

Playing video games: A waste of time... or not?

Exploring the connection between playing video games and English
grades

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| <p>Tämä tutkielma käsittelee lukiolaisten englannin kielen arvosanojen ja luokkahuoneen ulkopuolella pelattujen videopelien yhteyttä. Teoriaosassa esitetään kielitieteellisiä perusteita sille, miksi videopelien pelaaminen saattaisi kehittää pelaajan englannin kielen taitoja. Kvantitatiivisessa tutkimuksessa kerättiin kyselylomakkeen avulla tietoja 495 vantaalaisen lukiolaisen arvosanoista, pelitottumuksista ja muista englantia sisältävistä luokkahuoneen ulkopuolisista aktiviteeteista. Tiedot käsiteltiin SPSS-tilasto-ohjelmassa.</p> <p>Tutkimuksessa videopelien pelaamisen ja englannin arvosanojen väliltä löytyi tilastollisesti merkittävä korrelaatio. Kun muut muuttujat vakioitiin, videopelit olivat tutkimuksessa tutkituista aktiviteeteista kaikkein vahvimmin yhteydessä englannin arvosanoihin. Korrelaatio ei selittänyt taustamuuttujilla kuten pelaajien ylipäättään paremmalla koulumenestyksellä tai sosioekonomisella asemalla. Jo vain 0-5 tuntia viikossa pelaavien arvosanat erosivat tilastollisesti merkittävästi niiden arvosanoista, jotka eivät pelanneet ollenkaan. Eri peligenrejen välillä oli eroja siinä, miten vahvasti ne olivat yhteydessä korkeampiin englannin arvosanoihin.</p> <p>Pelaajista 85% oli sitä mieltä, että pelaaminen on kehittänyt heidän englannin kielen taitojaan ainakin jonkin verran. Aktiivisimmista pelaajista 70% oli sitä mieltä, että pelaaminen on kehittänyt heidän taitojaan todella paljon. Pelaamisen määrä oli vahvasti yhteydessä siihen, miten paljon ja kuinka monella osa-alueella kielitaidon katsottiin parantuneen pelaamisen seurauksena.</p> <p>Pelaajat olivat keskimäärin aktiivisia myös muissa parempiin englannin arvosanoihin yhteydessä olevissa aktiviteeteissa, kuten Internetin käytössä ja lukemisessa. Aktiivisuus muissa aktiviteeteissa ei kuitenkaan selittänyt pelaajien korkeampia arvosanoja kokonaan. Luokkahuoneen ulkopuolella harrastettavat aktiviteetit selittivät yhdessä lähes kolmanneksen arvosanojen kokonaisvaihtelusta.</p> <p>Pojat pelasivat paljon enemmän videopelejä kuin tytöt. Pojilla oli myös korkeammat englannin arvosanat kuin tytöillä. Pojilla arvosanoihin vahvimmin vaikuttavat aktiviteetit liittyivät kiinteästi videopeleihin ja tietokoneisiin. Tytöillä arvosanoihin vaikuttavat tekijät olivat huomattavasti monipuolisempia.</p> <p>Johtopäätöksenä tutkimuksessa todetaan, että yhteys hyvien englannin arvosanojen ja videopelien pelaamisen välillä on kiistämätön. Tutkimuksessa ei kuitenkaan voida lopullisesti osoittaa, että pelaajien korkeammat arvosanat johtuisivat juuri pelaamisesta. Tutkijoita ja opettajia kehoitetaan kuitenkin tunnustamaan videopelien kiistaton merkitys oppilaille ja heidän englannin kielen taidoilleen.</p> | | | |
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1 Introduction

The role of English in Finland has changed dramatically in the last few decades. English has changed from being just another foreign language taught at school into a language that dominates many areas of Finnish society such as business and entertainment and is present in most people's daily lives: 80% of Finnish people come in contact with English in their daily surroundings and 70% consider English to be very or quite important to them personally (Leppänen 2009: 45, 49). The rise of English is a unique phenomenon in Finland: other minority languages such as Russian or Estonian have become more prevalent simply because of an increase in the number of their native speakers, whereas English has prevailed due to other factors such as globalization and the Finnish society becoming more modern and international in general (Leppänen et al. 2009: 15).

English is especially central in the lives of young people: according to Leppänen et al. (2009), younger people are more proficient in English than older people, and they also consider English more important to them both personally and professionally than older people. Leppänen (2007) argues that this results not only from school education, but also from the fact that contemporary youth culture in Finland is influenced very heavily by American and British youth culture (Leppänen 2007: 150). In addition, television shows and movies are not dubbed like in many other European countries, but subtitled, and thus Finns are constantly exposed to English in their everyday lives through television. Subtitling has often been seen as one of the reasons for the good command of English that the Finnish youth have, and empirical evidence supports the claim that watching subtitled programs facilitates language learning (Koolstra, Peeters and Spinhof 2002). On the basis of her research on code switching and language mixing, Leppänen (2007) concludes that the use of English in the language of Finnish youths is evidence of a social and cultural change, where the role of using English is central as means for constructing identity and communality. In other words, in many youth communities, knowing English is an essential requirement for becoming a competent and respected member. This trend might become even more widespread, because as Leppänen and Nikula point out, different youth cultures are the pioneers of linguistic innovation and change (Leppänen and Nikula 2008: 13).

This study concentrates specifically on one area of youth culture: video games¹. In the study video games are looked at as a source of *extramural English*, which refers to “the English learners come in contact with or are involved in outside the walls of the classroom” (Sundqvist 2009: 1). The aim of this study is to take a preliminary look to find out whether there is a general correlation between playing video games and being successful in English among Finnish upper secondary school students, and explore the possible reasons for and other factors affecting that correlation.

While it is common to hear someone talk about the prevalence of English in music and television in Finland, less has been talked about video games. Even though playing video games is a relatively new phenomenon, it is by no means marginal: in Finland, 98% of 10–12 year-olds play some kinds of video games (Ermi, Heliö and Mäyrä 2004). Playing video games is also not restricted to young people: data from the United States show that the average American gamer is 35 years old and has been playing video games for about 12 years (Entertainment Software Association 2010). Despite this, not much information about the link between video games and language learning is readily available. In my own experience, playing certain types of video games is inextricably linked to learning English, as most of the games in Finland are published only and completely in English. To be able to play the popular role-playing game *World of Warcraft*, for example, the player must learn to understand quite a lot of English, and in the case of most players, also be able to produce it. As *World of Warcraft* alone has sold over 100,000 copies in Finland, the possible link between playing video games and learning English definitely warrants more detailed study.

It is easy to find information about the benefits of gaming to for example problem-solving skills and logical thinking (see for example De Aguilera and Méndiz 2003), but this is not the case for foreign language learning. The studies that do focus on language concentrate almost exclusively on young test subjects and L1 learning,

¹ Video games here refer to any type of digital or electronic (i.e. non-mechanical) games, regardless of whether they are played on a desktop computer, video game console, mobile phone, tablet computer or any other platform. Thus the concept of video game includes everything from simple self-explanatory computer solitaire and Facebook games to complicated simulator and role-playing games with manuals exceeding a thousand pages. This definition will be used throughout the paper.

which again gives no insight into the situation in countries like Finland where children and teenagers play games that are mostly in a language other than their native tongue. The obvious reason as to why this kind of research does not seem to interest scholars is that the situation in Finland is not very common: as in the case of television shows, in other parts of Europe and in most parts of Asia and South America games are translated to the native languages of the players and localized, and thus are not potential sources for learning English, unlike in Finland and other Nordic countries.

The initial motivation for the study has stemmed from my own personal experience, and that of others: it is not uncommon in Finland to hear people and especially young men naming video games and popular culture, rather than the school system, as the number one reason for their good grades in English. Thus the main focus of my study is to look at whether there is a correlation between good grades and playing video games and to try to account for as many other possible factors contributing to the grades as possible. Additionally, I will look at whether different video game genres are connected differently to grades and how gamers themselves see the connection between video games and learning English. Gender differences will also be investigated.

This study cannot conclusively answer the question of whether playing video games is beneficial to language learning; I will only try to establish whether gamers have on average good English grades and try to construct a picture of the factors contributing to their success. The subject will be approached through second language acquisition (SLA) theories of incidental language learning and other studies dealing with learning English outside the classroom. The data for this study were collected using a questionnaire and analyzed using quantitative methods. The long-term goal of this study is to increase the amount of information about and interest in video games and to build a basis for a broader discussion about the nature and potential uses of video games as tools and facilitators of language learning and teaching.

2 Theoretical background

The theoretical part of this thesis consists of three sections. In the first section I will outline the major linguistic theories and concepts this study is based on. In the second section I will look at other studies similar to mine and discuss their implications. In the third and final section I will tie the first two sections in with video games and present my argument for why I think video games are potentially a valuable resource for English learners in Finland.

2.1 Second language acquisition research

2.1.1 Definitions and background

Gass and Selinker define the field of second language acquisition (SLA) as “the study of how second languages are learned” (Gass & Selinker 2008: 1). Already in this short definition we are faced with two very central conceptual issues. Firstly, what is the difference between a *second* language and a *foreign* language? Gass and Selinker go on to explain that second language learning refers to “the learning of a nonnative language in the environment in which that language is spoken”, whereas foreign language learning refers to “the learning of a nonnative language in the environment of one’s native language” (Gass & Selinker 2008: 7). In other words, a Finnish person studying English in Finland is studying a foreign language, and an English person studying Finnish in Finland is studying a second language. Several scholars have questioned the need for this distinction, however, and use the terms second and foreign language interchangeably (see e.g. Mitchell & Myles 2004: 5-6). Sundqvist (2009: 10) also notes that especially in the case of English, the distinction between second and foreign language is difficult to maintain in today’s world where English is constantly present and accessible to everyone. Indeed, I would argue that even though English is taught as a foreign language in Finland, it is in fact more like a second language by Gass and Selinker’s definition. I will therefore also use the terms second and foreign language as synonyms.

The second problem we face with Gass and Selinker’s above definition of SLA is that even though it is a definition of second language *acquisition*, it talks about how languages are *learned*. Gass and Selinker obviously use the terms acquisition and

learning interchangeably, but a great many scholars do not. The difference between acquisition and learning was originally made by Krashen (1981: 1-2), when he proposed that there are two ways of learning a second language: either by *acquiring* it unconsciously like a child acquires his first language, or by *learning* it consciously through error correction and memorizing explicit rules (*the learning/acquisition hypothesis*). Furthermore, Krashen has posited that learning cannot “turn into” acquisition (Krashen 1982: 83).

In addition to the learning/acquisition hypothesis, Krashen has formulated several other hypotheses. Probably the most influential of these is the *input hypothesis* (Krashen 1980, 1982). According to the input hypothesis, in order to acquire a language a learner needs only to be exposed to target language input that contains structures that are just beyond the learner’s level of competence. The hypothesis also states that in successful authentic communication, this kind of input is automatically provided (Krashen 1982: 21-22). According to yet another hypothesis by Krashen, the *affective filter hypothesis*, learners also need to be motivated, confident and free of anxiety for acquisition to successfully take place (ibid: 30-32). On the basis of his hypotheses, Krashen argued that “[t]he effective language teacher is someone who can provide input and help make it comprehensible in a low anxiety situation” (ibid: 32). This startling conclusion inspired several researchers to work on uncovering the inner mechanisms of learning and acquisition. The great amount of work done in this area in the 1980s and the 1990s has resulted in a tangled mess of concepts and ideas. Two concepts that often became associated with learning and acquisition were *implicit* learning and *explicit* learning. These concepts will be dealt with in the following chapter. As for this thesis, I will use the terms learning and acquisition interchangeably, unless specifically otherwise emphasized.

2.1.2 Explicit and implicit instruction and learning

In this chapter I talk about research around implicit and explicit instruction, meaning teaching language through exposing learners to target language input and teaching language through explicit rules, respectively. Implicit and explicit *instruction* should, however, be separated from implicit and explicit *learning*. Implicit learning is most often defined as “the process of gaining knowledge or skills without clear awareness

or the intention to learn them” and “entails that the person is also not conscious of what has been learned” (Francis et al. 2009: 60–61). Even when teaching the language implicitly, for example through extensive reading, we cannot always tell whether the learner is conscious of what he has learned or not, and thus we cannot say whether it is implicit or explicit learning that has taken place. The learner might also have had an intention to learn the language through his reading, which also makes the learning explicit. When referring to learning that happens without explicit guidance, regardless of whether the learning is implicit or explicit, the term *incidental learning* is used (Francis et al. 2009: 60). In this thesis I am mostly interested in incidental learning, and whether the learning has happened implicitly or explicitly is of no consequence. The reason why implicit learning is nevertheless relevant for this study is that all implicit learning is by definition also incidental: learning cannot be implicit if the learner is explicitly taught the rules of the language. Thus studies of implicit learning are also studies of incidental learning.

In terms of the acquisition/learning hypothesis, explicit instruction means teaching the rules and words of the language explicitly to achieve *learning*, whereas implicit instruction means providing input from which the students are supposed to *acquire* the target language forms and words. As noted before, Krashen’s controversial hypotheses launched a heated debate about the nature of second language learning that inspired many researchers to study in detail the mechanisms through which language is learned. In the 1990s the effects of explicit and implicit language instruction were studied in several laboratory experiments. In the experiments, one group was taught for example grammatical rules explicitly and another group was merely exposed to target language input containing the studied grammatical forms. The subjects’ skills in using those forms were then tested. Often artificial languages were used to ensure that the subjects had no previous knowledge of the language. DeKeyser (2003) identified 14 such studies done in the 1990s and analyzed their results. He concludes that “all laboratory studies that involve a direct comparison of implicit and explicit learning conditions show an advantage for explicit learning” (DeKeyser 2003: 324). He notes, however, that all analyzed studies had a short duration (the longest study being 12 weeks) and hence “it could be argued that this body of literature based on laboratory experiments is biased against implicit learning” (ibid: 324). It should also be noted that in selecting the studies for his

analysis, DeKeyser used a very strict definition of what is meant by implicit methods: even simple yes/no feedback from the instructor was considered explicit instruction.

