

“NOTHING INTERESTING HAPPENS”:  
Early L2 Vocabulary Acquisition via Internet  
Games

Bachelor's thesis

Topias Kähärä

University of Jyväskylä  
Department of Language and Communication Studies  
English  
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<p>Tiivistelmä – Abstract</p> <p>Digitaalisuus, videopelit ja pelillisyydet ovat ilmiöinä kasvaneet hyvin tärkeäksi osaksi elämää monilla elämän osa-alueilla kahden viime vuosikymmenen aikana eikä kasvatusala ole poikkeus. Pelit on otettu tärkeäksi kielen oppimisen työkaluksi kaikilla opiskeluasteilla Suomessa. Vaikka oppimispelit on oma äärimmäisen tärkeä osansa kielten oppimisessa, on pelien tärkeys oppimisen välineenä kuitenkin muualla kuin luokkahuoneessa. Pelit ovat hyödyllisiä informaalisen oppimisen välineitä.</p> <p>Tässä tutkielmassa käsitellään aikaista toisen kielen informaalista sanaston oppimista internet-pelien kautta. Tämän lisäksi lukija tutustuu pelien yleisiin hyötyihin oppimiseen nähden sekä aiempaan pelitutkimukseen kielen oppimisen näkökulmasta.</p> <p>Osana tätä tutkielmaa teetätin kyselyn 51 10–13-vuotiaalle koululaiselle eteläsuomalaisessa alakoulussa. Kyselyssä kysyin oppilailta sanoja tai lauseita, joita he kokivat oppineensa peleistä sekä heidän taustatietojaan (ikä, sukupuoli, aiempi suoriutuminen englannin oppiaineessa sekä heidän harrastuneisuutensa Internet-pelaamisessa). Tämän jälkeen oppilaille annettiin lista englanninkielisiä sanoja (verbejä, substantiiveja ja adjektiiveja), johon he merkkasivat tunnistivatko sanan tai osasivatko kääntää sen. Kysely analysoitiin laadullisin metodein ja pienen otannan takia tutkimuksen tulokset eivät ole yleistettävissä.</p> <p>Kyselyn tuloksena löytyi vahva yhteys pelaamisharrastuneisuuden sekä sanaston oppimisen välillä ja huomattiin, että suurin osa pelien myötä opituksi koetuista sanoista on substantiiveja. Lisäksi huomattiin, että kuudennella luokalla erot pelaavien ja ei-pelaavien oppilaiden välillä tasaantuivat. Vaikka tytöt ovat yleisesti kielellisesti lahjakkaampia kuin pojat, tytöt suoriutuivat kyselyn toisesta osiosta huonommin kuin pojat jokaisessa ikäluokassa.</p>	
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## 1 INTRODUCTION

The field of digital games and gaming technology has expanded rapidly in the 21st century, and the area of language education and learning has not gone unnoticed in this phenomenon. Games and simulations have been widely used in foreign language teaching, as they provide a non-threatening environment for both practicing forms that have been already learned and experimenting with new forms and vocabulary (Gaudart 1999). As the nature of games used in teaching has expanded from solely board games and participatory group activities to virtual teaching games on the Internet, a genre called serious games has evolved. Serious games are professional attempts to create educationally successful and entertaining games (Rankin 2008). When trying to balance between education and entertainment, serious games often fail in producing either. Serious games have been criticised for being “awkward combinations of a bad lecture and a bad game” (Susi et al. 2007). In this paper I will not inspect serious games, as I will focus on the more prominent aspect of vocabulary learning: implicit and informal vocabulary acquisition.

This paper explores the impact of Internet gaming to a learner’s early vocabulary acquisition. In prior research, e.g. Rankin et al. (2008) and Suh et al. (2010), the study of learning a language via video games has addressed language learning in a general manner, taking into account all aspects of a language, and focusing on communication between learners. In this study, I will take into account the effects of player-to-player communication, but focus on the aspect of vocabulary learning, as it is one of the major areas of early second language acquisition. In addition, prior research has mostly focused on a certain genre of games (such as Massive Multiplayer Online Role Playing Games, henceforth MMORPGs). This focus has led to claiming some general beneficial learning elements of games as only parts of a certain genre. In this study, different genres of games are explored in accordance to the responses of the questionnaire. The study tries to find disparity between the genres and their effects on learning.

In this paper, I will first introduce relevant research areas in L2 vocabulary acquisition and primary research that has been conducted in the area of game-mediated language learning.

Afterwards, I will reveal the conducted questionnaire's results, and analyse the results of the respondents' perceived and actual vocabulary knowledge in relation to their background.

The title of this thesis originates from the author's personal experience. "Nothing interesting happens" was a phrase that could often be found in a MMORPG made by Jagex called RuneScape. It demonstrates the ease of learning lexical items that are prominent in an informal language learning setting. This phenomenon will be discussed later in Chapter 4.

