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Extramural Gaming and English Language Proficiency

The potential benefits of extramural gaming as a tool for learning English

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Abstract:
Today the majority of children and teenagers in many countries spend a great deal of time doing extramural English activities, where playing games is included. It is therefore important to study how extramural English activities affect students’ proficiency. This thesis aims to investigate how games as an extramural activity, and extramural English activities in general could benefit upper secondary EFL and ESL students’ English language proficiency. The method used was that of a systematic literature review where six studies from varying places and with participants of varying ages and levels of education were analyzed and compared. The results show that five of the articles found a positive correlation between time spent on extramural English activities and English grades and/or vocabulary, while on study showed that there was no correlation between time spent on extramural English activities and development of academic vocabulary in students who had already reached a high level of proficiency. More research is needed in the field, particularly studies establishing causation rather than just correlation, longitudinal studies, as well as studies investigating whether gender is an important factor affecting the potential benefits of extramural English activities.

Keywords:
EFL, English, education, extramural activities, games, language development, language proficiency
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1. Introduction

Almost all children and teenagers today play some sort of game, whether it be computer games or video games, and many of these games are story-driven and rely on language to teach the player how to play, as well as to convey the story. Unlike the viewer of a movie, the player of a game is often forced to pay attention to the dialogue or text of a game because they might not be able to progress otherwise. Because of this, and because most games are only subtitled and not dubbed, games might prove to be a very effective tool for teaching English as a second language (ESL) or foreign language (EFL). Unfortunately not many teachers use games or gaming elements as a tool for learning. The reason for this could be that many teachers do not know what students can learn from playing games, or how to practically incorporate them in their teaching. There also seems to be a lack of awareness of just how much time students spend using their English skills in their free time, and because the time for English in the classroom is so limited, this might be what teachers should focus more on.

The number of scientific studies researching the subject of games has increased along with the number of people playing computer and console games regularly. For example, a study from 2008 found that 97% of teenagers in the US play games (Lenhart et al., 2008), a percentage which is likely even higher today with technology constantly becoming cheaper, more accessible and less niched even among adults. The percentage of teenage girls who play games was slightly lower, at 94%, while the percentage of teenage boys who play games was slightly higher, at 99% (Lenhart et al., 2008). Today there are a number of studies out there which investigate if and how students might benefit from playing games as an extramural activity, but it would be too time-consuming for all teachers to go through these studies. Therefore, it is important that these studies are summarized and reviewed to make it clear how students benefit from playing games.

The aim of this literature review is to investigate how games as an extramural activity, and extramural English in general, could benefit upper secondary EFL and ESL students’ English language proficiency. To accomplish this aim, the following research questions will be answered:

- How do extramural English activities correlate to English language proficiency?
- What can students learn from playing games in particular?
2. Background
In this section all terms which will be used in this review which need to be defined or limited are detailed. This is followed by previous research; thereafter the section ends with a brief summary of cognitive theory and constructivism.

2.1. Guidelines and information from the Swedish National Agency for Education
The Swedish National Agency for Education (Skolverket) have published a few summaries online of studies they think are relevant to the topic of extramural English. At least one of those summarized studies is included in this review – namely the study by Olsson and Sylvén (2015). There are also a few general guidelines about including students own interests when planning a course. These will be summarized here, along with the Swedish National Agency for Education’s view of English proficiency.

One of the guidelines given for planning a course in any subject is to base it on the students’ own interests, experiences and ideas about the subject (Skolverket 2016a). They have also published a piece on how important it is to use students’ interests in order to motivate them, where they write that students naturally want to learn, but that this might come into conflict with the way school and classical education is structured which might cause students to lose motivation (Skolverket 2016b). Because the Swedish National Agency for Education is quite clear in that students’ interest should shape how their education looks, it is unfortunate that gaming is hardly ever taken into account when teachers plan their courses.

The Swedish National Agency for Education does not write anything specifically about English proficiency, but it is clear from the grading criteria (2011) how they view and measure proficiency. For example, the grading criteria for English 5 is mainly focused on understanding spoken and written English, as well as writing and speaking English. It therefore seems that the Swedish National Agency for Education divide English proficiency into two main skills, receptive and productive. Reading and listening are receptive, while writing and speaking are productive. The main issue with the agency’s grading criteria is that some of them are not completely dependent on language skills, but instead reasoning and social skills. For example, a certain amount of social skill is required to receive an A, as the criteria state that the student needs to be able to “choose and use working strategies to solve problems and improve the interaction and carries it on in a constructive way” (Skolverket, 2011). It seems that student cannot be highly proficient in English according to the Swedish National Agency for Education unless they have social skills, are able to overcome any social anxieties, and can carry on a conversation.

2.2. Definitions
2.2.1. Games
In this thesis, the term “games” is defined as games played on any electronic device (computer, console, hand-held device, etc.). Games made for phones are excluded because these games are normally localized and translated, and the phone downloads the version of the game that corresponds with the set language on the phone. This, combined with how phone games are rarely designed to rely on language to convey gameplay or story, makes studies involving phone games inappropriate to the aim of this review. Single player games, co-operative games and multiplayer games are all included. Because educational games are not usually played as an extramural activity and are designed with the intention of teaching a
certain subject, it would be problematic to compare what the students learn from playing regular games (COTS games, defined below) with what they learn from playing an educational game. Educational games have therefore been excluded from this study.

2.2.2. COTS Games
COTS is an abbreviation of commercial off-the-shelf. In this case it will be used to describe games that were created for commercial and entertainment purposes, rather than educational purposes. This literature review will only examine studies on COTS games.

2.2.3. Extramural Activities
An extramural activity is essentially an activity performed outside of the classroom of formal education, but the definition might vary from study to study. For clarity, Benson and Reinders’ (2011) definition will be applied to each study reviewed here. (More about this definition under Previous Research.) In this review the focus is on activities that are performed regularly and involve the English language, but are not done for the express purpose of learning English. Studies only looking at activities where language is unnecessary or not used are therefore excluded from this review. Studies only looking at the impact of extramural classes or courses on language proficiency are also excluded.

2.2.4. Language Proficiency
There are a few disagreements among scholars on what exactly language proficiency entails, and how the term relates to fluency and language competence. This means that the different studies reviewed here are likely to use slightly varying definitions. Generally, English language proficiency can be defined as the ability to use and understand English competently and accurately (Del Vecchio, 1995).

2.2.5. Language Development
Language development will in this study simply be defined as the development of language proficiency, meaning the development of any skill that contributes to greater language proficiency such as writing, speaking, listening, reading, vocabulary, etc..

2.2.6. CLIL
CLIL is an abbreviation of Content and Language Integrated Learning. This is the practice of teaching a school subject (for example math, biology, history etc.) in a foreign language (Cambridge online dictionary, 2008). In this thesis, the foreign language in question is only English.
3. Previous Research
In this section relevant previous research, as well as guidelines and information from the Swedish National Agency for Education is summarized. Two relevant books on the topics of learning outside the classroom and how games are designed to teach are partially summarized in order to give a foundation for the field.

3.1. The dimensions of extracurricular language learning
In the first chapter Benson (2011) provides four factors which point to four dimensions of language learning beyond the classroom, and use these to help define what exactly “beyond the classroom” might entail. These factors are location, formality, pedagogy, and locus of control. He then further narrows this down into settings and modes of practice. These factors enable a reader to tell what scope of the field different studies actually focus on, seeing as the term “extramural” can be very vague. These terms will be used in this review to pinpoint the definition of extramural activities they each use.

The first of the factors is location. According to Benson (2011), the terms extramural and extracurricular both depend heavily on location, as they both are defined as outside the classroom. Location in this case does not necessarily mean physical location, but can also mean time. It does not necessarily mean that there is no teacher involved, as extracurricular or extramural learning can still involve the classic teacher-student relationship. It instead puts an emphasis on the student learning in their free time. A student taking an English course outside of their mandatory school can be counted as learning extracurricularly, even though the classroom setting is essentially the same.

In the case above, it could be argued, contrary to what Benson (2011) writes, that the factors which mainly control the terms extracurricular and extramural are the locus of control and the level of formality. An extracurricular course taken at, for example, an institution moves the level of control away from the teacher to the student, as the student chooses to take the course, chooses the institution, and make up their mind on whether they want to do the course or not. The student also has more control than a teacher in mandatory education as a teacher of an extracurricular course is financially dependent on making sure the student is happy enough with the learning experience that they do not change to another institution or stop taking the class. This can also be said to be a consequence of the level of formality. The term formality has to do with societal structures. An extracurricular course at an institution might not count when the student is applying for a university because it is not seen as a part of formal education. If the definitions of the terms extracurricular and extramural were dependent solely on the level of formality, it could be defined as education not taking place in a government sanctioned school that provides the students with grades which he or she can use to apply to other schools.