Norris and Ortega (2000) conducted a similar but much more detailed meta-analysis of 49 studies comparing the effectiveness of implicit and explicit instruction. Unlike in DeKeyser's analysis above, Norris and Ortega did not limit themselves to studies done in laboratory conditions. In the end the researchers found out that specific second language instruction is highly beneficial and "results in large gains over the course of an intervention" (ibid: 500). According to the analysis, specific forms were learned better in the investigated studies through explicit teaching than exposure to and interaction with input that included the forms. Norris and Ortega conclude that

"[o]n average, instruction that incorporates explicit [...] techniques leads to more substantial effects than implicit instruction (with average effect sizes differing by 0.59 standard deviation units), and this is a probabilistically trustworthy difference" (ibid: 500).

Norris and Ortega also note, however, that there are several serious methodological issues to consider when interpreting the results, such as bias towards explicit instruction techniques in the testing of learning outcomes. The researchers also estimate that for implicit instruction, longer post-intervention periods may be required as it has been suggested that forms acquired implicitly take longer to become internalized. (ibid: 501). Still, even considering these caveats, Norris and Ortega in the end come to the conclusion that, based on their results, "explicit instruction is more efficient than implicit instruction" (ibid: 501).

Based on DeKeyser's (2003) and Norris and Ortega's (2000) analyses, then, it would seem that explicit instruction is superior to implicit instruction. However, we are faced with several problems when trying to transfer the results of these studies to real learning contexts. Firstly, learning a language is a process that normally takes years, but the studies on explicit and implicit instruction only focus on very short-term improvements in language skills. Secondly, in actual learning situations, language learning is very rarely based purely on implicit instruction: simply asking for

clarification in a conversation and looking up words in a dictionary, for example, fall in the realm of explicit instruction. Thirdly, it is impossible to know exactly how learning takes place in the brain and thus it is difficult to know when something is learned explicitly and when implicitly. Finally, in the context of this study it should be noted that the above analyses focused only on classroom contexts, and not on learning that happens outside the classroom. Thus the analyses do not preclude the possibility that long-term exposure to English input outside the classroom is highly beneficial for English learning. These themes will be discussed more thoroughly in chapters 2.2 and 2.3.

2.1.3 The role of awareness in language learning

A researcher whose work is very relevant to this study is Richard Schmidt. Schmidt has studied the role of awareness and consciousness in language learning extensively on the basis of psychological literature (Schmidt 1990, 1995). Schmidt notes that many researchers feel that “consciousness” is too problematic and vague a term to be used in scientific research, but he feels that this is only because of several different and overlapping conceptions of what consciousness is (Schmidt 1995: 4). The purpose of Schmidt’s paper is to try to make the concepts of awareness and consciousness more manageable and thus he has divided his questions about the role of consciousness in language learning into four different parts (Schmidt 1995: 5):

- Can there be learning without intention?
- Can there be learning without attention?
- Can there be learning without noticing?
- Can there be learning without understanding?

According to Schmidt, learning without intention (or learning “incidentally”) in the sense that doing something for reasons other than learning (e.g. playing a video game or reading a book for fun) results in learning as a by-product, is possible: “incidental learning is certainly possible when task demands focus attention on relevant features of the input” (Schmidt 1990: 149). This is of course commonly acknowledged and in line with SLA research. The above quote also already includes the concepts of

attention and noticing², which Schmidt says seem, on the basis of the psychological literature, to be required for all learning. Schmidt also states that “[i]ncidental learning in another sense, picking up target language forms from input when they do not carry information crucial to the task, appears unlikely for adults” (ibid: 149). Interestingly, Schmidt also brings up the role of motivation in his later study, noting that intention alone is not enough for second language learning and that motivation is also necessary (Schmidt 1995: 7-8). Schmidt offers no conclusive answer to his fourth question.

In sum, Schmidt argues that incidental learning is possible as long as the input is meaningful and the learner is aware of and focuses on the input and is motivated. Some studies suggest, however, that none of these three are necessary. In an experiment by Saffran et al. (1997), children and adults were exposed to an audio recording of a nonsensical artificial language being spoken by a speech synthesizer while engaging in a cover task (drawing). The subjects were told that the experiment was about the effect of auditory stimuli on creativity. They were then tested by giving them word pairs where one of the words had appeared on the recording and the other had not. The results showed that the subjects could point out which of the words had been on the recording well above chance performance, i.e. that they had learned the words and were not simply guessing. When the duration of the tape was doubled from 21 minutes to 42 minutes, the results improved significantly, from 58.6% correct answers to 73.1% for the adults and from 59.2% to 68.3% for the children. These results imply that the importance of learner awareness and the meaningfulness of the input might have been overestimated in Schmidt’s papers. Robinson (2003) argues that “current views of attentional resources [...] are underrepresented, little-explored, and sometimes misconceptualized in SLA research” (Robinson 2003: 664), and that in general research into internal processes in SLA is still at a very early stage and that there are more questions than answers.

² Schmidt points out that separating attention and noticing from each other is difficult, and in fact comes to a conclusion in his analysis that the two are “nearly isomorphic” (Schmidt 1995: 1).

2.1.4 The interaction hypothesis

Krashen's input hypothesis was heavily criticized for being vague, circular and impossible to verify empirically (Mitchell and Myles 2004: 48), and it is not used as such in modern language learning and teaching models. However, as said before, it has been very influential. While some researchers were inspired by the input hypothesis to study the inner mechanisms of how languages are learned from a psychological and biological perspective, others chose a more linguistic perspective and focused on analyzing different kinds of input. Originally as an extension to the input hypothesis, Michael Long along with several other researchers formulated their own theory, the *interaction hypothesis* in the 1980s, and it was reformulated by Long in 1996 (Mitchell and Myles 2004: 167). The proponents of the interaction hypothesis have taken as their starting point the fact that language is primarily a tool for communication, and that interaction is not only a means of *practicing* the use of the language, but also a means of *learning* the language (Gass 2003: 234).

Long (1996) has posited as part of the revised interaction hypothesis that a crucial part of second language learning is what is called *negotiation for meaning*, a process in which two speakers (or interactants) try to overcome their linguistic limitations and reach a common understanding. According to Long, "negotiation for meaning [...] facilitates acquisition because it connects input, internal learning capacities [...] and output in productive ways" (Long 1996: 451-2). According to the hypothesis, negative feedback (i.e. someone correcting the learner's mistakes) is also important as it probably facilitates language learning and is in fact "essential for learning certain specifiable L1-L2 contrasts" (Long 1996: 414). Thus the interaction hypothesis also includes a strong notion of incidental or unintentional learning: learners engage in communicative tasks with the purpose of coming to a common conclusion or understanding and learn the language in the process, even though learning the language is not the goal of the task.

Like Krashen's input hypothesis, the interaction hypothesis has also been very influential. The reason for bringing up the interaction hypothesis in the context of this study is that it forms the basis for most modern language learning and teaching theories that guide the work of both teachers and scholars. In Finland, both the National Core Curriculum for Basic Education (National Board of Education 2004)

and the National Core Curriculum for Upper Secondary Schools (National Board of Education 2003) stress the importance of communication and place emphasis on one-on-one and group discussions as learning strategies.

2.1.5 Summary

In this chapter I have tried to present a short overview of the most important theoretical SLA perspectives that have traditionally been connected to learning English outside the classroom. It is a confusing area of study as there are no commonly agreed definitions for several if not most of the central concepts. From a linguistic perspective, incidental learning of English from mere input (such as video games) is, according to most researchers, possible. However, from a classroom perspective, simply exposing students to target language input does not seem to be as effective as the explicit teaching of rules and words. Whether or not awareness or noticing is required for language learning is a difficult question with no conclusive answer due to the concepts being difficult to define or grasp. Schmidt (1990, 1995) has argued convincingly for the necessity of awareness in language learning, but there is evidence to the contrary as well. From an empirical SLA point of view, the area of implicit and incidental learning remains highly controversial.

2.2 Extramural English

2.2.1 Definitions

As defined in chapter 1, extramural English, or EE for short, refers to the English that learners come in contact with outside the school context. The term was coined by Sundqvist (2009) as an all-encompassing umbrella term for concepts used by other researchers such as out-of-class learning, out-of-school learning or spare time English (Sundqvist 2009: 25–26). EE includes all kinds of contact with English outside the classroom, be it reading a book, playing a computer game, listening to music or having a conversation in English. It is a broad term, and unlike the concepts of implicit, explicit, intentional, unintentional, and incidental learning discussed in the previous chapter, it does not force us to take a stand on how learning happens in the brain. Thus it allows us to take a completely different, more practical perspective on learning English. In laboratory language learning studies, it is not always possible

to take into account important factors like motivation. By using the concept of EE, we can better take into account all or most of the different variables that affect language learning in the real world. The main reason why this study focuses on EE instead of looking directly at the relationship of video games and language learning at a linguistic level is that previous research focusing specifically on video games is exceedingly scarce and thus there are no commonly used theoretical models or methods available to be used in such a study. By looking at the topic through EE, we can conveniently get a picture of the significance of computer games specifically in the wider spectrum of all EE activities based on quantitative data.

It should be noted that there is another, more widely used term similar to EE but not limited to learning just English: *informal learning*. Livingstone (2001) defines informal learning as “any activity involving the pursuit of understanding, knowledge or skill which occurs without the presence of externally imposed curricular criteria” (Livingstone 2001: 4). Thus the concept of informal learning is only applicable in situations where the learner is actively trying to educate themselves, and hence excludes all unintentional learning that might occur as a by-product of doing something for reasons other than learning, which is why the term is not used in this study.

2.2.2 Previous studies of extramural English

Quite surprisingly, it is not easy to find studies about learning English outside the classroom in a foreign language context. Only very few studies connecting EE and learning results conclusively can be found, but there are some earlier studies that give indications of the potential of EE. For example Pickard (1996) studied the EE activities and learning strategies related to those activities of 20 proficient German students of English through a questionnaire and interviews. Pickard found that the most popular EE activity was listening to the radio, followed by reading newspapers, novels and magazines. Pickard concludes that on the basis of the interviews “[s]ubjects made most use of the activities which they had chosen for their own needs” and that “[t]he intrinsic interest value to the learner of the particular materials chosen for use was the prime motivating reason for exploitation of materials” (Pickard 1996: 157). Because of the spread of the Internet and the growing presence

of the global community since the mid-1990s, Pickard's study is unfortunately quite out of date. Also, unlike in Finland in Germany television shows and movies are dubbed and video games are localized, reducing the amount of contact young people have with English, and as such Finnish and German results of EE activities are not in general comparable. Understandably, Pickard has not even attempted to establish a correlation between EE and proficiency, and his aim has rather been to simply take a look at what the more proficient students do outside the classroom. Still, these early results highlighting the importance of motivation through learner autonomy and self-selected materials are encouraging and certainly indicative that EE is worth studying further.

Motivation and learner autonomy were also highlighted in a longitudinal study by Pearson (2004). In his study, Pearson investigated the effect of language proficiency on out-of-class learning strategies and activities as well as how learners take advantage of out-of-class learning opportunities using language diaries and questionnaires. The test group consisted of 106 students on a course of English for academic purposes, and Pearson's aim was to see how experience and contact with English (through the course) affected the students' EE activities. Among his results Pearson mentions that in several cases the test subjects reported that EE activities helped them concentrate on their own personal language needs alongside the course. Some subjects reported that they in fact learned more outside the classroom than on the lessons and also enjoyed their EE activities more than formal teaching (Pearson 2004: 4). Pearson also notes that "[t]he combined research data highlighted the contrast between those students who made the most of OCLL [out-of-class language learning] and those who did not" (Pearson 2004: 7). This is a very interesting finding to keep in mind when looking at more recent EE research later on.

Pearson concludes that some of the more important aspects of EE activities are "learner motivation, learner awareness, learner training and learner monitoring or self-evaluation" (Pearson 2004: 7). Thus the final conclusions are quite similar to those in Pickard's study. There is a certain lack of concrete results in Pearson's study, however, that is also similar to Pickard's study. The qualitative methods Pearson has used are not explained properly, and most of his most important results are simply self-reported pieces of information from his subjects. The quantitative

analysis of EE activities is no more than a list ordered by frequency. The “combined research data” Pearson refers to is not clearly presented in one place. Pearson points out that the point of his study was not to try to identify or quantify language gains from EE activities, but to simply underline that EE activities are an important part of language development in his sample population (Pearson 2004: 8).

Pearson’s results about the importance of EE activities were further confirmed by Sylvén (2004). The main focus of Sylvén’s thesis was comparing the size of CLIL students’ (Swedish students who study all or most subjects in English) vocabulary to that of traditional students (who study in their native language of Swedish), but she also included a small section about EE in her study. In the study, three extensive vocabulary tests were administered one year apart and the improvements of the two groups compared. In addition to the vocabulary tests, a questionnaire including questions about EE activities and questions measuring motivation and attitudes towards English was administered. Sylvén’s results showed that the most significant factor for vocabulary improvement was in fact being involved with a lot of EE activities such as watching TV, playing computer games and surfing the Internet and not whether the student was studying in a CLIL class or a traditional class: “[s]tudents who receive English input elsewhere than school are those who score the best, regardless of group” (Sylvén 2004: 218). Sylvén suggests that it is not the amount of English input the students receive at school that is the decisive factor but rather the total amount of English input (Sylvén 2004: 219).