## **2 VIDEO GAMES AND INFORMAL L2 VOCABULARY ACQUISITION**

This chapter is divided into three sections. The first section will introduce some elementary themes and phenomena in L2 vocabulary learning and will then delve into the different informal and implicit aspects of L2 vocabulary learning and its effects on the second language learner. This section will focus on early L2 vocabulary acquisition, as the age of the subjects of this study varies from 10 to 13 years. Most students in Finland do not begin their English studies before the age of nine, thus the participants are in the early stages of explicit second language learning.

The second and third sections will discuss learning via games. The section will cover games' beneficial properties for learning in general and go on to discuss their properties for L2 language learning more specifically. The third section will also introduce the main concepts of second language acquisition via Internet games and also shed light on the importance of Internet communities and player-to-player communication for second language acquisition.

In this study, terms L2 learning and L2 vocabulary acquisition are used as umbrella terms, and include foreign language acquisition as well as second language acquisition; any language that is learnt after the learners' first language.

### **2.1 L2 Vocabulary Acquisition**

Vocabulary learning includes various aspects and is a major part of L2 language learning. Many learners associate language learning with the acquisition of new words and vocabulary (Laufer and Hulstijn 2003, Sundqvist 2009). According to Sundqvist (2009), vocabulary

knowledge can be divided into two classes: receptive and productive. Receptive knowledge of a word means that a learner can, for example, recognise a certain word in a context. Moreover, due to their receptive knowledge of vocabulary, a learner can guess the meaning of a word from the context and co-text in which the word is. Productive knowledge of a word on the other hand implies that the learner can use the word in their own speech and writing. Terms *passive* and *active* vocabulary are also used respectively.

L2 vocabulary acquisition differs greatly from L1, as the learner already owns a linguistic set or system and instinctively tries to apply the target language into that setting (Pavičić Takač 2008:16). According to Laufer and Hulstijn (2003), associating new words with existing knowledge is actually one of the major contributors to second language acquisition, alongside learner motivation and paying attention to the semantic and formal aspects of new vocabulary. Subconscious application of new words into an already existing setting has several outcomes. These outcomes vary based on e.g. the similarity between the learner's first and second languages, the learner's age, and their styles of learning vocabulary (both implicit and explicit) (Pavičić Takač 2008).

## **2.2 Learning via Games**

Video games are beneficial for learning in general in a multitude of ways. Gee (2006) introduces three main concepts that make video games great tools for learning: (1) empathy for complex structures, (2) cross-functional teamwork, and (3) situational language use. The first concept inhabits the idea that scientists often use simulations to create the illusion that they are "inside" the complex structure (e.g. atoms or weather systems). A similar phenomenon of simulation can be found in role-playing games: the player is "inside" the game, and acts as their decisions would affect their own success in real life. The second concept of cross-functional teamwork implies that in games, one has to co-operate with other players to succeed. Players often have to complete tasks in groups, and each of the players has a certain role and set of skills that is crucial to the success of the whole group. This kind of affiliation and ability to work in synchronisation with other people can be argued to be a very admired skill in professional life, social settings and other ordinary environments.

The third concept of situational language use brings us to the linguistic benefits of video games. The situationality of language use means that language and its units are used

differently in different contexts. According to Gee (2006), video games provide exceptional facilities for exercising situational language use: in many instances in video games, one has to choose the correct words in a matter of seconds in order to succeed. In his prior studies, Gee (2003) also argues that video games are fertile sites for acquiring an expanded image of multimodal literacies.

### **2.3 Internet Games as Tools for SLA**

According to the Interactional Language Learning Theory (e.g. Long 1996), interaction, participation and social activities are essential ways to learn another language. Long (1996) goes on to argue that tasks that include negotiating meaning with other linguistic agents facilitate second language learning. Negotiating meaning is one of the key elements that make games beneficial tools for second language acquisition, and it is most present in Internet games, as player-to-player-communication between L2 learners from all around the world is a large part of the gaming experience. In their study, Rankin et al. (2008) introduce and divide the beneficial properties of Internet games into three main classes: (1) pre-made in-game content and linguistic context, (2) virtual identity and (3) player-to-player communication. Even though Rankin et al. (2008) only studied MMORPGs, these three elements can be found in all Internet gaming environments.

Pre-made in-game content and the linguistic context in which the player acts and creates meaning is one of the key elements that make games functional tools for language learning. In-game, one is surrounded by a rich linguistic environment which includes labels (names for items, objects and characters), story lines which the character goes through and discussions with NPCs (Non-Player Characters). The in-game linguistic content is comprised of these three components. Pre-made in-game content can be argued to enrich the learners' receptive vocabulary: as the learner sees the target language in their in-game surroundings, the learner starts to recognise them in their own environment.

The second concept that Rankin et al. (2008) introduce is virtual identity. By virtual identity, the authors mean a state where a second language learner can freely and with ease produce content in a non-hostile environment. The learner is "hidden" behind a virtual identity, and therefore the fear of making e.g. grammatical mistakes is greatly diminished. One of the greatest differences to the traditional, explicit language learning environment is the

collaboration between learners to achieve a common goal, which is something else than learning a certain linguistic concept or grammatical issue.