Pedagogy of course refers to how the extramural learning opportunity is being taught by the person or thing assuming the role of the teacher. Benson (2011) argues that the definition of learning requires there to be a “teacher”, but this teacher might not be easily recognizable as the extramural activity might not be intended as a learning experience. A book, a movie or a computer program might function as the teacher as they can teach the student something about English - whether it be vocabulary, pronunciation, spelling or grammar – even if the role of the teacher is not the one we are used to. Because the teacher is so different from an ordinary school teacher, the pedagogy is also different. The role of the teacher in extramural learning does not need to be as unusual as that though. A study (Kuure 2011) is described in the book where the native-speaking English players of a multiplayer game take on the role as teachers, and non-
native speaking players take on the role as the students, this through the voice and text chat of the game.

As previously stated, Benson (2011) then narrows these terms down to two broader factors. These are the setting, and the modes of practice. Benson defines these as the following:

**Setting:** An arrangement for learning, involving one or more learners in a particular place, who are situated in particular kinds of physical, social or pedagogical relationships with other people (teachers, learners, others) and material or virtual resources.

[...]

**Mode of practice:** A set of routine pedagogical processes that deploy features of a particular setting and may be characteristic of it. (Benson 2011, p. 14)

A simpler – albeit cruder and not as accurate – definition would be to say that the setting is a combination of location and formality, while modes of practice is the combination of formality, pedagogy and locus of control.

### 3.2. The importance of social networks

Palfreyman (2011) argues that extracurricular language learning is not actually unstructured, as it is often called. He claims that extracurricular language learning is instead structured by multiple factors, such as the context which a learner uses and internalizes the language, and by the strategies the learner uses. He mainly focuses on a third contributor to structured extracurricular language learning, namely social networks and how interaction functions in these networks. In his conclusion Palfreyman connects his findings to Social Network Theory and points out how important it can be for language learners who show less agency to have a system where their learning builds on the resources taken from and given to their social networks (such as family and/or friends).

Kuure (2011) also points out the importance of social networks and technology for language learning, mapping both the online and offline networks of a Finnish student and studying how he used English to interact in these networks. Kuure found that online computer games and activities connected to these games provide affordances for language learning because it nurtures collaborative problem solving and social networking. By playing these online games the participant in the study was put in situations where he had to use and understand special vocabulary and concepts to be able to contribute to the collaboration. Kuure is essentially stating that the games the participant played seem to be designed in a way that forces him to learn either from the game itself or from the group he is playing with. This idea about COTS games inadvertently being designed to teach the player something is also brought up by Gee (2014) whose work will be further explored later in this thesis.

### 3.3. Affordance and learning in games

Menezes (2011) explores the terms “affordance” and “niche”. The concept of affordance is especially relevant to this thesis as it is key to explaining the potential benefits of games as a tool for extramural language learning. She quotes Gibson (1986), the man who originally coined the concept, and who explained thusly: “affordances of the environment are what it offers […], what it provides and furnishes, either good or ill” (1986, p. 127). Menezes (2011) further explains that affordances are linked to the idea of perception and action. According to her, people can perceive affordances in their environment and act upon them. For example, a sturdy,
square object at knee height affords sitting. Another definition of affordance by Forrester (1999, p. 88) is that it is “immediately recognizable projections, predictions and perceived consequences of making this (and not that) utterance”. The affordance is very clear in choice-heavy games with dialogue wheels where the choice between one utterance or another can change the entire outcome of the game. Games where the player receives a quest which needs to be completed can be said to fit the broader definition of affordance because the player is most often told about a problem a non-player character has, which the player is then expected to solve, often without receiving any specific instructions on how to solve it. In both cases it is important that the player understands not only what is being said, but also the context of it. Menezes (2011) concludes that school alone does not gather all necessary affordances, and that students need to be taught to see the affordances for language development around them in order to fully develop their language.

3.4. Games in relation to learning and literacy

Gee (2014) argues that reading and thinking are both social achievements connected to social groups, and that what social group one belongs to affects how one thinks and therefore how one interprets what one reads. He also claims that schools do not take research into these fields into consideration as they are “driven […] by standardized tests and skill-and-drill curricula devoted to ‘the basics’. ” (2014, p. 3) Gee is very critical of modern schools and their method of teaching. Playing games with his son made him wonder whether it is possible to change the way schools teach so that students are as willing and find it as enjoyable to tackle difficult and challenging academic tasks, as they are to get through difficult and challenging tasks in a game. He argues that the reason games are so successful at this is because they are designed to teach the player how to play, and are able to do this regardless of how difficult the game is.

Of course, designers could keep making the games shorter and simpler to facilitate learning. That’s often what schools do. But no, in this case, game designers keep making the games longer and more challenging […], and still manage to get them learned. (2014, p. 11)

Because players need to learn how to play in order to make progress in the game, a game with a teaching system that does not work will not sell. Therefore, in order to make a profit the game developers have to create good methods of teaching difficult and complex tasks in a way that is fun for the learner. This intrigued Gee and he set out to find out how good games are designed to be learned. In order to do this he compared 36 principles of cognitive learning (listed in the appendix) with how learning was facilitated in games, and found that most – if not all – of these theories were built into good games.

Gee (2014) states that a game can be counted as a semiotic domain, with which he means that it is a set of practices that recruits several modalities (such as oral and written language, images, symbols, sounds, gestures, etc.), making games multimodal. In order to understand a game the player needs to first understand a multitude of signs (words, actions, objects, images), and is because of the inability to understand “illiterate” when it comes to the semiotic domain of the game. By learning to understand one semiotic domain it is also possible to understand related semiotic domains, something that Gee stresses by claiming that the actual content in the game played does not matter nearly as much as one might believe because the player is still being encouraged to think of themselves as problem solvers, someone who does not see mistakes as errors but as an opportunity to learn. He further argues that games are particularly good at teaching how to build meaning in their complex semiotic domains, and claims that games show a better and more specific way of embodying theories of meaning, reading and learning than school does. Gee summarizes his thoughts on games and the relevance of content by saying that
“good games [...] are crafted in ways that encourage and facilitate active and critical learning and thinking.” (2014, p. 46)

The way games are designed makes the player engage in reflective practice or as Gee (2014) calls it: “The probe, hypothesize, reprobe, rethink cycle.” (2014, p. 85) Gee points out how important this practice is for students, who can actually teach themselves many things by testing hypotheses, and how this is a staple in games. This concept of teaching oneself through reflective practice will be developed further in the Theoretical Perspectives section of this literature review.

Gee (2014) criticizes educators for often either choosing overt telling or immersion in practice, when they could do what games do and mix the two, giving some overt information within the context of immersion in actual practice. As an example of this done wrong and right in a classroom situation, he brings up how some teachers choose to hold long lectures and afterwards tell the students to apply the knowledge to a project, while other teachers choose to walk their students through the project while telling them what they need to know when they need the knowledge. This, he claims, makes it so that the students actually have a chance at remembering the information they are given as they are able to contextualize it.

Gee (2014) concludes that even though the player is not necessarily taught good things by the games (there are, for example, games that are released by neo-nazis), the way games teach players how to play the game is always efficient and effective as this is necessary to ensure that the game companies make a profit. He states that the main power of games is in the way they meld identity and learning. The player takes on a projective identity and therefore identifies with the character’s world, story and perspectives. This becomes a strong learning device. Finally, Gee finishes by stating that he thinks the reason so many politicians are worried about the effect violent games might have on teens is because games hurt their notion of what makes learning powerful and schools good and fair.

