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The Effectiveness of Digital COTS Games for Vocabulary Acquisition in EFL Education Context
Effekten av kommersiellt producerade spel för främjandet av ökat ordförråd hos andraspråkselever

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• Research question selection

• Article searches and decisions pertaining to the outline of the essay

• Presentation of findings, discussion, and conclusion

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Abstract

This study investigates how digital commercial-off-the-shelf (COTS) games can have a strong positive effect on English vocabulary learning among English as a Foreign Language (EFL) learners. As our modern society continues to develop and digitalise, researchers argue that the field of education has not kept up with the increasing number of digitally literate students who indulge in extramural English practice by playing digital games in their leisure time. As a consequence of this, more and more researchers have begun to investigate how these students can be educationally stimulated by incorporating digital games in education context.

In the current study, we investigate the potential for COTS games to have positive effects on English vocabulary practice among EFL learners by reviewing empirical studies on the subject area. Furthermore, we investigate the extent to which this educational approach can be effectively tied to the curriculum and syllabus for English teaching in the Swedish upper secondary school by weighing the positive findings against potential downsides and points of criticism regarding the use of digital COTS games in the classroom. In the course of doing so we also give voice to the potential problems and bring light to the complexity of using digital COTS games for educational purpose. Our review of research in this field suggests that digital COTS games can have a particularly strong positive effect on English vocabulary acquisition among EFL learners and that appear to have a significant influence on EFL students’ final grades. Our review also suggest that it is possible to successfully implement digital COTS games not only as an extramural activity, but also as an in-classroom resource.

Key terms: Connectivism, COTS, digital games, education, EFL, English language, Sweden, upper secondary school, vocabulary.
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1. Introduction

Over the last 30 years, the field of digitalization has advanced at an unprecedented rate. Our TVs got flatter, our cell phones became computers and games opened up a new virtual arena for social interaction. This rapid development in the digital field has, on a fundamental level, changed our everyday lives, and various other fields and professions have had to adapt to the digital lifestyle. However, adaption does not come easy, and one area that has and continues to struggle is the field of education. Researchers such as Prensky (2001), Hill and Kop (2008) and Siemens (2005) argue that education has not kept up the pace with today’s learners who are growing up in an increasingly digital society. A new form of society requires new ways of thinking, and yet we are stuck in the old conservative way of thinking of education. This new outlook is at the heart of the Connectivism approach to learning theory (Siemens, 2005). Connectivism holds that learning involves the integration of constantly changing cognitive connections and associations that are not constructed through intentional actions. Learning is thus interactive and implicit. For Siemens, the learning process should reflect the current social environment that it occurs in. Society is now largely dependent on digital information; learning should reflect this new dependency.

This theoretical approach ties well with the recent goals set by Skolverket, the Swedish National Agency for Education, which has taken a particular interest in the field of digitalization in education. In 2017, Skolverket released a new national digitalization strategy for the educational system. In this strategy, the goal specified that Sweden would be world-leading in utilising the possibilities that digitalization provide and further digital competence, knowledge development and equality among learners (Skolverket, 2017, p.4). Skolverket has also mandated that children and students need to learn how to use digital technology as well as teachers must implement digital tools in their education in order to give students better possibilities to demonstrate their abilities. In other policy documents, Skolverket has also expressed a great need for more research regarding how children and learners are affected by digital tools (Skolverket, 2019).

A large number of researchers have taken an interest in how various digital games could affect elements of education (Prensky 2001; Sundqvist 2009; Jabari and Eslami 2019; Uuskoski 2011; and Rudis and Postic 2018). However, the utilisation of digital tools, and especially digital games, in education is still largely underrepresented. One area that perhaps
stands to gain the most through digital games, which is particularly relevant to the Swedish context, is the subject of English language learning. Skolverket (2011) specifies in their aims for the English subject that:

“The teaching should also help students develop language awareness and knowledge of how a language is learned through and outside teaching contexts. [...] In teaching students should meet written and spoken English of different kinds and relate the content to their own experiences and knowledge. [...] Students should be given the opportunity to interact in speech and writing, and to produce spoken language and texts of different kinds, both on their own and together with others, using different aids and media” (p.1).

