A Literature Study on Digital Games and the Effect on Vocabulary and Oral Proficiency among Young L2 Learners

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Abstract:
Today we live in a global world, where English has become easily accessible through the internet. Pupils encounter English in an out-of-school context and playing digital games is a common activity. This literature study aims to examine if there are effects on pupils’ vocabulary and oral proficiency due to playing digital games. Through compiling prior research, findings suggest that motivation, interaction and repetition over time are positive factors for enhancing vocabulary and oral proficiency. Research also illuminates that there are gender differences among young L2 learners. Frequent gamers are mostly boys and there is also a difference in game preferences. Normally girls tend to outshine boys within most subjects, however, in English the difference is less distinct and boys are somewhat stronger in English proficiency. Research about young L2 learners is scarce and there is definitely a need for further research about the effect of digital gaming on vocabulary and oral proficiency as well as regarding gender differences.

Keywords: Extramural English, out of school English, digital gaming, young L2 learners, English (second language), gender, proficiency, literacy
1. Introduction

Today we live in a world where the ability to communicate in different languages is becoming more and more important. We no longer need to travel across borders in order to interact with people from other countries. Just by going online, through the internet and different digital activities, our globe becomes an open arena, accessible to most people. Due to this globalization, the necessity to know another language in order to function in several parts of society is becoming distinct (Sundqvist & Sylvén, 2016, p. 50). According to Claire Kramsch (2014, p. 303) it is not only important to be able to acquire information, to understand other cultures and the nature of another language, but also to enable participation in multilingual communities around the world, as well as at home. This participation takes place within and outside the school context, and a second language learner (L2) uses the language for personal enjoyment. In today’s society, school maintains its important role as the seat of learning; however, as we are surrounded by English in our everyday lives, learning also takes place outside of the classroom (Sundqvist & Sylvén, 2016, p. 188). Children encounter English outside the classroom earlier and earlier as they watch movies, listen to music, read and play games. In a student questionnaire (Swedish Schools Inspectorate, 2011) approximately half of the pupils stated that they had learned as much English outside of school as in school. Learning English outside the school context through various types of activities can also be referred to as extramural English (EE). Research indicates that EE has an effect on pupils’ oral proficiency and vocabulary. Although different EE activities have various impacts on English proficiency, digital gaming is one of the most frequent EE activities that engage L2 learners and is the focus of this thesis (Sundqvist & Sylvén, 2016, pp. 6-7).

During my internship, as well as through observing my sons and their friends, I have noticed what seems to be a difference between boys’ and girls’ English abilities. Boys’ vocabulary appears to be more enhanced, and they also seem to be somewhat more comfortable when interacting orally with others, whilst girls tend to outshine the boys in written proficiency. One hypothesis is that it may be related to gender differences in EE activities, and, in particular, digital gaming.

1.1. Aim and research question

The aim of this thesis is to give an overview of the existing research on the effects of extramural gaming on young L2 learners’ English proficiency as well as on gender differences in digital gaming. In order to reach the aim the following research questions have been formulated:

1. What type of effects has digital gaming been shown to have on English vocabulary and oral proficiency?

2. What kinds of gender differences in digital gaming habits have been found?

There are several ways to play games; however, in this thesis the term digital gaming will only refer to video- and/or computer games.

2. Background

This section presents information about what the curriculum states about the importance of learning English as a second language. Furthermore, it will highlight different aspects on how
young L2 learners learn English outside the classroom context and finally, clarify the definition of Extramural English.

2.1. The Swedish Curriculum
The Swedish curriculum states that the main tool for thinking, communicating and learning is language. It also stresses the fact that knowledge of other languages will enable us to create contacts with other cultures and acquire an understanding for different ways of living. Furthermore, “to deal with spoken language and texts, pupils should be given the opportunity to develop their skills in relating content to their own experiences, living conditions and interests” (Skolverket 2011, p. 32). Hence, learning a second language will enhance pupils’ opportunities to participate in different social arenas at home as well as internationally (Skolverket 2011, p. 30). The curriculum for English in grades 4-6 expresses that “teaching of English should aim at helping the pupils to develop knowledge of the English language and of the areas and contexts where English is used” (Skolverket 2011, p. 32). In a complex society the aim is not only to acquire another language, but also to develop the ability to communicate through various digital media, such as computers (Skolverket, 2011, p. 14). Furthermore, teaching students to function in society is important and should be executed with equality in mind (Skolverket, 2011, pp. 7-8).