3.5. Theoretical Perspectives
Besides the 36 principles of cognitive learning mentioned above, Gee (2014) also identifies three requirements for active learning: “Experiencing the world in new ways, forming new affiliations, and preparing for future learning.” (2014, p. 23) Furthermore, he adds two requirements which need to be fulfilled in order for the learning to be not just active but also critical, and that is to be able to think about the semiotic domain at a meta level as a system of interrelated parts, and to be able to innovate in the domain by producing meanings that are seen as new or unpredictable. These requirements will be examined later in the review in order to explain the results of some of the studies. In addition, learning is not something done solely on an individual basis, but in social communities and in varying contexts. Online games can provide these communities and networks, putting the player in an environment fit both for learning on their own and learning from the network. Gee also mentions how learning about one semiotic domain can increase one’s literacy in related domains and subdomains, and that knowledge learned in one semiotic domain can be used in a another domain. If the example from above of the student learning about literary critique is applied to this, one could compare it to the students by way of learning about literary critique also learns how to analyze a movie, because the terms and concepts are similar. This strategy is called “transfer”, a concept developed by cognitive psychologists. The concept of transfer will be used later in the thesis to explain why it is difficult to study gaming in particular, rather than extramural English activities in general.
Using knowledge from similar semiotic domains, as well as learning through the reflective practice, can both be tied to the theory of cognitive development, and further to Piaget’s constructivism. Constructivism might be the most relevant theory when it comes to extracurricular and independent learning, as it, according to Säljö (2010), advocates the students letting their curiosity and their interests guide them on their way to learning. It also claims that learning will happen at the rate at which the learner matures, and hence should not be rushed. (Säljö, 2010) Constructivism goes hand in hand with extramural learning because it is mainly guided by what the learner does in their free time outside of school and what groups they are a part of, both of which are mainly voluntary and depend on the learner and their choices. This is where games come in handy due to their appeal as challenging entertainment. This is because they are essentially designed to teach (Gee, 2014) and in most cases adapt to the skill of the player either by a changeable difficulty level or by a game design which gets increasingly more challenging as the player learns more and more. The driving factor behind the player’s progression is often curiosity about the continuation of the story of the game, and therefore the player can learn while being driven by honest interest and investment in the game, rather than being pushed or forced into learning as part of a school course.

In cognitive theory, learning is seen as consisting of two parts, the first being the collection of information, and the second being the cognitive conflict when a child realizes something they have hypothesized is wrong and they have to figure out something new. Thus, the theory indicates that a lot of learning could be done by the students on their own, without a teacher (Säljö, 2010). Piaget’s (1936) theory on child development and learning further strengthens this concept because he believed learning was the same as discovering, which lead to him feeling displeased with the school system because it would often limit students’ curiosity (Säljö, 2010). In games most of what a player does is to discover not only locations but how to play, new ways to play, how to express oneself in the game, meaning that gameplay is in line with how cognitive theory sees good learning.
4. Material and Method

In this section, the selection process used to obtain relevant studies, including the selection criteria that the studies had to fulfill, will be detailed. Selected studies are listed and briefly summarized, the analysis process will be described, and the ethical aspects will be brought up.

4.1. Selection of Studies

This literature review includes studies from varying places, with participants of various ages and levels of education. The main reasons behind this is the limited available range of studies focusing on extramural English and English language proficiency, and the even more limited range of studies focusing on video games as extramural English. Because this limitation did not enable a selection criterion where only studies from one country were chosen, studies from several countries were chosen instead. For the same reason, studies that focused on participants of different age groups and levels of education were chosen. However, this spread could also be seen as a positive thing as it enables conclusions to be drawn between extramural English and English language proficiency on a far more universal scale than if all the studies had been conducted on e.g. Swedish first year high school students.

When searching, a combination of different terms was used. “ESL” and “EFL” were used interchangeably, and so were “extramural” and “extracurricular”, with “extramural” yielding a more relevant result. All searches with “games” were also done with “video games” and “computer games” to see if more relevant results could be obtained. “L2” was occasionally added to searches that had yielded too many results, and so was “vocabulary”. “Proficiency” was added in about half of the searches.

Two different search engines were used, Summon and Google Scholar, were used to find the studies. Some studies were found via the author rather than by the initial search using different terms. Summon was the main search engine, while Google Scholar was used to see if it resulted in different studies than Summon. One of the studies, the one by Olsson and Sylvén (2015), was only available via Google Scholar, but all other studies were available via both search engines. After conducting a few searches with both engines it was clear that Sundqvist is an important researcher in this field, which is why her name was searched for to find more studies by her. Other authors’ names were also searched for in order to check if they had published more studies in the same field which could be relevant to this literature review.

In the table below all the different combinations of search words used to find the studies have been listed, with the limitations used for each search. Searches where no relevant study was found are not included here. Since appropriate studies were difficult to find, this led to many searches with different search words which did not result in the finding of a study.

Table 1: Summary of searches

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It is also worth noting that after all five studies had been found and the searches were no longer being written down, the search was continued with the aim of finding even better suited studies to include in this review. However, no such studies were found, which might speak to the scarcity of studies conducted on extramural English and games and their relation to English language proficiency.

### 4.1.1. Selection Criteria

When selecting the studies for this review, a few criteria were applied in order to make sure all studies were relevant. First of all, in order to make sure the studies were still relevant for today the studies could be published no earlier than 2005. This, however, turned out not to be much of a problem as most of the studies in the field of extracurricular English and games are rather recent. The oldest study used in this review is from 2009 so none of the studies are older than ten years. Secondly, all studies chosen had to be in English in order to avoid any possible errors of translation in this review. Thirdly, when reading the abstracts special attention was paid to make sure they all could answer at least one of the research questions of this review, and that the aim of the studies did not allow for much outside of those research questions. This was done to make sure as little time as possible had to be wasted on reading the parts of the studies which were not relevant to this review. Lastly, the option of only searching for peer reviewed studies was disregarded, as it was feared this could have made the search too limited. As with the age of the studies, this turned out to not be a problem as all the studies chosen by chance were peer reviewed.

### 4.2. The Reviewed Studies

After going through the process described above and using the selection criteria, six studies were chosen to be analyzed in this review. In order to be able to focus solely on the systematic literature review later, the studies have been briefly summarized here. Note that most of the studies conducted t-tests, Gabriel’s ad hoc test, etc. to determine validity, reliability and statistical significance. These tests have not been detailed in the summary of the methods, and will not be brought up later in the review as focus is going to be on comparing the results of

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</table>
each study and answering the research questions. However, it is important to note that these tests have in fact been done.

Table 2: Short summary of the studies reviewed. The complete version of the table can be found in appendix 2.

<table>
<thead>
<tr>
<th>Study</th>
<th>Participants</th>
<th>Type and Aim</th>
<th>Method</th>
<th>Results</th>
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<tbody>
<tr>
<td>Chen, H. J. H., &amp; Yang, T. Y. C. (2013). The impact of adventure video games on foreign language learning and the perceptions of learners.</td>
<td>22 and 35 Taiwanese college students in two separate studies. EFL.</td>
<td>Empirical study aiming to examine the effects of a COTS adventure game on EFL learning and learner’s perceptions toward this game.</td>
<td>Study 1: students played part of a game. One group took notes, the other did not. Afterwards they took a vocabulary test. Study 2: students played the entire game. Short, written reports and questionnaires were collected.</td>
<td>Both groups in study 1 gained new vocabulary. Study 2 showed that the participants liked the game design and felt compelled to keep playing. A majority of the participants felt like the game was helping them learn English.</td>
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<tr>
<td>deHaan, J., Kuwada, K., Reed, M. (2010). The effect of interactivity with a music video game on second language vocabulary recall.</td>
<td>80 Japanese university undergraduate students. ESL.</td>
<td>Empirical study examining to what degree, if at all, video game interactivity would help or hinder the noticing and recall of second language vocabulary.</td>
<td>The students were paired. One participant played a game, the other student watched. A vocabulary recall test, a cognitive load measure and an experience questionnaire was gathered. Later another vocabulary recall test was administered.</td>
<td>Both players and watchers recalled vocabulary from the game, but the watchers recalled significantly less. Both players and watchers forgot significant amounts of vocabulary over the course of the study.</td>
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<tr>
<td>Olsson, E., &amp; Sylvén, L. K. (2015). Extramural English and academic vocabulary. A longitudinal study of CLIL and non-CLIL students in Sweden.</td>
<td>230 Swedish upper secondary school students. CLIL and non-CLIL ESL.</td>
<td>Empirical study investigating CLIL and non-CLIL students’ exposure to and use of extramural English. Investigates if there are differences related to gender in the development of students’ use of academic vocabulary in writing. Investigates whether or not extramural English has an impact on academic vocabulary.</td>
<td>The students completed a background survey, which measured the frequency of extramural use of English, and a web-based language diary which measured time spent on extramural activities where English was used. For analysis of vocabulary, 525 essays based on four writing assignments were analyzed.</td>
<td>CLIL students use English in their spare time more than non-CLIL students. Male CLIL students included the highest proportion of academic vocabulary in their essays. Extramural English does not seem to have any significant impact on progress of academic vocabulary over time.</td>
</tr>
<tr>
<td>Sundqvist, P. (2009). Extramural English Matters: Out-of-School English and Its Impact on Swedish Ninth Graders’ Oral Proficiency and Vocabulary.</td>
<td>80 Swedish ninth grade students. ESL.</td>
<td>Doctoral dissertation aiming to see whether extramural English has an impact on students’ oral proficiency and vocabulary. Additional aims: 1. Identify and explicate any potential correlation between variables. 2. Map out students’ extramural English.</td>
<td>One year longitudinal study. Data was collected from several sources. The data was then analyzed using a mixed method research design, and all data was analyzed in at least two ways in order to triangulate the result.</td>
<td>Sundqvist documents how much time the students spent doing extramural English activities. She finds a positive correlation between the amount of time spent on extramural English activities and English proficiency.</td>
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</tbody>
</table>
Sundqvist, P., & Wikström, P. (2015). Out-of-school digital gameplay and in-school L2 English vocabulary outcomes. 80 Swedish ninth grade students. ESL. Empirical study aiming to shed light on out of school digital gameplay activity and L2 English vocabulary and grades. After discovering the difference in what games and how much girls and boys play, the authors also looked into whether there was a difference between boys and girls. The same data was used in Sundqvist’s study from 2009. The participants were divided into three groups based on time spent gaming. Their proficiency level was compared. The groups were later divided into boys and girls in order to examine any differences between the genders.