These aims for interaction and production set by Skolverket tie in well with digital game-based learning methods both via in-classroom and extramural English practices. Game-based platforms allow students to relate the content to their own experiences through a platform that they perceive as more enjoyable and motivating than ordinary textbooks. Multiplayer games allow student interaction with other players as well as being a different kind of media (Sundqvist 2009; Uuskoski 2011; and Rudis and Postic 2018). In addition, Ushioda (2012) argues that language teachers find motivation to be a key practical concern, as a lack of motivation far often poses problems in the form of boredom or demotivation due to exams or uninspiring material. According to Prensky (2001), one way to motivate students while simultaneously promoting learning is via the use of game-based learning. Prensky argues that game-based learning engages students and builds motivation while at the same time promoting an interactive learning process. Sundqvist (2019) also addresses the benefits of digital games in learning situations as she argues games encourage risk-taking due to lowered affective filters, as well as provide both explicit information to the learner and repeated practice opportunities.

In this paper, we will present a number of research studies that explore the possible benefits and positive consequences of digital games as platforms for English language learning. One potentially productive avenue for investigation is vocabulary learning. Lessard-Clouston (2013) argues the importance of vocabulary as it directly influences the students’ capabilities to understand instructions or information. Vocabulary can thus be seen as a vital part of learning and understanding any language and as something that should be a natural integration of any language teaching. Our review of research will thus focus explicitly on this dimension of learning. Furthermore, we will investigate how
extramural (out-of-school-context learning) digital gaming can be a viable method for English vocabulary acquisitions both in and out of school context. As digital tools can be applied to multiple aspects of language learning, we have chosen to narrow the field and only focus on digital commercial-off-the-shelf (COTS) games and their effects on developing English vocabulary, as well as how using digital games fit in Swedish upper secondary school education. Some of the games that researchers suggest as possible platforms for vocabulary acquisition are simulation games like The SIMs and massive multiplayer online role-playing games (MMORPG) like World of Warcraft. None of these games are developed with the purpose of language learning or vocabulary acquisition.
2. Aim and research questions

The current study investigates how digital COTS games, specifically MMORPGs and simulation games, can affect English vocabulary learning among EFL learners and how this method can be tied to the Swedish educational system. In order to address this, we will present findings from research studies that all investigate the language learning outcomes from students using digital games in both classroom and extramural settings. As many of the researchers have pointed out positive effects with game-based language learning as well as correlations between frequent gaming and higher English grades, we will also explore the possible presence of negative effects stemming from the use of digital games in both classroom settings and for extramural vocabulary practice.

Our research questions are as follows:

- To what extent do digital games affect EFL learners’ vocabulary acquisition, both positively and negatively, in extra-mural environments?
- To what extent can digital COTS games be used in classroom settings?
3. Method

While conducting our research, we have primarily but not exclusively done electronic searches revolving digital games in English learning settings by searching in various educational databases. We have also conducted library searches and used relevant books for our study.

We began our search in the electronic Libsearch database by using key terms, such as video games and vocabulary learning. The search yielded 8217 hits, which made apparent to us that we needed to further limit the parameters. By adding the keywords: digital, EFL and Sweden, as well as only viewing peer-reviewed material, we got 4 hits that were more relevant to our study.

As we shifted database to Google Scholar, we used the key term: digital games, vocabulary, EFL and Sweden. The search gave us roughly 2000 hits, which resulted in a number of interesting and relevant articles and studies. The name Sundqvist appeared quite frequently, and her studies were right on point with what we were looking for. Therefore, we added her name to the search parameters to look for articles that uses her as a source. The search yielded 290 hits, from which we found more relevant articles.

Once we had found an interesting article, we started to go through the reference list of the article to see if any of the sources looked promising. This in turn, gave us more studies to use. Further searches in databases as ERIC by EBSCO, EBook Central and ProQuest by using similar key terms, presented more relevant articles.

The following terms were used all searches, but in different combinations: “digital games”, “video games”, “vocabulary”, “grammar”, “EFL”, “Sweden”, “Upper Secondary”, “learning”, “education”, “English language”, “connectivism”. 
3.1 Inclusion Criteria

We wanted the targeted participants in the research studies to be as close in age to Swedish upper secondary students as possible. However, we decided to include international studies with adult participants in higher education as they were still considered students and learners.