Sylvén also came across another very interesting finding in her investigation: male students always scored on average higher than female students and males were also more active in EE activities. According to Sylvén, “[g]ender related habits, such as the involvement in computer games and role plays typical of male students, are an important factor contributing to better results” (Sylvén 2004: 220). Like previous researchers, Sylvén also notes the crucial importance of motivation and positive attitudes to achieving good scores. Sylvén’s analysis is thorough and finally yields concrete and numerical results about EE and English proficiency, but its section on EE is sadly not very detailed or comprehensible. All computer games and role-playing games are clumped together in one question in Sylvén’s questionnaire, and the data is not very detailed. It was clear on the basis of Sylvén’s study that there was

a need for a more precise analysis of the types of EE that have an effect on language learning. Finally, the obvious drawback of Sylvén's study is that it only investigated vocabulary development and no other areas of language. As interesting and useful as Sylvén's results may be, her study by no means presents a complete picture of language ability. On the basis of Sylvén's study it is impossible to say whether the improvement in vocabulary came on the expense of some other area of language, for example. The students not scoring high on vocabulary tests might be well ahead of the other students in oral proficiency. Sylvén also points out that some studies show that while female learners generally do better than males, males often do better than females in vocabulary tests (Sylvén 2004: 211).

Thankfully, the drawback of concentrating only on vocabulary was noted by Sundqvist (2009), who studied the impact of EE on both vocabulary and oral proficiency in a longitudinal study similar to Sylvén's. Sundqvist, however, concentrated solely on EE and thus her study yields much more detailed data. In her study, Sundqvist administered several vocabulary and oral proficiency tests to 74 students aged 15-16 over the course of ten months and compared their scores to answers given by the students about EE activities, background information and motivation collected using a questionnaire. Great care was taken in creating both the vocabulary and the oral proficiency tests, and external raters were used to achieve comparable scores for all the students. Variables such as visiting or living in an English speaking country, socioeconomic background and residency (rural vs. urban) were controlled. Sundqvist found that there was a strong and statistically significant correlation with EE for both the size of the students' vocabulary and oral proficiency scores. She also noted that for students with low amounts of EE exposure, "even a small increase in time spent on EE activities may make an important difference regarding their level of oral proficiency" (Sundqvist 2009: 204).

Interestingly, Sundqvist found that boys were much more sensitive to EE: for boys the correlation between EE activities and test scores was much stronger than for girls. By looking at the data in more detail, it became apparent that it was the *type* of EE that was key: engaging in activities that require the learner to be productive and active was connected to good test scores much more strongly than activities where learners remain passive. Sundqvist points out that "to a large extent, boys and girls

engage in totally different types of EE activities” (Sundqvist 2009: 203), which explains the gender difference. Thus Sundqvist’s data confirm Sylvén’s hypothesis that involvement in gender-related habits such as playing video games is highly beneficial for English learning. Sundqvist lists playing video games, surfing the Internet and reading books, magazines and newspapers as active activities and listening to music and watching television and movies as passive. Sundqvist highlights video games especially (2009: 197–198):

“My findings on EE and vocabulary provide empirical evidence of the interaction hypothesis [...]. This is particularly evident in the case of one EE activity, namely playing video games. Learners who play video games have to rely heavily on their language skills in the target language. Furthermore, [...] they need to produce target language output, often both orally and in writing. Moreover, since lexical and prosodic repetitions are integral features of video games [...] players are simultaneously involved in activities which are hypothesized to benefit L2 acquisition. In other words, video games provide opportunities for implicit learning; thus, players become learners, even though they might not be aware of it themselves.”

Finally, the last key finding of Sundqvist’s study was that EE exposure was not dependent on socioeconomic background. She states that this is a very important finding when looking at the future as it shows that EE is a potential path to success for anyone, regardless of background. Based on the methods Sundqvist used in her study, it cannot with certainty be said that there is a causal relationship between being exposed to EE and achieving good scores. In fact, Sundqvist says that it is impossible to establish a causal relationship, as there are so many variables involved in learning a language that it is not possible to point out exactly what has contributed to the language learning (Sundqvist 2009: 193). However, Sundqvist suggests that based on her own study and previous research it is very likely that a causal relationship exists. Most likely the relationship goes both ways: having a high language proficiency leads to engaging in more EE activities (as shown by Pearson (2004) earlier) and thus to an even higher proficiency level, whereas students with

low English proficiency are not likely to engage in EE activities which in turn leads to them falling behind even more.

Olsson (2011) looked at several aspects of EE in her licentiate thesis. Her main focus was on studying how exposure to EE affected the English writing proficiency of 16-year-old pupils, but she also looked at the correlation between EE exposure and English grades. Her results showed that there were great differences between pupils in the amount of exposure to EE, and that there was a significant correlation between EE exposure and good grades (Olsson 2011: 124–126). In Olsson's study, three activities were found to be particularly beneficial to writing proficiency: reading, writing and watching TV and films. (Olsson 2011: 126). Olsson suggests that the reason why chatting on the Internet and visiting discussion forums did not seem to be beneficial for writing proficiency is that the language used on the Internet is very informal and oral in style (Olsson 2011: 126). Based on corpus analyses of texts written by the subjects, Olsson concluded that pupils with more EE contacts used on average longer words and a greater variety of expressions and had a more varied informal vocabulary and greater register awareness than pupils who had less EE contacts (Olsson 2011: 127–130). It must be noted that Olsson's sample only included 37 informants, making the reliability of some of her analyses questionable. The corpus analyses, however, do not have that problem and Olsson's results about writing proficiency are an important addition to Sundqvist's and Sylvén's results regarding vocabulary and oral proficiency.

2.2.3 Studies with focus on video games

On the basis of these five studies described above it would seem that playing video games might be a highly effective way of learning English; it goes without saying that players are very highly motivated and the importance of motivation and learner independence has been highlighted prominently in all of these studies. Playing a video game is a very intensive activity that requires concentration, and understanding English is often a requirement for being able to advance in the game. The today very popular multiplayer games usually also require the player to produce language in the form of writing or even speaking. As a relatively new (and for many, utterly strange) phenomenon there is an understandable lack of research around video games.

Piirainen-Marsh and Tainio (2009), however, have investigated one aspect of the potential for language learning from video games. In their study, Piirainen-Marsh and Tainio watched and transcribed video recordings of two teenage boys collaboratively playing a video game (Final Fantasy X). More specifically, they focused on the boys' repetitions of the game characters' utterances. According to the researchers, in addition to the repetition of lexical forms, the prosody of the repeated utterances is also of importance.

Piirainen-Marsh and Tainio argue in conclusion that the participants in their study

“treat the linguistic details of games as a recurrent and flexible resource...the players treat collaborative play as [...] a socially shared learning experience, where expertise of the second language is part of the [...] competences through which participants display their membership in the local community of players.” (Piirainen-Marsh and Tainio 2009: 166).

In other words understanding and being able to reproduce or mimic utterances from the game is an important part of the social gaming experience and by mimicking utterances from the game the players transfer the utterances into their vocabulary and are able to use them outside of the gaming situation as well. In another article based on the same research project, Piirainen-Marsh argues that this code-switching is “an indication of the presence and significance of English in the media-enriched everyday lives of youngsters” (Piirainen-Marsh 2008: 163, my translation). Piirainen-Marsh's comments are in line with Leppänen (2007), who has argued strongly that English has become an inseparable part of the identities of many young people through participation in communities around different kinds of subcultures.

It must be noted that Piirainen-Marsh and Tainio's study is only a microanalysis of a very specific type of situation; playing video games is not always necessarily a social activity, and language is not always as integral to the game as in the case of the game the boys were playing. However, these results are by no means insignificant. They highlight the immense potential for language learning in video games and give insight into how versatile language learning from games can in fact be, and through

what kinds of mechanisms the language learning might take place. The results also give us an idea of why in some cases the differences between the proficiency levels of some of the pupils in our English classrooms are so great; why some pupils seem to be so far ahead of others for seemingly no reason.

Another study that must be mentioned here is a preliminary study similar to the present one which I conducted as part of a pedagogical seminar (Uuskoski 2010). The studied population was the same as in the present study and included 167 informants. The study was a simple questionnaire study with questions focusing on the subjects' video gaming habits. The results of the study showed that there was a statistically significant positive correlation between the amount of time spent playing video games and good English grades. There were also statistically significant correlations between good grades and playing massively multiplayer online games, first-person shooter games, strategy games and role-playing games. Interestingly, the results also showed that 91% of the informants that played video games for five hours per week or more had also communicated in English with other players online. For gamers who played less than five hours per week the figure was 37%. Of all subjects who played video games, 80% said that playing video games had improved their English skills at least to some extent. Over 98% of the informants played most of their games in English. As the study was not published, these results should not be taken as anything more than preliminary. There were, however, no major issues with the research design itself and the sample size was large enough for statistically significant results to be obtained.

2.3 Conclusion: Why video games?

There are several reasons why I think video games as a form of EE might prove to be especially useful when it comes to language learning. First of all, some games include a great deal of text or speech, i.e. input. Second, the input is often crucial for being able to advance in the game. Thus if the crucial input is not comprehensible to the player already, the player must *make* the input comprehensible. A quote from a large Finnish study by Ermi, Heliö and Mäyrä mapping the gaming habits of Finnish 10–12-year-olds illustrates this point very well:

“According to the interviewed children, the most important thing learned from games is English. Most of the children’s favorite games were in English and the words seemed to stick to the children’s minds without their even noticing when they were dealing with interesting content. If the children needed translation help, they most often turned to their parents or elder siblings, but they were also prepared to go through some trouble themselves to figure out the contents of texts, if they were thought to be meaningful for playing the game.” (Ermi, Heliö and Mäyrä 2004, 66, my translation)

Whether going by Krashen’s input hypothesis or by Long’s interaction hypothesis (see chapters 2.1.1 and 2.1.4 respectively), this is exactly the kind of process that should facilitate language learning: authentic and meaningful input that is either readily comprehensible or then made comprehensible. In the case of 10–12-year-old children the parents have an important role in making the input comprehensible, but upper secondary school students more likely figure the contents out from the context or by using a dictionary.

Authenticity is also a keyword here; using authentic texts in classrooms is an important part of the language learning theories that the current national curricula are based on (communicative language teaching, constructivism, interactionism). It should also again be noted that many of the most popular video games today are multiplayer games that allow writing and speaking to other players. As described in chapter 2.2.3, a vast majority of active players have communicated with fellow gamers in English. Thus gaming offers opportunities for encountering not only authentic *texts*, but also authentic human *communication*. For an excellent review on the benefits of authenticity in foreign language learning, see Gilmore (2007).

In addition to there being a lot of authentic input in games, it is commonly acknowledged that games are, both in and outside the classroom, very motivating. It is also commonly acknowledged that motivation is a key factor in language learning; in the literature dealing with motivation and language learning, this is usually taken as a starting point and basic fact (see e.g. Dörnyei 2001, 2009). Even Krashen took into account motivation in the form of his affective filter hypothesis (see chapter

2.1.1), saying that a learner cannot learn if he is unmotivated. According to Nakata, “language learning motivation is inextricably bound up with learners’ learning experiences” (Nakata 2006: 11). He goes on to note that motivation is especially important in situations where learners are separated from the target culture geographically and psychologically (Nakata 2006: 19). Thus, I argue that if learners are highly motivated to play games where the content is in English, it follows that they are also motivated to learn enough English to be able to play those games. This is also evidenced by the quote in the above paragraph from the study by Ermi, Heliö and Mäyrä. Whether or not this motivation then transfers into motivation in the classroom is unclear and not the subject of this study. However, I find it likely that even if the increased motivation does not directly transfer into the classroom, the competence gained from learning new words and expressions eventually leads to increased motivation also in the classroom.

Finally, playing video games is usually an activity where the player needs to be alert and active at all times. Schmidt (1995) states that based on findings in psychological literature it seems certain that the more attention and awareness the learner dedicates to a task, the better the learning results are (Schmidt 1995: 13). Sundqvist’s findings discussed in chapter 2.2.2 also support this conclusion. Thus it seems that video games have qualities that might make them good sources of extramural English.

3 Material and methods

3.1 The sample

The material for this study was collected using a questionnaire (see Appendix B). The population studied in this thesis is urban upper secondary school students from Southern Finland. The sample includes 495 16- to 20-year-old upper secondary school students from two different schools in Southern Finland (the municipalities of Vantaa and Järvenpää). Upper secondary school students were chosen as the population for practical reasons, and because they are a fairly homogenous group. The answers were collected from whole groups of students in the classrooms as part of the lesson to obtain a representative sample. The schools are fairly large (over 500 students) and the GPA required to get in is < 8.00 for both schools, i.e. the schools are not very exclusive or selective in their admissions. This strategy should yield a fairly complete picture of all kinds of students, even though individual random sampling is not used.

3.2 Questionnaire design and socio-economic status

The questionnaire has been designed following guidelines set by Dörnyei (2003): great care has been taken to ensure that all questions are unambiguous and do not include any loaded words or double-barreled questions. The questionnaire was designed by me with the exception of questions 9 and 10, which were initially designed by my colleague Sami Anttonen for his unpublished small-scale study (Anttonen 2009). I also looked to the study by Sundqvist (2009) for guidance, and even though I have not copied any of her questions directly, they acted as inspiration at least for questions 6, 7, 8, and 12. In the words of Sudman and Bradburn: “while plagiarism is regarded as a vice in most matters, it is a virtue in questionnaire writing” (Sudman and Bradburn 1982, 119).

As the study is based solely on information provided by the informants, it cannot claim to be based on absolute fact, but rather on the conceptions of the informants. To counter this effect, the questions in the questionnaire have been designed so that answering them requires as little interpretation as possible: whenever possible, the questions ask about specific facts rather than attitudes or opinions, and answers in

multiple choice questions are absolute rather than relative (i.e. “once a month” rather than “rarely”). The study also employs a sizable sample to average out any misestimations the informants may have made.