Uuskoski, O. (2011). Playing video games: A waste of time... or not?: Exploring the connection between playing video games and English grades. 495 Finnish upper secondary school students. ESL. Pro gradu aiming to see if there is a correlation between good grades in English and playing video games, whether different video game genres are connected to grades, and how gamers see the connection between games and learning English. A questionnaire was used for collecting data on the students’ gaming habits. This data was then analyzed using mainly quantitative methods. Uuskoski found that on average, students who played games a great extent had higher grades in English. Certain genres was connected to higher grades. Boys tend to play the genres that most coincided with good grades.

4.3. Analysis process
To answer the research questions effectively this systematic literature review will first make a broad comparison between the reviewed studies where particular attention will be paid to the similarities and differences between the studies to see if there are any particular patterns or break of patterns that appear. The result of the studies will then be related to the research questions to see if the studies agree on one answer, or if different studies suggest different answers. As a third step, the result will then be related to Piaget’s constructivism and some of the 36 principles of learning and cognitive theory discussed by Gee (2014) in order to better understand the results of the studies.

4.4. Ethical aspects
Barajas, Forsberg and Wengström (2013) summarize the ethical considerations that need to be made while writing a systematic literature study into three main rules, all of which have been followed in this thesis.

The first rule is to only use studies which have been granted permission to conduct their research after being tested by an ethics committee, or where careful ethical considerations have been conducted throughout the study (Barajas et al., 2013). As the studies selected for this thesis did not specify whether they had been tested by an ethics committee, or what ethical considerations they had made, care was taken to check that all studies included had not used unethical methods. They had not used methods which harmed the participants, they had asked either for volunteers or for written consent from participants (and the guardians, when the participants were not of legal age), the participants had the option to drop out of the studies at any time, and the data presented could not in any way be tracked back to the individual participant.
The second rule is to correctly reference all studies used, and to safely archive these studies for the following years (Barajas et al., 2013). All studies used in this thesis have been listed, and all studies have been printed out in order to archive them in case they are no longer available online.

The third rule is to present all the results that support, as well as does not support, the hypothesis (Barajas et al., 2013). This has been done both in the results section and the discussion section in order to show that not all studies agreed with each other. It is also important to note that the aim of this thesis is to investigate something, rather than to prove it, which means finding points where the studies show different results is a major part of the thesis.
5. Results
In this section the results from the analysis will be detailed. In the first part the major similarities and differences between the studies will be brought up, and this will then be followed by two parts specifically answering the research questions.

5.1. Overall results
Because the number of studies about extramural English and games is small, many of the studies in this review refer to each other or the same sources both in the background, the method and the analysis of the results. It is therefore likely that the studies have to some extent affected each other, and this could be seen as a small contributor to why the results point in a similar direction.

Out of the six studies reviewed here, four of the studies concluded that there was a positive correlation between extramural English activities and English proficiency. One study showed that EFL learners can learn vocabulary from a game, but did not investigate this further. (deHaan, et al., 2010) Unlike the other authors, Olsson and Sylvén (2015) were the only ones that did not find a correlation between time spent on extramural English activities and increased vocabulary. Sundqvist and Wikström (2015) wrote their analysis based on the data Sundqvist collected in 2009 in her dissertation. This new analysis uses other methods and new research questions, but the results of both studies were similar, indicating that time spent on extracurricular activities such as movies, books and games correlate positively to the student’s English proficiency. In the study from 2015 Sundqvist and Wikström find that students who played over 5 hours per week had larger vocabularies and higher grades than the students who played less. Similarly, Uuskoski (2011) discovered in his study that Finnish students who spent more time playing games received higher grades that students who spent less time playing games. However, both Sundqvist (2009) and Uuskoski (2011) also point out that even if there is a significant correlation, that in and of itself does not necessarily mean that there is any causation. In their studies there was no way to determine whether games and extramural English in general really improved the proficiency of the students, or if already proficient students dedicated more of their time to extramural English.

5.1.1. Gender differences
Several of the studies brought up gender differences in one way or another. Sundqvist (2015) and Olsson and Sylvén (2015) both examined the difference in vocabulary between boys and girls. Chen and Yang (2013), and Sundqvist (2015) had a very uneven distribution of boys and girl in their studies, which might have affected their results. As Olsson and Sylvén (2015) were the only ones who received a result on how gender effects language proficiency skills while not being affected by an uneven distribution of boys and girls, and actually procured a statistically significant result about this, it is impossible to see any common thread among the studies. Olsson and Sylvén (2015) concluded that male CLIL students included more academic vocabulary in their texts. Uuskoski (2011), saw that the boys in his study generally reported having slightly higher grades than the girls, and that the boys to a larger extent played games in genres that seemed to have the greatest positive correlation to grades. Unfortunately, the girls who played games – especially for longer periods of time – in Uuskoski’s study were fewer than the boys, and this might have affected the result. Sundqvist (2009) saw that while boys spent 0.9 hours/week more gaming, and 0.5 hours/week more browsing the internet than girls, the time spent on other extramural English activities was roughly the same.
5.2. How extramural English activities correlate to English language proficiency

Several studies found a positive correlation between English proficiency and time spent doing extramural English activities. Sundqvist (2009) found that the ninth grade students participating in the study spent on average 18.4 hours per week doing extramural English activities, with listening to music and playing games accumulating the most hours, and reading books and newspapers accumulating the least hours. Boys and girls spent roughly the same amount of time on the different extramural English activities, with the two exceptions listed in the previous section. When checking if amount of time spent on extramural English activities correlates with English proficiency, Sundqvist (2009) found that oral proficiency correlated positively with extramural English activities. Her results also show that students who spent little or no time doing extramural English activities did not have high levels of oral proficiency, nor did the students who spent the largest amounts of time on extramural English activities. Vocabulary was also found to have a positive correlation with extramural English activities, and games and using the internet were determined to be of the greatest importance for vocabulary. On average the top scoring students spent 29 hours per week doing extramural English activities, while the lowest scoring students spent on average 13 hours per week, most of which (almost half) were spent listening to music. Uuskoski (2011) also calculated correlations between extramural English activities and grades and found that activities such as using the internet mostly in English strongly correlated with having higher grades. Reading in English also correlated with good grades, with the exception of reading song lyrics, which had no statistically significant correlation. Unlike Sundqvist (2009), Uuskoski (2011) found that watching videos in English correlated positively with high grades, but only if they were watched with English subtitles or without subtitles, so the difference between Sundqvist and Uuskoski here is most likely caused by Uuskoski separating these activities from watching English videos with subtitles in another language. Lastly, playing games was also discovered to have a positive correlation with high grades.