The third concept, player-to-player communication, is perhaps the most important of the three. In Internet games, especially MMOGs (Massive Multiplayer Online Games) and FPSs (First-Person Shooters), communication is key. Based on the basic principles of Long's Interactional Hypothesis and Task-Based Language Teaching, language is learnt by trying to achieve a common goal via using the target language (Long 1996). In this theory, the common goal is not to learn a trivial piece of language or grammar, but something that requires the use of the language to be achieved. To be able to play the game correctly and succeed, one has to communicate with other human players. This is the reason why player-to-player communication is an important factor for second language learning via Internet games: other players support and assist the learner in the target language, and therefore learning is conducted in a social manner. Zheng et al. (2009) also found that learners' self-efficacy, attitude and interest for learning a second language increased when using the target language to achieve a common goal in a multiplayer game.

Fuente (2003) argues that online interactive negotiations of meaning can trigger processes and create conditions similar to those that favour vocabulary learning in natural face-to-face interaction and communication. Suh et al. (2010) agree and argue that learners who interact with other people in virtual environments can achieve a higher language competence than those, who only interact with other learners in a regular classroom environment. Suh et al. (2010) conducted a study in which a group of participants undertook learning tasks as a part of their EFL class using MMORPGs as their learning platform. The students using MMORPGs as their learning platform undertook team-based game play involving trading with other players, quizzes and being a member of an in-game guild. In this large-scale study, the researchers found that the participants that were in this group recorded higher scores in writing, reading and listening tasks than the control group, which undertook regular classroom tutoring. This result contributes to the significance of player-to-player communication in informal game-mediated language learning.



### **3 THE PRESENT STUDY**

#### **3.1 Aim and Research Questions**

The aim of this study is to explore the impact of Internet video games on early L2 vocabulary acquisition. The study tries to find a connection between playing video games and the acquisition of different vocabulary items. In addition to this, another objective of this study is to find a connection between playing video games and the acquisition of certain parts of speech, such as nouns, adjectives or verbs. This is achieved via a questionnaire, the contents of which will be explained in the following section.

The study aspires to answer the following research questions:

1. What kind of effect does Internet gaming have on vocabulary knowledge?
2. Does the genre of video games affect the vocabulary learnt?
3. How do age and gender affect game-mediated vocabulary acquisition?

Before conducting the questionnaire, I assumed that the parts of speech learned would be mostly nouns, as pre-made in-game content is most evident in labels for items, NPCs (Rankin et al. 2008). Selecting from the most popular Internet game genres, I expected that the participants who played MMORPGs would have the most wide knowledge on this kind of vocabulary, as in this games one has to communicate with other people the most in order to succeed (Sundqvist and Sylvén, 2012). According to the aforementioned study by Sundqvist and Sylvén (2012), this need for communication gives male players an advantage: young male players often play MMORPGs (e.g. World of WarCraft) and FPSs (First-Person Shooters, e.g. Counter-Strike), where communication is key, whereas young female players often play platform games (e.g. The Super Mario Bros Franchise) and life simulation games (e.g. Sims), where the target language is learnt solely from in-game labels.

#### **3.2 Data Collection**

As a part of this small-scale, mixed methods study, I administered a questionnaire for 51 10-13-year-old students (28 female, 22 male, one chose not to disclose their gender) in an elementary school in Southern Finland. The questionnaire was held in Finnish (see Appendix for both Finnish and English versions of the questionnaire). The questionnaire consisted of

two parts: in the first part, the respondents answered to a series of closed questions about their background (age, gender and previous English grade) and three questions about their Internet gaming habits, one of which was closed and two of which were open-ended. The first part also included two open-ended questions where the students could list some English words and phrases they felt that they had learnt from games on the Internet.

The second part of the questionnaire consisted of a list of vocabulary items. These items included nouns, verbs and adjectives. These words were selected from popular Internet games, and most of them are frequent in all kinds of games, regardless of genre. There was an emphasis on words from RPGs and MMORPGs, as most of the prior research on this subject has also emphasized these genres of games. In this part, the students were to complete a task where they went through the list of words in English, and translated the words they knew into their mother tongue, Finnish. If a student recognised the word in English but was not sure about its correct translation, they were to underline that word. This division is used to highlight the difference between receptive and productive learning, which was discussed earlier.

This particular age group was chosen due to the limited amount (1-3 years) of explicit, controlled English education they have received in the framework of the Finnish school system. The significance of video games in the participants' vocabulary acquisition could best be seen with as little previous studies as possible. As the students' vocabulary learnt in school widens in later years, the proportional effect of video games decreases. Due to the small scale of this study and the fact that the participants were all students of the same school, the results are not generalisable. A pilot study of the first part of the questionnaire was conducted on 32 9-11-year-old students in April 2015 and the first part was revised after that.

The data was collected in April 2016 in an elementary school setting in Southern Finland. The respondents filled out the questionnaires themselves on paper. The respondents were in groups of 14-20, and the questionnaire was supervised by the researcher and an assistant. The second section of the questionnaire was given after the respondents had completed the first section to avoid similarities between open questions in the first section and the lexical items in the second. The participants could address questions about the questionnaire to the researcher, but no discussion between participants was allowed.