3.2 Exclusion Criteria

The amount of international studies that to some extent processed the field of digital games for English language learning, contained studies from all over the world. As this study has a Swedish educational context as focus, we dismissed all articles that did not contain participants with close geographical proximity to Sweden, i.e. countries outside of Northern Europe or Scandinavia, and we excluded studies where participants were significantly younger than our targeted demographic. As our study mainly researches vocabulary learning, we excluded sources that had a different focus. An important and recurring theme many researchers touched upon in their studies were that of the difference between genders in extramural gaming activities. As this is such an expansive and broad field of research, we have chosen not to address it in our study. For further research, the difference between genders in extramural gaming activities would be something we would like to address.

Table 1. Inclusion and Exclusion Criteria

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<th>Area of interest</th>
<th>Total number of references</th>
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<td>Similar age group</td>
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<td>10</td>
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<td>Other</td>
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4. Results and discussion

In this section, we will be presenting the findings from the various studies regarding digital games for English vocabulary acquisition as well as showing the complex areas of using digital games as an educational resource and how the method of using digital games fit the Swedish upper secondary syllabus for English. Our presentation will first address studies that examine digital games as an extramural activity. We will then turn to an examination of research on simulation games for an in-classroom purpose, the benefits of digital games for English vocabulary acquisition, and the complexity of digital game-based language learning and implementations in the Swedish educational system.

4.1 Digital games as an extramural activity

Sundqvist (2009) investigated the impact of extramural English, as implemented via playing digital games and other activities, on vocabulary skills and oral proficiency development among Swedish ninth graders. Eighty students were administered three vocabulary tests and assessed on the amount of time they spent on extramural activities, such as: playing computer or video games, reading books, watching TV, surfing the internet etc. Over a period of one year, the students were measured by using interviews and language diaries where their progress could be made visible. The outcome of the study indicated a direct and positive correlation between students who spent a greater amount of time on extramural activities and the size of their vocabulary. An interesting finding Sundqvist presents is that the type of extramural activity matters, as some activities provide a greater learning outcome than others. Most notably the active and productive task of playing computer games yielded the highest learning outcome of all extramural activities.

A joint study by Sundqvist and Sylvén (2010) builds on findings from Sundqvist (2009) by examining Swedish middle school students’ extramural English activities and ties to their learning outcome in school. A total of 244 students between the ages of 10-12 participated in the study. Similar to Sundqvist (2009), questionnaires and language diaries were used to measure extramural activities. A vocabulary test, as well as the national test in English, were used to measure learning development. The study showed a significant, positive correlation between the total amount of extramural English activity and performance on both the
vocabulary test and the National English tests listening and reading parts. Similar to what was seen in Sundqvist (2009), Sundqvist and Sylvén (2010) also indicated that playing digital games yielded the highest learning outcome of all extramural activities among the Swedish learners.

Sundqvist and Wikström (2015) further investigated the extent of the positive relation between digital games and English vocabulary acquisition by performing a study with 80 Swedish 9th graders, ages 15-16. Their method involved questionnaires, language diaries, vocabulary tests, assessment of essays and final grades that during the course of one school year, mapped students’ extramural English activities in correlation to their scoring on tests and grades. Three groups were created among the students: non-gamers (DGG1), moderate gamers (DGG2) and frequent gamers (DGG3). Their findings suggested that the frequent gamers scored the highest on several of the essays and vocabulary tests as well as demonstrated the strongest result for all vocabulary measures. DGG3 essays also demonstrated a higher degree of advanced vocabulary than the DGG1 and DGG2 groups. As a result, group DGG3 also achieved the highest final grade.

