Digital Games and Language Learning

Digitala Spel och Språkinlärfning

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Abstract

With this survey paper we have contrasted and summarized research on digital games and language learning in order to investigate whether digital games can be used to instil communicative competence in students. In addition, we have examined what kinds of considerations that need to be made by teachers when applying digital games in educational settings. In order to acquire an indication of whether games were being used as a language-learning tool in schools today, we conducted a small pilot study in the region of Skåne. In this pilot study, we asked 10 language teachers whether they had ever used videogames in their language teaching. The pilot study suggested that digital games were not being used as a teaching aid. However, the research examined in this survey paper suggests that videogames can be used to instil dimensions of communicative competence. Research also suggested that digital games only inherently supported one or two dimensions of communicative competence. With regard to this, we argued that all four dimensions of communicative competence can be supported through the use of different pedagogical strategies in combination with other approaches. Furthermore, research suggested that there are necessary precautions for teachers to consider before implementing digital games in teaching (e.g. having sufficient knowledge of the games to be used in order to be able to scaffold them according to students’ needs). Since the research explored in this paper suggest that videogames can be used to instil communicative competence in students, we argued that digital games might be an overlooked asset in language learning.

Keywords: communicative competence, digital games, flow, language learning, MMORPGS, motivational learning, pedagogical strategies
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1. Introduction

In this degree project, we investigated the potentiality for communicative competence in digital games used in educational contexts by producing a survey of current research on this topic. Gee (2007, p. 22) described how games have been criticized for being meaningless in educational contexts since they do not relate to the semiotic domains traditionally perceived as academic (e.g. history, mathematics and language). However, some researchers, such as Zheng, Young, Brewer and Wagner, suggest the opposite: games can be used to improve learners’ self-efficacy and attitude towards second language acquisition (deHaan et al., 2011, p. 47). In light of this, the criticism towards video games mentioned by Gee (2004) could potentially be incorrect or misguided. Apart from investigating the potentiality for communicative competence in games, we also discuss current research on cognitive functions (such as knowledge uptake) and its implications for language learning. From this point on, in order to avoid confusion, when we refer to games, we refer to computer games unless explicitly stated otherwise.

According to Rankin, Y., Gold, R. & Gooch, B. (2006), communicative competence “refers to the ability to use the appropriate response in a particular context” (p. 1) and is an important feature to acquire for second language learners. Additionally, communicative competence includes grammatical competence, ability to produce and understand formal structure of language and the ability to produce discourse (Leung, 2005, p. 123). In this survey paper, language learning potential in games is based upon to what extent these abilities and competences can be acquired through students’ interaction with video games, in terms of increase of vocabulary, social skills, improved listening and reading comprehension. A more thorough overview of communicative competence is presented later on in section 1.3.

For this survey paper, we have conducted a pilot study in the form of a short questionnaire for language teachers, investigating whether video games are used as an educational form in the region of Skåne, Sweden. We hypothesized that if the pilot study indicated that teachers did not use games in language teaching, this might mean that video games in language learning contexts might be a neglected pedagogical tool.
1.1 Pilot Study

In the pilot study aimed at investigating whether language teachers in the Skåne region used games in language learning, we asked a total of ten teachers from two different secondary schools, and one primary school, whether they had ever used video games as a teaching tool. This was done in order to get an indication of whether or not digital games are currently used as a teaching aid, and was not designed to probe the topic further than that. The results of the pilot study were:

![Figure 1. Whether or not teachers had used video games as a language-teaching tool.](image)

As is displayed by this chart, results showed that only one out of ten had used digital games with their students in an educational context. Regarding the kinds of games that had been used and how they were applied, the answer was that the teacher mostly utilized drill games designed for vocabulary practice. These games were taken from a specific website that hosted different versions of these types of drill games. However, as the chart indicates, the remaining nine teachers had never used games in an educational context. Based on this result, we argue that games might be an overlooked asset in language teaching.

1.2 Research Questions

Keeping in mind the criticism of video games in educational contexts discussed by Gee (2004) and research suggesting that games can be used to improve learners’ self-efficacy towards language acquisition, we have formulated the following research questions:

1. Can games be used to instil communicative competence in language learners?

2. What needs to be considered when using games in an educational context?
1.3 Method

For the purpose of this degree project, we have chosen to conduct a survey paper. A survey paper can be considered as a paper that organizes and summarizes recent research in an academic field. We argue that one of the benefits of conducting a survey paper is being able to compare and contrast research from different perspectives. In addition, we argue that a survey paper can provide the reader insight to a plethora of existing work that has been summarized and made comprehensive. Our research questions for this survey paper revolve around communicative competence in games and what needs to be considered when using these in educational situations. By contrasting different research on digital games and learning, we may be able to increase the possibility of answering these questions satisfactorily.

