Video Game Vocabulary
The effect of video games on Swedish learners’ word comprehension

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Abstract

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Abstract: Video games are very popular among children in the Western world. This study was done in order to investigate if video games had an effect on 49 Swedish students’ comprehension of English words (grades 7-8). The investigation was based on questionnaire and word test data. The questionnaire aimed to measure with which frequency students were playing video games, and the word test aimed to measure their word comprehension in general. In addition, data from the word test were used to investigate how students explained the words. Depending on their explanations, students were categorized as either using a “video game approach” or a “dictionary approach” in their explanations.

The results showed a gender difference, both with regard to the frequency of playing and what types of games that were played. Playing video games seemed to increase the students’ comprehension of English words, though there was no clear connection between the frequency with which students were playing video games and the choice of a dictionary or video game approach as an explanation.

Keywords: Vocabulary acquisition, word comprehension, learning principles, English as a second language, dictionary approach, video game approach.
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Introduction and aims

In most households in the Western world, a vast range of different electronic devices, computers and gaming consoles were available in the year 2009. Never before have electronic devices been as common. With each new area of technology comes a whole range of new terms and phrases. Many of the words used to talk about modern technology are words that already existed in the language but which have taken on new meanings, and some terms might have different meanings when used in different contexts.

An example of an area where terms and phrases undergo rapid changes is the Internet. The Internet was invented by the American government during the Cold war as a network for communication between military agencies. However, it quickly became accessible for the general public, and with the growth of the Internet came a sudden change in language (Crystal 2006:19-25). The instant messaging (text service for cell phones), e-mails, chat services and computer games led to the need of a fast pace language, leading to the emergence of Netspeak (or Textspeak). It was easily typed and it was manageable in small chat/text-windows. The possibility to connect video games to the Internet/online servers made a huge amount of new games possible, where players could play and communicate with other players. Netspeak has left its mark on these games as well.

Much of the communication that uses modern technology makes use of the English language, so for people with a different native tongue than English, a good knowledge of English is important. Given that the Internet and video games are such a big part of youth culture today, it is reasonable to assume that they play an important role in children’s language learning strategies (Gee 2007a:28).

This raises a number of questions about language acquisition and computer games: Do they affect players’ vocabulary, grammar, and communicative skills? Do they have an impact on their mother tongue? Do teachers at schools consider implementing any sort of game-like learning in their teaching? Although these questions are interesting, the main purpose of this essay is to investigate the effect video games may have on vocabulary acquisition in a second language. The investigation will be carried out with a questionnaire and a word test in order to measure students’ video game habits as well as their comprehension of English words. I will also investigate if there is a connection between students’ understanding of words and their frequency of playing video games.
2. Background and previous research
Section 2.1 briefly introduces the Netspeak phenomenon and explains some of its features. Next, in 2.2, there is a discussion of video games and learning, where aspects of general learning strategies, as well as aspects of language learning are connected to video games. Section 2.3 contains a comparison of learning from video games/computational media and learning from traditional instructed teaching in school. Lastly, in 2.4, I briefly explain the reasons why a quantitative method of analysis is suitable when investigating the potential effects video games have on vocabulary acquisition.

2.1 The Netspeak phenomenon
One fact about language that cannot be ignored is that language changes, and this change is natural. However, the views people have on language change differ. Language change may be considered either good or bad; some even ponder the question whether or not the English-dominated Internet will be the end of other languages (Crystal 2006:1; Daniels 2008:3, 15).

The reason why many people think that the Internet will be the end of other languages are the different types of communication, like blogs, e-mail, instant messaging, and Internet forums, that all emerged with the Internet and had an impact on language (Crystal 2006:20-21). The term Netspeak refers to a way of communicating spoken features (like emotions, stress and intonation) in writing, including all the various linguistic features that appear on the Internet: abbreviations, acronyms, use of emoticons and exaggerated usage of punctuation, to mention the more prevalent features (Crystal 2006:51). The new features of language use on the Internet took place mainly because of two factors. First, the text should easily fit into a limited space, hence all the acronyms and abbreviations. Second, in order to convey emotions, a number of features such as smileys were invented to let people make use of facial expressions in a written dialogue. A few examples of abbreviations and acronyms that are used online are listed in Table 1 (based on Crystal 2008:78-79; Chien & Grano 2003:12).
Table 1. Some examples of online abbreviations and acronyms.

<table>
<thead>
<tr>
<th>Netspeak</th>
<th>Stands for</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brb</td>
<td>Be right back</td>
</tr>
<tr>
<td>Lol</td>
<td>Laughing out loud</td>
</tr>
<tr>
<td>Afk</td>
<td>Away from keyboard</td>
</tr>
<tr>
<td>Nvm</td>
<td>Nevermind</td>
</tr>
<tr>
<td>Roflmao</td>
<td>Rolling on the floor laughing my ass off</td>
</tr>
<tr>
<td>Shud</td>
<td>Should</td>
</tr>
<tr>
<td>Ur</td>
<td>Your</td>
</tr>
<tr>
<td>Xept</td>
<td>Except</td>
</tr>
</tbody>
</table>

One of many criticisms of Netspeak was that it functioned as a mask for dyslexia or laziness. It has been argued that Netspeak is less coherent and less correct than the standard variety of English (Crystal 2008:77). However, Netspeak is almost exclusively a deliberate action to express more spoken-like features, such as laughter and irony (Herring 2001:5-7). Although Netspeak is mostly related to cell phone texting or communication on the Internet, it also occurs in any game that has a chat function.