The questionnaire was designed so that it would cover all areas of extramural English and account for as many other contributing factors as possible. One of these factors is socio-economic status (SES), which in the questionnaire is measured by parents’ education. SES is a problematic thing to measure, but luckily a vast amount of research has been done to determine how to best measure it reliably. Sirin (2005) conducted a meta-analysis of SES studies and concluded that researchers have traditionally used three different measures for SES: income, education and occupation. Sirin notes that of these three, education is the easiest to measure as it can easily be divided into clear categories, whereas when measuring occupation, it is often necessary to split different occupations into dozens of different groups to obtain reliable data. Education is also often very closely related to both occupation and income. In the end, Sirin recommends that researchers use several different measures of SES simultaneously, as using only one measure may lead to an overestimation of the effect of SES. According to an Australian SES study by James (2002) where the investigated measures were parental employment category, parental education level and post code of home address, “education levels revealed the clearest patterns of variation in student attitudes towards school and post-school options and preferences” (James 2002, 13). In a study investigating the reliability of student-reported SES data, Lien, Friestad and Klepp (2001) concluded that an open-ended question about parental occupation provided clearly valid and reliable data among 13- and 15-year-olds, whereas data about education were not as reliable, although still within acceptable limits of reliability.

According to Statistics Finland (2009), parents’ high level of education significantly increases the chances of their child becoming highly educated. For example, the child of a university researcher is seven to ten times more likely to become a researcher than the national average. Taking all this into consideration, I decided to use education as my measure of SES for three reasons: 1) it would be unrealistic to assume that upper secondary school students would have knowledge of their parents’ income, 2) occupations are difficult to categorize and it is not realistically doable in a

sample of this size, 3) education seems to be a stable and a reliable enough measure on its own. In the end the question was formulated so that there was also an open alternative if the informant was unable to classify their parents' education.

3.3 Questionnaire administration and analysis

As the sample is fairly sizable, it was not possible for all questionnaires to be administered personally. For this purpose, one teacher from each school was recruited and given oral instructions as to how the questionnaire was to be filled in. The informants were told that the answers are completely anonymous and that the data will never be handed over to any third parties. This information is also in written form on the first page of the questionnaire. This hopefully increased the likelihood of obtaining honest and unbiased answers. The fact that the questionnaires were administered by the students' own teacher also hopefully set the informants at ease and avoided any anxiety or stress the informants might have had towards an outsider in the classroom. Of a total of 505 answers collected, 10 had to be excluded from the sample. The reason in all cases was that the informants had only filled in three of the four pages in the questionnaire. The reason for this was probably that the ten informants had folded the paper in a certain way which made them skip the third page completely. This was an unfortunate oversight in the design of the questionnaire.

The questionnaire was piloted on one class ($N = 25$) of students and fine-tuned according to their suggestions. The answers were analyzed using quantitative statistical methods in SPSS. To avoid human errors in the data entry phase, the data was entered into SPSS twice and computer-checked for any contradictions. The main analytic tool used in the study is correlation analysis, which was used to identify correlations between for example grades and video game genres. One-way analysis of variance (ANOVA) and linear regression analysis were also used. As the questions in the questionnaire are generally simple and straightforward and do not measure attitudes or opinions, factor analysis, standardization or other complicated grouping procedures need not be used. For the same reasons, having single items instead of multi-item scales (i.e. research questions being answered by single questions in the questionnaire) does not damage the reliability of this study.

In the data input phase, consistent and rigorous guidelines were followed. If the informant had checked two boxes when only one was required, the “higher” choice was always entered (i.e. if the choices were “daily” and “weekly”, “daily” was selected). In some cases informants had checked four or more boxes in question 4 where the informants were asked to check a maximum of three boxes. In these cases all of the checked boxes were entered into the data. The initial reason for limiting the choice to three boxes was to avoid situations where informants who play a lot check every single box and thus not giving concrete information about what their *main* gaming interests are, and so it is not critical that some informants had checked more boxes than three. In question 15, many informants were unsure about the education their parents had received. In all cases where there was uncertainty, (if for example the informant had checked “cannot say” in addition to some other box) “cannot say” was entered as the data. In question 17 where the informants were asked to estimate the GPA of their literate subjects, some informants had entered a range, for example 8.5 – 9.0. In these cases the middle value was entered, in this case 8.75. If the informants had written something else on the line, such as “approx. 8.5” or “~8.5”, the numerical value was entered as such, in this case 8.5.

Questions 4, 9, 10 and 12 allowed the informants to specify some other choice not present in the questionnaire. One informant, for example, had written “making music” for question 9 (what do you use the computer for besides playing games). In these cases if I considered the answers to fall into an existing category, that is what I would enter as the data. In the above case, “making music” was deemed to fall into the existing category of “using software”. Only if the activity could not be put into any existing category would “other” be entered as the data. In the end the instances of “other” were so few that they were not included in the analyses.

3.4 Research questions

My research questions are as follows:

1. How are upper secondary students’ gaming habits related to their English grades?

2. How are different game genres connected to English grades?
3. How do gamers see the connection between gaming and English skills?
4. What kinds of gender differences are there regarding EE activities and grades?
5. How is the correlation between gaming habits and English grades (if any) explained by the following factors:
 - a) general academic success
 - b) studying other languages
 - c) connections to English-speaking countries or people
 - d) socioeconomic status (as measured by parents' education)
 - e) other extramural English activities
 1. other computer activities besides gaming
 2. reading
 3. listening to music
 4. watching TV and movies?

For information on what questions of the questionnaire answer which research questions, see Table 1 below.

Table 1. The correspondence between research questions and questionnaire questions.

| Research question | Questionnaire question |
|-------------------|------------------------|
| 1 | 1, 5, 16, 19 |
| 2 | 4, 16 |
| 3 | 2 |
| 4 | 3 |
| 5 | All |
| 6a | 16, 17, 18 |
| 6b | 6 |
| 6c | 15 |
| 6d | 7, 8, 11 |
| 6e | 9, 10, 12, 13, 14 |

4 Results and discussion

4.1 The connection between gaming and English grades

A statistically significant positive correlation was found between high English grades and the amount of time spent playing video games for all subjects ($r = .329, p < .01$). In order to get more meaningful results from statistical analyses, the seven different gamer groups in the questionnaire were further grouped into four larger groups: non-gamers (those who do not play at all), casual gamers (gamers who play 0-5 hours/week), active gamers (5-15 hours/week) and hardcore gamers (over 15 hours/week). The average typical grades of these groups are presented in Table 1.

Table 2. The average typical grades of the four larger gamer groups.

| Gamer group | Typical English grade average | N |
|--------------------------|-------------------------------|-----|
| Non-gamers | 7.28 | 99 |
| Casual gamers (0-5h/w) | 7.68 | 242 |
| Active gamers (5-15h/w) | 8.10 | 107 |
| Hardcore gamers (15+h/w) | 8.79 | 47 |
| All informants | 7.80 | 495 |

The differences between the group means were found to be statistically significant as determined by a one-way ANOVA ($F_{(3,491)} = 17.837, P < .001$). A Tukey post-hoc test showed that *all* groups differed from each other with statistical significance. See Appendix A for full information about the ANOVA post-hoc test. A statistically significant correlation was not found between good English grades and the age at which playing video games was started. Based on these results it seems that, on average, the more active gamer group one belongs to, the better their English grades are. The surprising result that there was a difference even between the non-gamers and the casual gamers who only play up to five hours per week offers more evidence for Sundqvist's conclusion that even a small amount of EE may make an important difference for a student's language skills (Sundqvist 2009: 204).

4.2 The connection between game genres and English grades

Several statistically significant correlations were found between playing certain types of games and having good English grades. Table 3 shows both the correlations between genre and English grades and genre and time spent playing video games. Statistically significant correlations have been bolded.

Table 3. Correlations between game genres and good English grades and game genres and time spent playing video games (N = 495).

| Genre | r ¹ | r ² |
|------------------------------------|----------------|----------------|
| Role-playing games | .304** | .488** |
| Massively multiplayer online games | .211** | .432** |
| Strategy games | .196** | .370** |
| Shooter games | .177** | .520** |
| Platformer games | .106* | .108** |
| Building and life simulation games | .090* | .056 |
| Adventure games | .079 | .181** |
| Driving and simulator games | .038 | .169** |
| Sports games | .009 | .145** |
| Music games | -.049 | -.025 |
| Browser-based games | -.079 | -.031 |

r¹ = Correlation between genre and English grade

r² = Correlation between genre and time spent playing video games

** = statistically significant at the 0.01 level

* = statistically significant at the 0.05 level

As can be seen from the table, some video game genres were found to correlate with good English grades. Playing role-playing games especially was connected to high English grades. Massively multiplayer online games, strategy games and shooter games also had noticeable statistically significant correlations with good grades. The genres that were connected strongly to good grades also correlated strongly with the amount of time spent playing video games. Thus it is difficult to say whether it is the genre or the time spent playing that is most influential in affecting English grades. The fact that adventure games, sports games and driving games correlated with time spent playing games but not with high English grades, however, might be an

indication that playing these types of games might *not* be connected to English learning on their own.

4.3 Gamers’ opinions on the relationship between gaming and English skills

In this section the gamer groups have again been combined into casual, active and hardcore gamers. Table 4 shows the opinions of these three groups on whether playing video games has improved their English skills. Table 5 shows the informants’ answers to the question about the specific areas of language they feel gaming has improved. Informants who reported not playing video games at all are not included in the tables for obvious reasons.

Table 4. Answers to question 2: “Has gaming improved your English skills?”

| | N | No | Somewhat | Quite much | Very much | Cannot say |
|------------|-----|-----|----------|------------|-----------|------------|
| 0-5 hrs/w | 242 | 18% | 52% | 17% | 9% | 4% |
| 5-15 hrs/w | 107 | 4% | 22% | 32% | 42% | 0 |
| 15+ hrs/w | 47 | 0 | 11% | 19% | 70% | 0 |
| Total | 396 | 12% | 39% | 21% | 25% | 3% |

Table 5. Percentage of informants who checked the corresponding boxes in question 3: “Which of the following areas of language do you feel gaming has improved?”

| | N | Vocab. | Listening | Reading | Writing | Speaking | CK* |
|------------|-----|--------|-----------|---------|---------|----------|-----|
| 0-5 hrs/w | 242 | 71% | 38% | 38% | 16% | 16% | 14% |
| 5-15 hrs/w | 107 | 93% | 65% | 63% | 35% | 35% | 29% |
| 15+ hrs/w | 47 | 98% | 83% | 87% | 60% | 57% | 40% |
| Total | 396 | 80% | 51% | 50% | 26% | 26% | 21% |

* CK = Cultural knowledge

Unsurprisingly, subjects who spent more time playing video games also felt that gaming had improved their English more significantly than those who spent less time playing video games. Even out of the subjects who only played up to 5 hours per week, however, 78% felt that their English had been at least somewhat improved by gaming. Out of the subjects who played 5 to 15 hours per week, 74% felt that gaming

had improved their English by quite much or very much. For subjects who played more than 15 hours per week, the number was 89%.

Vocabulary was the thing that was most often mentioned as having improved by gaming (80% of those who reported improvements), followed by listening and reading (51% and 50% respectively), writing and speaking (both 26%) and finally cultural knowledge (21%). The differences between the gamer groups were drastic: all numbers improved significantly when moving from the 0-5 hours/week group to the 5-15 hours/week group and when moving from the 5-15 hours/week group to the 15+ hours/week group. Of the 15+ hours per week group, 57% said they felt their speaking skills had improved. It is unclear whether all of those subjects have actually communicated orally or whether they feel their speaking skills have improved through some other mechanism, for example through learning colloquial expressions. Nevertheless, it is obvious that my initial observation that people who play a lot tend to attribute much of their English skills to playing video games is accurate and not restricted only to the people around me.

4.4 Connections between other factors and good English grades

4.4.1 General academic success

Table 6 shows the correlations between time spent playing video games and self-reported grades from different subjects.

Table 6. Correlations between time spent playing video games and self-reported typical grades from different subjects.

| Subject | r |
|--------------------------|---------------|
| English | .329** |
| Mother tongue | -.078 |
| Mathematics | .076 |
| Swedish | -.093* |
| GPA of literate subjects | .069 |

** = statistically significant at the 0.01 level

* = statistically significant at the 0.05 level

Table 7 shows the informants' answers to the question of whether they feel they are on average better, worse or equally good at English than they are at other subjects.

Table 7. Percentage of answers by gamer group to the question "Do you feel you are better, worse or equally good at English than you are at other subjects?"

| Gamer group | N | Worse | Equal | Better |
|----------------|-----|-------|-------|--------|
| Does not play | 99 | 33% | 38% | 28% |
| 0-1 hrs/week | 148 | 32% | 34% | 34% |
| 1-5 hrs/week | 94 | 19% | 46% | 35% |
| 5-10 hrs/week | 63 | 16% | 37% | 48% |
| 10-15 hrs/week | 44 | 7% | 41% | 52% |
| 15-20 hrs/week | 28 | 0 | 21% | 79% |
| 20+ hrs/week | 19 | 0 | 26% | 74% |
| Total | 495 | 23% | 36% | 40% |

It seems that the higher English grades of active gamers cannot be explained by gamers having higher grades in general, as no correlations between time spent playing video games and the grades in math, mother tongue or Swedish or GPA of literate subjects were found. Additionally, out of the informants who played more than 15 hours per week, 0% reported having on average worse grades and 77% reported having better grades in English than in other subjects, when the averages for all informants were 23% and 40% respectively. Thus it would seem that the relationship between gamers and English is somehow special and different from their relationship with other subjects.