### 3.3 Methods of Analysis

The data was analysed by searching for connections and trends between the participants' background information and their responses both to the open-ended questions about their perceived game-mediated vocabulary acquisition. The data was not analysed by quantitative methods: the connections were found by qualitative search and therefore the results of this study are not generalisable.

The most important element that was searched for in the data was if there is a connection between the amount of time spent on gaming and the number of correct answers in the second part of the questionnaire. This would answer the first research question. Another important matter is the participants' perceived vocabulary knowledge: what kind of vocabulary do the respondents think they have learnt from Internet games, and how does their background information affect the amount and type of vocabulary they have learnt from Internet games. Thirdly, the study tried to find if there is a certain part of speech that is translated correctly or recognised more often than others in the second part of the questionnaire. Finally, the responses and scores of the second part of the questionnaire were analysed in relation to the participants' background information: their age, gender and previous achievement in school.

The second part of the questionnaire consisted of 42 words that were frequent in Internet games, chosen based on the author's and his peers' prior gaming experience. Most of these words were nouns or verbs, with one adjective ('accurate'). 23 of the words were nouns and 14 were verbs. In addition, 4 of the words in the questionnaire could be considered both nouns and verbs, depending on the context (e.g. win, attack). Even though the second part was not an exam for the participants, the sum of word recognitions and correct translations of words will be referred to as *scores*. For example, if a student correctly translated 25 words and recognised 7 more, their *score* would be 32 out of a possible 42. The best *score* across all age groups was 41/42.

## 4 VOCABULARY ACQUISITION VIA INTERNET GAMES

### 4.1 Gaming Habits

In the first part of the questionnaire, the respondents were asked about some personal background information. This includes their gaming habits, age, gender and their latest school grade in English.

As for their gaming habits, the respondents were asked about the amount of time they play in a week (Figure 1).

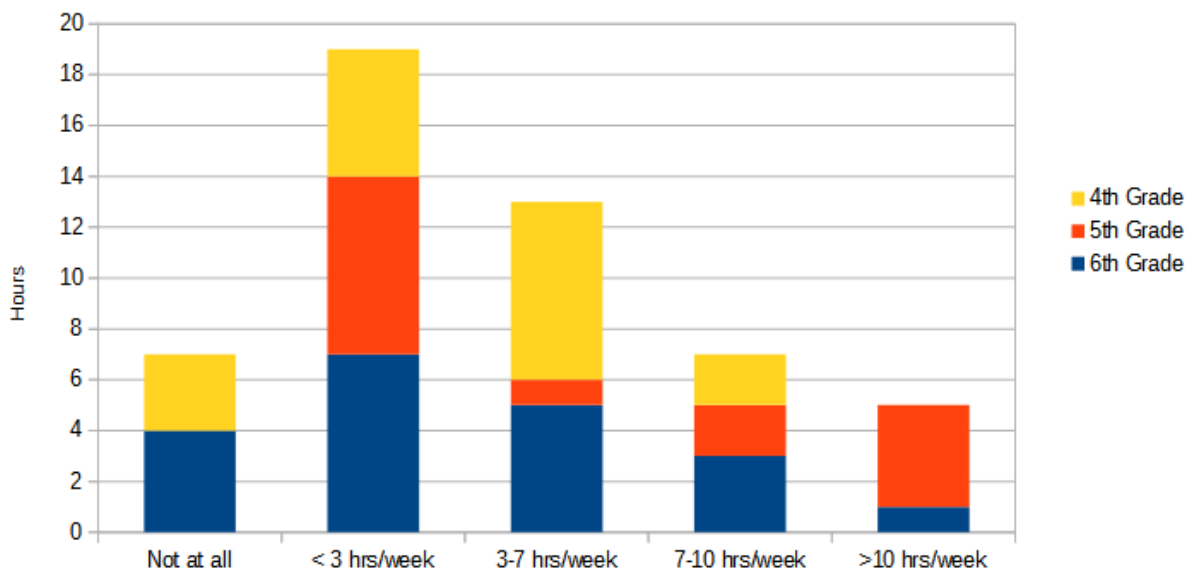


Figure 1. Amount of Internet games play per week, measured in hours

As one can see from Figure 1, most of the respondents spent under three hours per week playing video games. An interesting note is that every single respondent from the fifth grade (11-12-year-olds) played games on the Internet to some extent. In addition, none of the participants from the fourth grade group (ages 10-11) played over ten hours per week. Furthermore, none of the respondents who played 7-10 or over 10 hours per week on the Internet were female. This is not surprising, as video games are still considered a largely male activity (Lucas and Sherry 2004:500).