2.2 Learning mechanisms and video games

*Video games* is a very general concept and in this essay it simply refers to any game playable on a computer or a console connected to a TV set. This is in line with how Gee (2007a:7) defines the term. As mentioned in the introduction, most video games, along with other recent electronic devices, make use of English, in our society. Thus, comprehension of the English language has become a fundamental skill for playing most video games. diSessa (2000:1) begins his book *Changing Minds: Computers, Learning and Literacy* with the sentence “Although almost everything else – especially values – seems to be in dispute, no one questions the importance of reading and writing as foundational skills”. In Sweden, skills in Swedish are essential, but so are reading and writing skills in English. Since English is the only foreign language that is mandatory in Sweden (Skolverket 1994), it is interesting to see what strategies children use to acquire the language.

Gee (2007a:23; 2007b:71-73) summarizes some recent cognitive science research and argues that learning is not a matter of storing facts in the brain. Humans tend to learn things better when they have the ability to put the things they are trying to learn into practice;
something they can imagine rather than a vague rule they have learned without the experience connected to the rule. If someone tells you to think about war you will probably base your thoughts on your own experience. Whether your experience is based on real life, movies, books or games about war, you see pictures and scenarios rather than apply some general description about what a war is. We usually use pattern thinking, drawing conclusions from experiences we have had in our lives. It is quite uncommon to think in abstract generalizations about the world around us (Gee 2007a:23; 2007b:190-191). He also states that “under the right conditions, learning, like sex, is biologically motivating for humans” (Gee 2007a:29) and this is where video games come into the picture.

Video games, according to Gee (2007a; 2007b), are teaching models that allow people to practice and actively engage their acquired skills, often with a chance to repeat a stage or certain action until they feel comfortable enough to advance to a higher level of difficulty. With the security of the environment provided by the game, players are encouraged to learn with small or no penalties for mistakes (Gee 2007a:39). For instance, sandboxes\(^1\) or tutorials are often installed to help the player acquire the basic skills required to play the game. This means that players learn to solve basic problems without pressure or stress, and can develop their skills in pace with the game. Gee (2007a:42-43) claims that video games, if properly designed, not only teach the player to solve current problems, but also give the player a tool to develop and apply to later problems.

With both visual and audible aids, players extend their minds and get a completely different identity while playing/learning. Regardless of the type of game they play, an action game, a tactical game or a role-playing game, all games require that the player takes on the role of someone (or something) else. While taking on a new identity, the player views the virtual world through the eyes of the character (Gee 2007a; 2007b).

When it comes to learning, Gee (2007a:113) talks about two different types of knowledge: situated versus verbal. The difference between the two is that with verbal knowledge you have a rule or an understanding of different terms, yet you do not have the full comprehension of when and where to apply the rule(s)/term(s) in an actual situation. With situated knowledge, on the other hand, you have understood when and where to apply the different rules to different situations. With verbal knowledge you may have the tools to pass a test in school, but you may be unable to use the knowledge to actually solve a problem. To further clarify, let me offer an example. Say that a student is given a number of formulas to

\(^1\)Sandboxes are similar to standard game-play with the difference that mistakes or errors have none, or low, penalties (Gee 2007a:39).
study for an exam in chemistry. In many cases the student’s focus lies on remembering as much of the formulas as possible – without focusing on understanding them at a deep level. The student is then able to pass the test, but if the student were to apply these formulas in a chemistry lab to actually solve problems, s/he would probably fail since s/he lacked the embodied experience.

Gee (2007a:106; 2007b:81) writes that video games generally require a situated knowledge of the various commands a player has to learn. Even though many games require a specialist-type of language, players can easily comprehend the terms and rules since they are learning in a situated mode. He argues that being prepared early on for learning specialist language, i.e. terms not commonly used in colloquial speech, is necessary if children are to manage different tasks in school. Preparation for specialist language occurs in many homes, in the form of informal teaching, e.g. a parent talking to a child about a specific area of interest, mixing vernacular and specialized language.

An area where specialist language preparation commonly occurs is interactive games, e.g. video games. Gee (2007a:109) offers the card-game *Yu-Gi-Oh*\(^2\) as an example. However, judging from my own experience, there are very few (if any) games on the market that do not require the understanding of some form of specialist language. Games require literacy in order to read and understand text information, and many players develop areas of expertise. Players may construct complex mathematical systems in order to calculate functions in the game, and they may develop a specialist language in order to discuss and compare the vast amounts of commands that are prevalent in almost any game.