A similar study was conducted by Uuskoski (2011). Uuskoski investigated the correlation between playing video games and the final English grades among Finnish upper secondary students. In their study, 495 Finnish upper secondary students between the ages 16-20 completed a questionnaire about their extramural English activities. No separate tests were conducted to measure learning outcome. Instead, the point of reference was the students’ English grades. The study indicated a strong correlation between the amount of time spent on playing video games and a higher English grade. Furthermore, the study presented findings that vocabulary learning was the area that seemed to gain the most from playing video games. Uuskoski also found correlations between particular game genres and their effects on learning outcome. The top three genres of games with a positive correlation to English grades were Role-playing games, Massive Multiplayer Online (MMO) Games and Strategy games, with role-playing games being considerably higher on the ranking than the other two. Worth mentioning with these genres is that they also had a much higher time spent on playing these types of games, which certainly could affect the correlation with grades. Another finding Uuskoski presents is the lack of correlation between frequent gamers and their grades in other subjects. This suggests that the frequent gamers do not have better grades in general and that the positive effect extramural gaming has on English grades, and in particular vocabulary acquisition, is limited at best in other subjects. It seems
then that the strong positive effect of extramural gaming could potentially be limited to language learning. Interestingly enough, Uuskoski also found that extramural gaming had an almost reversal effect on other languages that were tested. He concludes that it appears only the English language stands to gain from digital games. This is in all likelihood due to the fact that the overwhelming majority of digital COTS games produced are in English.

The findings of both Sundqvist and Wikström (2015) and Uuskoski (2011) provide some evidence to the positive effect digital games can have on ESL learners’ English grades. Both studies show a correlation between the amount of time spent on playing digital games and the learning outcome in the form of grades. Students who spent more than 15 hours a week on playing digital games in Uuskoski’s study, and the DGG3, frequent player group in Sundqvist and Wikström’s study, all demonstrated the highest final grading scores.

Uuskoski went one step further than Sundqvist and Wikström by investigating other potential effects of digital games in learning outcomes. Although Sundqvist and Wikström did not investigate how digital games could have a positive effect on other subjects, they did present findings that digital games have a limited effect on areas not related to vocabulary learning or production. In their study, Sundqvist and Wikström present that measurable differences between the control groups came in the form of vocabulary production. During the vocabulary tests, the frequent gamers outperformed the other two groups and in the essay part of the national exam, the frequent gamers demonstrated a richer lexicon and more advanced vocabulary usage than the other groups. No significant data could be measured between digital games and other parts of the national exams. It appears from the conclusion of both Sundqvist and Wikström (2015) and Uuskoski (2011) that digital games only produce significant beneficial results when applied to English vocabulary context.

Another study that touches upon the target area of digital games and vocabulary learning is Rudic and Postic (2018). Rudic and Postic investigated the influence of video games on the acquisition of English as a second language in Latvia. In their study, 96 students between ages 11-15 completed a questionnaire on students’ perceptions of how them playing video games helped in learning English vocabulary learning. The authors found that video games appear to have a considerable influence on English language learning and that video games could be a good source for vocabulary acquisition. It is worth addressing that this study was purely qualitative, and students’ own perceptions served as the sole foundation of the study. This compromises the result of the study somewhat as the reader is forced to rely
solely on the intuitions and perceptions of the students without reference to any other form of data, such as was the case in Uuskoski (2011) who also had the participants of his study fill out a questionnaire of how they believe their extramural gaming has affected their English vocabulary skills. Nevertheless, the Rudic and Postic findings appear to cooperate Uuskoski’s (2011) findings. Namely (and somewhat unsurprisingly), both Rudic and Postic (2018) and Uuskoski (2011) found that frequent gamers feel their English skills have improved due to gaming and that more hours spent playing yield a better learning outcome.

While all of the presented studies research digital games as an extramural activity, none of these addresses the topic of digital games as an in-classroom resource. As of such, the following topic we will be presenting regards the usage of digital games in a classroom environment.

4.2 Simulation games for an in-classroom purpose

A number of studies have investigated the use of digital games in the classroom. In particular, one class of games, simulation games, has been used extensively for research on digital games as an in-classroom resource. For example, a quantitative study by Miller and Hegelheimer (2006) investigated how authentic simulation games could function as a media for task-based language learning with a focus on vocabulary acquisition for EFL learners in both classroom and extramural settings. The chosen game to be used as a digital tool was the Electronic Art’s game The SIMs (2000). The study incorporated 18 intermediate adult ESL learners at a major U.S university, each receiving daily instructions and assignments that needed to be completed using the game as a simulation. The study spanned a five-week period of time where the ESL learners could experience different conditions of supplemental materials while completing tasks and vocabulary exercises in the game. The instructions were given daily through a website and the words for the vocabulary tests were chosen by a careful analysis of in-game texts. A total of 5,159 words from the game were used in the study. When the words were collected, an exercise was created using the online quiz generator Hot Potatoes 6.0 (Arneil and Holmes, 2004) and required the learner to combine a definition with a selected vocabulary word. The result of the study suggests that it appears possible to target specific linguistic features by using computer simulation games.