Olsson and Sylvén’s (2015) study was, unlike the previous studies, focused solely on academic language. This might explain why the results of the study were quite different compared to the other studies in this review. They found that the CLIL students spend on average 35 hours per week doing extramural English activities, while non-CLIL students spent on average 28.6 hours. This means that the non-CLIL students spent ten hours more than the students in Sundqvist’s (2009) study spent on extramural English activities. The study also found that females spend nine hours per/week less time doing extramural English activities, which is also quite different from Sundqvist’s results. While Olsson and Sylvén showed that the group of students with the most time spent doing extramural English activities (male CLIL students) was also the group that used the largest academic vocabulary, which is in line with Sundqvist’s findings, they also showed that progression and development of academic vocabulary did not correlate positively with spent time doing extramural English activities. Instead the opposite seemed to be the case, with time spent on extramural English activities having a negative correlation with development of academic vocabulary. Because of this seemingly contradictory result, Olsson and Sylvén conclude that extramural English activities seem to have a greater impact on learners with lower proficiency.

It is clear from these three studies that students spend a great deal of time doing extramural English activities, and that this seems to have a positive correlation with English proficiency (Sundqvist, 2009; Uuskoski, 2011), at the very least for students with lower proficiency (Olsson & Sylvén, 2015). It is, however, difficult to say whether extramural English activities help
students develop their proficiency faster when they have already reached a certain level of proficiency.

### 5.3. What students learn from playing games

Before reporting further results in this section, it is important to again point out how correlation does not necessarily mean causation. Although there is a correlation between students who play games to a great extent and students who receive higher grades or do better on a test, it does not mean that playing games will increase a student’s level of proficiency. Two of the studies reviewed here do show results of what students pick up from the game immediately, but most of them instead discuss positive correlations to time spent gaming.

The study by deHaan et al. (2010) is unique in that it examines what students learn from a rhythm game, rather than a normal game where the player would sit still and play through a story. In a rhythm game one has to press certain buttons in a certain order in a certain rhythm (similar to games like Guitar Hero or Rockband), making it difficult to focus on language as well. The study shows that both the player and anyone watching the game being played both pick up vocabulary from the game. However, when vocabulary was tested again two weeks later, many of the learned words had been forgotten, so it seems retention is not very good when the game is only played once. By measuring the cognitive load experienced by the players and watchers and comparing the two deHaan et al showed that the person watching the game being played is more likely to pick up more of the vocabulary than the player themselves, as the watcher can focus solely on what is going on on the screen, rather than having to focus on what buttons to press and why.

Chen and Yang (2013) also aimed to find out if students learn new words from games, and also to determine what factors affects this, but unlike deHaan et al (2010) they used an adventure game with a more common COTS format, where the game is played while sitting down and is not as physically demanding. Chen and Yang, just like deHaan et al, are able to show that the players pick up vocabulary from the game while playing, and also that taking notes while playing does not improve the amount of vocabulary learned. Chen and Yang argue that the reason taking notes might not have helped was because the notes were taken with only the game in mind, rather than the language, so taking notes with the aim of learning new words might be more effective than the study’s general note-taking shows.

Sundqvist and Wikström (2015) reanalyze the data collected in Sundqvist’s earlier study (2009) in order to investigate how gaming as an extramural English activity correlates to vocabulary and grades given at the end of year eight and year nine. Unfortunately the tests of spoken English performed in the previous study were not included in the later study, which means none of the studies have results concerning spoken English proficiency. However, the analysis of the data shows that the group which spent the most time playing games also scored the highest on the vocabulary level test (VLT) and productive vocabulary level test (PLT), and also received higher grades both in year eight and nine than the other two groups which did not spend as much time playing games. The study also made an attempt to see whether the result would be the same for both girls and boys, but unfortunately the groups had a very uneven distribution of girls, with only one girl being part of the group that spent the most time playing games. The study could not find any statistically significant correlation between the time girls and boys spent gaming and their vocabulary and grades, and a part of the reason is probably that the size of the groups was so uneven.
The aim of Uuskoski’s study (2011) was to find a potential correlation between gaming and English grades, but he did not examine how separate skills are affected by playing games. Just like Sundqvist and Wikström (2015) he found a statistically significant positive correlation between English grades and the amount of time spent playing games. In fact, when the grades were compared they ranked from best to worst beginning with the group that spent the most time playing games to the group that played no time playing games. Uuskoski also notes that there was even a statistically significant difference between causal gamers and non-gamers, which he claimed was evidence for Sundqvist’s (2009) conclusion that a small amount of extramural English can have an effect on language proficiency. He further investigates what game genre seems to have the greatest positive correlation to English grades, something that Sundqvist (2015) pointed out was necessary in future research, and concludes that there were six genres that had a statistically significant positive correlation with English grades, with role-playing games (RPGs) having a particularly strong correlation.

The reviewed studies seem to point at students learning not only vocabulary while playing games, but also developing general proficiency in English. From two of these studies one can conclude that students are able to learn vocabulary from games (deHaan, 2010; Chen & Yang, 2013). Sundqvist and Wikström further confirm this by finding a positive correlation between time spent on extramural English activities and vocabulary. Sundqvist and Wikström’s study is relevant not only because their results strengthen the reliability not only of deHaan et al. and Chen and Yang’s results, but also because they have studied so many aspects of vocabulary, both receptive and productive vocabulary, as well as vocabulary and advanced vocabulary expressed in writing. Sundqvist and Wikström (2015) and Uuskoski (2011) both show that there is a positive correlation between time spent playing games and English grades. Though one cannot conclude that this means that students improve general English proficiency while playing games, it is an indicator that it might be the case and that it is worth investigating further.
6. Discussion

In this section, general discussion about the studies is made first, containing remarks and thoughts on any of the results presented in the examined studies that do not pertain to the research questions of this review. This is followed by a discussion of the results to the aim and research questions brought up in the previous section, followed by a discussion of the limitations of the studies examined and this study. This section ends with suggestions for possible future research.

6.1. General discussion

According to Olsson and Sylvén (2015) the students in their study spent on average 28.6 hour/week doing extramural English activities, while Sundqvist (2009) put this estimate at 18.4 hours. Even if there is more than a ten hour difference between the two, it is clear that students spend a great deal of time each week doing extramural English activities. This is why it is so important to investigate the possible effects of this might have on the students’ proficiency.

While Swedish high school students spend about 2-3 hours learning English in school each week, they spend more than six times that familiarizing themselves with English in their free time. Therefore it does not seem like a stretch to think that maybe teachers should spend more time trying to shape how students interact with English during their free time, rather than focusing only on what happens in the classroom. Gee (2014) speaks strongly in favor of how much more a student might learn on their own, especially from games, compared to what they might learn in the classroom where most of the methods used do not follow the 36 principles of cognitive learning. In my personal experience as a teacher, it is often much easier to convince students to spend more of their free time watching movies or TV series with English subtitles than it is to convince them to do homework, so maybe this kind of “effort free” extramural English is what teachers need to encourage their students to do.

6.2. Connections to constructivism

It is clear from the reviewed studies that there is a positive statistically significant correlation between time spent doing extramural English activities and English proficiency. It is also clear that playing games directly improves vocabulary. When looking at this from the viewpoint of cognitive theory and constructivism, this is actually not that surprising seeing as the way most games are designed to be played and learned is very similar to how cognitive theory describes the two parts of learning (Piaget, 1936; Säljö 2010). The first part, collecting information, is done simply by playing or by doing the tutorial of the game. The player is usually told what buttons to press to do different things in the game, but then has to try to put these into combinations that make sense. The second part, the cognitive conflict, usually comes after the player fail to progress, either by being defeated by an enemy, fails to solve a puzzle, or simply does not manage to figure out how to get around an obstacle. These principles are the core to what a game is, trial and error with a failure state that tells the player he or she needs to do something differently. What is especially relevant to this review is how many game genres rely heavily on language, either in written or spoken form, to give instructions, clues and interesting tidbits of information. A game can have a character yell at the player to get out of the way of the falling boulder, and if the player does not understand the instruction they will have to keep starting over until they understand that they are supposed to move out of the way. In this scenario it is likely that the player will learn the word “boulder”, and hence add to their vocabulary just like deHaan et al. (2010) and Chen and Yang (2013) showed that players would. A different example from the game Divinity: Original Sin, is when the player has to give the correct information to a character in order to progress. This information is found in books scattered nearby, and if the player cannot read and understand the information, they cannot
progress in the game. By reading the books they collect information, and if they pick the wrong alternative when informing the character about what the books said, the player has to start again and there is a cognitive conflict. Hence, games have cognitive language learning as the very basis for how they function, and this could explain why there seems to be a positive correlation between time spent gaming and English proficiency.