In many games there are different races/factions/nationalities/teams, and they all come with different skills and attributes. For example, in role-playing games a variety of races like humans, dwarfs, elves etc. usually exist, and in tactical games there are usually a vast number of countries or evil/good factions. To my knowledge, children often discuss the pros and cons with these different categories, thereby revealing that they have a deep knowledge of every playable section and can compare various categories. Gee (2007a:111) states that while discussing games, children tend to use language on a level far above their usual school book texts.

\(^2\) *Yu-Gi-Oh* is an anime/manga-comic that later developed into a card-game.
2.3 Video games and traditional school education

There is no denying that there is a huge difference between traditional teaching and video games. Nevertheless, they both require people to actively engage in learning. If students dislike traditional teaching methods and still play video games in their spare time, the dislike cannot be an issue of laziness or incapability of learning – since video games require players to actively think, plan, and learn a vast amount of commands. Gee (2007a:29; 2007b:3-4) argues that most players do not want easy games, quite the opposite. If game companies make games where the learning principles are badly incorporated, or if the games are too easy, the probability that these games will sell badly is high. Gee (2007a:17) even goes as far as saying that “good video games are thinking tools. Their deepest pleasures are cognitive. The ‘drug’ the video game industry discovered was learning.” So what is it really, that gets some children to engage in learning from video games, whether or not they engage in learning in school?

Both Gee (2007a; 2007b) and diSessa (2000) write about principles of learning connected to video games and/or electronic media. What I write below is a summary of Gee’s learning principles, as presented in his two books Good Video Games + Good Learning (chapter 4) and What Video Games Have to Teach Us about Learning and Literacy (Appendix A), and diSessa’s learning principles as presented in Changing Minds: Computers, Learning and Literacy (chapter 6).

1. Active Learning/Co-Design: Learners should be producers, not just passive consumers. The ability to use literacy in order to solve new problems, not just understanding old problems.
2. Learning about learning: Understanding the system of design, semiotics and critical thinking.
3. Customization: Different learners need different ways to learn.
4. Identity: Taking on a new identity can help in order to learn, i.e. “become” a scientist in order to study science.
5. Extended identity: To be able to control something via a tool, thus extending the area of effectiveness makes the learner feel empowered.
6. Sandboxes and fish tanks: Learners can take risks with lowered consequences, and learn complex models through simplified processes with stressed key variables.
7. Well-ordered problems: The learner receives rewards from beginning to end for achievements, experiences on-going learning with a vague border between learner and master, and the problem solving is structured – challenging but doable.
8. **Cycles of expertise:** Learn by probing the world, critically think about the results, form a hypothesis and probe again.

9. **Situated meaning:** The meanings of signs are situated, not abstract. An action is not decontextualized. The text is not purely verbal, the learner learns by mixing text information with embodied experience.

10. **Information on-demand:** The information is given in time for it to be used and understood, learners don’t need to read a full manual at start but can use it as a reference along the way.

11. **Practice without boredom:** While using skills as strategies players can repeat and practice without becoming bored by the repetition.

12. **Material intelligence:** The mind can rest since intelligence can be stored as material (lists, items, tools etc.), letting the learner focus more deeply. The computer does not think for the learner but can store knowledge so the learner can move around objects and reformulate ideas.

### 2.4 Video games and vocabulary

Previous research in the field of video games has often focused on more general aspects of learning. In this essay, the focus is on the relationship between playing video games and secondary school students’ comprehension of English words. A study similar to mine is Sundqvist (2009), who investigated the impact of extramural English, i.e. English used outside school, on vocabulary and oral proficiency. Sundqvist used a mixed methods approach, i.e. different types of questionnaires as well as interviews were included in her study (Sundqvist 2009:86). Sundqvist claims that extramural English has a positive impact on both oral proficiency and vocabulary, although the connection between extramural English and vocabulary is stronger. She came to the conclusion that the extramural English activities that required more active student production, such as video games, using the Internet etc. had greater impact on language acquisition than more passive activities, such as films, music etc. (Sundqvist 2009:191-204). This correlates well with both Gee’s and diSessa’s learning principles summarized in section 2.3.

### 3. Material and methods

The aim of the study was to investigate whether video games had an impact on second language learners’ vocabulary acquisition. This section presents the participants in the study and describes ethical considerations. A questionnaire was constructed to gather data about
students’ use of video games, and a word test was made in order to measure the students’ comprehension of various English words (see App. 3).

3.1 Participants and ethical considerations
The data collection for this essay was done during the time of my teacher trainee period, so it was easy for me to approach the students and inform them about the study. They were given oral information about the study and its purpose, and a letter was sent to their guardians. In both the letter and the oral information it was stressed that participation was voluntary.

The participants in the present study were children aged 13-15 (grades 7-8) at a Swedish secondary school in a medium-sized town. Since all of them were minors I needed to have their guardians’ approval for their participation, thus a form of consent (see App. 1) was included in the letter to the guardians. The criterion for participation was that the form of consent had been handed in before the study started.