1.4 Communicative Competence

As described in the introduction, this paper investigates whether communicative competence can be achieved through the use of games in language learning contexts. Therefore, there is a need to clarify what is meant by communicative competence.

According to Rankin et al. (2006), most second language learners strive to acquire communicative competence in a target language (p. 1). The concept of communicative competence entered the linguistic discourse over 30 years ago (Leung, 2005); according to Leung (2005), it had become apparent to linguists that language teaching needed to take into account the importance of social use and context of how languages are learnt (p. 120). Furthermore, Leung (2005) argues that parts of the linguistic community saw the introduction of communicative competence as a shift in the otherwise grammar-heavy language used in language teaching (p. 121). In addition, Leung (2005) stated that the emergence of communicative competence had a great impact on ELT (English Language Teaching):

There is little doubt that this socio-culturally alert concept of communicative competence has had a profound influence on ELT. Indeed the term Communicative Language Teaching (CLT) was coined around this period in the mid-1970s to mark a major shift in curriculum and pedagogic approaches (p. 122)

Leung (2005) stated that in order to concretize the role of communicative competence for foreign and second language learning, a series of articles were produced in the 1980s to function as reference points for what communicative competence actually signifies
According to Leung (2005), these reference points indicate that communicative competence revolves around four areas of skills and knowledge. Firstly, communicative competence includes grammatical competence (e.g. understanding the rules of morphology, having knowledge of lexical items and sentence-grammar semantics and phonology). Furthermore, communicative competence requires sociolinguistic competence: a learner should understand to what extent and in what sociolinguistic contexts different utterances carry different meaning depending on contexts (the participants, norms of convention and the purpose of the interaction). An additional part of what is traditionally perceived as communicative competence is having discourse competence: the ability and knowledge to combine different grammatical forms to construct written and oral narratives (Leung mentioned business reports as an example) (2005, p. 123). In addition, discourse competence refers to the ability or knowledge to understand how coherence and cohesion function in different types of text. Canale, whose work on communicative competence in the 1980s was influential for language teaching, argued the following:

Unity of a text is achieved through cohesion in form and coherence in meaning. Cohesion deals with how utterances are linked structurally and facilitates interpretation of a text. For example, the use of cohesion devices such as pronouns, synonyms… Coherence refers to the relationship between different meanings in a text, where these meanings may be literal meanings, communicative functions and attitudes (as quoted in Leung, 2005, p. 125).

Lastly, communicative competence involves having strategic competence: understanding non-verbal and verbal strategies of communication that are used in situations of communicational breakdowns for compensation. In addition, strategic competence refers to the ability to increase the usefulness of language (e.g. slowing down speech to be understood) (Leung, 2005, p. 124).

According to Leung (2005), communicative competence is a part of the foundation on which today’s language learning pedagogy is based upon (p. 123). However, Dubin (2005) argued that communicative competence has gradually been subscribed a new agenda: functioning as ideal goals for second language curriculums. In addition, Dubin (2005) points out that communicative competence as an idea has shifted away from focusing on the actual practice of conversation (Leung, 2005, p. 124). Furthermore, Leung (2005) argued that communicative competence has become quite apparent in the developmental processes of creating curriculums for English language learning (p. 125). For example, Yalden (1983) stated that designers of curriculums for English learning...
have to take into account several aspects connected to communicative competence (as cited in Leung, 2005, p. 125). Firstly, designers of English learning curriculums have to consider what purpose learners have with their language studies. Secondly, designers have to reflect upon the potential settings in which the learners might actually use the target language, and what social roles the learners and interlocutors might exhibit while using the target language. Lastly, creators of curriculums for English learning must consider what communicative events and procedures the learners may participate in (Leung, 2005, p. 125).