4.4.2 Studying other languages

A statistically significant correlation ($r = .128$, $p = .01$) was found between studying other, voluntary languages and having good English grades. A statistically significant negative correlation was found between time spent playing video games and studying voluntary languages ($r = .215$, $p = .01$). This implies that gamers are actually less interested in other languages than the average student, and so it seems that gamers having high English grades due to being generally interested in languages does not seem to be a valid explanation either. A statistically significant negative correlation

was also found between playing a lot of video games and having high Swedish grades. Thus it would again seem that it is English specifically that gamers have a special relationship with.

4.4.3 Connections to English-speaking countries or people

The results regarding connections to English-speaking countries and people were similar to those regarding studying other languages: all three variables (“Have you been to an English speaking country”, “How long was your visit”, “How often do you speak English with a friend, relative or someone else”) were found to be connected to higher English grades, but none of them were connected to playing video games. In fact, there was a statistically significant *negative* correlation between having visited an English-speaking country and playing a lot of video games. Correlations between activities related to real-life connections to English-speaking countries or people and good English grades are presented in Table 8.

Table 8. Correlations between activities related to real-life connections to English-speaking countries or people and good English grades and time spent gaming.

| Activity | r ¹ | r ² |
|---|----------------|----------------|
| Been to an English-speaking country? | .138** | -.096* |
| Length of visit | .195** | -.051 |
| Frequency of speaking English with a friend, relative or someone else | .147** | .068 |

r¹ = Correlation between activity and English grade

r² = Correlation between activity and time spent playing video games

** = statistically significant at the 0.01 level

* = statistically significant at the 0.05 level

4.4.4 Socioeconomic status

No statistically significant correlations were found between the informants’ parents’ education and grades for any subject or the GPA of literate subjects, even though according to Statistics Finland (2009) the ultimate level of education received depends fairly strongly on parental education. The reason for this is probably that the largest differences in education are not visible between students in upper secondary schools, but rather between students in upper secondary schools and students who

did not enrol in upper secondary schools in the first place. Grades might also not very accurately predict whether a student will be going on to further education.

4.4.5 Other extramural English activities

Correlations between EE activities and good English grades and EE activities and time spent playing video games are presented in Table 9.

Table 9. Correlations between EE activities and good English grades and EE activities and time spent playing video games

| Activity | r ¹ | r ² |
|---|----------------|----------------|
| Surfing the Internet mostly English | .395** | .389** |
| Watching videos without subtitles frequently | .353** | .221** |
| Watching videos on the computer mostly in English | .326** | .200** |
| Reading comics or magazines in English | .288** | .150** |
| Reading books in English | .271** | .042 |
| Reading news texts or newspapers in English | .252** | .252** |
| Reading blogs in English | .222** | .089* |
| Watching videos with English subtitles frequently | .215** | .240** |
| Watching videos on the computer frequently | .171** | .342** |
| Listening to music on the computer mostly in English | .122** | .064 |
| Reading song lyrics in English | .066 | -.078 |
| Listening to music with English lyrics frequently | .043 | -.021 |
| Surfing the Internet frequently | .029 | .086 |
| Watching videos with subtitles in some other language frequently | .021 | -.059 |
| Using computer software frequently | .012 | .004 |
| Having conversations online frequently | .009 | .230** |
| Listening to music on the computer frequently | .000 | .046 |
| Using computer software in mostly English | -.031 | .019 |
| Having conversations online mostly in English | -.034 | .011 |
| Watching videos with Finnish subtitles frequently | -.060 | -.038 |
| Using Facebook or other social networking sites mostly in English | -.061 | -.035 |
| Using Facebook or other social networking sites frequently | -.158** | -.259** |

r¹ = Correlation between activity and English grade

r² = Correlation between activity and time spent playing video games

** = statistically significant at the 0.01 level

* = statistically significant at the 0.05 level

Looking at the computer EE activities, the amount of English content in the activities seems to be more important than the overall frequency of engaging in the activity. The only variable that produced a significant correlation with high English grades based purely on frequency (i.e. regardless of whether the content was in English or Finnish) was watching videos on the computer. Even for this variable, however, the amount of English content was more important as it produced a higher correlation. For surfing the Internet and listening to music on the computer, the amount of English content in the activity was significant, but not the overall frequency. For surfing the Internet, the difference was especially striking: surfing the Internet frequently did not produce a statistically significant correlation with high English grades at all ($r = .029$), but surfing the Internet mostly in English produced the strongest correlation out of all of the variables ($r = .395$).

There was only one variable that produced a statistically significant negative correlation with high English grades: using Facebook or other social networking sites frequently. Of course, it is not probable that using social networking sites has *caused* anyone to have poorer English skills, so an alternative explanation is required. Looking at the data in more detail, it emerged that using Facebook or other social networking sites also has a statistically significant negative correlation with GPA of literate subjects ($r = -.158$, $p < .001$), meaning that frequent users of social networking sites are on average less academically successful than those who use social networking sites less frequently. Using Facebook or other social networking sites frequently is also connected negatively to several EE activities: using Facebook or other social networking sites mostly in English ($r = -.180$, $p < .001$), having conversations online mostly in English ($r = -.163$, $p < .001$), using computer software mostly in English ($r = -.170$, $p < .001$) and surfing the Internet mostly in English ($r = -.166$, $p < .001$). These factors probably explain at least some of the relationship between using social networking sites and having on average lower English grades.

Reading texts in English turned out to correlate with high English grades very well. Of the five text types listed in the questionnaire (books/short stories, comics/magazines, news texts, blogs and song lyrics), four had statistically significant correlations with good English grades. Watching English language videos without subtitles and with English subtitles also correlated well with high English

grades. This is somewhat contradictory to Sundqvist's (2009) results, which indicated that passive activities such as listening to music or watching television do not have as great an effect on language skills as activities where the learner must be active. It must be noted, however, that in her analysis Sundqvist did not separate watching videos with native language subtitles from watching videos with English subtitles or without subtitles. She did ask about this in a separate questionnaire question, but the result was that watching television or films without native language subtitles was not very common (Sundqvist 2009: 124–125), and this separation was not included in the final analysis. As can be seen in Table 9, the difference between watching videos with native language subtitles and watching videos without subtitles or with English subtitles is vast. If all the video watching variables were combined, the popularity of watching videos with native language subtitles compared to without or with English subtitles would probably drown out the higher correlations. Besides this methodological explanation, it is of course also possible that watching videos without subtitles or with English subtitles is an activity that does not lead to having better English skills, but rather only follows from it.

Out of the factors studied in chapters 4.1, 4.2, 4.3 and 4.4, only other EE activities seem to offer an alternative explanation for the higher English grades of active gamers, as several statistically significant correlations were found between various EE activities and high English grades. More importantly, the same variables that correlated with high English grades also correlated with spending a lot of time playing video games almost without exception. This might mean that gamers engage in other activities that are connected to high English grades besides gaming. Statistically it might also be possible that the activities that appear to be connected to high English grades are in fact only connected to gaming (or some other variable correlating with high English grades), which would make them appear as though they were also connected to higher English grades. Even if this was true, however, the correlations between the EE activities and gaming would have to be significantly higher for them to account for all of the correlations between different EE activities and high English grades. There are also two variables (reading books, having online conversations frequently) that do not fit into this theory as they do not correlate significantly with playing video games. Thus the EE activities that have statistically significant correlations with high English grades must be linked to higher English

grades regardless of their link to the amount of time spent playing video games. The most plausible explanation, then, is that the subjects who play a lot of video games also engage in other EE activities that are beneficial for learning English, and that it is the *combined effect* of gaming and engaging in other EE activities that leads to the highest English grades. If this is indeed the case, it might lead to an underestimation of the actual effect on English skills of those activities that gamers do not engage in, such as reading books in English.

It is important to note that good English grades correlating with playing video games and playing video games correlating with other EE activities does not automatically mean that the *same* people who play video games and have good grades also engage in other EE activities; it is even possible (although highly unlikely) that the groups are completely independent. To investigate this possibility, a model was constructed of the variables that *together* most accurately predict high English grades using stepwise linear regression analysis. In the construction of the model, all studied activity variables are used. To get as complete a picture of the variables affecting English grades as possible, studying other languages was included as well, even though it is not an activity variable or even directly have anything to do with English. Upon entering all the variables into SPSS, a significant model emerged ($F_{8,379} = 23.612$, $p < .001$). Adjusted $R^2 = .319$. Thus the model explains 31.9 percent of the total variation in English grades. The significant variables that were included in the model are shown in Table 10.

Table 10. The variables included in the model in order of strength.

| Predictor variable | Beta* | p |
|--|-------|--------|
| Time spent playing video games | .214 | < .001 |
| Using the Internet mostly in English | .182 | < .001 |
| Length of visit to an English-speaking country | .168 | < .001 |
| Watching videos on the computer mostly in English | .139 | .004 |
| Studying other languages | .129 | .004 |
| Watching English language videos without subtitles | .118 | .012 |
| Reading comics or magazines in English | .101 | .028 |
| Using Facebook or other social networking sites frequently | -.099 | .024 |

* The beta value describes the strength of a variable's influence in the model. The higher the beta value, the more influence the variable has on the model.

Overall, the model that emerged was surprisingly good; it explained almost a third of all the variation in English grades. The most influential variable in the model turned out to be time spent playing video games, even though it did not have the strongest correlation with high English grades out of all the variables. It is important to note that the beta values in the model measure the variables' influence *when all other variables are held constant*. Thus the fact that for example surfing the Internet in English had a higher correlation with English grades than playing video games, but a lower beta value, tells us that the correlation between surfing the Internet in English and having good English grades is in part due to outside factors. Most likely, the reason for the strong correlation between surfing the Internet mostly in English and having good English grades is that the variable also strongly correlates with another variable, in this case probably the amount of time spent playing video games or some other computer-related variable. Thus on the basis of the linear regression model, we can conclude that the truly best single predictor of good English grades out of all the variables studied in this paper is, in fact, time spent playing video games.

It is clear from the model that very different kinds of variables together predict English grades most accurately: the model included computer-, video-, text- and game-related variables as well as variables dealing with studying other languages and visiting English-speaking countries. Unsurprisingly, variables that were found to have the strongest correlations with good English grades such as surfing the Internet mostly in English, watching videos on the computer mostly in English and watching

videos in English without subtitles were also included in the model. The fact that studying other languages and having been to a long visit to an English-speaking country made it into the model despite them not correlating very strongly with good English grades implies that they are complementary to all the other variables. That is, the people who have good grades and high scores in these variables are different from the people who have good grades and high scores in the other variables. This also means that by themselves, the two variables have fairly poor predicting power. Only when combined with the other variables do they become important.

4.5 Gender differences in EE activities, grades and gaming

The difference between boys and girls in the amount of time spent playing video games is presented in Figure 1. As is visible from the figure, there are striking differences between the gaming habits of boys and girls: a total of 92.8 percent of female students fall into the first three gamer groups, when for male students the number is 38.8. About a third (34.4%) of the girls but only less than 2 percent of the boys reported not playing video games at all.

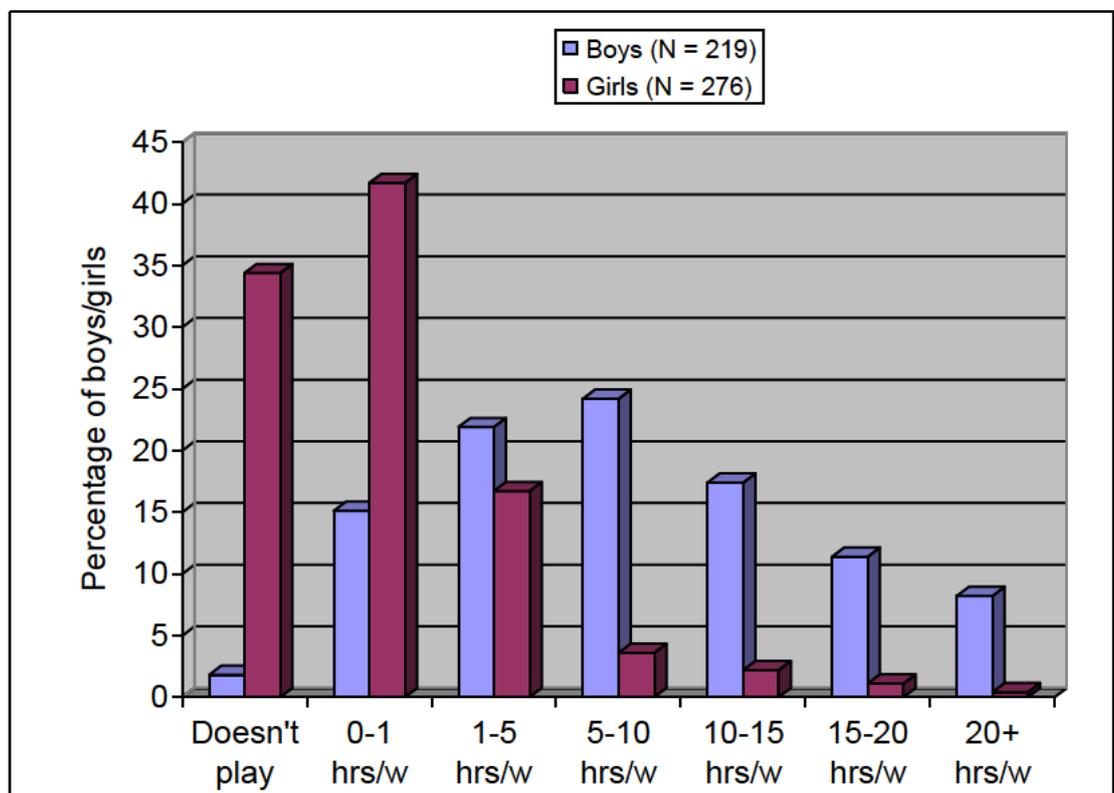


Figure 1. The amount of time spent playing video games by gender.

