutkijan yhteystiedot löydät kyselyn lopusta.

Kyselyssä ei ole "oikeita" tai "väärä" vastauksia, vaan osallistujia pyydetään vastaamaan rehellisesti omalla mielipiteellään - luotettavin tutkimustulos saadaan vain, kun jokainen vastaaja tekee näin. Vastaathan siis kaikkiin kysymyksiin niin tarkasti kuin osaat.

Kyselyyn vastaaminen on täysin turvallista: vastaamalla et sitoudu mihinkään, eikä sinulta pyydetä henkilöllisyystietoja tai muita tietoja, joista sinut voitaisiin tunnistaa. Kerättyjä vastauksia käytetään vain tähän tutkimukseen, eikä niitä luovuteta eteenpäin.

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

Suuret kiitokset ajastasi ja miellyttäviä hetkiä pelien ja englannin parissa!

Seuraava



Pro gradu -työ: Onko tietokonepeleistä hyötyä englannin oppimisessa?

11%

Perustiedot

Puhutko englantia äidinkielenäsi? *

- kyllä
 ei

Ikä *

- 13
 14
 15
 16
 17
 18
 19
 20+

Sukupuoli *

- Mies
 Nainen

Viimeisin englanninnumerosi peruskoulussa asteikolla 4-10 *

Jos et ole saanut todistukseesi numeroarviointia arvosanoilla 4-10, valitse "joku muu".

- 4
 5
 6
 7
 8
 9
 10
 Joku muu, mikä?

[Edellinen](#)[Seuraava](#)



Pro gradu -työ: Onko tietokonepeleistä hyötyä englannin oppimisessa?

22 %

Pelaamistottumukset 1/2

Pelaatko tai oletko joskus pelannut englanninkielisiä tietokone-, konsoli-, selain- tai mobiilipelejä? (Jatkossa näitä kaikkia nimitetään yhteisesti "videopeleiksi".) *

Kielipelejä eli erityisesti kielenoppimiseen tarkoitettuja opetuspelejä tai sovelluksia, mm. "Lingua Land" ja "Duolingo", ei oteta huomioon.

- kyllä
- ei

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(muuta)



Pro gradu -työ: Onko tietokonepeleistä hyötyä englannin oppimisessa?

33 %

Pelaamistottumukset 2/2

Jos pelaat tai olet joskus pelannut muita kuin opetuskäyttöön tarkoitettuja englanninkielisiä tietokonepelejä, mikä seuraavista kuvaa pelaamistasi parhaiten? *

Myös mobiilipelit huomioidaan. Jos olet pelannut joskus mutta et pelaa enää, valitse se vaihtoehto, joka vastaa parhaiten sitä aikaa kun viimeksi pelasit.

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

Kun pelaat tietokonepelejä, kuinka kauan YLEENSÄ pelaat saman päivän aikana? *

Valitse se vaihtoehto, joka on toteutunut USEIMMIN. Myös mobiilipelit huomioidaan.

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

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Pro gradu -työ: Onko tietokonepeleistä hyötyä englannin oppimisessa?

44 %

Englannin kieli videopeleissä 1/2

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

Jos et muista pelaamiesi pelien nimiä, voit kuvailla niitä muulla tavoin.

Onko joku peli ollut mielestäsi erityisen hyödyllinen englannin oppimisen väline? Jos on, nimeä se/ne tässä.

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

- Puhuminen
- Kuullun ymmärtäminen
- Kirjoittaminen
- Luetun ymmärtäminen
- Suulliset keskustelutaidot
- Kirjalliset keskustelutaidot
- Jokin muu, mikä?

Mikä seuraavista väittämistä kuvaa parhaiten sinua? *

- Pelaamisesta ei ole ollut lainkaan apua englannin oppimisessa.
- Pelaamisesta on ollut vähän apua englannin oppimisessa.
- Pelaamisesta on ollut huomattavasti apua englannin oppimisessa.
- Suurin osa kielitaidostani on hankittu pelaamalla.
- En osaa sanoa, onko pelaaminen auttanut englannin oppimisessa.

Edellinen

Seuraava



Pro gradu -työ: Onko tietokonepeleistä hyötyä englannin oppimisessa?