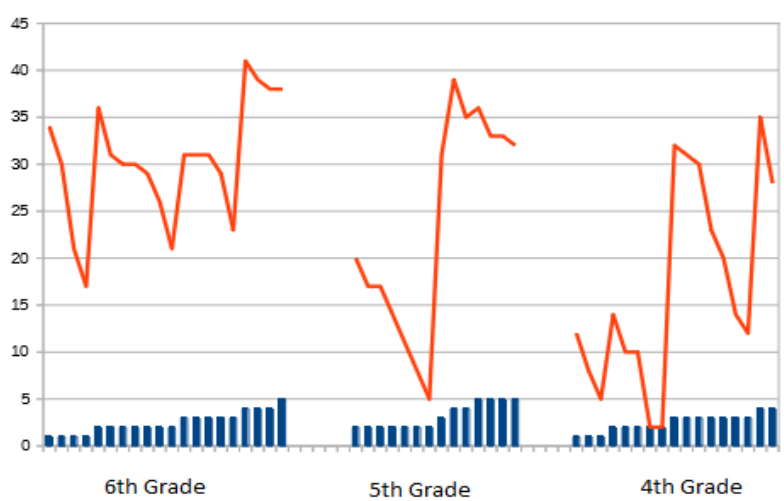


Figure 2. The respondents' score (red line) in relation to their playing time (blue bars)

The blue bars indicate the responses the participants gave to the question about their weekly playing time: 1 indicates they do not play at all, 5 indicates playing over 10 hours a week.

When the respondents are sorted by their playing time (see Figure 2), one can see that there is a clear connection between the respondents' playing time and the number of recognitions and correctly translated words in the fourth and fifth grades. In the group of sixth grade students, this division diminishes: one can find scores of over 30 out of the possible 42 even in the responses with no Internet play time at all. One reason for this could be that in the sixth grade of primary school the vocabulary included in the school curricula widens, as the students are expected to be on the competence level of A2.1 of the Common European Framework of Reference for Languages (POPS 2014).

54% of the words in the second part of the questionnaire (see Appendix) were nouns; another 12% were words that could be regarded as verbs or nouns, depending on the context. Given that there is a clear connection between gaming time and the amount of words "known", there is no clear distinction between different parts of speech. In all age groups, most of the respondents with higher scores overall had higher scores for both nouns and verbs. As with the overall score, the group of sixth graders was an exception, and high scores can be found within responses with game times varying from 0 hours a week to over 10 hours a week.

In the first section of the questionnaire (see Appendix), the respondents were asked to name some words they have learnt via playing Internet games. In this method of gathering data, the responses never reflect the situation perfectly, as the responses rely on the respondents' perceptions of learning. Learners often learn vocabulary informally without noticing it and therefore cannot point it out to a certain source.

Most of the words that the students perceived they had learnt were nouns and an abundance of words that could be both nouns and verbs (depending on the context) could be found. The nouns in question were mostly labels for things and people, such as *pistol*, *stone*, *master* etc. As Rankin et al. (2008) explain, one of the most important elements for game-mediated vocabulary learning is the pre-made content of Internet games. This includes labels for items, characters and actions inside the game.

The nouns and verbs found in the responses to this question were mostly quite short, simple and in alignment with the respondents' age (e.g. *start*, *play*, *cow*, *fire*). There are, however, some exceptions. For example, some of the respondents mentioned more complicated words such as *serpent*, *survival* and *creative*. The presence of these kinds of more complicated lexical items could be explained by the effect of games' pre-made content (Rankin et al. 2008). One can see the full list of words the respondents in Table 1 below.

Table 1. The full list of words the participants perceived they had learnt via Internet games (amount of mentions in parentheses)

ADJECTIVES	<i>crazy, creative (3), dead, holy, ill, left (2), right</i>
NOUNS	<i>air balloon, boat, bow, cat, chocolate, cow (2), defense, dirt (2), door, exit, fashion, fire (3), fish, flame thrower, furnace, game, glass, granite, grass, guide, gun, handling, highway, leaves, marble, master, megaphone, nickname, one, options (2), password (2), pie, pistol, plank, police, pumpkin, robber, saber, sandstorm, sentry, serpent, ship, shovel, slaughter, spider, staff, stone, stone (2), subway, survival (3), sword, three, torch, two, username (2), war (2), warning, water, water balloon, wind, winner (3), wood, zone</i>
VERBS	<i>buy, craft, crush, drive, fade, go (4), hit, kick, pass, pull, resume, sell, shoot (3)</i>
VERBS+NOUNS <sup>1</sup>	<i>aim, attack (3), brake, control, finish (2), help (3), jump (3), match, play (5), raid, rate (2), ride, run, spawn, start (7), trade</i>
COLLOQUIAL TERMS <sup>2</sup>	<i>asshole, fuck, hello, lol, nfs, noob, okay, shit</i>

It is also interesting to see that the 10 lowest-scoring participants did not write any words as an answer to this question. One participant, who scored 5/42, answered “*varmasti on mutta en muista*” [There surely are some (words that I have learned from games) but I cannot remember]. This implies that the respondent acknowledges the impact that games have on her and there could be some latent knowledge of vocabulary acquired from video games.

The respondents were also asked if there were any phrases or idioms they had learnt from games. Most of the phrases are based on commands and inquiries. The full list of phrases in their original form can be found below (Figure 3).