There were also significant differences in grades between male and female students, visible in Figure 2. Boys had higher grades in English and in mathematics, while girls had higher grades in mother tongue and Swedish. An independent samples t-test revealed that the differences in grades between boys and girls were statistically significant for English ($t = 5.853, p < .001$), mother tongue ($t = 3.316, p = .001$), mathematics ($t = 3.619, p < .001$) and Swedish ($t = 3.574, p < .001$) but not for GPA of literate subjects ($t = 1.892, p = .059$). The average English grade was 8.17 for boys and 7.50 for girls.

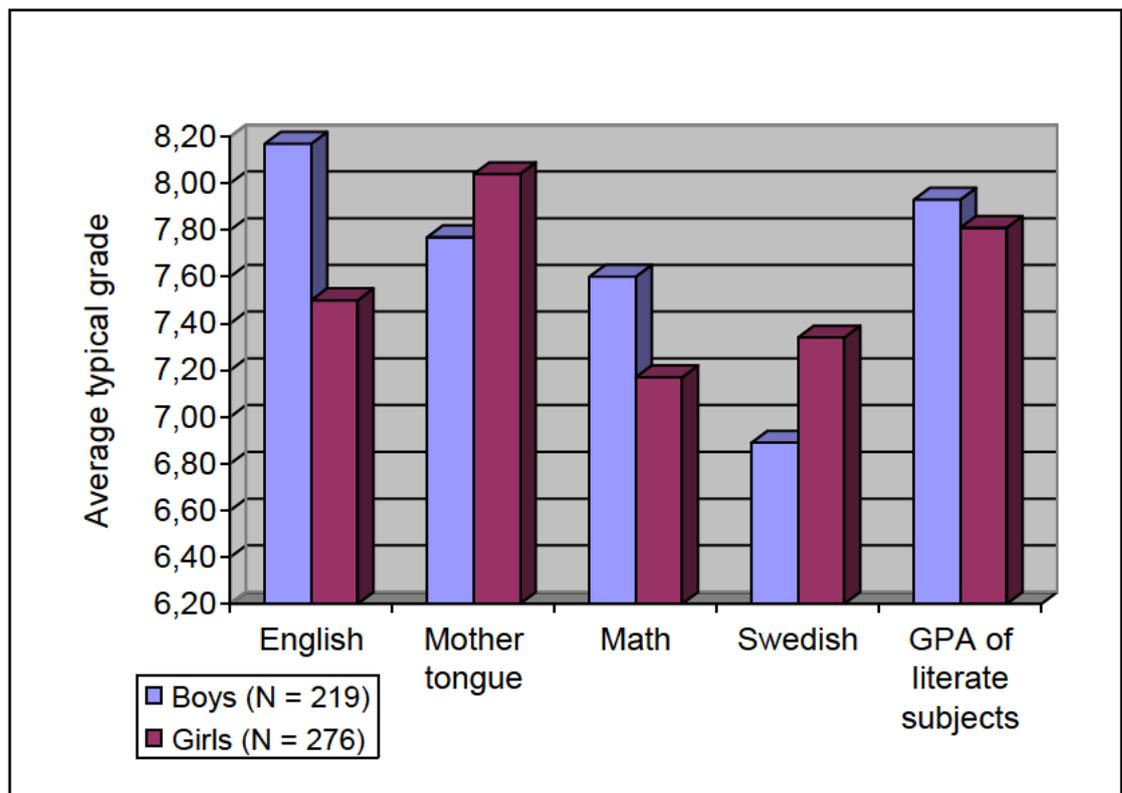


Figure 2. Average typical grades for each subject by gender.

The distribution of English grades is displayed by gender in Table 11.

Table 11. Distribution of English grades by gender.

| Grades | Boys (N = 219) | Girls (N = 276) |
|--------|----------------|-----------------|
| 4-6 | 8.7% | 23.2% |
| 7-8 | 46.6% | 48.6% |
| 9-10 | 44.7% | 28.3% |

Game genres were divided quite clearly into genres favored by girls and genres favored by boys. The top four genres for girls were browser-based games, music games, building and life simulation games and platformer games. In the three first mentioned genres, girls clearly outnumbered boys. The top four genres for boys were first-person shooter games, browser-based games, role-playing games and strategy games. Massively multiplayer online games, driving and simulation games and sports games were also much more popular among boys than girls. All the played video game genres are depicted by gender in Figure 3.

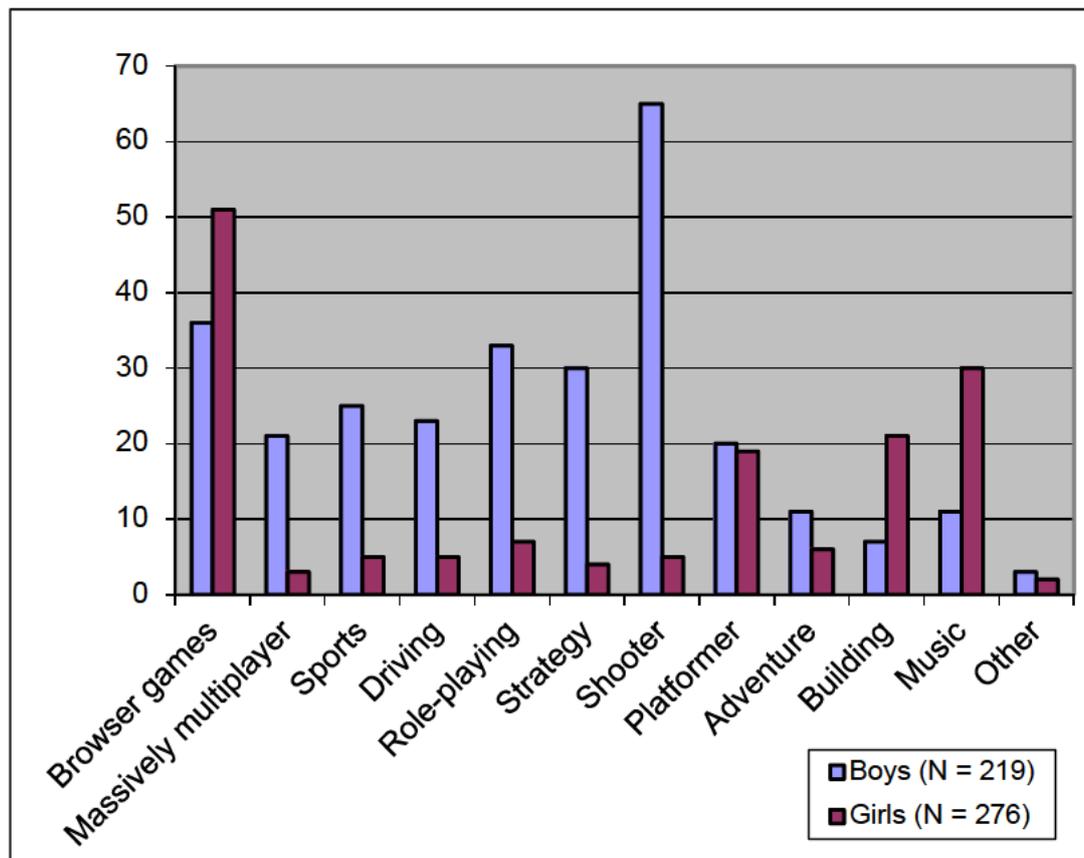


Figure 3. Played video game genres by gender. The figures are percentages.

In Table 12, the informants' average answers to questionnaire question 9 (how frequently do you use computers for the following activities?) have been coded into numerical form, where 3 = daily, 2 = once or a few times a week, 1 = once or a few times a month, 0 = less than once a month or never. The differences between boys and girls were most noticeable for social networking, watching videos and having online conversations. According to an independent samples t-test, these differences were also statistically significant (for social networking $t = 5.461$, $p < .001$, watching videos $t = 6.824$, $p < .001$ and online conversations $t = 2.506$, $p = 0.013$), while the

small differences in using computer software, surfing the Internet and listening to music were not.

Table 12. Frequency of doing computer EE activities by gender. The higher values of statistically significant differences have been highlighted.

| Activity | Boys | Girls |
|----------------------|-------------|-------------|
| Social networking | 2.37 | 2.81 |
| Online conversations | 2.03 | 1.77 |
| Using software | 1.49 | 1.53 |
| Surfing the Internet | 2.76 | 2.69 |
| Watching videos | 2.10 | 1.57 |
| Listening to music | 2.57 | 2.56 |

Average scores by gender for questionnaire question 10 (how much English is involved in your computer EE activities) are displayed in Table 13. The answers have been coded into numerical form: 4 = almost all content in English, 3 = most of the content in English, 2 = some of the content in English, 1 = small part of the content in English, 0 = does not include English. For proportion of English content in computer activities, a statistical significance was found only for surfing the Internet ($t = 7.959$, $p < .001$) where boys scored 2.94 and girls scored 2.30 out of a possible 4.00.

Table 13. Proportion of English language content in computer EE activities by gender. The higher values of statistically significant differences have been highlighted.

| Activity | Boys | Girls |
|----------------------|-------------|-------|
| Social networking | 1.81 | 2.18 |
| Online conversations | 1.66 | 1.68 |
| Using software | 2.34 | 2.11 |
| Surfing the Internet | 2.94 | 2.30 |
| Watching videos | 3.27 | 3.15 |
| Listening to music | 3.42 | 3.46 |

Average scores for questionnaire item 12 (how often do you read the following texts in English) are displayed in Table 14 in numerical form: 3 = daily, 2 = once or a few times a week, 1 = once or a few times a month, 0 = less than once a month or never. Statistically significant differences were obtained for reading books/short stories ($t = 2.264$, $p = .024$), news texts/newspapers ($t = 5.667$, $p < .001$) and song lyrics ($t = 5.132$, $p < .001$). Girls scored higher in books/short stories and song lyrics, while boys scored higher in news texts.

Table 14. Frequency of reading different texts in English by gender. The higher values of statistically significant differences have been highlighted.

| Activity | Boys | Girls |
|---------------------|-------------|-------------|
| Books/short stories | 0.40 | 0.57 |
| Comics/magazines | 0.80 | 0.72 |
| News/newspapers | 1.24 | 0.75 |
| Blogs | 0.93 | 0.88 |
| Song lyrics | 1.47 | 1.93 |

Average scores for questionnaire item 13 (how often do you watch English language videos and with what kind of subtitles?) are displayed in Table 15 in numerical form: 3 = daily, 2 = once or a few times a week, 1 = once or a few times a month, 0 = less than once a month or never. Statistically significant differences were found for watching videos with English subtitles ($t = 2.628$, $p = .009$) and watching videos with no subtitles ($t = 3.314$, $p = .001$). Boys scored higher in both activities.

Table 15. Frequency of watching English language videos with different subtitles. The higher values of statistically significant differences have been highlighted.

| Activity | Boys | Girls |
|-------------------------------|-------------|-------|
| Finnish subtitles | 2.24 | 2.26 |
| English subtitles | 0.92 | 0.70 |
| No subtitles | 1.39 | 1.08 |
| Subtitles in another language | 0.08 | 0.16 |

The result that boys had substantially higher English grades than girls was surprising, as girls are often thought to be somehow more linguistically oriented than boys and, in general, better at languages. When looking at the rest of the data, however, the

result becomes more understandable. Out of the eleven EE activities that had statistically significant correlations with higher English grades (see Table 9), boys had statistically significant higher scores in five, whereas girls only had higher scores in two (see Tables 12, 13, 14 and 15). Of these two, one was social networking which was the only variable that had a *negative* correlation with high English grades and the other was reading books in English, which had very low scores for both genders, making its impact on average grades small. Even though the magnitude of these results is surprising, they are in line with the study by Sylvén (2004), where boys outperformed girls in vocabulary tests and were also more active in EE activities.

Another factor possibly explaining the boys' higher grades is of course gaming, which is almost exclusively a boys' hobby and correlates very well with high English grades. To find out how much of the difference between the English grades of the boys and the English grades of the girls can be accounted for simply by the fact that almost all of the most active gamers are boys, we need to go back to the data and compare the average grades for boys and girls in the second and third gamer groups (plays 0-1 hrs/w and plays 1-5 hrs/w). It is not possible to compare the grades in the other gamer groups as there are not enough boys in the first group and not enough girls in the higher groups to reach reliability. Looking at the two aforementioned groups, their combined English grade averages are 7.95 for boys (N = 81) and 7.54 for girls (N = 161). According to an independent samples t-test, the difference was statistically significant ($t = 2.333$, $p = 0.02$). From this result we can see that even though the boys still had higher grades on average, the difference (0.41) is not quite as large as when the higher gamer groups are included (0.67, see Figure 2). Thus it would seem that the group of boys that plays a lot of video games is at least to some extent responsible for the higher average English grades of the boys.

To see if different EE activities (and other variables such as other studied voluntary languages) were connected differently to good English grades for girls and boys, the correlations between the activities and good English grades for girls and boys were studied separately. In Table 16 are presented all variables that had a statistically significant correlation with good English grades for *both* boys and girls in order of difference in correlations. In Table 17 are presented all variables that had a

statistically significant correlation with good English grades for only *either* boys or girls in order of strength for each gender. Thus the differences in Table 17 are more drastic and therefore more important than the differences in Table 16.