A total number of 49 students, 18 boys and 31 girls, were approached and informed about the study. Twenty-nine of them were in a 7th grade music-profile class, and 20 in a regular 8th grade class. Two students, both girls, did not want to take part in the study, and another student, a boy, had forgotten to hand in his form of consent so even though he wanted to participate he was excluded. This means that the rate of attrition was low, only 6%.

3.2 Methods
The tool used to measure students’ engagement in video games for the study was a questionnaire (see App. 2). The questionnaire was used to determine how frequently students engaged in playing video games, what kind of games they played and if they used any sort of communicative functions during game play, e.g. chat functions.

The second tool used was a word test (see App. 3). The purpose of the test was three-fold: (1) to investigate if frequency of playing can affect vocabulary acquisition, (2) to analyze the students’ comprehension of the words, i.e. if they used a video game approach or a dictionary approach when answering, and (3) to investigate whether or not different types of games played affected the vocabulary. The words were gathered by myself from different types of video games, chosen for their prevalence in the games. The students were asked to answer in Swedish since it was the comprehension of the word that was investigated, not their writing skills in English. For immigrant students, a Swedish translation might be more difficult than an English translation. In the present study there were three students who were
not native speakers of Swedish. However, they were all fluent speakers and had no problems translating into Swedish.

The present study is entirely quantitative, i.e. no interviews were made, and the questionnaire did not include any open questions. The choice of method was made partly due to time constraints; this study was to be carried out in ten weeks. A mixed research method may have given depth to the students’ answers; however, it was not possible to adopt such a procedure.

3.2.1 Video game categorization

This section explains the categories of video games that are used in the questionnaire and section 4.1. These are mainly the categories used by game distributors, with the addition of the category other. The categories are presented in the same order in which they appear in Figure 2 (section 4.1).

*Action/Adventure* games are often played in an offline, first-person camera mode, though there are online action games as well, such as Counter-Strike (a popular first-person shooting game played in teams).

*Strategy* games focus on controlling a territory and expanding it with military forces. They are usually played offline or via local networks.

*Role-playing games* come as both online and offline games. The offline role-playing games are quite similar to the action games, though usually with a different setting. *Massive multiplayer online role-playing games* (MMORPGs or MMOs) are games similar to role-playing games although the player’s character exists in a virtual world together with a mass of other players. These types of games have become quite popular; the MMORPG World of Warcraft has several million registered users (2009).

*Platform* games are simply based on platforms and the player is supposed to travel from point A to B. The Nintendo games Super-Mario and Donkey Kong are both examples of this kind of game.

The category *other* includes games that do not fit into the other categories, e.g. sport games or Nintendo Wii Fit games.

*Simulation* games are meant to simulate parts of reality. One example of this type is The Sims, a popular game where the player is supposed to develop a successful family and/or community.
3.2.2 Approach used in students’ explanations

The aim with the word test was to measure the students’ general word comprehension. A categorization was made with the purpose of investigating whether students’ word comprehension differed depending on their video game habits. I decided to look at the students’ explanations to see if they explained words with a video game approach, or with a more lexical approach. To make a similar categorization with the translations would be difficult as an English word only has a fixed number of equivalent words in Swedish, opposed to an explanation which can differ a lot and still be a valid explanation of a word.

In order to determine whether the students used a dictionary approach or a video game approach, four dictionaries were used, two in English (Longman Dictionary of Contemporary English and Merriam-Webster Online Dictionary and Thesaurus), and two in Swedish (Norstedts Engelsk-svenska Svensk-engelska Ordbok and Svenska Akademiens Ordbok). The reason for using four different dictionaries was to establish a wide, but adequate, reference for classifying student explanations. If the students used an explanation similar to the explanation in any of the dictionaries, the explanation was classified as a dictionary approach. If the student used an explanation of the word strictly connected to a video game, the explanation was classified as a video game approach (see Table 2). The word test consisted of 49 words. The students got one point for each correct explanation, and one point for each correct translation, making the maximum possible score 98 points. I decided that if more than 50% of the correct explanations belonged to the same category, I would categorize the student as using either a dictionary approach or a video game approach.

Table 2. Examples of video game approach and dictionary approach answers.

<table>
<thead>
<tr>
<th>Word tested</th>
<th>Video game approach</th>
<th>Dictionary approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level</td>
<td>Level marks the character’s progression.</td>
<td>An even surface. To level something to the ground.</td>
</tr>
<tr>
<td>Map</td>
<td>A part of the game that you can choose to play.</td>
<td>An image representing an area.</td>
</tr>
</tbody>
</table>
3.3 Data collection
The questionnaires and the word tests were distributed during a class. The time allocated for both tasks was 80 minutes in total. The students first filled in the questionnaire, and as soon as they were done they were given the word test. Each student filled in the questionnaire and the word test individually.

The questionnaires and word tests were compiled and analyzed using pen and paper. Since there is a human factor involved, there is always the possibility of mistakes. To the best of my ability, I went through the questionnaire and the word test, one item at a time, and every question and answer was double-checked. For each student, I noted whether the student played video games often, sometimes, or never (see section 4.1). One student, who did in fact play video games, but only in Swedish, is represented as never playing in the results since she did not use any English while playing video games. Another student did not fill in question 6 in the questionnaire and was fully excluded from the results since there is no way of knowing how much English the student used when playing video games.