2.2. Language learning beyond a classroom context
Globalization has not only changed the way we live and interact, but it has also had a significant impact on the learning strategies for second language learners (Sundqvist & Sylvén, 2016, p. 31). Historically, it has been the teachers’ role to teach L2 learners and the pupils have had more or less similar access to English input and interaction with others. However, today’s technology has enabled English to be easily accessible through a multitude of activities outside of the school context (Sundqvist & Sylvén, 2016, p. 32). According to the Swedish Media Council (2013) almost all 13-16 year-olds have access to a computer or a mobile phone. They also use the internet frequently and among all age groups the most common out-of-school activity was surfing, social networking and playing digital games. Motivation is a crucial factor when pupils engage in out-of-school activities where they encounter English (Henry, 2014, p. 94-97). English encountered in the classroom can be perceived to be less motivating as the learning environment is made to fit all pupils, contrary to the activities in their spare time. When playing digital games by choice players engage in an activity that is appealing and of interest. According to Gee (2008, pp. 10-12) players become a part of a social interaction where they participate actively, hence they are constantly being challenged and develop their skills. Without motivation, the pupils would not engage in these challenging and time-consuming activities in their spare time.

2.3. Extramural English
Research has illuminated various ways for young L2 learners to encounter English outside the school context. Different terms to describe these phenomena are out-of-class learning, incidental language learning and implicit language learning. The term used in this thesis to define the concept will be extramural English (EE). Sundqvist and Sylvén (2016, p.3) suggest that it should be used as an umbrella term for all English encountered outside of school. Their definition of EE is: “English that learners come in contact with or are involved in outside the walls of the classroom. This contact or involvement is not initiated by teachers or other people working in educational institutions; the initiative for contact/involvement lies with the learner himself/herself or, at times, with someone else, such as a friend or a parent” (Sundqvist &
Studies conducted by Sundqvist and Sylvén (2016, pp. 3-7) show that L2 learners encounter English through several EE activities, one of which is digital gaming.

2.4. Digital gaming
Playing digital games can be performed in various ways, using different platforms (Diaz, 2012, p. 93). Although, there are online as well as offline games, digital gaming commonly takes place within some form of social environment. Digital gamers can choose what type of game to play according to their preferences and Diaz (2012) accounts for the most common ones. Casual games are free games conducted on the internet. They are easy to play, have a short time limit and demand very little effort of the gamer (Diaz, 2012, p. 94). Other forms of games are for example Mine craft, where the player is supposed to construct buildings. The player can choose different modes and the player is challenged as he or she carries on and it demands more commitment regarding time and effort from the gamer. First person shooter (FPS) games are the most popular ones amongst gamers. These games are much more challenging and time-consuming. FPS is played all over the world and the players communicate and interact during the game. They are also considered to be the type of game that requires the most skills and commitment (Diaz, 2012, p. 95). Multiplayer online role-playing games (MMORPG) is a digital game where players engaged in role-playing and alone, or together with other players, are fighting monsters or other players within a fantasy environment (Diaz, 2012, p. 95). According to Gee (2008, pp. 10-12) when playing digital games, players are in a learning environment and they become committed as they interact with others and constantly challenge themselves. If digital games are played within a group, players demonstrate deeper motivation and willingness to perform well than if playing alone (Pinter, 2017, p. 16; Gee, 2008, p. 197).

2.5. National tests and gender differences
Compiled statistics from Swedish national tests in English in grades 4-6 (Skolverket, 2016) indicate a difference between boys and girls. Boys score overall somewhat better than girls in English; however, most evident areas are vocabulary and oral proficiency. In the national test in Swedish, girls score higher than boys in both oral and written proficiency and the difference is more pronounced. Although the difference between the communicative skills of boys and girls in English is less distinct, there is still a detectable difference.