Since a great number of linguists and educators perceive communicative competence to be a vital part in acquiring a target language, we decided to use the four subcategories of communicative competence to evaluate the language potentiality of games as follows:

a) **Grammatical Competence.** Refers to the knowledge of lexical items and use of morphology, semantics, phonology, sentence grammar and syntax. Acquiring this knowledge includes the ability to produce and understand literal meaning of utterances (Leung, 2005, p. 123).

b) **Sociolinguistic Competence.** Refers to the learner understanding that utterances can carry different meanings depending on the context in which used. Examples of such contexts are the participants (other interlocutors), norms of conventions and the purpose of the interaction.

c) **Discourse Competence.** Refers to the ability to understand how cohesion and coherence work in different types of text. Cohesion provides structural linkage between utterances and supplies interpretation of a text (e.g. cohesion deals with understanding of synonyms and pronouns). Coherence deals with the relationship between different meanings in text (whereas these carry literal meaning, attitude or communicative functions).

d) **Strategic Competence.** Refers to the ability to understand non-verbal and verbal strategies of communication that are normally used in cases of communicational breakdowns as compensation. Strategic competence also refer to the skill of increasing the effectiveness of language, e.g. slowing down pace of speech to be understood or whisper for dramatic effect (Leung, 2005, p. 123).
Finally, to further clarify our purpose for this paper, we investigate whether the different components of communicative competence can be achieved through the use of games in language learning.
2. Types of Games and Language Learning

There are different types of games that can be used in computer-assisted learning (CALL). In the discussion of video games in educational context, games designed with pedagogical thoughts in mind have been called “Serious Games” and have a long history in education. Serious games have been defined by Abt (1970, p. 9) as “games [that] have an explicit and carefully thought-out educational purpose and are not intended to be played primarily for entertainment” (as quoted in Gale 2011, p. 2). However, research such as Sundqvist and Sylvén’s (2012) suggest that games need not be created just for educational purposes to be fruitful in a learning environment; commercial games can also be of great use if applied correctly. In this section, we look at documented research on the use and effect of both serious games and games without a given pedagogical purpose used in language learning.

2.1. Games and ESL

To investigate the potential for achieving communicative competence through the use of different applications of games, it is crucial to look at outcomes of instances in which it has been tested. Herselman (1999) reported on an investigation of how computer games can benefit resource-deprived (RD) and resource-advantaged (RA) learners in their second language learning. This investigation was conducted on students in year 6 in South African schools and was aimed to measure what impact computer games have on the students’ English language skills and development (p. 197). Additionally, this study was conducted to see whether games could support the ESL syllabus (p. 198). The investigation suggested that educational computer games could potentially strengthen the following outcomes of the syllabus: listening and understanding, speech, reading and writing skills, control of English grammar and vocabulary. In addition, students reported experiencing a sense of joy in mastering the language (p. 198). Aside from supporting the syllabus, Herselman argued that digital games offer students “motivational challenges which create competitive environments and affective experiences of fun in which learners can engage” (1999 p. 200).

Two types of computer games were incorporated in the study reported by Herselman
(1999): twitch games, which require a certain level of motoric skill (eye to hand coordination, reaction, etc.), and strategy games, which require a higher level of thinking to solve certain challenges or puzzles. Herselman (1999) argued that whether a student has acquired “game literacy” or not in a specific game depends on how well the student is able to perform the necessary requirements of that game (p. 204). In the case of twitch games, “game literacy” is achieved when students are “able to use basic level skills like seeing (eye-hand coordination), printing (concentration) and clicking (reaction) to win a game” (Herselman, 1999, p. 204). To achieve “game literacy” in strategy games, the learners have to, as previously mentioned, use “higher order thinking skills” (Herselman, p. 204) to solve challenges presented in the game.

The findings of this study suggested that far more RA learners (learners who were part of a more advantageous socio-economic environment and therefore familiar with technology and games) than RD learners (learners from socio-economically deprived environments) were game literate in both twitch and strategy games (Herselman, 1999, p. 204). In fact, the study indicated that RD learners were only game literate in twitch games and not at all in strategy games. Additionally, the RA learners were overall more comfortable with using computer games as a part of their education. Herselman argued that this was probably caused by their familiarity with technology and receiving instructions digitally (1999, p. 210). However, Herselman argued that “game literacy” only had initial influence over the students’ success in the games: “[…] Resource-deprived learners battled at the outset, but continued playing of the games alleviated this problem and learners were found to use the games successfully to become more competent in ESL” (1999, p. 210).