4. Analysis and results
This section presents the results of my study, starting with the data collected from the questionnaires. The results based on questionnaire data are divided into different categories: section 4.1 shows with which frequency students were playing video games, comparing gender. It also compares the students’ frequency of playing video games with the types of games that were played. Section 4.2 compares gender and the language used in the game (question 6), and the communicative functions used by the students, i.e. using chat or voice-chat (question 7). The word test results are presented in section 4.3, showing the amount of students that used a video game approach or a dictionary approach when explaining the words, and the percentage of correct answers for each group of students. Age was not included in the analysis since the difference between 7th and 8th graders is only one year.
4.1 Playing video games: frequency

Questions 1-4 in the questionnaire were analyzed in order to determine if the students played *often, sometimes* or *never*. Students who played on a daily basis are represented in the category *often*. Students who played a few times a week but more than two hours each time and more at the weekend are also included in the same category. Those whose answers were in between that and “never playing” are in the category *sometimes*.

![Figure 1. Frequency of playing video games](image)

The bars indicate how often the students engaged in playing video games. Of the 17 boys, all played video games in their leisure time: 65% (11) of them played often, and 35% (6) played sometimes. Of the 29 girls, 17% (5) played often, 66% (19) played sometimes and 17% (5) never played video games. There is a large difference between the two groups with regard to the time spent playing video games, which supports former research done in the area (see e.g. Sundqvist 2009).

When it comes to what games the students played (question 5), students were allowed to mark several categories. As can be seen in Figure 2, it is quite clear that not only the time spent on playing games differed between boys and girls, but the types of games played differed as well.
Figure 2. Types of games played

Action games were most popular among boys who played often, though boys who played sometimes and girls who played often also played a fair share of action games. Previous research done in the area also shows that action games are prevalent among boys. However, there is no good explanation why this is so. My own speculation is that all games require practice, but in action games practice is extra important in order to be fully satisfied with the game. Thus, people who play a lot of video games might prefer such games. This theory only applies to the boys, however, since the girls who played often played more simulation games, a type of game that to my knowledge does not require the same amount of practice as action games do. It is difficult to say why boys and girls are different in this respect, however.

Strategy games were only played by the students who played often, and this holds for both boys and girls. This came as a surprise to me; I had expected that strategy games would be played by those who played sometimes. Strategy games are constructed in a way that makes short intervals of time sufficient in order to enjoy the game, as opposed to action and/or role-playing games where a lot of time is usually needed in order to make progress.

Role-playing games were also played more often by the boys, primarily the boys who played less frequently. Based on the data at hand, there was no way of knowing whether those who played role-playing games were involved in MMORPGs or offline role-playing games. However, MMORPGs usually require more effort and time put in the game, i.e. the time spent playing has a direct impact on your progress. Since time is of important when playing
MMORPGs, this might be a reason why students engaged in such games play more video games than students playing other types of games.

Platform games were played most by girls who played sometimes, and quite evenly spread out among the rest of the students (see Fig. 2). A platform game, in my opinion, is the type of game that requires the least amount of practice in order for the player to fully enjoy the game. These results are in line with my theory about practice and action games.

All of the students had a high percentage in the other-column. The boys who played sometimes had the highest. Since the games represented here can range from sport games to Wii fit games\(^3\), not much can be said about the distribution between the students.

Finally, simulation games are more often played by girls than by boys, which has also been found in previous research (Sundqvist 2009: 29-30). Only two boys who played often played simulation games, but I should point out that both of them played several other types of games as well.

Most of the girls played simulation games. Some of the girls played simulation games exclusively, while other girls played simulation games along with other types of games as well. Overall, the number of games the boys had marked was higher than for the girls. The majority of the boys had marked between two and four games; only one boy had marked a single type, action games. The majority of the girls had marked between one and three, with the exception of one girl that had marked that she played four different kinds of games.

Although all these games include learning principles that diSessa (2000) and Gee (2007a; 2007b) write about (see section 2.3), action games and role-playing games (primarily online action games and MMORPGs) are the two game types that, more often than other games, require communication, i.e. chat (text) or voice chat. These chat functions may appear in other game types as well, although, based on my experience, they never exist in simulation or platform games. Thus, based on the types of games played, different modes of communication are used while playing.

4.2 The language of video games

In question 6, the students answered what language(s) their games usually were played in. Their responses are shown in Table 3. Question 7 was about the use of communicative functions, e.g. chat or voice chat, and the results are shown in Table 4.

\(^3\) Wii fit games belonging to the Wii console are games that are played with movement sensors, balancing boards etc.
Table 3. Language used when playing video games

<table>
<thead>
<tr>
<th></th>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>16</td>
<td>19</td>
</tr>
<tr>
<td>Swedish</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Both languages</td>
<td>1</td>
<td>9</td>
</tr>
</tbody>
</table>

As can be seen in Table 3, all the students answered that they played games that were in English or in both English and Swedish except one girl, who only played games in Swedish. One girl had missed filling in the questions concerning language and communicative functions. Both students played less frequently and only played platform and simulation games.