The students who completed tasks in The SIMs significantly outperformed the control
group students on the vocabulary tests. In addition, through a questionnaire, the study showed that students appreciated the material, tasks and simulation platform, and that they found these aspects all to be very helpful in achieving higher learning outcome. The study also confirmed that computer games promote communicative language when used in group settings. The majority of the students reported that they gained an increased knowledge of grammatical features from playing The SIMs and claimed that especially the vocabulary activity was helpful and enjoyable. Another finding the study presented concerns the problematic areas of using simulation games in education. Miller and Hegelheimer claim that it is vital to prepare students for the linguistic features they will encounter in the simulation game, yet it is virtually impossible to give the student all the preparation needed since they are in charge of the learning process by playing the game. The player decides what linguistic features to encounter in the game, which makes it difficult to prepare the learner.

A study that further build upon the research presented in Miller and Hegelheimer (2006) is made by Ranalli (2008), who investigates how computer simulation games like The SIMs affect L2 learning. Ranalli’s study incorporated nine American university students with L1 backgrounds other than English. The study was done much in similarity with Miller and Hegelheimer’s study, where participants received tasks and information through external websites that then had to be completed in-game, but their assessment was purely qualitative. The findings of their study corroborate those from Miller and Hegelheimer’s quantitative study. The result presented suggests computer simulation games can be used in educational purposes for aiding second language learning; although, theoretical guidance and complementary instructions are of great importance.

In a study by Sundqvist and Sylvén (2012a), the researchers examine the effect simulation games like The SIMs has on L2 learning by comparing it against the MMORPG World of Warcraft. The study includes extramural English and aims to examine its potential impact on learners’ oral proficiency and vocabulary. Sundqvist argues that it is crucial which game the learner plays. Sundqvist and Sylvén further point out some beneficial factors from an L2 perspective of MMORPGs like World of Warcraft in comparison to the single-player offline strategic life simulation game The Sims. Their findings suggest MMORPGs appear to offer a wider range of features that improve L2 acquisition, such as a chance to produce both written and oral output, as well as interacting and collaborating with others. Single-player games such as The SIMs may also include cooperative participants, for example in
forums and chat rooms, that sometimes is created by the players themselves. However, these forums and chat rooms are not an integral part of the game and thus the game in itself cannot be said to provide opportunities for player to player oral and verbal interaction.

All three studies suggest that there is a possibility to target linguistic features by using simulation games such as The SIMs, both as an extramural activity and as an in-classroom resource (Miller & Hegelheimer 2006; Ranalli 2008; Sundqvist and Sylvén 2012a). It also appears that the use of digital computer games in the classroom has the potential to promote communicative skills when used in group settings. Though, as Miller and Hegelheimer (2006) argue, it is vital to prepare students before a simulation game if it is used in educational purpose. Playing a simulation game with participants and including social integration differs from playing as a single-player and might yield a better learning outcome for vocabulary practice (Sundqvist & Sylvén 2012a).

4.3 The benefits of digital games for English vocabulary acquisition

Sundqvist and Sylvén (2010), Sundqvist and Wikström (2015), Uuskoski (2011) and Rudis and Postic (2018) all reach similar conclusions: that digital/video games have a strong correlation with vocabulary learning and that the amount of time spent on playing computer and video games can to various extents have a positive effect on the learner’s English grade. In addition, all of their studies advocate the usage of digital computer and videogames as a learning platform by stating the various benefits from digital games as a learning method. A common argument in their studies is that playing a game is an active process that also forces the player to be an active learner. The process of playing a game requires critical thinking and decision making, thus the player needs to actively create an understanding of the game context and how their actions will have consequences in the game world.