6.3. Connections to cognitive theory
Gee (2014) describes how games display the 36 principles of cognitive learning, which also offers an explanation on how and why the result of most of the studies show a positive correlation between time spent gaming and English proficiency. He also offers his own basis for active learning, which is fulfilled by some games, but not all. This could explain why Uuskoski (2011) found that RPGs, a genre where the whole of Gee’s basis of active learning is fulfilled, have a significantly larger correlation with good English grades than other game genres. Experiencing the world in new ways and forming affiliations is the very basis for what makes an RPG, with the player constantly finding out new things about the game world from written and spoken information found in the game, and forming affiliations not only with game characters but also with other people who play the same game. “Preparing for future learning” is something which could be debated, especially considering that correlation is not causation, but it seems that since gamers tend to have better grades in English than non-gamers there is something about the design of games that does indeed prepare the player for future learning. According to Gee (2014), in order for players to learn critically and not only actively, they also have to think about the semiotic domain at a meta level and see how the different parts of the domain relate to each other, and they have to be able to produce meanings that are seen as new or unpredictable. If we see a game and the players who play it as parts of a semiotic domain, with their own modalities, which the player base of many RPGs certainly have, most players are aware of there being a difference between the way you talk about a game with fellow players, and the way you talk about a game with non-gamers, but even so it is uncertain if the players reflect further on this. When it comes to producing new meanings there is a part of the internet focused solely on interpreting in-game lore, mythology, texts, symbolism, etc. – and this is almost exclusively limited to RPGs. Some of the interpretations made even change the way the entire game is viewed, so even if this is not directly part of or even encouraged by the gameplay itself, it is something that many dedicated RPG players spend their time doing, which further explains why RPGs had the biggest positive correlation with high grades in English.

Transfer is another concept brought up by Gee (2014), and it might explain why even a smaller amount of extramural English activities seems to have such a great effect on English proficiency. This means that learning about one semiotic domain increases ones understanding, or literacy, in other domains. Therefore, if a student spends a great deal of time watching a TV series or playing a game, they carry with them their understanding of this to other semiotic domains, such as the English classroom. This transfer of literacy within one semiotic domain to the other could be what is actually shown when students who spend a lot of time doing extramural English activities get higher grades.

6.4. Discussion of the results and background
It is clear from several of the studies that students spend an incredible amount of hours on extramural English activities each week, and that many of said students spend a considerable amount of these hours on games. Therefore, it seems even more unfortunate now than it did at the beginning of this review that few follow the Swedish National Agency for Education’s guidelines (Skolverket, 2016a) about basing their lesson plans on student interests. This might
however change soon, as newer teachers are more likely to know more about games and have ideas about how one might include them in teaching. It also seems like the analyzed studies show that the skills required for higher grades by the Swedish National Agency for Education (2011) are being practiced while playing games. When playing co-operative or multiplayer games the player has to communicate with the other players, which could be a good way to practice their ability to carry on a conversation and to lessen social anxiety.

6.4.1. Social networks
Palfreyman (2011), Kuure (2011) and Menezes (2011) also highlighted how important the social context is when learning English, which strengthens the assumption that playing multi-player games can contribute to a higher English language proficiency. Palfreyman (2011) pointed at Social Network Theory and claimed that language learners with less agency benefit greatly when having a system where they can learn from their social network, and having a group of friends from around the globe who all speak English connected by a game is an excellent way of acquiring such a network, especially for those whose family and local friends do not speak English often or at all. Furthermore, Kuure (2011) wrote about how online games provide affordances for language learning because the games are designed to encourage collaborative problem solving and social networking. That games are designed to afford social networking, and that social networking in turn contributes to a higher English Language proficiency, could explain the positive correlation seen between time spent playing games and English proficiency (Uuskoski, 2011; Sundqvist, 2009, Sundqvist & Wikström, 2015), and particularly oral proficiency (Sundqvist, 2009).

6.4.2. The dimensions or extracurricular learning when playing games
Menezes (2011) and Kuure (2011) pointed out how the locus of control (Benson 2011) is not absent just because there is no teacher in the situation. In the case of multi-player games she instead argues that one of the players usually take the role of the teacher, and that depending on the group this roll might be passed around to the person who is currently more knowledgeable about, for example, the meaning of a word or phrase. Benson (2011) takes this argument even further and claims that the game itself might function as the teacher. Therefore, the main difference between learning while playing an online game and learning in the classroom is the level of formality (Benson 2011), where a group of gamers can be far more informal in how they teach and learn than a teacher in a classroom can. This also helps to explain how gaming as an extramural English activity can have a positive effect on vocabulary (deHaan et al., 2010; Chen & Yang, 2013), and why there is a positive correlation between time spent on extramural English activities and English proficiency (Uuskoski, 2011; Sundqvist, 2009, Sundqvist & Wikström, 2015).

6.5. Limitations
There are several limitations both to this literature review, as well as to the studies analyzed here. The limitations of the analyzed studies will be specified first, followed by the impact these limitations might have had on this review. Lastly, the limitations specific to this review will be discussed. Each study has its own set of limitations, most of which are listed in the study itself. The most important ones will be brought up here, with particular emphasis on the ones which more than one study have in common.

As mentioned several times previously in this review, both Uuskoski (2011) and Sundqvist (2009) pointed out how the correlation they found between time spent on extramural English activities and grades (and in Sundqvist’s case also vocabulary and oral proficiency) does not
necessarily mean that there is causation, as there are many other factors that could also affect the students’ English proficiency. This is also the case for Olsson and Sylvén (2015) and Sundqvist and Wikström (2015). As an effect of this, this review can only definitely claim to have seen causation between playing games and learning new vocabulary, as deHaan et al. (2010) and Chen and Yang (2013) showed this in their studies.

Another limitation was the uneven distribution of boys and girls which appeared once the participants had been divided into groups according to the amount of time spend on extramural English activities or games, as was the case in Sundqvist (2009), Uuskoski (2011), and Sundqvist and Wikström (2015). In deHaan et al.’s study (2010) the total number or participating females was only 15, compared to the total 80 participants. The only other study to examine the gender factor was Olsson and Sylvén (2015), which means that this review cannot draw any definite conclusion when it comes to what effect extramural English activities might have depending on what gender the participant is.

The studies from Sundqvist (2009), Uuskoski (2011), Olsson and Sylvén (2015) and Sundqvist and Wikström (2015) have a common weakness in how they collected data on how much time the participants spent on different extramural English activities, because this data was collected through questionnaires that the participants filled in on their own. This means that all this data is based on the estimates of the participants, and it is possible that these estimates are incorrect. This weakness is even greater in Uuskoski’s study as he also used his questionnaire to collect the students’ grades, rather than receiving the grades from the schools. This means that students might have written down better grades than they actually received. This of course weakens this review’s conclusion that the studies generally showed a positive correlation between extramural English activities and English proficiency.

The greatest limitation of Chen and Yang’s study (2013) was the small number of participants, which means that the results of that study cannot be said to be representative for the general population, or even the general group of Taiwanese college students. Luckily, because the findings of Chen and Yang are in line with the findings of deHaan et al. (2010) this does not have a major implication for this literature review.

Limitations specific for this thesis is mainly the number of studies analyzed. Ideally, all studies on the subject should have been included, but there simply was not enough time to do so. Therefore, this review is limited to six studies, and seeing as one of the included studies, Olsson and Sylvén (2015), partially disagreed with the other studies, it is impossible to say if the conclusions drawn in this thesis are representative of all studies on the subject of extracurricular English and gaming. This means that the reliability of this thesis is not nearly as high as a proper literature review examining hundreds of studies would be. Barajas et al. (2013) suggests that reliability can be discussed in terms of replicability, and this thesis should have a decent level of replicability since the method of selection and analysis has been described and followed. This mean that as long as the studies selected for this thesis are at least somewhat telling of what results other, similar studies have reached (which they might not be), the thesis should be replicable. Barajas et al. also point out that in order for a study to be reliable, it cannot be greatly affected by random errors. Steps were taken to avoid this in the thesis. When selecting the studies for this thesis only studies that seemed reliable due to them being peer reviewed, testing the data with, for example, Chronbach’s Alpha, etc., were chosen. Points where the studies seemed unreliable or disagreed with each other to the point where no real result could be drawn (as with some of the attempts to investigate the gender differences) have been brought up throughout the thesis to make it clear where a reliable result could not be reached.
As stated previously, Sundqvist’s (2009) study seems to be something of a landmark study, since many of the other studies cited that specific study, as well as her research in general. Olsson, Sylvén and deHaan were also often cited in the other studies. This might be part of the reason why the results in the studies are generally similar.