Table 4. Communicative functions used when playing video games

<table>
<thead>
<tr>
<th></th>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chat</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>Voice Chat</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Both chat functions</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Nothing</td>
<td>4</td>
<td>25</td>
</tr>
</tbody>
</table>

Only boys used a chat function (without voice chat) while playing, primarily boys who played action and/or role-playing games. A voice chat was never used without a regular chat. Students who used a combination of these two functions were those who played often, both boys and girls. It is clear that the types of games played reflect the communicative functions used. Since mainly action and role-playing games include these communicative functions, and such games were mostly played by the boys, it was expected that the boys also used the chat function more often than the girls. The majority of the girls played simulation and/or platform games, and as said before, these games usually lack a chat function – something which was confirmed in the results.

4.3 Word test results

The word tests were corrected and each correct answer yielded one point. The maximum number of points was 49 each for explanation and translation; thus the maximum total score was 98. The explanation given by the students was categorized as belonging to one of the two categories presented in section 3.2.2, namely the dictionary approach and the video game
approach (see Table 2 for examples). The translation was marked as correct if it was an acceptable translation of the word, judging by the reference dictionaries. Depending on the prevalence, i.e. a minimum of 50% of the explanations belonging to one approach, the student was classified as having either a video game approach or a dictionary approach. Table 5 shows all the answers combined. The percentages correspond to the ratio of correct answers; for the two parts separately, i.e. explanation and translation, as well as for the total test.

Table 5. Results of the word test

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency of video games</th>
<th>Approach</th>
<th>Number of students</th>
<th>Percentage of correct answers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Explanation</td>
</tr>
<tr>
<td>Boys</td>
<td>Often</td>
<td>Video</td>
<td>3/11</td>
<td>24.5%</td>
</tr>
<tr>
<td>Boys</td>
<td>Often</td>
<td>Dictionary</td>
<td>8/11</td>
<td>43%</td>
</tr>
<tr>
<td>Boys</td>
<td>Sometimes</td>
<td>Video</td>
<td>5/6</td>
<td>40%</td>
</tr>
<tr>
<td>Boys</td>
<td>Sometimes</td>
<td>Dictionary</td>
<td>1/6</td>
<td>12.5%</td>
</tr>
<tr>
<td>Girls</td>
<td>Often</td>
<td>Video</td>
<td>4/5</td>
<td>42%</td>
</tr>
<tr>
<td>Girls</td>
<td>Often</td>
<td>Dictionary</td>
<td>1/5</td>
<td>32.5%</td>
</tr>
<tr>
<td>Girls</td>
<td>Sometimes</td>
<td>Video</td>
<td>5/17</td>
<td>19.5%</td>
</tr>
<tr>
<td>Girls</td>
<td>Sometimes</td>
<td>Dictionary</td>
<td>9/17</td>
<td>39%</td>
</tr>
<tr>
<td>Girls</td>
<td>Sometimes</td>
<td>None</td>
<td>3/17</td>
<td>–</td>
</tr>
<tr>
<td>Girls</td>
<td>Never</td>
<td>Dictionary</td>
<td>6/6</td>
<td>22.5%</td>
</tr>
</tbody>
</table>

There are no apparent preferences between gender and approaches, i.e. students of the same sex were not solely using one approach. It is interesting to note, though, that the majority of the boys and the girls with the same frequency of playing video games never used the same approach. Most of the boys who played used a dictionary approach, which was unexpected since they were the ones playing most frequently, while most of the girls who played often used a video game approach. Among the boys who played sometimes, most had a video game approach to their explanations, and a majority of the girls who played sometimes had a dictionary approach. As expected, the girls who did not play games had answers which were categorized as belonging to the dictionary approach. In total, 47% of the boys and 32% of the girls used a video game approach. Comparing approaches with the total percentage of correct answers did not give a clear picture since the percentages varied a lot, both regarding frequency of playing and gender. For example, boys who played sometimes...
and used a video game approach had a higher amount of correct answers, both in explanation and translation, than boys who played often and who were categorized as having the same approach. Although no evident patterns emerged overall, the amount of time spent on playing games still seemed to play an important role for vocabulary acquisition. Evidently, the students who were frequent players scored higher on the word test than the students who never played video games. There were no indications that more time spent playing video games affected the use of a specific approach. Some instances have such low figures that the results based on these answers may be variable. For example, there was only one boy who played sometimes and used a dictionary approach, and there was only a small group of students that never played video games. One thing that I would like to comment on is the relationship between translation and explanation. In every single instance, the ratio of correct answers is higher for translation than for explanation. However, provided that an explanation of the word requires more effort than simply writing down a translation, there is no way of knowing if the results are based on laziness or an inability to explain.