Another benefit of playing digital games, highlighted in each of the studies, is that games are motivating to the learner and not perceived as a boring task. According to Ushioda (2012), motivation comes generally in two forms: intrinsic and extrinsic motivation. While
intrinsic motivation concerns doing something for the pleasure of the challenge, reward or outcome of the task; extrinsic motivation is due to external factors, such as pleasing the teacher, getting a job or avoiding punishment. Of these two forms of motivation, intrinsic is unquestionably considered the optimal one in an educational context.

“Research evidence suggests that intrinsic motivation promotes high-quality learning, since intrinsically motivated learners are deeply concerned to learn things well, in a manner that is intrinsically satisfying, and that arouses a sense of optimal challenge appropriate to their current level of skill and competence”, (Ushioda, 2012, p.79).

As research finds it, games promote almost exclusively intrinsic motivation as games reward the players for completing various tasks or activities. The nature of the game also sparks interest in wanting to continue to play as they provide an enjoyable environment, (Sundqvist and Sylvén 2010; Sundqvist and Wikström 2015; Uuskoski 2011 and Rudic and Postic 2018). The structure of the game also allows for a significant amount of time spent on completing the task at hand, while at the same time providing a reward to the playing for completing the task.

Sundqvist and Sylvén (2010), Sundqvist and Wikström (2015), Uuskoski (2011) and Rudic and Postic (2018) further argue that some games have the advantage of allowing interactions between several players. Multiplayer games often have a form of chat forum where players can write to each other. The tasks in such games often focus on players having to collaborate to overcome various obstacles. As such players need to interact and communicate, which provides an opportunity for vocabulary practise and learning. This claim is supported by Petersen (2010), who conducted a meta-study analysis of three separate studies on how MMORPG affect second language learning: Thorne (2008), Rankin, Gold and Gooch (2006) and Rankin, Morrison, McNeil, Gooch and Shute (2009). The findings suggest that due to the anonymity of using a digital avatar instead of speaking in person, learners’ inhibition was lowered, which allowed for more extensive communications. As the players progressed through the game and gradually became more comfortable, their output of chat messages increased, which had a direct correlation on their vocabulary performance. A related meta-analysis by Jabari and Eslami (2019) supports these claims. In their study, they synthesised the result of 31 studies providing empirical evidence to the effect of MMORPG’s in L2 learning. In accordance with Petersen (2012), Jabari and Eslami (2019) claimed that MMORPG’s provide a social, low-anxiety
environment where expert-novice interactions are easily accessible, multiple forms of communications may be expressed and developed, collaborative tasks further communication and interaction while creating social bonds between participants that may even stretch to out-of-the-game contexts.

Furthermore, Uuskoski (2011) argues that games in general contain a large amount of text, speech or input. This input is crucial to understand the game context or the task that needs to be done. Therefore, it is vital for the player to understand the input. This forces vocabulary practise or acquisition in order to create an understanding for the player. In comparison, Rudic and Postic (2018) explain that games, in addition to text and speech, provide visual aid to further help understanding. Object and objectives become visible for the player, which serves in aiding vocabulary learning as the player both can read the word, hear the pronunciation and see the visual representation.

Moreover, research shows digital games are not limited to an extramural activity as successful attempts have been made to use simulation games like The SIMs as an in-classroom resource for vocabulary practise and task completion (Miller and Hegelheimer 2006; Ranalli 2008; Sundqvist and Sylvén 2012a). Thus the early conclusion that digital COTS games, especially of the MMORPG and simulation genre, appear to be providing strong, positive effects for both vocabulary learning and impact on EFL learners’ final grades, can be drawn. As of such, the question arises: why are not digital games being used in education context already?

4.4 The complexity of digital game-based language learning

Berg Marklund (2015) argues that while the theoretical approach for digital game-based learning is generally agreed upon, the area severely lacks in instructions for praxis. According to Berg Marklund, digital games are limited as a tool in educational context. He argues that the prioritization of understanding digital game’s inherent potential has led to an approach that does not take into account the realities of educational environments. The result of this is that there is currently a large number of arguments for why digital games have strong potential for learning and therefore is possible to include in school education,
while at the same time there are a limited amount of studies that demonstrate how this potential can be fully utilised in the classroom or if the potential is expressed as expected when games are used in educational context. Berg Marklund further claims that while commercially produced games are indeed beneficial to English learning, such games are incompatible with the current educational system. Thus COTS games cannot be implemented in classroom settings as the requirements of education and the conditions of using digital games simply do not match.