3. Theoretical perspective
This thesis aims to give an overview of the existing research on the effects of extramural gaming on young L2 learners’ English proficiency as well as on gender differences in digital gaming. Hence, the thesis is rooted in two theories of motivation and learning within social contexts: sociocultural theory and self-determination theory.

3.1. Sociocultural theory
Lev Vygotsky was a Russian psychologist who believed that children participate actively in the learning process. However, he also stressed the importance of a social and cultural context (Pinter, 2017, p. 10). Vygotsky was convinced that people are shaped by the culture they live within, and that learning takes place when interacting with others. He was also interested in what children can achieve when receiving help and support from someone more knowledgeable, hence Vygotsky introduced the concept of the Zone of Proximal Development (ZPD). According to Vygotsky, the ZPD can be described as “the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers” (Vygotsky, 1978, p. 86). He argued that between the current
knowledge of the child and potential knowledge there is a zone where learning takes place and the child develops. Vygotsky claimed that with help from someone more knowledgeable, learning evolves “according to the child’s immediate needs to go forward” (Pinter, 2017, p. 12). This help within the ZPD can be referred to as scaffolding. Scaffolding however, was a term introduced by an American psychologist, Jerome Bruner, who claimed that a child can be helped to develop more knowledge with instructional guidance as soon as he or she “is willing and able to” (Pinter, 2017, p. 12). Scaffolding within the ZPD will ensure that the learner stays motivated and finishes the task.

Similar to the ZPD, Sundqvist and Sylvén (2016) use a metaphor called EE House in order to explain possible effects of learning from EE. The authors describe EE as a house in two levels where the first floor represents easily accessible activities such as films and music, and on the second floor are activities such as reading and gaming, which require more effort to enable participation. The stairs represent guidance and encouragement from someone more knowledgeable that might be necessary in order to develop and reach second floor (Sundqvist & Sylvén, 2016, pp. 137-138).

3.2. Self-determination theory
Self-determination theory (SDT) is a macro theory dealing with human motivation and was initially developed by Edward L. Deci and Richard M. Ryan. Deci (1996) argues that the most effective way to motivate people at school, at home or at work is to support autonomy (Deci & Flaste, 1996, pp. 4-7). SDT maintains that in order for humans to grow and be successful, their psychological needs must be satisfied (Deci & Flaste, 1996, p. 30). According to Deci individuals strive to be in control of their own lives and hence, interact with their environment and form relationships. Motivation is crucial in order to fulfil these needs and Deci argues that there are two types of motivation: intrinsic or extrinsic (Deci & Flaste, 1996, pp. 44-45). Extrinsic motivation involves rewards or punishments while intrinsic can be explained as people engaged in an activity simply for pleasure or satisfaction. The best way to motivate people is to support the sense of autonomy and studies show that pupils who are intrinsically motivated find learning meaningful and interesting (Deci & Flaste, 1996, pp. 44-51).

4. Methods and material
This section presents the design, selection strategies, analysis and ethical aspects of the thesis.

4.1. Design, search criteria and selections
The aim of this thesis is to give an overview of the existing research on the effects of extramural gaming on young learners’ English proficiency as well as on gender differences in digital gaming. In order to do so, previous research on this topic has to be compiled and analyzed. The design of the thesis follows the structure of a literature study (Eriksson Barajas, Forsberg and Wengström, 2013, p. 27). A literature study summarizes and analyzes previous research in order to answer new questions. Eriksson Barajas et al. (2013, p. 26) state that the search- and selection process needs to be well documented.

In order to fulfil the aim of the thesis and answer the formulated research questions, relevant texts of previous research had to be compiled. Books, articles and scientific reports have been used within this thesis and different databases were used to search for primary sources (see Table 1 for an overview of the search process). Firstly, ERIC was used as it is a database specialized on articles about education; thereafter, Summon and finally Google Scholar were used. Extramural English, English second language, gaming and gender were the primary
search words used, however, as EE is not the only term describing English outside the school context other terms, such as out-of-school English and incidental language learning were used as well. Limiters such as young learners, L2 and proficiency were also used to narrow the search. Eriksson Barajas et al. (2013, pp. 26-27) stress that previous research must meet a certain standard in order for a conclusion to be drawn. Only peer-reviewed sources published in the last ten years were considered in order to ensure the research is relevant and up to date. When Google Scholar was used, articles found to be relevant were also run through Summon to assure they had been peer reviewed.