58 %

Englannin kieli videopeleissä 2/2

Millaisia asioita olet mielestäsi oppinut tai missä olet kehittynyt pelatessasi videopelejä englanniksi? *

Valitse yksi tai useampia. Voit halutessasi tarkentaa vastaustasi seuraavan kysymyksen avovastauskenttään.

- Sanat.
- Sanonnat, idiomit, fraasit.
- Oikeinkirjoitus.
- Tyyliseikat ja erilaiset rekisterit, esim. millaista kieltä sopii käyttää missäkin tilanteessa.
- Murre tai slangi.
- Kielioppiasiat.
- Kielihistoria.
- Englanninkielisiin kulttuureihin liittyvät asiat.
- Puhuminen.
- Ääntäminen.
- Tulkkaminen.
- Keskustelutaidot.
- Lukeminen.
- Jokin muu, mikä?

Tähän voit halutessasi täsmentää, millaisia englannin kieleen liittyviä asioita olet oppinut tai missä olet kehittynyt pelatessasi videopelejä.

Edellinen

Seuraava



Pro gradu -työ: Onko tietokonepeleistä hyötyä englannin oppimisessa?

87 %

Videopelien vaikutus englannin osaamiseen

Onko pelaaminen kehittänyt sinun tapauksessasi enemmän suullista vai kirjallista kielitaitoa? *

Suullinen kielitaito = puhuminen ja kuullunymmärtäminen; kirjallinen kielitaito = kirjoittaminen ja luetunymmärtäminen.

- Ainoastaan suullista kielitaitoa.
- Enimmäkseen suullista kielitaitoa.
- Sekä suullista että kirjallista kielitaitoa.
- Enimmäkseen kirjallista kielitaitoa.
- Ainoastaan kirjallista kielitaitoa.
- Ei kumpaakaan.

Onko videopeleissä oppimistasi englannin taidoista ollut sinulle hyötyä koulussa tai opiskellessa? *

- Ei lainkaan.
- Hyvin vähän.
- Jonkin verran.
- Paljon.
- Huomattavasti.

Koetko, että pelaaminen TEHOSTAA englannin OPISKELUASI, ts. pelaaminen auttaa sinua opiskelemaan englantia tehokkaammin myös koulussa?
Jos kyllä, niin miten?

Onko videopeleistä oppimistasi englannin taidoista ollut sinulle hyötyä muualla kuin videopelien ja opiskelun parissa? *

Esim. kotona, vapaa-ajalla, matkoilla, internetissä.

- Ei lainkaan.
- Vähän.
- Jonkin verran.
- Huomattavasti.

Jos koet, että peleissä oppimistasi englannin taidoista on ollut sinulle jotain hyötyä pelien ulkopuolella, niin kerro, miten olet taitojasi hyödyntänyt.

Voit kuvailla tilanteita laajemminkin. (Esim. mitä taitoja tai millaista kieltä olet käyttänyt, kuinka usein, missä tilanteissa, tuliko ymmärretyksi.)



Pro gradu -työ: Onko tietokonepeleistä hyötyä englannin oppimisessa?

78 %

Kysymykset niille, jotka eivät ole pelanneet englanninkielisiä videopelejä

Kuinka paljon uskot englanninkielisistä tietokonepeleistä olevan hyötyä kielen oppimisessa? *

- Ei lainkaan.
- Vähän.
- Jonkin verran.
- Huomattavasti.

Jos arvelet, että tietokonepelejä pelaamalla oppii englantia, niin kuvaile, millaisia taitoja uskot pelaajien oppivan tai missä uskot heidän kehittyvän.

[Edellinen](#)[Seuraava](#)



Pro gradu -työ: Onko tietokonepeleistä hyötyä englannin oppimisessa?

89 %

Kysely on suoritettu loppuun. Kiitos osallistumisestasi!

Jos haluat esittää kysymyksiä tai antaa palautetta kyselystä tai koko tutkimuksesta, ole hyvä ja ota yhteyttä tutkijaan tai tutkimuksen ohjaajaan:

Tutkimusta suorittaa Matti Erkkilä - matti.e.erkkila@jyu.fi

Tutkimuksen ohjaaja on professori Anne Pitkänen-Huhta - anne.pitkanen-huhta@jyu.fi; +358 50 428 527

Selvä. Haluan nyt päättää kyselyn.

Edellinen

Loppu