To establish what impact the computer games had on the students’ language development, a pre- and post-test was administered to check their grammatical skills in English (p. 203). According to Herselman (1999) there was a great increase in all the participating students’ language proficiency after they had finished playing the computer games (p. 210). For example, the post-test administered at the Ntyatyambo Preschool indicated that the learners’ grammatical proficiency had improved by 9% (Herselman, 1999, p. 210). Additionally, the outcome of the study suggested that the digital games used supported many of the requirements of the ESL syllabus grade 6. For example, the games included in the study required the learners to spell correctly, use tenses appropriately and understand the main word classes (nouns, verbs etc) (Herselman, 1999, p. 204-205). This particular outcome suggests that grammatical
competence (subcategory of communicative competence) was being achieved through playing the games. As previously mentioned, grammatical competence refers to abilities such as being able to use sentence grammar, morphology and producing/understanding literal meaning of utterances (Leung, 2005, p. 123). Moreover, Herselman (1999) argued that the study also indicated that the computer games had a positive affect on the learners’ motivation:

The games stimulated sensory and cognitive curiosity, challenged players to be in control of the game and provided for experience of exogenous fantasies, competition and recognition by means of an achievement record for their sustained efforts (Herselman, 1999, p. 205).

However, the study indicated that above all, recognition was the main motivation for playing the computer games (Herselman, 1999, p. 205). The students were not able to compete against each other during the gameplay sessions, thus eliminating competitiveness among students as a motivating factor (p. 205).

2.2 Games and Vocabulary Acquisition

According to the Swedish media council, video gaming and general computer use is a more and more popular activity among Swedish youths (Sundqvist & Sylvén, 2012, p. 190). Sundqvist and Sylvén (2012) argued that the default language of most games is English, and because of this, players of games are highly motivated to learn particular game terminology in order to understand content and progress further in the game (Sundqvist & Sylvén, 2012, p. 190, 192). According to Sundqvist and Sylvén (2012), knowledge acquired in a game can potentially be applied and used in other situations: “what is learned in a computer game might carry over into what is learned in the L2 English classroom” (Sundqvist & Sylvén, 2012, p. 192). Sundqvist and Sylvén (2012) also suggested that a good amount of language learning happens outside of the classroom: a practice, that Sundqvist and Sylvén (2012) describe as extramural language learning (Sundqvist & Sylvén, 2012, p. 193). Extramural language learning stresses that there is no need for an intentional wish expressed by the learner to acquire a target language (there may, however, exist one). Additionally, extramural language learning takes place outside school in a context where there is no instructor (e.g. language teacher) (Sundqvist & Sylvén, p. 193). In this sense, students playing games (that are in English) outside the school context are engaged in extramural English
learning. According to Sundqvist and Sylvén (2012), these students are using both written and spoken English in the game and are greatly motivated to progress within the game (p. 193).

Furthermore, Sundqvist and Sylvén (2012) states that an important part of acquisition of any target language is the access to (and expansion of) vocabulary. In addition, Sundqvist and Sylvén (2012) argued that this area is one of the most important ones to investigate in order to increase the understanding of how languages are learnt (Sundqvist & Sylvén, 2012, p. 194). Sundqvist and Sylvén (2012) conducted a two-year long longitudinal study investigating the impact of content integrated and language integrated learning (CLIL) on Swedish upper secondary students’ vocabulary. In Sundqvist and Sylvén’s study, CLIL is the usage of English as the method of instruction in classrooms (Sundqvist & Sylvén, 2012, p. 195). The students participating in the study were tested three times, and each time they were tested, they took part in four different types of vocabulary tests. The data suggested that the students exposed to CLIL had attained a larger vocabulary than students who were not included in the CLIL (Sundqvist & Sylvén, 2012, p. 196). Nevertheless, the data also indicated that the students exposed to CLIL already possessed a greater vocabulary (before the tests had been administered). According to Sundqvist and Sylvén (2012), the statistics of the study indicated that the main reason for some students’ acquisition of a larger vocabulary was due to the fact that they read different types of English texts outside school (Sundqvist & Sylvén, 2012, p. 196).