Finally nine articles and scientific reports were selected for this thesis and relevant texts from both Swedish studies as well as from the international arena have been used. Only articles and scientific reports directly related to the aim of the thesis were selected. When selecting relevant texts it important to use a variety of authors to prevent the thesis from becoming biased (Eriksson Barajas et al. 2013, p. 27).

### Table 1. Search and selection process

<table>
<thead>
<tr>
<th>Search words</th>
<th>Database</th>
<th>Number of hits</th>
<th>Relevant titles</th>
<th>Relevant texts</th>
<th>To be used</th>
<th>Motivation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extramural English AND gaming AND gender</td>
<td>ERIC (Ebsco)</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>Both articles discuss effects on English proficiency among young L2 learners due to EE and also gender differences</td>
<td></td>
</tr>
<tr>
<td>Out-of school English AND gaming AND gender</td>
<td>ERIC (Ebsco)</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>One already chosen from previous search and one focused only on adults. One was picked as it dealt with EE, gaming and gender.</td>
<td></td>
</tr>
<tr>
<td>English second language AND gaming AND gender</td>
<td>ERIC (Ebsco)</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>Articles already chosen in previous searches.</td>
<td></td>
</tr>
<tr>
<td>Extramural English AND young learners AND gaming</td>
<td>Summon (University of Dalarna)</td>
<td>21</td>
<td>11</td>
<td>5</td>
<td>Some articles already chosen and one discussed EE, gaming and effects on proficiency</td>
<td></td>
</tr>
<tr>
<td>Extramural English AND young learners AND gaming AND gender</td>
<td>Summon University of Dalarna</td>
<td>10</td>
<td>4</td>
<td>4</td>
<td>Authors already used except in one article that deals with EE, proficiency and gender</td>
<td></td>
</tr>
<tr>
<td>Out-of school English AND gaming AND gender</td>
<td>Summon (University of Dalarna)</td>
<td>196</td>
<td>6</td>
<td>6</td>
<td>Some articles and authors already used, however two discussed EE, gaming, proficiency and gender</td>
<td></td>
</tr>
<tr>
<td>Foreign language learners AND games AND young learners AND gender</td>
<td>Summon (University of Dalarna)</td>
<td>1504</td>
<td>12</td>
<td>7</td>
<td>Some authors already represented. 1 article about gender was chosen. Already after about 100 titles, relevant titles for the thesis were declining.</td>
<td></td>
</tr>
<tr>
<td>Out-of school English AND gaming AND gender AND proficiency AND L2 learners</td>
<td>Google Scholar</td>
<td>6410</td>
<td>15</td>
<td>7</td>
<td>Relevant titles were declining fast. Some authors were already used and many were not a relevant age group. Finally one article was chosen.</td>
<td></td>
</tr>
</tbody>
</table>

**Total articles** | **9 articles**

### 4.2. Analysis

In order to conduct the analysis of the articles in a structured and comprehensive way a table of questions was made (see Table 2). By doing so the process of selecting relevant material for this thesis was simplified. In this thesis the aim is to give an overview of the existing research
on the effects of extramural gaming on young learners’ English proficiency as well as on gender differences in digital gaming. Therefore, the texts are, in the results, organized in two categories: effects of digital gaming and gender differences within digital gaming.

Although some articles address both research questions, they will be organized this way to facilitate structure and finding themes within the categories. These two categories are summarized and analyzed separately and then combined in the discussion.

A systematic literature review also comes with some ethical considerations. Presenting results that only support the researcher’s own hypothesis is, according to Eriksson Barajas et al. (2013, pp. 69-70), unethical, hence it is important to present all findings. Furthermore, it is also important to declare all the sources that are being used and also choose material that is peer reviewed in order to ensure ethical aspects.