Table 16. All variables included in the study that had a statistically significant correlation with good English grades for both boys and girls, arranged by difference in correlation between genders. The higher value in each pair has been highlighted.

| Variable | r (girls) | r (boys) | Diff. |
|--|---------------|---------------|-------------|
| Time spent playing video games | .177** | .299** | .122 |
| Reading blogs in English | .268** | .151* | .117 |
| Watching videos in English with no subtitles frequently | .381** | .265** | .116 |
| Surfing the Internet mostly in English | .298** | .410** | .112 |
| Watching videos on the computer mostly in English | .364** | .254** | .110 |
| Reading news texts in English | .172** | .245** | .073 |
| Watching videos in English with English subtitles frequently | .171** | .226** | .055 |
| Reading comics or magazines in English | .304** | .251** | .053 |
| Frequency of speaking English with someone | .184** | .133* | .051 |
| Studying other languages | .231** | .197** | .034 |
| Massively multiplayer online games | .193** | .160* | .033 |
| Reading books in English | .303** | .314** | .011 |
| Role-playing games | .255** | .264** | .009 |

** = statistically significant at the 0.01 level

* = statistically significant at the 0.05 level

Table 17. All variables included in the study that had a statistically significant correlation with good English grades for only either boys or girls in order of strength for each gender.

| Variable | r (girls) | r (boys) |
|---|---------------|----------------|
| Using computer software mostly in English | | .235** |
| Having online conversations mostly in English | | .212** |
| Using Facebook or other social networking sites mostly in English | | .169* |
| Strategy games | | .147* |
| Platformer games | | .143* |
| Browser-based games | | -.134* |
| Watching videos in English with Finnish subtitles frequently | | -.139* |
| Using Facebook or other social networking sites frequently | | -.192** |
| Length of visit to an English-speaking country | .280** | |
| Has been to an English-speaking country? | .234** | |
| Reading song lyrics in English | .188** | |
| Building and life simulation games | .170** | |
| Listening to music on the computer mostly in English | .163** | |
| Watching videos on the computer frequently | .145* | |
| Listening to music with English lyrics frequently | .142* | |

** = statistically significant at the 0.01 level

* = statistically significant at the 0.05 level

As can be seen from the tables, some activities had strong correlations with high English grades for girls but not for boys, and vice versa. Playing browser-based games, watching English language videos with Finnish subtitles and using social networking sites frequently all had negative correlations with high English grades for boys, but not for girls. This implies that girls engage (or do not engage) in these activities regardless of their English grades, whereas for boys engaging in these activities is a sign of having on average poorer English grades.

When looking at game genres, role-playing games and massively multiplayer online games correlated with good English grades for both boys and girls, whereas strategy and platformer games did so only for boys, and building and life simulation games only for girls. Browser-based games, which did not correlate with English grades with statistical significance for all subjects (see Table 3), did however have a

statistically significant negative correlation when looking only at boys. The reason for this is probably that for girls, playing browser-based games is very common regardless of English grades. On the other hand, the most common genre among boys, shooter games, which did have a statistically significant correlation for all subjects, did not do so among boys alone. Thus it seems the original correlation between shooter games and good English grades was simply due to boys playing a lot of shooter games and boys (and especially those who play a lot) also having good grades in general.

One thing to note is that all variables that produced statistically significant positive correlations for boys but not for girls are related to computers or games, whereas for the girls, four out of the seven variables did not have anything to do with computers or games (having visited an English-speaking country, length of visit to English-speaking country, reading song lyrics in English, listening to English language music). The fact that there are so many variables that correlate with good English grades only for one of the genders shows how different the factors behind good English grades are for boys and girls.

Using stepwise linear regression analysis, models predicting good English grades were constructed for girls and boys separately. Variables from questionnaire question 1 and questions 4–15 were used in the models. Variables such as grades from other subjects and answers to the question of whether gaming has improved their English skills were left out because of their obvious connections to English grades. For the boys, a significant model emerged ($F_{3,158} = 21.104$, $p < .001$). Adjusted $R^2 = 0.273$. Thus the model explains 27.3 percent of the total variation in English grades. The significant variables that were included in the model are presented in Table 18.

Table 18. Variables included in the model predicting good English grades, boys only.

| Predictor variable | Beta | p |
|---|------|--------|
| Surfing the Internet mostly in English | .410 | < .001 |
| Time spent playing video games | .226 | .001 |
| Time spent in an English-speaking country | .155 | .024 |

A significant model emerged for the girls as well ($F_{6,219} = 18.559, p < .001$). Adjusted $R^2 = 0.319$. The significant variables that were included in the model are presented in Table 19.

Table 19. Variables included in the model predicting good English grades, girls only.

| Predictor variable | Beta | p |
|---|------|--------|
| Watching videos without subtitles | .213 | < .001 |
| Watching videos on the computer mostly in English | .213 | < .001 |
| Studying other languages | .200 | < .001 |
| Playing role-playing games | .197 | .001 |
| Time spent in an English-speaking country | .181 | .002 |
| Playing building and life simulation games | .143 | .010 |

The differences between boys and girls and the factors influencing their English grades are further evidenced by these linear regression models. In the model for the boys, only three variables (surfing the Internet mostly in English, time spent playing video games and time spent in an English-speaking country) could be used to account for 27.3 percent of the total variation in English grades. Looking at the model in more detail, there was a clear tendency to use surfing the Internet in English and time spent gaming plus one variable that did not have anything to do with computers: when the variable “time spent in an English-speaking country” was removed, it was replaced by “studying other languages”. When that variable was removed, it was replaced by “reading books in English”, then by “reading news texts”. Finally, when “reading news texts” was removed, the model simply dropped out the third variable and only used “surfing mostly in English” and “time spent playing video games”. This model still accounted for 25.3 percent of the total variation in English grades. This clearly suggests that those informants who played a lot of video games and surfed the Internet in English *and* engaged in one of the aforementioned non-computer activities had the very best grades of all the boys. The fact that only three variables were selected into the model indicates that the boys who have high grades are very homogenous as a group: boys who engage in these three activities most actively tend to always have the best grades, with few exceptions.

The fact that after removing the aforementioned non-computer variables the model still only used two variables shows that there is considerable overlap in the computer- and video-related variables, i.e. that the same people who engage in those activities also engage in the aforementioned two activities (surfing the Internet in English and playing video games). In this regard, surfing the Internet mostly in English seems to be the ultimate predictor variable out of the computer-related EE activities: if it is removed, it is replaced by several different computer EE activities and the model instantly becomes significantly more complex. Thus using “surfing the Internet mostly in English” seems to encompass all the other computer-related EE activities for the boys.

The model for the girls was not nearly as simple as the model for the boys, and no single dominating variable could easily be identified. There were, however, several influential variables in the model, and the model for the girls predicted more of the total variance in English grades (31.9%) than the model for the boys. Like in the boys’ model, if the only computer-related EE activity (watching videos on the computer mostly in English) was removed, it was replaced by two other computer-related EE activities (surfing the Internet frequently and surfing the Internet mostly in English). If these two were also removed, they were not replaced at all, i.e. the variables in the model were the same as initially, but without “watching videos on the computer mostly in English”. So, in this model there were no computer-related EE activities at all, but the model still explained 27.6 percent of the variation in English grades. If we construct a similar model (a model with all computer-related EE activities removed) for the boys, it only explains 20.7 percent of the variation in English grades. Going even further and removing the variable “time spent playing video games”, the boys’ model only explains 18.5 percent of the variation. Thus it can be concluded that engaging in computer-related EE activities and playing video games is a great deal more important for having higher than average English grades for boys than it is for girls.

For the girls, the variables in the model can be divided roughly into three categories: watching videos (watching videos without subtitles, watching videos on the computer mostly in English), game genres (role-playing games, building and life simulation games) and background variables (studying other languages, time spent in

an English-speaking country). I count "time spent in an English-speaking country" as a background variable as it's not an "activity" per se, but rather a part of the informant's background. If we exclude the background variables from the model, they are not replaced by any other variables, confirming that these variables are complementary to all other variables. Thus we are left with a model with the two video-related and the two game-related variables, explaining a total of 24.7% of all the variation in English grades. If one or both of the game genres are removed, they are replaced by other game genres and computer-related EE activities, so it seems that some game-related variables are good predictors of high English grades for the girls as well. Surprisingly, reading comics or magazines did not make it into the girls' model, even though it had a strong correlation with good English grades. The reason for this is probably collinearity with other variables: reading comics/magazines has statistically significant correlations with watching videos without subtitles ($r = .339$, $p < .001$), playing role-playing games ($r = .243$, $p < .001$), watching videos on the computer mostly in English ($r = .242$, $p < .001$) and playing building and life-simulation games ($r = .139$, $p = 0.21$). Reading comics/magazines is thus encompassed by the other variables and brings nothing new to the model.

4.6 Limitations and reliability

When interpreting the results of this study, one must always bear in mind that regardless of how carefully the questionnaire was designed, all the data is based on student self-reports, and is thus susceptible to errors. Without a control group it is impossible to say how much, if at all, the students' reports differ from their actual performance. Slight misestimation across all informants does not severely endanger the reliability of this study. If, however, some group consistently overestimated their engagement in some activity, and another group underestimated their involvement in it, the results might be somewhat different. There is no way of knowing if, for example, male students overestimated or rounded up their English grades while female students underestimated them. No obvious evidence of such behavior could be seen in the data, as male students scored higher in some activities and subjects and female students in turn scored higher in other activities and subjects, but the possibility cannot be ruled out. Whatever the case, the main results of the study are

quite clear, and it is unlikely that correcting the possible misestimations could change the results of this study in any significant way.

Another problematic issue with this study is that while it often talks about *English skills*, no actual language testing takes place, and the term English skills is used synonymously with English *grades*. In fact, “English skills” can only be talked about tentatively, and it should always be kept in mind that what is being measured are only teachers’ subjective evaluations of the students’ skills, which are subject to bias and are not necessarily comparable: someone who got an eight from a course might have gotten a nine from the same course with the same skills if they had had a different teacher. English skills and English grades are obviously not always the same thing, as a student may have excellent English skills but simply fail at an exam or generally receive grades that do not represent their skills because of various factors. There are, however, several redeeming factors in the study. Firstly, the sample is large enough to drown out any single teachers giving abnormally high or low grades. Secondly, the grades asked about in the questionnaire are already averages of several course grades, making single teachers’ grades even more insignificant. Thirdly, Finnish upper secondary school English teachers are, on average, very well and uniformly trained: according to a 2008 survey, almost 94 percent of all upper secondary school teachers had obtained the required master’s degree in their main subject (Opetushallitus 2008). They are thus highly qualified to assess their students and give them grades representative of their skills. These factors considered I am quite confident that the averages of average grades investigated in this study are on a group level reliably comparable to each other, and to some extent represent the students’ overall English skills.

Considering that one of the main aims of this study is to rule out different factors such as general academic success or other extramural English activities as explanations for the correlation between playing video games and having good grades, the study has one apparent weakness: it does not take into account individual learner differences. The most important individual factor is motivation, which has time and again been shown to have a connection to linguistic achievement (Dörnyei 2001). The reason for why it was left out is that measuring motivation in L2 learning is an exhaustingly huge area of research, of which countless volumes have been

written over several decades (Mitchell and Myles 2004: 26). Measuring motivation is never straightforward, and the relationship between it and linguistic achievement is intricate and dynamic with several other factors influencing it (Lightbown and Spada 2006: 63). Trying to measure motivation would have meant expanding the questionnaire by at least two pages and even then obtaining reliable results would have been difficult. It truly is a shame that motivation had to be excluded from this study, as I believe that motivation is an important factor behind the connection between playing video games and having high grades (see chapter 2.3).

Finally, it must again be emphasized that on the basis of this study it can by no means be claimed that playing video games or engaging in certain EE activities leads to better English skills. As Sundqvist puts it, a study such as this cannot answer the question of “which is the chicken and which is the egg” (Sundqvist 2009: 31), i.e. whether learners’ skills improve thanks to EE activities or whether learners with good English skills simply engage in EE activities more. The purpose of this study has only been to investigate the relationship between good grades and playing video games, not to establish a definite causality between the two. Of course, with such a strong correlation between gaming and English grades, it would be unreasonable to assume that engaging in EE activities would not have at least *some* effect on a learner’s English skills, since at least reading books has been found to improve English skills (Arnold 2009), and many EE activities involve a lot of reading.

6 Conclusion

6.1 Summary of results

On average, informants who played a lot of video games had statistically significantly higher English grades than informants who did not. Playing certain types of games, most notably role-playing games, was also connected to higher English grades. Gamers themselves feel that playing video games has improved their English skills significantly: out of the very active gamers who play more than 15 hours a week, 89% felt that gaming has improved their English skills by quite much or very much. Even out of the informants who only played up to 5 hours a week, 78% felt that gaming had improved their English skills at least to some extent, suggesting that even smaller amounts of time spent playing video games might be beneficial. Vocabulary was the area of language most often mentioned as having improved by gaming. Of the very active gamers, 83% felt that their listening comprehension skills had been improved by gaming. The number was 87% for reading, 60% for writing and 57% for speaking. All numbers were much lower for gamers who only played 0-5 hours or 5-15 hours per week.

The higher grades of gamers could not be explained by gamers being in general more academically successful or interested in languages, having higher socio-economic status or having connections to English-speaking countries or people. There were, however, statistically significant correlations between having good English grades and engaging in certain extramural English activities. More importantly, the same variables that correlated with high English grades also correlated with the time spent playing video games almost without exception. The fact that gamers seem to also engage actively in EE activities might in part explain some of the higher grades of gamers. Playing video games was, however, found to be the single best predictor of good English grades when all other variables were held constant. In total, the variables studied in this thesis could account for almost a third of the total variation in English grades.

Surprisingly, boys had significantly higher English grades than girls. Boys also played video games a lot more than girls, and they played games from the genres that were connected to higher English grades more than girls. Additionally, boys engaged

more actively in several extramural English activities that were connected to higher English grades. At least some of the better grades of the boys can be attributed to the group of boys that plays a lot of video games, but even when the effect of gaming was controlled, boys still had on average higher English grades.