5. Discussion
Section 4.1 presented the results concerning frequency of playing video games, and what types of games students usually played. That the boys played more video games than the girls came as no surprise, and previous research has pointed out the same thing. Before the study was carried out I was wondering if the fact that the class from the 7th grade, which was a so-called music class, would yield different results than expected. Since I did not have an additional 7th grade class to compare with I cannot know for sure if it did, but I think not, since the boys in the 7th grade played games about as much as the boys in the 8th grade. In Figure 2 the types of games played were shown, and the distribution among games and students was as anticipated, with one exception – the number of students playing role-playing games or MMORPGs. In all other secondary school classes I have worked, there has been a higher number of students engaged in such games than there was in the classes in the present study. Based on my own experiences, students playing MMORPGs usually become very fluent in speaking English and they develop a vast vocabulary. One reason for this can be that most role-playing games have a very rich textual environment, i.e. players have to comprehend large masses of text in order to play such games. Thus, I had expected a higher word test result among students playing role-playing games. However, there was only one student that played role-playing games and had a notably higher score than the other students. The student who scored the highest on the word test (41 for explanation and 40 for
translation) was indeed a boy who played role-playing and action games, but the results for
the other students playing these types of games varied much, making it difficult to draw any
conclusions based on their results.

Section 4.2 presented the language of video games. Most action, strategy and role-
playing games, at least in the Western world, are in English, i.e. translated versions of such
games are rarely found. One popular simulation game on the market, The Sims, comes in a
variety of language options. However, the game itself requires little language comprehension
– the characters in the game speak a made-up language and player interaction is based more
on icons and indication bars than on text. Since most of the boys played action, strategy
and/or role-playing games, most of their games were in English. Among the girls, simulation
games were more popular, and a large part of the girls reported that they played games in
Swedish. As mentioned before, chat functions usually exist in online games (primarily
action/role-playing, occasionally strategy games). This may be another reason why people
playing such games develop high communication skills. In order to progress in the game you
often need to be a part of a larger group, something which requires good communication skills
– mostly via chat and/or voice chat. Arguments have been made that communication that
involves Netspeak (e.g. chatting) has a bad impact on the English language. However, as
mentioned in section 2.1, most people use such features deliberately and can switch between
them if needed. Thus, it cannot be concluded that it has a negative effect on vocabulary
acquisition.

The last section was an account of the results from the word tests. The similarities
among students with the same approach were few, so it was hard to draw any conclusions.
Some students who used a video game approach had a very high average score, some who
used the same approach scored quite low, and the same was found for the dictionary
approach. It was possible to see that the ratio of correct answers was connected to the amount
of time spent on playing video games. However, it is hard to know to what extent since it is
noticeable in the higher and lower frequencies, but not as much in the *sometimes* section. The
frequent players had higher scores than the students who never played video games, but the
students who played less had big differences in the total scores, making it difficult to know to
what extent the frequency of playing video games affected the outcome on the word test. Of
course, students who did not play video games can acquire the same vocabulary with other
means, and there is no way of knowing how the students that play think of video games; i.e.
some may think critically about the content, try to learn from it etc. and some may just use it
as an instrument for relaxation and not contemplate the content at all. Boys who played often
and used a dictionary approach scored the highest on the test, but this does not say much about the approach in connection to the score. The boys who played often and used a dictionary approach may have been affected by the school situation. That is, since the test was taken in such a context they tried to offer an explanation as broad as possible, thus using a dictionary approach. This might indicate that they were more skilled in English than the other students, since they were able to understand the words in video games on a more general level. Yet, other students may have been affected by the previous questions about video games, thus answering in terms connected to their gaming experience. As shown in Table 5, the category with the second highest combined score was girls who played often and used a video game approach, and the third highest category was girls who played sometimes and used a dictionary approach. Clearly, the different approaches did not have any effect on the students’ percentage of correct answers.

One thing to consider is the students’ comprehension of the word they explained. There was a large number of students who used a video game approach, both among the boys and the girls. Since they know what the word means if it is connected to a video game, does this mean that the students who used a dictionary approach have a better understanding of the word? Out of context, I do not think that most people would approve of a video game explanation only. For example, if you look up a word common in video games in a dictionary, e.g. inventory\textsuperscript{4}, there is no “video game-related” explanation listed.

One last thing that may have affected the word test results is the order in which the investigation was carried out. By first giving the students a questionnaire about their video game habits, and then asking them to explain words that are frequently used in video games, the order may have affected their answers. If students’ explanations were indeed coloured by the preceding questions, it might have been a good idea to do the tasks in reverse; i.e. give them the word test before the questionnaire.

6. Concluding remarks

The aim of this essay was to measure the effect that video games may have on vocabulary acquisition among secondary school students. A word test was constructed to measure students’ understanding of English words. Based on their explanations in the word test, they were divided into two categories: students who used a dictionary approach and students who used a video game approach.