Table 2. Selection process

<table>
<thead>
<tr>
<th>Article &amp; author</th>
<th>Year of publication</th>
<th>Does the article discuss EE and English proficiency (research question #1)</th>
<th>Does the article discuss digital gaming and gender differences (research question #2)</th>
<th>Relevant age group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gaming as extramural English L2 learning and L2 proficiency among young learners. L.K. Sylvén, P. Sundqvist.</td>
<td>2012</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Gender differences in elementary school students’ game design preferences. H. M. J. Hsu.</td>
<td>2013</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Online Games for young learners’ foreign language learning. Y.G. Butler, E. Sumeya, E. Fukuhara</td>
<td>2014</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Effects of digital games on vocabulary acquisition of Iranian low proficiency male and female EFL learners. B. Mazaji, O. Tabatabaei.</td>
<td>2016</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Gaming as an English Language Learning Resource among Young Children in Denmark. S.H. Jensen</td>
<td>2017</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Language-related computer use: focus on young L2 learners in Sweden. P. Sundqvist, L.K. Sylvén.</td>
<td>2014</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Games in language learning: opportunities or challenges. R. Godwin-Jones.</td>
<td>2014</td>
<td>x</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Gender differences in game activity preferences of middle school (grade 6, 7, 8) children: implications for educational game design. M.B. Kinzie, R.D Joseph.</td>
<td>2008</td>
<td>x</td>
<td></td>
<td>x</td>
</tr>
</tbody>
</table>

4.3. Method discussion

There are limitations within the method of finding relevant research for this literature review. Although the key word Extramural English is a well-known concept in certain areas of research, there are also several other ways of describing activities that engage young L2 learners in their spare time and it may not be possible to find all such word combinations. Other key words might have resulted in different research. There is also a form of limitation due to the fact that there is not extensive research done regarding young L2 learners and the connection between their EE digital gaming and enhanced vocabulary.
5. Results
In this section the articles relevant to the aim of the thesis are presented in order to give an overview of the existing research on the effects of extramural gaming on young L2 learners’ English proficiency as well as on gender differences in digital gaming. In order to address the research questions, the results of the articles are divided into two categories: effects of digital gaming and gender differences in digital gaming.

5.1. Effects of digital gaming
Butler, Someya and Fukuhara (2014) conducted a study in Japan with almost 4000 children aged 4-12. The purpose of the study was to examine their game-playing behaviour with learning outcomes. During the study the authors found that relational patterns between children’s game scores and English performance varied according to which game they played as well as the level of difficulty. Butler et al. stress the fact that gaming is effective in enhancing users’ learning and understanding as well as increasing motivation. They also found that among the participants, higher motivation correlated to frequent playing and hence enhanced vocabulary. The authors also learned that young L2 learners seem to be attracted to digital games that contain challenge, mystery, control and multiple players. This study by Butler et al. was conducted with L2 learners playing instructive digital games used within a school context; however, these types of games are chosen among EE players as well.

Mazaji and Tabatabaei (2016) conducted a study on the effects of digital gaming on vocabulary acquisition of low-proficiency Iranian male and female EFL learners aged 8-12. The young L2 learners got to play digital games regularly in the classroom and they enhanced their vocabulary significantly. The authors found that not only did the pupils enhance their vocabulary, but it seemed like their entire language ability was strengthened. Mazaji and Tabatabaei believe the positive results within the study regarding enhanced vocabulary are a result of L2 learners playing a digital game being more relaxed and willing to learn. The authors stress the fact that when the pupils communicated and interacted with others they learned vocabulary more effectively, as it was not learned in isolation. The participants played the same games during the study and the usage over time seems to be a very effective way to enhance vocabulary.

In Denmark, Jensen (2017) conducted a study among young L2 learners, aged 8-10 years. The aim of the study was to investigate if there is a correlation between gaming and L2 English vocabulary. The author of the study found that EE digital gaming, containing both oral and written English, enhanced the learners’ vocabulary. Gamers that played often were found to have an advantage, as repetition becomes a part of frequent gaming, and hence seems to benefit learning. Jensen also found that gamers are motivated to learn English. Many games are in English and in order to be able to participate, players become highly motivated to learn English, in contrast to less frequent gamers. The author claims there was a difference in motivation among the students when they played EE digital games out-of-school versus instructional games within the classroom. When they played games in a school context they believed they were forced, hence they lacked motivation.