2.3 Extramural Activities

In order to investigate what types of English texts students’ engage in outside school, Sundqvist and Sylvén (2012) conducted a second study. This study was a one-year longitudinal study focusing on 9th graders and the effect of extramural English on their vocabulary and oral proficiency (Renders, p. 196). The extramural English was documented and measured through the use of interviews, questionnaires and two one-week diaries (p. 196). Additionally, a vocabulary test was administered to the students in order to measure the effects of extramural English activities. The students used their diaries to document how much time they had spent on seven extramural English activities (playing computer games, browsing the internet, reading books/magazines/newspapers, watching TV/movies and listening to music and one open
category) (Renders, 2012, p. 196). According to Sundqvist and Sylvén (2012), the information gathered from the diaries suggested that the time spent on the extramural activities had considerable impact on the students’ vocabulary. However, the data also suggested that different types of extramural English activity had greater impact than others: “activities that required the learners to be productive and rely on their English skills (i.e. playing computer games, using the internet, and reading) had greater impact on vocabulary acquisition than activities where learners could remain fairly passive…” (Sundqvist & Sylvén, 2012, p. 197). Furthermore, the study indicated that the boys spent more time with productive extramural activities, such as playing games and browsing the internet, compared to the girls. According to Sundqvist (2012), this resulted in the boys’ vocabulary development being considerably more affected by the extramural activities. This became apparent in a vocabulary test where boys who had spent more time on extramural English activities scored considerably higher than other students (2012, p. 197). The outcome of the study also indicated that the boys who scored high on the vocabulary test preferred to play World of Warcraft (WoW - a massive multiplayer game where thousands of gamers concurrently populate a virtual world through a character-based avatar) (p. 190). Sundqvist and Sylvén (2012) argued that the boys certainly benefited from spending time on this specific extramural English activity (2012, p. 197). The students who had engaged in playing WoW had scored higher than other students on the vocabulary test. Judging by this result, it can be argued that these students had increased grammatical competence and improved their knowledge of lexical items and semantics. Therefore, it can also be argued that features of communicative competence were being attained via the digital game.

A third study conducted by Sundqvist and Sylvén (2012) focused on students in grades 4 to 6, investigating a possible relationship between the extramural English activities and the learning outcomes in school. Questionnaires and diaries were used to record the use of extramural English activities among the students (Sundqvist & Sylvén, 2012, p. 198). To measure the outcomes of the students learning, a vocabulary test was used as well as results from the national test of English. According to Sundqvist and Sylvén (2012), the diaries and the questionnaires suggested that all of the participating students had access to computers and internet at home. The diaries indicated that the students spent on average 9.4 hours/week on extramural activities and that the most popular activity was playing computer games (p. 198). Furthermore, the data suggested that the boys and girls spent fairly equal amounts of time on extramural English
activities with the exception of what type of activity they engaged in. The questionnaire suggested that four out of five boys played games, whereas only two out of three girls did. Additionally, both the diaries and questionnaires suggested that the boys and girls played different types of games (the boys mainly played games such as World of Warcraft, Call of Duty and Counterstrike and the girls mainly played The Sims) (Sundqvist & Sylvén, 2012, p. 199).

To investigate a possible relationship between the extramural English activities and the learning outcomes in school, the students were divided into two groups: one for those who had passed the national test in English and another for the ones who had failed one or several parts of the test (Sundqvist & Sylvén, 2012, p. 199). According to Sundqvist and Sylvén (2012), the group who passed the national test had spent more time on extramural activities than the group that had failed; two activities in particular: playing computer games and browsing the internet (Sundqvist & Sylvén, p. 199). According to Sundqvist and Sylvén (2012) correlation between extramural English activities and the two dimensions of the national test was established. These two dimensions of the national test were listening and reading comprehension and the study indicated that extramural English activities correlated positively with both of these dimensions (p. 200). As for the vocabulary test administered to the students, correlation was found between two parts of the test and extramural English activities: recognition and production correlated positively with the amount of time students spent on extramural English activities (Sundqvist & Sylvén, 2012, p. 200). The study indicated that the students’ had increased their reading and listening comprehension by dedicating themselves to extramural English activities (specifically playing games). Being able to read, listen and understand utterances and their different contextual meanings (such as the purpose of the interaction and other interlocutors) are parts of sociolinguistic competence. Additionally, the outcome of the vocabulary test suggested that the students’ ability to produce and recognize lexical items had increased by extramural English activities. In the light of this, it can be argued that parts of communicative competence were being achieved through the use of games.
2.4 Games and Language Learning in Educational Contexts

Additional research done on the effects of video/computer games on second language acquisition was presented by Young, Slota, Cutter, Jalette, Mullin, Lai, Simeoni, Tran and Yukhymenko (2012). In addition to presenting the effects of games on language acquisition, Young et al. (2012) argued that research on games incorporated in educational contexts have shown that they have beneficial effects on general skills that are useful in school: logic, spatial problem solving and mental rotation skills (p. 62). Subsequently, Young et al. (2012) mentioned that most games carry the potential for immersion and enjoyment, and that they can be customized after preferences (be played as a multiplayer or simply fitted to the desired educational context) (p. 62).