<sup>1</sup> This list includes the words that can be considered both nouns and verbs, depending on the context (e.g. start, help)

<sup>2</sup> The list of colloquial terms includes swear words, greetings and register-dependent abbreviations and jargon

Table 2. The full list of phrases the participants perceived they had learnt via Internet games (amount of mentions in parenthesis)

<b>Communicative phrases</b>	<b>Repetitive in-game content</b>	<b>Other</b>
"Go go go!" (4)	"Finding opponent"	"Get out of the car you fucking bitch"
"Fire fire fire" (2)	"Game over"	"I am on fire"
"Go on"	"Rate us"	"I'm going die here" (sic)
"Good game" (2)	"Start game"	"I'm got a kill you" (sic)
"Hold down"	"Thanks for playing"	"Medic help"
"I need help"	"There are monsters behind you"	"Place centry (sic) here"
"Let's play"	"You can sleep only night" (sic)	"Stop the car asshole" (2)
"Let's go" (2)	"You died"	
"Move move move"	"You win the game"	
	"You win"	

As one can see, the phrases given by the participants included lots of grammatical errors. This is natural, as most of the phrases are learnt via the games' audio, and auditory learning of phrases and utterances can cause inaccuracy in language production (De Jong 2005). Many of the phrases in Table 2 are used in communication with other players in-game. These communicational phrases include greetings, advice on how to proceed ("Go go go!" and match-concluding expressions, i.e. sayings that are said to other players when concluding a gaming session (e.g. "Thanks for playing", "Good game"). These phrases can be both premade messages in-game and phrases that are learnt from other players. This emphasises the significance of communication for second language acquisition; using a target language to achieve a common goal is a key method in informal language learning (Long 1996).



A majority of these phrases are found in the games' pre-made content in a repetitive manner. For example, expressions such as "Game over" and "Start game" are found in almost every competitive game that has been ever made and also in most of the games the participants mentioned (see Table 3) This is a combinatory outcome of two phenomena: lexical items that are prominent in an informal language learning setting are often learned with ease and the items' form and semantic properties are major contributors to how comprehensively L2 vocabulary is learnt (Laufer and Hulstijn, 2003).

#### **4.2 Genres of Games Played**

The top scoring 26 respondents (51% of the entire group) all played Internet games in English to some extent, with the exception of one 12-year-old and one 13-year old respondent. In the remaining group of 25 respondents who scored the least amount of points, only 56% (n=14) of the respondents played Internet games in English. This is not surprising, as the vocabulary was selected from a pool of words that are prominent in the gaming world. In the following paragraph, the games they played are categorized by genre. The division can be seen below in Table 3.

Table 3. The genres of games played by the participants (amount of mentions in parentheses)

<b>Genre</b>	<b>Games played</b>
Adventure	GTA 5 (5), Jurassic World (1), Transformers (1), The Amazing Spider-Man (1)
Browser games	Slither.io (4), Agar.io (3), Bloons Tower Defense Battles (3), Howrse
Driving	Need For Speed (1)
FPS	Counter-Strike Franchise (5), Call Of Duty Franchise (5), Team Fortress 2 (5), Halo Franchise (1)
Life Simulation	The Sims Franchise (6)
MMORPG	-
Mobile games	Clash of Clans (4), Clash Royale (4), Boom Beach (2), Candy Crush Saga (2), Hay Day (2), Subway Surf (2), Trivia Crack (2), Angry Birds (1), Blitz Brigade (1), Geometry Dash (1)
Sandbox	Growtopia (8), Minecraft (8), Roblox (1)
Sports	FIFA Franchise (6), NHL Franchise (2)
Strategy	Cities Skylines (1), Plants vs. Zombies (1)

When looking at Table 3, one can see that there is quite an even distribution between genres in terms of games played. Many of the respondents with higher scores mentioned games in all or most of the genres. The table items with ‘Franchise’ after their name include all the game versions of a certain franchise that could be found in the responses. For example, “FIFA Franchise” includes FIFA 16 and FIFA 15, as those two could be found in the responses. An intriguing note is that none of the participants played games that would specifically be regarded as MMORPGs (Massive Multiplayer Online Role-Playing Games). Two of the sandbox games that were mentioned, Minecraft and Roblox, could be perceived as MMORPGs, but in this division, they are seen as sandbox games. Sandbox games emphasize free roaming and often allow the player to modify and change their surroundings and select their tasks at will.

In the games that were played the most by the participants (e.g. Clash of Clans, Counter-Strike and FIFA), one has to interact, communicate and co-operate with other players in the target language to succeed. This player-to-player communication is one of the three main elements of game-mediated language learning mentioned by Rankin et al. (2008).

### 4.3 Age and Gender

The age of the respondents in this group varied from 10 to 13. 22% of the respondents were aged 10, 26% were 11, 36% were 12 and 16% were 13. One respondent did not reveal any of their background information.

As mentioned before, the weekly playing time of the respondents had an effect on their score in both fourth and fifth grade groups (see Figure 2) and one could find lots of variation in scores in these two age groups. This effect was more balanced in the group of sixth graders: high scores were achieved by those who played a lot, but also by those who did not play at all.