Godwin-Jones (2014) emphasizes, in a literature review, the fact that EE digital gaming plays a central role today in young people’s lives, and should be taken in to consideration when reaching out to unmotivated L2 learners. The author suggests that this would be inspiring as these learners become exposed to linguistic knowledge in a way they would not encounter within a classroom setting. When playing digital games, the player needs to use the target
language for interacting, both orally and in writing, with other players. Godwin-Jones found that the gamer perceives it to be a meaningful task, and hence, less motivated L2 learners’ motivation increases. When L2 learners get to play games with freedom of choice, within a relaxed environment and feel a sense of enjoyment, their motivation and willingness to challenge themselves increases as well. Learning possibilities, according to the author, emerges as the player is engaged in repeated actions in different context and increasing levels of difficulty. Godwin-Jones also argue that language learning not only takes place during the game, but also before and after playing as gamers interact.

In Sylvén and Sundqvist’s 2012 study with 11-12 year olds in Sweden, massively multiplayer online role-playing games (MMORPGs) are claimed to be conducive to L2 learning. An important factor for the positive correlation between vocabulary and EE digital gaming seems to be the time spent engaging in the activity. Frequent gamers tend to outperform moderate gamers and therefore research points to the fact that playing digital games at an early age might improve L2 acquisition. According to Sylvén and Sundqvist, in Sweden, English is used to a large extent outside the classroom environment. As spare time activities are mostly chosen by the L2 learners themselves, they become motivated to perform well, and motivation is one of the most important factors in order for L2 learning to take place. In most digital games the default language is English, and, therefore, young L2 gamers are challenged with increasing levels of difficulty and they will most likely acquire some of their L2 English proficiency through gaming. However, different EE digital games correlate to different L2 proficiency; hence, not all EE digital games enhance L2 learners’ vocabulary and oral proficiency in English.

Sundqvist and Sylvén (2014) also conducted a study among young L2 learners, age 10-11, where the pupils wrote a diary documenting the EE activities they engaged in. Gaming was one of the top activities, and the pupils who were frequent gamers spent more than seven hours per week on gaming. The participants in the study were divided into experiment- and control groups, and Sundqvist and Sylvén found that a comparison between those groups showed an increased L2 vocabulary among frequent gamers. The authors also suggest that important factors for enhancing vocabulary are motivation and interaction.

Lai, Zhu and Gong (2014) studied middle school students, age 14, in China on their out-of-school English language learning. The pupils answered a questionnaire about their English activities they engaged in and how much time they spent on each activity. Students that reported different patterns were also interviewed. Through this study they aimed to find out what characteristics were associated with good learning outcomes. The authors claimed that students constantly engage in English activities and that English they encounter outside a school context plays a significant role in language learning. Lai et al. found that enjoyment and interaction were important factors for good learning outcomes. They also identified support and forms of scaffolding as crucial for enhancing English proficiency.

5.2. Gender differences due to digital gaming
To fulfil the aim, the second research question to look at what kinds of gender differences in digital gaming habits have been found, had to be addressed. Therefore research articles regarding that topic will be presented here.

Kinzie and Joseph (2008) conducted a study with middle school students, average age 12, in America, and not only found that boys tend to play digital games more frequently than girls, but they also discovered a difference in game activity preferences. Kinzie and Joseph found that boys tend to find educational games boring. When examining educational games versus games
not intended for education, educational games were shorter, less complex and less challenging. The study also shows that although the number of girls that play digital games weekly is increasing, there is still a lack of female characters within the games, and there still seems to be a gender difference due to the fact that girls feel less comfortable and confident with computers. A final gender difference Kinzie and Joseph found is game preference. The visual design of the game is important to appeal to girls whereas boys want the games to be strategic and involve interaction with other players.

Hsu (2013) conducted a study in Vietnam with students in second grade. The study examined a visual programming environment, Scratch, when implemented as an extracurricular activity in an elementary school. By comparing students’ final products, the author aimed to see if there were any gender differences regarding gaming preferences. Hsu found gender differences within some areas. Male students tended to use the computer to play games and program, whereas girls consider the computer as a tool for completing a task. Furthermore, girls use the computer to broaden their personal relationships, whilst boys prefer to play online games, especially violent ones. According to Hsu, boys like adventure games with challenges and girls prefer educational games. Visual design is also a very important issue for girls playing digital games.