Young et al. (2012) reported some of the documented effects that games have had on language learning (p. 65). They defined language learning to include dimensions such as (second) language acquisition, language arts and composition etc. (p. 65). According to Young et al. (2012), research has shown that different types of media can improve language proficiency: “Kuppens (2008), reporting on 374 sixth-graders in the Netherlands, showed that students who viewed movies or TV or played videogames had statistically significant achievement gains in English grammar use when translating from English to Dutch […]” (p. 73). Nonetheless, Young et al. (2012) argued that language instructors generally see immersion, where the target language is used to interact with speakers in other cultures, as the most effective way to develop language skills (p. 74). Furthermore, the immersion that occurs in certain games could be compared to moving to another country and learning a new language there: acquiring necessary language skills is imperative for success and survival in the social contexts that exist inside different types of games (Young et al., 2012, p. 75). In addition, Young et al. (2012) argued that language immersion is particularly effective when non-native speakers have the opportunity to interact with native (or more developed) speakers. According to Young et al. (2012, p. 74) these “exolingual experiences” (e.g. non-native speakers interacting with fluent or more fluent speakers) are quite commonly found in MMORPGS: massive multiplayer online role-playing games in which players complete quests together in groups or alone (Gee, 2007 p. 180). For instance, research carried out by Zheng (2006) has indicated that Chinese students playing a game called *Quest*
Atlantis acquired vocabulary, grammar and general language use through interaction with other players (Young et al., 2004, p. 74). Students playing would regularly finish the sentences of non-native speakers, correct grammar of other people playing and provide feedback (e.g. confirmations) (p. 74). These examples can serve as evidence for the achievement of communicative competence via gameplay: the players were utilizing grammatical competence (in the form of correcting grammar and finishing sentences) and strategic competence (compensating for communicational breakdowns) to facilitate communication.

In addition to illustrating the benefits of using games in language learning, Young et al. (2012) also brought up the fact that some studies have indicated that merely observing someone else’s gameplay could have positive effects on language development (p. 75). In fact, Young et al. (2012) stated that previous research suggested that students observing someone playing a game might improve their language proficiency more than the players themselves. An example of this phenomenon was found in a study conducted by deHaan (2008), which explored the effectiveness of using a video game to teach English at a Japanese university. deHaan’s study suggested that students observing the gameplay learnt more vocabulary items than students playing. According to deHaan (2008), these results could be caused by the fact that the students playing the game had to focus their attention and cognitive thinking more on the happenings of the game than the vocabulary items (as cited in Young et al., 2012, p. 75). Thus, the person who only has to direct attention and effort to observing was able to learn more. In a positive light however, Young et al. (2012) emphasised that the implication that not all students have to play the game simultaneously to gain from the experience can be an advantage regarding classroom management. Nonetheless, the implementation of the game resulted in an overall increase in student’s knowledge of vocabulary items. Both the playing and observing students enhanced parts of their grammatical competence (understanding lexical items and semantics).

2.5 Further Research on Games and Language Acquisition

Anderson, Reynolds, Yeh & Huang (2008) conducted research on games and language acquisition based on a first-person shooter (FPS) game called America’s Army (AA). Anderson et al’s (2008) study posed three research questions which were concerned
with the teacher’s implementation of the game, how students apprehended game usage in an educational context, and whether or not AA could improve players’ listening comprehension. Anderson et al. (2008) constructed two different experiments, the first of which was a trial run in which they had eight subjects: three Taiwanese undergraduate students, two French university exchange students, and four Taiwanese high school students (p.2). The trial run suggested that the students regarded the language teaching potential of games positively, but that the experience could be improved by introducing the vocabulary beforehand (Andersen et al., 2008, p. 2). This notion was applied in the second part of Andersen et al’s (2008) research. The participants, 29 graduate and undergraduate students from Taiwan, were divided into two groups: one group who received vocabulary instructions related to the game, and one group whose members were instructed in how to navigate their avatars by a training module in the game (Andersen et al., 2008, p. 3). The results of the second experiment showed that both groups shared similar listening comprehension abilities before and after the experiment, and that many of them thought that it was difficult to follow the instructions in the game due to fast rate-of-speech and unfamiliarity with the topics (Andersen et al., 2008, p.3). Although the students’ attitude towards learning from games was discovered to be positive overall, many of the players emphasized the importance of teachers being available to provide help when needed (Andersen et al., 2008, p. 4).