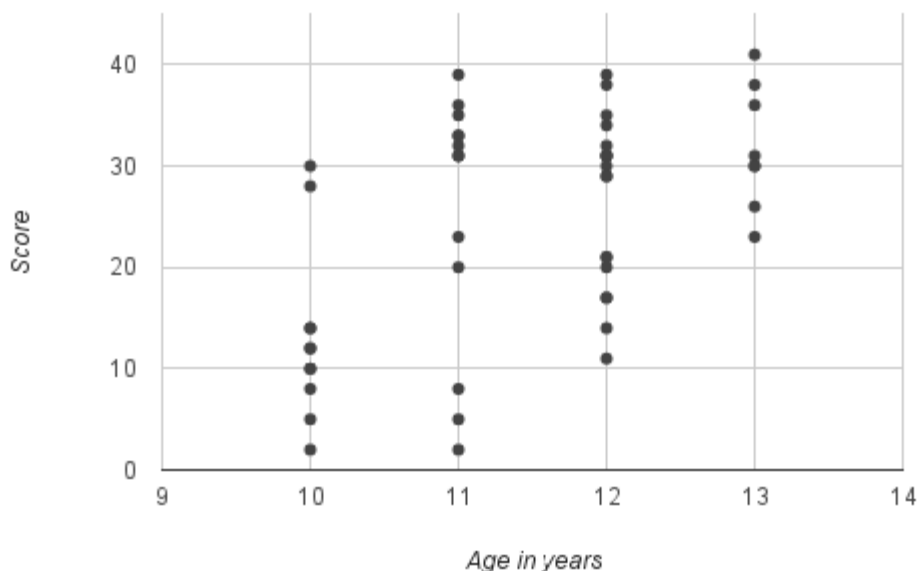


Figure 3. The respondents' scores in relation to age

As one can see from Figure 3, there was variation in all age groups, but there is clear gradual improvement in the scores of older students. The amount of variation was larger with

younger students: when the scores in the group of 13-year-olds varied from 41 to 23, the scores in the group of 11-year-olds varied from 39 to 2.

In the group of respondents, 22 students identified themselves as male and 28 as female. As mentioned before, one participant left all questions about their background information blank. The difference between the answers of male and female participants was staggering. 68% of the 22 male participants gave correct Finnish translations to more than half of the English words in the list. The same figure for female participants was only 14%.

The number of answers left blank in the second section (as in not recognising the word and not knowing a translation for the word) also differed dramatically between male and female participants. Only 1 of the 22 male participants left over half of his answers blank. This number for female students was 14 out of 28 (50%).

Even though it is generally thought that female learners achieve more positive results than their male peers (especially in younger learner groups), the best scores were achieved by male students in all age groups. In the group of sixth graders, the six best answers were given by male respondents. In the fifth grade, the number was seven, and in the fourth three. The top 14 respondents participating in the study were male. Accordingly, each of the five lowest-scoring respondents were female in all groups.

Sundqvist and Sylvén (2012) found that male participants were generally more interested in MMORPGs (such as World of Warcraft) and other games where the player had to interact and communicate with other players to succeed, whereas the female participants preferred life simulation games such as The Sims, where most of the linguistic patterns and elements are found in pre-made content. Even though none of the participants played any MMORPGs, a similar division could be found in this data: none of the 6 participants who responded that they played The Sims (see Table 3) were male, and all participants who played FPSs were male. FPSs are also known for their need for fast and accurate situational language use: in order to succeed one has to deliver information to their teammates quickly and precisely. This could be one explaining factor for the considerable division between male and female participants' scores.

#### 4.4 Previous Achievement in School

In the first part of the questionnaire, the respondents were asked about their latest end-of-term grade in English. In the Finnish elementary school system, the students are given grades from four to ten (4= Fail, 10=Excellent). The grades are given in December and June. These grades were given in December, 2015. One can see the distribution of grades below in Table 4.

Table 4. The respondents' previous end-of-term English grades

Previous school grade in English	Number of respondents	Percentage
10	4	8.00%
9	17	34.00%
8	21	42.00%
7	8	16.00%
Total	50	100.00%

None of the participants had had a lower grade than 7 in English. In addition, the responses to the background questions were not verified: if a respondent was unsure of their previous grade, they were instructed to presume what their previous grade could have been.

There was great variation in the number of words translated and recognised inside grade groups. For example, the scores of the four participants who had received a 10 in English last December varied from 39 to as low as 11. In addition, the scores of the 8 participants who had received a 7 in English last December varied from 39 to as low as 2. This variation seems natural, as vocabulary is just one of the many elements that are considered when deciding a grade for a student (POPS 2014).

## 5 CONCLUSION

Internet games seem to be an effective platform for second language vocabulary acquisition. Especially in the younger groups of fourth and fifth graders, Internet gaming had a great effect on vocabulary knowledge. This effect was more balanced in the group of sixth graders, as participants with minimal experience in gaming received great scores. In this small-scale

study, no connection between a certain genre and success in vocabulary acquisition was found. The highest-scoring participants played games from a vast array of genres, and no certain genre could be found to stick out of the group. A rather interesting finding of this study was that when measuring game-mediated vocabulary, male participants did better than their female peers. This was expected, but the extent of this phenomenon was surprising. Even though the number of females who play video games is almost as large as the number of males (Video gamers in Europe 2012: 8), Internet gaming as an extramural activity seems to be a largely male activity in this age group.