In the study conducted by Sylvén and Sundqvist (2012) where the aim was to investigate the relationship between EE and L2 proficiency, gender differences were also found. Girls tended to play offline single-player games such as Sims, whereas the boys preferred massively multiplayer online role-playing games (MMORPG). Sylvén and Sundqvist also found that boys spend more time gaming outside the school context than girls, and when the pupils were given a vocabulary test, the boys outperformed the girls on all parts of the test.

In Butler et al.’s (2014) study, which was conducted to examine game-playing behaviour and learning outcome, gender differences were also taken into account. In this study there were very few gender differences within the students’ game-playing behaviour. Butler et al. expressed an uncertainty about the outcome of the results; however, one hypothesis is that it might have mattered that the pupils were assigned to play gender-neutral games instead of choosing themselves.

Jensen’s study (2017) among Danish young L2 learners’ use of EE also examined gender differences. In the study the author found that boys played digital games significantly more than girls. Jensen argued that boys have stronger skills in conversation and, hence, scored higher in an oral test the students were given. Jensen wanted to understand why there is a correlation between the amount of game playing boys engage in and their scores on tests. Although girls spend much less time gaming, the difference between the girls’ and boys’ scores on the tests in the study was negligible.

Yet another study conducted by Sundqvist and Sylvén (2014) among Swedish pupils aged 10-11 showed statistically significant gender differences. Girls spend less time on digital gaming, whereas boys are frequent gamers. Sundqvist and Sylvén found that boys chose to play MMORPGs requiring interaction with others. Boys also tended to be driven by competitive and interactive activities. For the vast majority of girls in the study, their EE digital gaming preferences were off-line single player games.
6. Discussion
Research suggests that there are effects on young L2 learners’ English vocabulary and oral proficiency when they engage in EE digital gaming. The impact on vocabulary and oral proficiency relates to a few prominent factors presented in the discussion.

Playing digital games with freedom of choice will increase the feeling of enjoyment and ability to control the activity (Lai, Zhu & Gong, 2014). Digital gamers also perceive it to be a meaningful task to enhance their English vocabulary (Godwin-Jones, 2014) as the target language in digital games is English. Many digital gamers play games that require commitment and they are being challenged. If pupils play instructional educational digital games, they immediately experience being controlled rather than a sense of enjoyment (Jensen, 2017).

Time spent playing digital games emerges as an important factor for correlation between vocabulary and digital gaming. Sylvén and Sundqvist (2012, 2014), Mazaji and Tabataei (2016) and Jensen (2016) are all able to detect a difference in enhanced vocabulary and oral proficiency among frequent gamers compared to less frequent gamers. Frequent players spend a vast amount of time playing digital games (Butler et al., 2014) and when doing so, they are also exposed to language learning in the form of repetition which is also proven to have positive effects on learning (Mazaji & Tabataei, 2016).

The impact of motivation emerged in most findings. Butler et al. (2014) found that higher motivation correlated to frequent playing. In the background reading Deci, founder of self-determination theory (1996, pp. 44-51) argued that motivation increases when engaging in activities for pleasure or satisfaction. Godwin-Jones (2014) found that otherwise unmotivated pupils could enhance their vocabulary, due to playing digital games. Furthermore, Mazaji and Tabataei (2016) detected that when low-proficiency pupils increased their motivation, felt relaxed and had a sense of enjoyment, they in fact strengthened their entire language ability.

Vygotsky’s (1978) sociocultural theory posits that pupils participate in the learning process and that they learn by interacting with others. ZPD is also a central point in his theory (Vygotsky, 1978, p. 86) and highlights the fact that pupils can learn and develop with scaffolding. This concurs with the fact that playing digital games that interact with others are found to be conducive to L2 learning (Sylvén & Sundqvist, 2012). Lai et al. (2014) also agree as their findings indicate that support and scaffolding are important in order to enhance vocabulary and oral proficiency.