Sundqvist and Sylvén (2012b) elaborate on the potential problem of COTS games in classroom context. They claim teachers might be unfamiliar with these types of extramural activities and out of fear chooses to not address the topic altogether. They also present the controversial idea that the current school organization has a greater focus on social control than on learning, making the notion of incorporating the students’ extramural gaming experiences in classroom teaching difficult. While these certainly are grave problems for the idea of using COTS games in education, attempts have been made to bridge the gap between gaming conditions and education requirements.

Sandford, Ulicsak, Facer and Rudd (2006) present a project where a non-profit organisation investigates how COTS games can be used in classroom settings. Three simulation games, including The SIMs, were used by teachers of four different schools, all with students in the ages of 3-19. The participants were given instructions to complete in the simulation games by their teachers and different games provided different opportunities for simulations. The findings of the project showed that a vast majority of the participating teachers did not play digital games in their leisure time. They also had limited experience in using games as an educational tool. At projects end, both a majority of teachers and students were positive to using digital games in the classroom and both parties could observe learning outcome in correlation to the curriculum. While the findings of this project contradict Berg Marklund’s (2015) assumption of that COTS games are incompatible with in-classroom education, it is also worth mentioning that none of the participants in Sandford et al’s (2006) study had English as a foreign language. Therefore, the study did to no extent investigate how English language learning might benefit from playing COTS games. Instead, the sole focus of the project was if COTS games could successfully be used as part of teaching in correlation with the curriculum. However, as the all participants had English as a native language and the teaching method of simulation games in the classroom were conducted in English, this method could be utilised in an
EFL context as the method proved successful in educational with native English speakers.

4.5 Implementations in the Swedish educational system

The evidence demonstrates that it is possible to teach using digital COTS games as an in-classroom resource, and that its utility is not solely as an extramural activity. While the teaching project made by Sandford et al (2006) investigated the ties to the American curriculum, there is evidence suggesting this teaching method could be applied to the Swedish curriculum as well. The Swedish syllabus for aims for the English subject (2011) states that the content of teaching should relate to students’ own experiences and knowledge. Since children to an ever-increasing degree play digital games in their leisure time, it is a safe assumption that digital games tie well with student’s own experiences and knowledge. Furthermore, the syllabus specifies that students should be given the opportunity to interact with other people, produce spoken language and text through the uses of different aids and media.

Some very distinct correlations can be made through what MMORPG’s provide and what the syllabus desires. As we have demonstrated, the digital media of MMORPG’s offer the user an informal, low-anxiety arena for communicative and collaborative tasks, with easy access to expert-novice interaction as well as opportunities for producing written and verbal output (Uuskoski 2011; Petersen 2010; Sundqvist and Sylvén 2010; Rudic and Postic 2018). In addition, the syllabus also states that “[t]eaching should make use of the surrounding world as a resource for contacts, information and learning […]” (Skolverket, 2011, p.1), something MMORPG’s can unquestionably provide.

It might seem then that digital COTS games and the Swedish syllabus for English in upper secondary school are a match made in heaven. However, a few problems do stand out. Firstly, as Berg Marklund (2015) pointed out, teachers are inexperienced to teach using digital games. Secondly, Sandford et al’s (2006) teaching project concerned simulation games in the classroom, not MMORPG’s. Meaning that the method of using MMORPG’s in the classroom is still only theoretical and practically untested. Finally, the practical issue of purchasing commercial digital games as educational resources have not been addressed as teaching with digital games is still experimental and have not been investigated on a national scale.
Siemens (2008) voices another reason why extensive digital learning has yet to occur in an educational system. Siemens argues that the current theoretical approaches - like behaviourism and constructivism that current educational systems are built upon, are outdated and do not permit digital learning where the student has a greater responsibility for his or her own learning. To that end, Siemens argues new educational structures must be created and new learning theories implemented that can keep up with the rapid development of the digital society. Therefore, Siemens suggests a new theoretical approach, something he calls Connectivism and is described as learning through multiple nodes of information in an online and globally connected society. Through Connectivism, a change from the current teacher-centric education to more individualistic student learning would occur which would open up the avenue of digital games in education, as students would themselves be responsible for the learning outcome by playing the games. However, this new learning theory, much like the idea of using COTS games for vocabulary learning, is still only experimental.