Internet games seem to provide a fascinating and exceptional environment for second language vocabulary acquisition. In addition to regular nouns used as labels for objects, the players receive advanced vocabulary and context-dependent register items. Player-to-player communication and linguistically rich gaming environments seem to be key beneficial elements for L2 vocabulary acquisition.

The fact that the selection of lexical items for the second part of the questionnaire was comprised of words that are prominent in Internet games provides a beneficial bias towards those who play Internet games often. In addition, the fact that the respondents got to fill out the questionnaire themselves in a classroom setting created a handful of biases. For example, as in all questionnaires, there is a bias of social desirability (Dörnyei 2009): especially in the second part of the questionnaire and the open-ended questions regarding the respondents' perceived vocabulary knowledge, participants in this young age group could easily write what is expected from them, rather than reveal their true level of competence. In addition, the relatively small size (n=51) of the participating group and the group's minimal background diversity both contribute to the generalisability of the results of this study.

The beneficial elements of Internet games for L2 vocabulary acquisition should be taken into more substantial consideration when creating educational games or *serious* games.

In addition the impact of Internet games as beneficial L2 vocabulary acquisition environments should be recognised in educational institutions, and bringing Internet games to the side of traditional *serious* games could be considered in domestic syllabuses or local curricula.

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## APPENDICES

### Appendix 1. Questionnaire in Finnish

#### KYSELY INTERNET-PELIEN KÄYTÖSTÄ

1. Mitä pelejä pelaat Internetissä?

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2. Kuinka paljon vietät aikaa pelien äärellä Internetissä? (alleviivaa lähin vaihtoehto)

- En pelaa pelejä Internetissä
- Alle 3 tuntia viikossa
- 3-7 tuntia viikossa
- 7-10 tuntia viikossa
- Yli 10 tuntia viikossa

3. Pelaatko Internet-pelejä joissa käytetään englannin kieltä? Jos pelaat, listaa muutamia pelaamiasi englanninkielisiä pelejä viivoille.

Voit listata myös esimerkiksi englanninkielisiä Xbox- ja PlayStation-pelejä, joita pelaat netissä. Myös englanninkieliset kännykkäpelit käyvät.

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4. Onko olemassa jotain englannin kielen sanoja, jotka olet oppinut nettipeleistä? Jos on, listaa niitä viivoille.

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5. Onko olemassa jotain englannin kielen lauseita tai lausahduksia, joita olet oppinut nettipeleistä? Jos on, listaa niitä viivoille.

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6. Oletko tyttö vai poika?

- tyttö
- poika

7. Kuinka vanha olet?

8. Mikä oli viimeisimmän todistuksesi englannin numero?

Kiitos vastauksistasi!

## OSA 2

Ohessa lista sanoja. Jos **TUNNISTAT** sanan, alleviivaa se. Jos **TIEDÄT MITÄ SANA TARKOITTA** **SUOMEKSI**, kirjoita se sanan viereen.

TÄMÄ EI OLE KOE, joten olethan rehellinen. Nämä ovat aika vaikeita sanoja, joten jos et osaa jotain sanaa, ei se haittaa!

acceleration

accomplish

accurate

action

attack

build

buy

character

craft

create

defeat

defence

difficulty

dungeon

enemy

formation

friend

game

goal

gun

inspect

inventory

lose

magic

message

mission

offence

offside

pistol

play

player

quest

quit

replay

restart

sell

shoot

start

strength

sword

trade

win

**Kiitos vastauksistasi!**

**Appendix 2: Questionnaire in English**

QUESTIONNAIRE ON INTERNET GAMING HABITS

1. What games do you play on the Internet?

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2. How many hours per week do you play on the Internet? (underline your closest option)

- I do not play games on the Internet
- Under 3 hours a week
- 3-7 hours a week
- 7-10 hours a week
- Over 10 hours a week

3. Do you play games in which English is used? If you do, can you list some of these games below. You can also list console and mobile games, if you play them on the Internet.

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4. Are there any English words that you've learned from games? If there are, list them below.

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5. Are there any English phrases or sentences that you've learned from games? If there are, list them below.

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6. Are you a boy or a girl?

- girl
- boy



7. How old are you?

8. What was your previous grade in English?

Thank you for your answers!

## PART 2

Below you have a list of words. If you can RECOGNIZE the word, underline it. If you know WHAT IT MEANS IN FINNISH, write the Finnish equivalent next to the word.

THIS IS NOT A TEST, so please be honest. These are some difficult words, so if you don't know what these words mean, it doesn't matter!

acceleration

accomplish

accurate

action

attack

build

buy

character

craft

create

defeat

defence

difficulty

dungeon

enemy

formation

friend

game

goal

gun

inspect

inventory

lose

magic

message

mission

offence

offside

pistol

play

player

quest

quit

replay

restart

sell

shoot

start

strength

sword

trade

win

Thank you for your answers!