6.6. Future Research

Most of the studies examined in this review are rather recent as the connection between extramural English – especially games – and English proficiency are very topical. There is however much more that could be investigated in this field, and as more and more studies of extramural activities and English are being made and will be made, it will be interesting to see where the field is taken, especially when it comes to the effect of games on English proficiency. When analyzing these particular studies, three things stood out as areas which need to be researched further.

The first of these three things is the possibility of causation rather than just correlation. Several of the studies established a correlation between hours spent doing extramural English activities and good grades and/or vocabulary, but only two of them actually established causation between extramural English activities and vocabulary. This could be accomplished by testing English skills in conjunction with different extramural English activities having been performed. If causation could be established by several studies, this would mean that it would be easier for teachers to try to somehow include or affect extramural English activities in their teaching.

The second thing which should be researched further is the long-time effect of extramural English activities. Sundqvist’s study (2009) comes closest to this out of the studies analyzed in this review, because her study collects data from a group of students throughout an entire year, but it would be even more interesting to see the effect extramural English activities might have during the course of several years, possibly from childhood. This way the differences in English proficiency between students who grow up doing a great deal of extramural English activities and students who never spend much time on such activities could be documented and compared. Sundqvist (2015) also brings up that she would like to see more longitudinal studies, especially using an ecological method where the participants would be studied as they interact with a game. This method could also be a good way of finding out what exactly a player learns from playing games.

The third thing which should be researched further is the differences between gender in how extramural English activities affect the students’ English proficiency. Several of the studies reviewed here tried to do so after it was discovered that there was a discrepancy between boys and girls, but because this often was more an afterthought than intentionally incorporated in the method, the results often were not statistically significant. It would be interesting to see what results studies with the specific aim to investigate this, and with groups of boys and girls of equal size, would show, as this might be a very important factor.
7. Summary and Conclusion

This literature review aimed to investigate how games as an extramural activity, and extramural English activities in general, could benefit upper secondary EFL and ESL students’ English language proficiency. In order to do this, two research questions were created and examined by comparing the results of the studies. The results showed that there is a positive correlation between time spent on extramural English activities and English grades, and that students learn vocabulary from games. Further, some of the studies showed that even a small amount of time spent on extramural English activities could have great effect on English proficiency, but also that the effect seems to be smaller on students who already have high proficiency.

A big question for me throughout the writing of this review has been whether teachers can somehow use their students’ extramural English activities, and more particularly games, in the classroom, but unfortunately none of the studies brought this up to an extent that would have made it possible to include it as a research question. However, Chen and Yang (2013) briefly mention this at the end of their study where they discuss what criteria a teacher choosing a game for their students should use. They write that teachers should be careful to use games which language-wise are only slightly more complicated than their student’s proficiency level, and that the games should have available subtitles and clear pronunciation. They also point out that a game used by students should have a good game design, with game missions that are challenging enough to keep the student interested in gaming and learning. Cheng and Yang (2013) do not write about how to more practically make lesson plans which include gaming, but I would personally suggest using a game like one would use a book, letting the students play in their spare time while evaluating what they have learned in the classroom. If the students want to create their own game, assignments such as writing a game script might be more relevant to them than how to write a poem or story. Furthermore, if the teacher has at least some experience with the language used in games, this could be the basis of a discussion comparing gaming language to academic language. For example, the difference in use of the words “legit” in gaming and “legitimate” in academic language. Hopefully there will be further studies on this in the future.

The effects of extramural English activities on English proficiency need to be investigated further, especially with the aim of investigating causation rather than correlation, because the effect of extramural English activities on English proficiency could possibly be greater than the effect English teaching in school might have due to the amount of hours students spend on these activities.
References


Appendix 1

1. Active, Critical Learning Principle
All aspects of the learning environment (including the ways in which the semiotic domain is designed and presented) are set up to encourage active and critical, not passive, learning.

2. Design Principle
Learning about and coming to appreciate design and design principles is core to the learning experience.

3. Semiotic Principle
Learning about and coming to appreciate interrelations within and across multiple sign systems (images, words, actions, symbols, artifacts, etc.) as a complex system is core to the learning experience.

4. Semiotic Domains Principle
Learning involves mastering, at some level, semiotic domains, and being able to participate, at some level, in the affinity group or groups connected to them.

5. Metalevel Thinking about Semiotic Domains Principle
Learning involves active and critical thinking about the relationships of the semiotic domain being learned to other semiotic domains.

6. “Psychosocial Moratorium” Principle
Learners can take risks in a space where real-world consequences are lowered.

7. Committed Learning Principle
Learners participate in an extended engagement (lots of effort and practice) as extensions of their real-world identities in relation to a virtual identity to which they feel some commitment and a virtual world that they find compelling.

8. Identity Principle
Learning involves taking on and playing with identities in such a way that the learner has real choices (in developing the virtual identity) and ample opportunity to meditate on the relationship between new identities and old ones. There is a tripartite play of identities as learners relate, and reflect on, their multiple real-world identities, a virtual identity, and a projective identity.

9. Self-Knowledge Principle
The virtual world is constructed in such a way that learners learn not only about the domain but about themselves and their current and potential capacities.

10. Amplification of Input Principle
For a little input, learners get a lot of output.

11. Achievement Principle
For learners of all levels of skill there are intrinsic rewards from the beginning, customized to each learner’s level, effort, and growing mastery and signaling the learner’s ongoing achievements.
12. Practice Principle
Learners get lots and lots of practice in a context where the practice is not boring (i.e., in a virtual world that is compelling to learners on their own terms and where the learners experience ongoing success). They spend lots of time on task.

13. Ongoing Learning Principle
The distinction between learner and master is vague, since learners, thanks to the operation of the “regime of competence” principle listed next, must, at higher and higher levels, undo their routinized mastery to adapt to new or changed conditions. There are cycles of new learning, automatization, undoing automatization, and new reorganized automatization.

14. “Regime of Competence” Principle
The learner gets ample opportunity to operate within, but at the outer edge of, his or her resources, so that at those points things are felt as challenging but not “undoable.”

15. Probing Principle
Learning is a cycle of probing the world (doing something); reflecting in and on this action and, on this basis, forming a hypothesis; reprobing the world to test this hypothesis; and then accepting or rethinking the hypothesis.

16. Multiple Routes Principle
There are multiple ways to make progress or move ahead. This allows learners to make choices, rely on their own strengths and styles of learning and problem solving, while also exploring alternative styles.

17. Situated Meaning Principle
The meanings of signs (words, actions, objects, artifacts, symbols, texts, etc.) are situated in embodied experience. Meanings are not general or decontextualized. Whatever generality meanings come to have is discovered bottom up via embodied experiences.

18. Text Principle
Texts are not understood purely verbally (i.e., only in terms of the definitions of the words in the text and their text-internal relationships to each other) but are understood in terms of embodied experiences. Learners move back and forth between texts and embodied experiences. More purely verbal understanding (reading texts apart from embodied action) comes only when learners have had enough embodied experience in the domain and ample experiences with similar texts.

19. Intertextual Principle
The learner understands texts as a family (“genre”) of related texts and understands any one such text in relation to others in the family, but only after having achieved embodied understandings of some texts. Understanding a group of texts as a family (genre) of texts is a large part of what helps the learner make sense of such texts.

20. Multimodal Principle
Meaning and knowledge are built up through various modalities (images, texts, symbols, interactions, abstract design, sound, etc.), not just words.

21. “Material Intelligence” Principle
Thinking, problem solving, and knowledge are “stored” in material objects and the environment. This frees learners to engage their minds with other things while combining the results of their own thinking with the knowledge stored in material objects and the environment to achieve yet more powerful effects.

22. Intuitive Knowledge Principle
Intuitive or tacit knowledge built up in repeated practice and experience, often in association with an affinity group, counts a great deal and is honored. Not just verbal and conscious knowledge is rewarded.

23. Subset Principle
Learning even at its start takes place in a (simplified) subset of the real domain.

24. Incremental Principle
Learning situations are ordered in the early stages so that earlier cases lead to generalizations that are fruitful for later cases. When learners face more complex cases later, the learning space (the number and type of guesses the learner can make) is constrained by the sorts of fruitful patterns or generalizations the learner has found earlier.