There were many variables that were connected to higher English grades for only one of the genders, indicating that the factors influencing English grades are somewhat different for boys and for girls. Variables that correlated with high English grades for boys but not for girls included mostly computer- and game-related variables, whereas variables that were important for the girls but not for the boys included watching videos, listening to music and reading song lyrics as well as background variables such as whether they studied other languages. As a group, boys were more homogenous than girls. Over 25 percent of the total variation in the boys' English grades could be explained by only two factors: how much time the boys spent playing video games and how much of the content was in English when surfing the Internet.

6.2 Conclusions and implications for further research

Based on the results of this study, I argue that there is a definite and undeniable connection between learning English and playing video games among upper secondary school students from Southern Finland. This does not automatically lead to the conclusion that playing a lot of video games results in higher English grades, but it is certainly one possible explanation. In this thesis I have also argued that other studies, including the most influential language learning theories, support this conclusion. However, due to the lack of other similar studies, the results of this study are still only preliminary and there are many open questions regarding the link between gaming and English grades, and longitudinal studies connecting gaming to actual linguistic performance are needed to further confirm the connection. More studies are also needed to shed light on the actual factors behind the higher grades. One especially interesting issue concerns the significance of gaming *communities* to gamers' learning. From the results of this study we have seen that there is a link between gaming and having conversations online (see Table 9), and Leppänen (2007) and Leppänen and Nikula (2008) have argued convincingly that youth

communities often play a large part in the development of young people's English skills. Could the fairly large gap between the average English grades of active gamers (8.10) and hardcore gamers (8.79), for example, be explained by more active participation in gaming communities? Future research should in general concentrate on active and hardcore gamers and their actual learning processes and habits: What kinds of linguistic items do the players learn from games? Are single-player games as good sources of extramural English as multiplayer games or vice versa? Does gaming have an effect on motivation? How much does one need to play for learning to take place? Now that a general connection between grades and gaming has been established, deeper and more detailed research needs to be done to get answers to these types of questions.

Playing video games might sound like a niche phenomenon, or something that does not need to be taken seriously. In my experience, however, the number of people who feel that they have learned more English from video games than from all their years in school is steadily growing. Should we not explore this resource and see what video games have to offer to language learning and teaching? All sorts of board and word games are already used in our classrooms, and reading English language books or newspapers outside the classroom is regarded by most teachers as beneficial, and a sign of interest towards the English language and English language cultures. Teachers should recognize that playing video games is no different from these activities. The same applies to the makers of teaching materials: textbooks often deal with other forms of entertainment and culture such as photography, fashion, poetry, music or films, but hardly ever video games.

There is more than enough evidence that extramural English in general can have a huge effect on a learner's English skills. This should be more widely recognized by Finnish educators, and EE should be taken more seriously in classrooms as well. Teachers should not only give their students the occasional book reading assignment, but also smaller reading, watching, listening and playing assignments. Students should be allowed to engage in the EE activity of their choice and they should be given more credit for their EE activities. In an increasingly English world the possibilities are limitless; we just need to figure out how to best make use of them.

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Appendix A: Full ANOVA post-hoc results (Tukey's HSD)

| Group | Comparison group | Group mean | Mean diff. | Std. error | p |
|-----------------|------------------|------------|------------|------------|--------|
| Non-gamers | Casual gamers | 7.28 | .395 | .151 | .045 |
| | Active gamers | | .820 | .177 | < .001 |
| | Hardcore gamers | | 1.504 | .224 | < .001 |
| Casual gamers | Non-gamers | 7.68 | .395 | .151 | .045 |
| | Active gamers | | .425 | .147 | .021 |
| | Hardcore gamers | | 1.110 | .202 | < .001 |
| Active gamers | Non-gamers | 8.10 | .820 | .177 | < .001 |
| | Casual gamers | | .425 | .147 | .021 |
| | Hardcore gamers | | .684 | .202 | .011 |
| Hardcore gamers | Non-gamers | 8.79 | 1.504 | .224 | < .001 |
| | Casual gamers | | 1.110 | .202 | < .001 |
| | Active gamers | | .684 | .222 | .011 |

Appendix B: The questionnaire

Note: It is not possible to accurately reproduce the questionnaire here as it was in its original format. Originally, the questionnaire included two double-sided papers, and no questions were split onto two or more pages.

Tämä kyselytutkimus käsittelee lukiolaisten digitaalisten pelien pelaamista ja pelaamisen yhteyttä englannin kielen taitoon. Digitaalisiin peleihin luetaan esimerkiksi kaikki PC:llä tai Macilla, PlayStationilla, PSP:llä, Xboxilla, Nintendo Wiillä tai DS:llä, iPadilla tai iPhonella tai muilla puhelimilla pelattavat pelit, mutta **myös kaikki muut elektroniset pelit**. Myös Facebookissa ja muualla Internetissä pelattavat pelit luetaan mukaan. Tutkimuksen **vastaukset ovat täysin nimettömiä**, eikä niitä luovuteta kenenkään muun kuin tutkijan käyttöön. Jos sinulla on tutkimuksesta tai kyselylomakkeesta jotain kysyttävää, ota tutkijaan yhteyttä sähköpostilla.

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1. Arvioi kuinka monta tuntia **viikossa** käytät digitaalisten pelien pelaamiseen **keskimäärin**.

- En pelaa lainkaan (siirry kohtaan 6)
- 0-1 tuntia
- 1-5 tuntia
- 5-10 tuntia
- 10-15 tuntia
- 15-20 tuntia
- Yli 20 tuntia

2. Koetko, että digitaalisten pelien pelaaminen on kehittänyt englannin kielen taitojasi?

- Kyllä, hyvin paljon
- Kyllä, melko paljon
- Kyllä, jonkin verran
- En (siirry kohtaan 4)
- En osaa sanoa (siirry kohtaan 4)

3. Mitä seuraavista englannin kielitaitosi osa-alueista digitaalisten pelien pelaaminen on mielestäsi kehittänyt? Valitse niin monta kuin haluat.

- Sanasto
- Kuullunymmärtäminen
- Luetunymmärtäminen
- Kirjoittaminen
- Puhuminen
- Kulttuurintuntemus
- En osaa sanoa

4. Minkälaisia pelejä pääosin pelaat? Valitse maksimissaan kolme.

- Selainpelejä (Internetin pikkupelit, Facebook-pelit yms.)
 - Massiivimoninpelejä (World of Warcraft, Lord of the Rings Online yms.)
 - Urheilupelejä
 - Auto- ja simulaattoripelejä
 - Roolipelejä (Diablo, Dragon Age, Final Fantasy, Mass Effect yms.)
 - Strategiapelejä (Total War, Civilization, Age of Empires, Starcraft 2 yms.)
 - Räiskintäpelejä (Quake, Call of Duty, Medal of Honor yms.)
 - Tasohyppelypelejä (Mario-pelit, Prince of Persia, Mirror's Edge yms.)
 - Seikkailupelejä (Monkey Island, Sam & Max yms.)
 - Rakentelu- ja elämsimulaatiopelejä (SimCity, The Sims, Tycoon-pelit yms.)
 - Musiikkipelit (Guitar Hero, SingStar, Rock Band yms.)
 - En osaa luokitella, tai muu genre (listaa pelien nimiä):
-

5. Milloin aloitit videopelien pelaamisen?

- Alle 7-vuotiaana
- 7-12 -vuotiaana
- 12-15 -vuotiaana
- Myöhemmin kuin 15-vuotiaana
- En osaa sanoa

6. Opiskeletko tai oletko opiskellut yläkoulussa ja/tai lukiossa **valinnaisia vieraita kieliä** pakollisten kielten lisäksi?

- En ole opiskellut muita kieliä
- 1 muuta kieltä
- 2 muuta kieltä
- 3 tai useampaa muuta kieltä

7. Oletko käynyt tai asunut jossain englanninkielisessä maassa?

- En ole käynyt tai asunut (siirry kohtaan 9)
- Kyllä, olen käynyt tai asunut, missä: _____

8. Kuinka pitkään olet yhteensä oleskellut englanninkielisissä maissa?

- Alle kuukauden
- 1-3 kuukautta
- 3-12 kuukautta
- Yli 12 kuukautta

9. Miten/mihin ja kuinka usein käytät tietokonetta **pelaamisen lisäksi?**

| | Päivittäin | Kerran tai muutaman kerran viikossa | Kerran tai muutaman kerran kuukaudessa | Harvemmin kuin kerran kuussa tai ei koskaan |
|---|------------|-------------------------------------|--|---|
| Facebookiin ja muihin yhteisöpalveluihin | | | | |
| Keskusteluun (Skype, Messenger, IRC, keskustelufoorumit yms.) | | | | |
| Hyötyohjelmien käyttöön (Word, Excel, Photoshop yms.) | | | | |
| Muuhun Internetin selailuun | | | | |
| Elokuvien/sarjojen/videoiden tms. katseluun | | | | |
| Musiikin kuunteluun | | | | |

Muuhun, mihin?

| | | | | |
|----|--|--|--|--|
| 1) | | | | |
| 2) | | | | |
| 3) | | | | |

10. Kuinka paljon olet tekemisissä englannin kielen kanssa edellä mainituissa aktiviteeteissasi? Jos et harrasta jotain lainkaan, jätä kyseinen rivi tyhjäksi.

| | Lähes kaikki sisältö englanniksi | Suuri osa sisällöstä englanniksi | Osa sisällöstä englanniksi | Pieni osa sisällöstä englanniksi | Ei sisällä englantia |
|----------------------------------|----------------------------------|----------------------------------|----------------------------|----------------------------------|----------------------|
| Facebook ja muut yhteisöpalvelut | | | | | |
| Keskustelu | | | | | |
| Eri hyötyohjelmat | | | | | |
| Internetin selailu | | | | | |
| Elokuvat/sarjat/ videot tms. | | | | | |
| Musiikin kuuntelu | | | | | |

Mainitsemasi muut aktiviteetit:

| | | | | | |
|----|--|--|--|--|--|
| 1) | | | | | |
| 2) | | | | | |
| 3) | | | | | |

11. Puhutko englantia ystävän, sukulaisen tai jonkun muun kanssa?

- Kyllä, päivittäin
 Kyllä, kerran tai muutaman kerran viikossa
 Kyllä, kerran tai muutaman kerran kuukaudessa
 Kyllä, harvemmin kuin kerran kuukaudessa
 En

12. Mitä seuraavista teksteistä luet vapaa-ajallasi englanniksi ja kuinka usein? Ota huomioon myös tietokoneella luetut tekstit.

| | Päivittäin | Kerran tai muutaman kerran viikossa | Kerran tai muutaman kerran kuukaudessa | Harvemmin kuin kerran kuussa tai ei koskaan |
|---|------------|-------------------------------------|--|---|
| Kirjoja tai novelleja englanniksi | | | | |
| Sarjakuvia tai aikakauslehtiä englanniksi | | | | |
| Uutisia tai sanomalehtiä englanniksi | | | | |
| Blogeja englanniksi | | | | |
| Laulujen sanoja englanniksi | | | | |

Muita tekstejä englanniksi, mitä ja kuinka usein?

| | | | | |
|----|--|--|--|--|
| 1) | | | | |
| 2) | | | | |
| 3) | | | | |

13. Millaisilla tekstityksillä ja kuinka usein katselet englanninkielisiä elokuvia tai TV-sarjoja vapaa-ajallasi? Ota huomioon myös tietokoneella katsotut ohjelmat.

| | Päivittäin | Kerran tai muutaman kerran viikossa | Kerran tai muutaman kerran kuukaudessa | Harvemmin kuin kerran kuussa tai ei lainkaan |
|-----------------------------------|------------|-------------------------------------|--|--|
| Tekstitys suomeksi | | | | |
| Tekstitys englanniksi | | | | |
| Ei tekstitystä | | | | |
| Tekstitys jollain muulla kielellä | | | | |

14. Kuunteletko vapaa-ajallasi musiikkia, jossa sanat ovat englanniksi?

- Kyllä, päivittäin
- Kyllä, kerran tai muutaman kerran viikossa
- Kyllä, kerran tai muutaman kerran kuukaudessa
- Kyllä, harvemmin kuin kerran kuukaudessa
- En

15. Millainen koulutus vanhemmillasi on?

| | Peruskoulu/ kansakoulu/ keskikoulu/ oppikoulu | Lukio tai ammattikoulu | Yliopisto tai AMK | Muu, mikä? (oppilaitos tai tutkintonimike) | En osaa sanoa |
|------|--|---------------------------|----------------------|---|------------------|
| Isä | | | | | |
| Äiti | | | | | |

16. Millaiset ovat kouluarvosanasi? Ympyröi sopivin vaihtoehto.

Tyypillinen englannin kurssin arvosanasi: 4 5 6 7 8 9 10

Tyypillinen äidinkielen kurssin arvosanasi: 4 5 6 7 8 9 10

Tyypillinen matematiikan kurssin arvosanasi: 4 5 6 7 8 9 10

Tyypillinen ruotsin kurssin arvosanasi: 4 5 6 7 8 9 10

17. Arvioi, mikä on koko todistuksesi kaikkien kurssien lukuaineiden keskiarvo. Lukuaineisiin luetaan äidinkieli, matematiikka, vieraat kielet, toinen kotimainen kieli ja reaaliaineet.

Lukuaineiden keskiarvo: _____

18. Opiskeletko matematiikan pitkää vai lyhyttä oppimäärää?

- Pitkä oppimäärä
 Lyhyt oppimäärä

19. Mikä seuraavista väittämistä sopii sinuun parhaiten?

- Olen englannissa parempi kuin muissa aineissa keskimäärin
 Olen englannissa yhtä hyvä kuin muissa aineissa keskimäärin
 Olen englannissa heikompi kuin muissa aineissa keskimäärin

20. Taustatietoja

Sukupuoli: mies nainen

Ikä: _____

KIITOS VASTAUKSISTASI! ☺