Hill and Kop (2008) state that the school system is not yet developed in a connectivist path, part of the reason being that educators and institutions not yet have caught on to the possibilities of what digital technology have to offer. Another reason is that not all people are autonomous learners. Hill and Kop also state that school systems tend to value education that is grounded in the traditions of the past and that are developed for centuries and reference educators such as Freire and Macadeo (1999), who provide evidence for this statement as they argue teachers should have a directive role. The teacher should be leading the process of learning with the students and collaboratively with students engage in dialogues through the learning process. Freire and Macadeo state that critical engagement would not be present if the teachers’ leading roles are being reduced. Furthermore, in an online environment, with a focus on informal learning and the individual’s choice to engage with experts outside the classroom, the critical influence will be lost entirely. The absence of critical involvement from a teacher, together with reduced in-classroom control and a high degree of student autonomy would, according to Freire and Macadeo, be detrimental to learning outcome.

These thoughts are by modern standards outdated. The constructivist theory the Swedish educational system is built upon by no means proclaims that the teacher should have a dominant role in the classroom and the students only being recipients of the information. Yet the constructivist educational system is likewise outdated in the regard of not being
able to acknowledge the modern learner’s digital needs and interests (Siemens 2008, Hill and Kop 2008). The connectivist theory might well be the foundation on which a new educational structure can be built. A structure that utilises the digital society in education and where digital COTS games function as a platform for EFL learning.
5. Conclusion

With this paper, we set out to investigate how digital COTS games could affect English vocabulary learning and what the possibilities were for implementations in the Swedish upper secondary classroom. Our findings suggest an overwhelming amount of researchers argue the benefits of digital COTS games for educational purposes (Sundqvist 2009; Sundqvist and Sylvén 2010; Sundqvist and Wikström 2015; Uuskoski 2011; Petersen 2010; Rudic and Postic 2018; Miller and Hegelheimer 2006; Ranalli 2008). We can conclude that the field of English vocabulary learning stands to gain the most through the use of digital COTS games as educational method and that digital games even has an impact on students’ final grades in the English subject. We can also conclude that the genre of games affects the learning outcome differently. Where MMORPG’s tend to be generally perceived as a very promising platform for vocabulary practice, expert-novice interactions and furthering collaborative communications, simulation game offers an in-classroom purpose as a virtual platform where tasks and objectives can be carried out in a challenging, yet encouraging, environment. The results from multiple studies on the effect of digital games for vocabulary acquisition across MMORPG and simulation game platforms demonstrate an overwhelmingly positive result for EFL learners’ vocabulary practice and grading outcome.

However, various factors are currently holding the process of digital COTS game-based language learning back. Researchers argue that the current educational system is not equipped for dealing with digital game-based learning, teachers are inexperienced with this field and that the practical issues are yet to be resolved (Sundqvist and Sylvén 2012b, Berg Marklund 2015). Yet there is a sense of optimism about the digital game-based learning opportunities and a shift in learning theories to a connectivistic approach would enable a more extensive utilisation of digital games as educational tools. When put into a Swedish educational context, the Swedish syllabus for upper secondary English advocates the usage of different media, with ties to the learners’ own experiences and interests, which can provide written and oral interaction between other people of various degrees of proficiency. Digital COTS games seem to fulfil every part of these criteria and thus are a viable method to be used in Swedish education. In our profession as teachers, we face the constant challenge of meeting our students’ needs and experiences, all while trying to motivate them and provide them the best learning outcome. The use of digital COTS games might very well be the most optimal way to engage our students, meet the learning
criteria and provide a strong, positive impact on the students’ vocabulary learning and final grades in the English subject. The future of education is just around the corner, and that future is a change from the printed pages to the virtual arena. It is time for teachers to lay down the textbooks and pick up the games.
References


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