25. Concentrated Sample Principle
The learner sees, especially early on, many more instances of fundamental signs and actions than would be the case in a less controlled sample. Fundamental signs and actions are concentrated in the early stages so that learners get to practice them often and learn them well.

26. Bottom-up Basic Skills Principle
Basic skills are not learned in isolation or out of context; rather, what counts as a basic skill is discovered bottom up by engaging in more and more of the game/domain or game/domains like it. Basic skills are genre elements of a given type of game/domain.

27. Explicit Information On-Demand and Just-in-Time Principle
The learner is given explicit information both on-demand and just-in-time, when the learner needs it or just at the point where the information can best be understood and used in practice.

28. Discovery Principle
Overt telling is kept to a well-thought-out minimum, allowing ample opportunity for the learner to experiment and make discoveries.

29. Transfer Principle
Learners are given ample opportunity to practice, and support for, transferring what they have learned earlier to later problems, including problems that require adapting and transforming that earlier learning.

30. Cultural Models about the World Principle
Learning is set up in such a way that learners come to think consciously and reflectively about some of their cultural models regarding the world, without denigration of their identities, abilities, or social affiliations, and juxtapose them to new models that may conflict with or otherwise relate to them in various ways.

31. Cultural Models about Learning Principle
Learning is set up in such a way that learners come to think consciously and reflectively about their cultural models of learning and themselves as learners, without denigration of their identities, abilities, or social affiliations, and juxtapose them to new models of learning and themselves as learners.

32. Cultural Models about Semiotic Domains Principle
Learning is set up in such a way that learners come to think consciously and reflectively about their cultural models about a particular semiotic domain they are learning, without denigration of their identities, abilities, or social affiliations, and juxtapose them to new models about this domain.

33. Distributed Principle
Meaning/knowledge is distributed across the learner, objects, tools, symbols, technologies, and the environment.

34. Dispersed Principle
Meaning/knowledge is dispersed in the sense that the learner shares it with others outside the domain/game, some of whom the learner may rarely or never see face-to-face.

35. Affinity Group Principle
Learners constitute an “affinity group,” that is, a group that is bonded primarily through shared endeavors, goals, and practices and not shared race, gender, nation, ethnicity, or culture.

36. Insider Principle
The learner is an “insider,” “teacher,” and “producer” (not just a “consumer”) able to customize the learning experience and domain/game from the beginning and throughout the experience.
## Appendix 2

<table>
<thead>
<tr>
<th>Study</th>
<th>Participants</th>
<th>Type and Aim</th>
<th>Method</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chen, H. J. H., &amp; Yang, T. Y. C. (2013). The impact of adventure video games on foreign language learning and the perceptions of learners.</td>
<td>22 and 35 Taiwanese college students in two separate studies. EFL.</td>
<td>Empirical study aiming to examine the effects of a COTS adventure game on EFL learning and learner’s perceptions toward this game.”</td>
<td>Study 1: 22 college freshmen played a small part of a COTS adventure game (BONES). One group was allowed to take notes, the other was not. Afterwards they took a vocabulary test. Study 2: 35 college students played the entire game. Short written reports and questionnaires were collected to gather data on how the participants perceived the game and their learning experience.</td>
<td>Both groups in study 1 gained new words. There was no discernable difference between the groups. Study 2 showed that the participants liked the game design and felt compelled to keep playing. A majority of the participants felt like the game was helping them learn English.</td>
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<tr>
<td>deHaan, J., Kuwada K., Reed, M. (2010). The effect of interactivity with a music video game on second language vocabulary recall.</td>
<td>80 Japanese university undergraduates. ESL.</td>
<td>An empirical study examining to what degree, if at all, video game interactivity would help or hinder the noticing and recall of second language vocabulary.</td>
<td>The students were paired based on similar English language and game proficiencies. One participant played a music video game, while the other student watched. Afterwards a vocabulary recall test, a cognitive load measure and an experience questionnaire was gathered. Two weeks later another vocabulary recall test was administered.</td>
<td>Both players and watchers recalled vocabulary from the game, but the watchers recalled significantly less. Both players and watchers forgot significant amounts of vocabulary over the course of the study.</td>
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<tr>
<td>Olsson, E., &amp; Sylvén, L. K. (2015). Extramural English and academic vocabulary. A longitudinal study of CLIL and non-CLIL students in Sweden.</td>
<td>230 Swedish upper secondary school students. CLIL and non-CLIL. ESL.</td>
<td>An empirical study investigating CLIL and non-CLIL students’ exposure to and use of EE. Investigate if there are differences related to gender in the progress of CLIL and non-CLIL students’ use of academic vocabulary in writing. Investigate whether or not extramural English seems to have an impact on academic vocabulary.</td>
<td>The students completed a background survey, which measured the frequency of extramural use of English, and a web-based language diary which measured time spent on extramural activities where English was used. For analysis of vocabulary, 525 essays based on four writing assignments were analyzed.</td>
<td>CLIL students use English in their spare time to a significantly greater extent than non-CLIL students. Male CLIL students included the highest proportion of academic vocabulary in their essays, despite not progressing any more than other students. Extramural English does not seem to have any significant impact on progress of academic vocabulary over time.</td>
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<tr>
<td>Author(s)</td>
<td>Participants</td>
<td>Methodology</td>
<td>Findings</td>
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<tr>
<td>Sundqvist, P. (2009). Extramural English Matters: Out-of-School English and Its Impact on Swedish Ninth Graders’ Oral Proficiency and Vocabulary.</td>
<td>80 Swedish ninth grade students. ESL.</td>
<td>A doctoral dissertation aiming to see whether extramural English has an impact on students’ oral proficiency and vocabulary. Additional aims were to: 1. Identify and explicate any potential correlation between variables (i.e. extramural English and oral proficiency, or extramural English and vocabulary). 2. Map out students’ EE.</td>
<td>The longitudinal study started in 2006 and continued during the entire school year. During this time data was collected from 5 speaking tests, 2 language diaries, 1 productive level test, 1 vocabulary level test, the national exam (what the students handed in as well as what grade they received), student interviews, as well as their final grades in year 8 and nine. This data was then analyzed using a mixed method research design, and all data was analyzed in at least two ways in order to triangulate the result. Sundqvist documents how many hours per week the students spent doing various extramural English activities, such as listening to music, playing video games, reading books, watch TV, etc. She also finds a positive and statistically significant correlation between the amount of time spent on extramural English activities and English proficiency.</td>
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<tr>
<td>Sundqvist, P., &amp; Wikström, P. (2015). Out-of-school digital gameplay and in-school L2 English vocabulary outcomes.</td>
<td>80 Swedish ninth grade students. ESL.</td>
<td>An empirical study aiming to shed light on out of school digital gameplay activity and L2 English vocabulary and grades. After discovering the difference in what games and how much girls and boys play, the authors also looked into whether there was a difference between boys and girls.</td>
<td>The same data was used as in Sundqvist’s previous study from 2009, but the participants were divided into three groups based on time spent gaming. These groups were then compared with the results of the two vocabulary tests, the results of the national exams and the final grades that the students received in eight and ninth grade. These groups were also divided into boys and girls in order to examine any differences between the genders. The results showed that the group who played games the most in general had higher scores on the vocabulary tests and got higher grades. The comparison of boys and girls yielded no statistically significant result.</td>
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<tr>
<td>Uuskoski, O. (2011). Playing video games: A waste of time... or not?: Exploring the connection between playing video games and English grades.</td>
<td>495 Finnish upper secondary school students. ESL.</td>
<td>A pro gradu aiming to see whether there is a correlation between good grades in English and playing video games, and also to try to explain what other factors might have contributed to the good grades. The author also looked at whether different video game genres are connected to</td>
<td>To collect data, Uuskoski handed out a questionnaire to the participants where they detailed how often, how long and what they played, what grade they received, and also what they thought about games in connection to learning English. This data was then analyzed using mainly quantitative methods. Uuskoski found that on average, students who played games to a great extent had statistically significantly higher grades in English than the ones who did not play. Playing certain types of games (such as role playing games) was also connected to higher grades. A</td>
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grades, and how gamers see the connection between games and learning English. Gender differences were also to be investigated. The majority of the participants who played games felt that games had improved their skills in English. Uuskoski also discovered that boys play games more than girls, and that they tend to play the genres that most coincided with good grades, and also that boys generally received better grades in English than the girls.