\textsuperscript{4} Even though it is commonly used in video games, none of the students knew the proper translation or explanation for the word inventory.
The results showed that video games, primarily games that require more interaction, seem to increase a player’s vocabulary, although games’ impact on players’ vocabulary varies to a great extent. The variation is probably due to the player’s approach towards video games; some may think about the content, and learn from it, while others may use games solely as a tool for recreation or entertainment. However, it was possible to conclude that there was a difference in word test scores between those who played often and those who never played video games. The students who played often consequently scored higher on the word test than the students who never played video games. Although the words that were tested are regular English words, they are frequently used in video games, hence the outcome of the word test is no surprise. Communicative functions such as a chat/voice chat also seem to further increase the students’ vocabulary. However, it was impossible to identify a relationship between students’ reported video game playing habits and the approach their explanations were categorized into. The reason for this may be how I chose to categorize the students.

Some parts of the study could have been carried out differently in order to get a clearer result about the students’ approaches, and actual word comprehension. For one, by reversing the order in which the questionnaire and word test were taken, the potential risk of the questions in the questionnaire affecting the answers in the word test would have been reduced. Unfortunately, it was not possible for me to increase the time span of the investigation, although it might be a good idea in a future investigation to have more time. This would mean that the students could fill out journals or diaries, which would make the results about their video game habits more reliable. Thus, when it comes to future research I would recommend an expanded study, in order to minimize the investigator’s possible influence on the results. Another way of categorizing the students, or further differentiate between the two approaches, may be helpful in order to determine in how far students benefit from playing video games when it comes to learning vocabulary.
List of references


*Svenska Akademiens Ordbok*. Latest update 2008-12-10. Available at http://g3.spraakdata.gu.se/saob/.

Appendix 1 – Letter of consent

Hej!
Jag heter Joel Laveborn och studerar till lärare i engelska och religion vid Karlstad Universitet. För tillfället skriver jag min C-uppsats i engelska, samtidigt som jag har min VFU (Verksamhetsförlagda Utbildning) på xxxxxxxxskolan. C-uppsatsen handlar om hur datorspel kan påverka elevers förståelse för engelska.

I samband med C-uppsatsen behöver jag göra en undersökning i klass XX; därför behöver jag även målsmans underskrift för att genomföra den.

Undersökningen är frivillig (den som väljer att inte delta kommer att jobba på som vanligt när undersökning görs) och kommer ske anonymt. Jag kommer inte veta vem som har lämnat vilka svar, och resultaten i min uppsats kommer bara behandla ålder/kön på eleven för analys.

Åter till skolan senast måndagen den 7e Dec.

<table>
<thead>
<tr>
<th>Elevens Namn</th>
<th>Målsmans Underskrift</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>
Appendix 2 – Questionnaire

Elevenkät och ordtest

Årskurs:  

Kille  Tjej

1. Spelar du TV- eller datorspel på din fritid?
Ja  Nej

2. Om nej på fråga 1, gå direkt till ordkunskapstestet på sida 3. Ungefär hur ofta spelar du?
Flera gånger om dagen  
Någon gång om dagen  
Några gånger i veckan  
Mer sällan än ovanstående  

3. När du spelar; ungefär hur länge spelar du?
Mer än 2 timmar  
1-2 timmar  
Mindre än 1 timme  

4. Varierar speltiden mycket beroende på om det är vardag eller helg?
Jag spelar alltid mer på helgen  
Det är inte så stor skillnad  
Jag spelar mindre på helgen  

5. Vad spelar du för typ av spel? (du kan kryssa fler än ett alternativ)
Action/Äventyr (t.ex. Counterstrike, GTA, Half-Life)  
Strategi (t.ex. Warcraft, Age of Empire)  
Rollspel/MMORPG (t.ex. World of Warcraft, Fable, Fallout)  
Plattform (t.ex. Super Mario, Donkey Kong)  
Annat (t.ex. Sport, Racing, Wii Fit) □
Simulation (t.ex. The Sims, Flight simulator) □

6. Vilket språk brukar spelen vara på?
Svenska □
Engelska □
Annat □

7. Använder du engelska någon gång när du spelar, förutom att läsa information i spelet? (du kan kryssa fler än ett alternativ)
Ja, för att skriva till andra spelare/chatta □
Ja, för att prata med andra spelare (ventrilo, skype etc.) □
Nej □

8. Tror du att TV- eller datorspel har hjälpt dig att lära dig engelska?
Ja, väldigt mycket □
Ja, lite grann □
Nej, inte alls □

Tack för hjälpén med att svara på frågorna! Fortsättningen på nästa sida är ett litet ordkunskapstest, läs instruktionerna och fyll i tabellen.
Appendix 3 – Word test

**Word test.** Explain, in Swedish, the meaning of the word. Then translate the word into Swedish. Try to answer as many as possible, even if you do not feel completely sure about it!

**Ordtest.** Förklara på svenska vad ordet betyder, vad det har för innebörd. Översätt sedan ordet till svenska. Försök att svara på så många som möjligt, även om du inte är helt säker!

<table>
<thead>
<tr>
<th>English (Engelska)</th>
<th>Explanation of the word (Förklaring av ordet)</th>
<th>Swedish translation (Svensk översättning)</th>
</tr>
</thead>
<tbody>
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<td>icon</td>
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<tr>
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