The Swedish curriculum (Skolverket, 2011, p. 31) states that learning another language will enable the pupils to interact with others in spoken and written English. Furthermore, the pupils should be able to develop their skills relating to their interest. The compiled research suggests that learning takes place when the pupils are motivated and not feeling controlled (Jensen, 2017). Other positive learning outcomes were interaction and scaffolding (Lai et al., 2014).

Other findings emerged when compiling the research. Although previous research indicates a positive correlation between EE gaming and pupils’ vocabulary and oral proficiency, there is still uncertainty regarding digital games. Sylvén and Sundqvist (2012) stress the fact that not all EE digital games enhance pupils’ vocabulary and oral proficiency, and Godwin-Jones (2014) clarifies that an important part of language learning takes place within the interaction with other players before and after the games.
When compiling prior research regarding gender and digital gaming, it is clear that gender differences occur. Gee, one of the most prominent researchers on digital gaming and school-age children says that although female gamers are becoming more common today, there is still a gender difference as boys tend to spend more hours committing to digital games than girls (2008, p.16). Kinzie and Joseph (2008) also concluded in their study that boys were more frequent players and furthermore, boys seemed more comfortable playing games than girls. Boys enjoy playing MMORPGs and will do so if they are free to choose (Sundqvist & Sylvén, 2014). Role-playing games require communication and interaction in comparison to the offline, one-player games that girls seem to prefer. As boys preferably engage more in role-playing games (Jensen, 2017) that require more commitment and are more time-consuming, it is comprehensible that boys are more frequent players than girls.

Yet another factor contributing to gender differences within English vocabulary and oral proficiency may be the various types of digital games boys and girls commit to. Sundqvist and Sylvén (2016, pp.32-33) who have done extensive research on EE in a Swedish context, have found in their studies that digital games with multiplayer and/or role playing seem to be most beneficial when it comes to L2 learning. Therefore, not only the amount of time spent on digital gaming but also which type of digital game is being played appear to be factors that have an impact on conceivable gender differences (Sundqvist & Sylvén, 2016, pp. 32-33).

Boys do not only prefer role-playing games. If free to choose, they preferably play adventurous digital games that are challenging (Hsu, 2013) and require commitment to enhance their skills. Girls prefer instructional, educational games, whereas boys find them to be boring and less motivating. When pupils were assigned to play gender-neutral games, the gender differences were not as distinct (Butler et al., 2014).

7. Conclusion

In conclusion, although previous research indicates positive results on young L2 learners’ vocabulary due to EE digital gaming, there is uncertainty regarding different games and their bearing on proficiency. Research has shown that motivation and social interaction are important factors for L2 learning, and therefore, one might wonder if the social environment surrounding interactive digital game playing is more important than the game itself.

The aim of this thesis was to give an overview of the existing research on the effects of extramural gaming on young L2 learners’ English proficiency as well as on gender differences in digital gaming. Research indicates that vocabulary is strengthened but oral proficiency is seldom mentioned. It is somewhat implicated that an enhanced vocabulary will automatically also enhance oral proficiency, but it is hardly mentioned within the findings. It is also mentioned that pupils that are frequent digital gamers and communicate and interact with others feel more comfortable talking. Although oral proficiency is mentioned within the findings, I do not think the research question has been fully answered.

Research also concludes that there are gender differences in boys’ and girls’ digital gaming preferences and the amount of time spent on EE digital gaming. As girls tend to choose games that do not include as much interaction and challenging tasks, girls are not as frequently exposed to the evidently successful factors for L2 learning. Hence, that might be a possible reason for why boys and girls differ in English vocabulary. As research indicated that gender differences decreased when pupils were assigned to play gender neutral games, we need to pay close
attention to how games can be designed to appeal to both boys and girls and hence, overcome any gender differences.

However, there is still need for further research. To this author’s knowledge, not much research has been conducted on younger language learners and EE. Hence, it would be interesting to research more about the effect on English proficiency, due to EE, as the actual reason for potentially enhanced proficiency may be much-disputed. Also, research on gender differences among younger learners in digital gaming is scarce. Further research needs to be conducted on young L2 learners’ gaming habits and potential benefits on vocabulary and oral proficiency.
References


https://www.skolverket.se/bedomning/nationella-prov/alla-nationella-prov-i-skolan/arskurs-6/amnesprovet-i-engelska-1.197351