Rankin, Y., McNeal, M., Shute, M. W., Gooch, B. (2008) conducted two studies on the massive multiplayer online role-playing game (MMORPG) Everquest 2 (EQ2). Rankin et al’s (2008) aim with these studies was to examine social interaction in a MMORPG through the perspective of user centered game design (p. 44). According to Rankin et al. (2008), user centered game design “observes social interactions associated with game play to identify and leverage the social interactions that support acquisition and application of knowledge” (Rankin et al., 2008, p. 44). In addition, user centered game design seeks to put the player in a setting that is inspired by a relationship between social contexts in the real world and the virtual world. By observing the players’ game play activities before the research and afterwards using this information in constructing a learning environment, it has been proposed that a suitable game play setting for learning can be achieved (Rankin et al. 2008, p. 44). In the first study, Rankin et al. (2008) observed advanced students of English as Second Language (ESL) from China and examined their progression in vocabulary acquisition (college level
Six of the students participating in the study received three hours of class instruction through drill and rote exercises, while the remaining six students played *Everquest 2* for four hours (with the aim of completing eight quests in the game). The post-tests of the first experiment showed that, in this context and regarding vocabulary acquisition, the traditional L2 pedagogy garnered far better results (Rankin et al., 2008, p. 46). In Rankin et al.’s (2008) second study, Chinese ESL students were paired with Native English Speakers (NES) in three groups of four players (2 ESL and 2 NES) (while the rest of the students played the game by themselves) (Rankin et al., 2008, p. 46). The outcome of the game session was then measured by using the same post-test as the one used in the first experiment. The results indicated a significant gain for the ESL students who collaborated with the NES players (Rankin et al., 2008, p. 47). The results also hinted that previous experience regarding video games had no significant impact on the results, but that the entry level of the learners’ language proficiency might be of importance in order for functioning communication in these kinds of groups.

Peterson (2010) investigated the use of MMORPGS as a tool for language education in light of theories such as sociocultural notions and the psycholinguistic interactionist literature (p. 431). The psycholinguistic interactionist theories imply that there are two types of interaction that foster second language acquisition (SLA). The first type of interaction involves “interaction engendered during communication problems” (Peterson 2010, p. 431), and the second type is about a focus on the form of the target language (TL). In addition, interactionist research puts a greater emphasis on social factors than on linguistic ones when it comes to learning (and can therefore be seen as close to sociocultural theory). In a sociocultural view of SLA, “second language learning is facilitated through the co-construction of meaning in the TL involving collaborative dialog and the creation of zones of proximal development” (as quoted in Peterson 2010, p. 431). Peterson (2008) investigated three different studies. The first study discussed by Peterson was a study conducted by Thorne (2009) on the in-game interaction between a native speaker of English and a non-native speaker (Ukrainian) in *World of Warcraft*. Thorne (2009), in an interactionist fashion, analyzed the communication between the two participants in order to see what kind of TL conversation occurred. The activities identified were “extensive TL dialog, meaning negotiation, self- and other-initiated corrections” (Peterson 2010, p. 433) which correlates well with the sociolinguistic, discourse and strategic aspects of
communicative competence.

The second study discussed by Peterson (2010) was the one mentioned in section 1, by Rankin et al. (2006) and concerned the chat activity of a small group of ESL learners who played *Everquest 2*. Rankin et al. (2006) investigated the potential increase of English proficiency in players’ real-time interaction with other players and non-playing characters (NPCs). The players first received instructions on how to participate in the game, and then they undertook four sessions. The findings indicated that TL output was enhanced but that this “trend was more apparent amongst the advanced and intermediate participants, who generated more chat messages than their peers” (Peterson 2010, p. 435). In addition, the outcome of Rankin et al’s (2006) study indicated that the students perceived games positively as a tool for learning language, increased self-confidence regarding vocabulary knowledge, reading and conversation skills (p. 435). However, Peterson (2010) also pointed out that some of the lower-level learners experienced cognitive overload, which was caused by the game requiring the player to deal with multiple competencies when playing (p. 435).

Peterson (2010) also studied Rankin et al’s (2008) paper, which was discussed earlier in this section, and noted that this study suggested that limited duration of pre-study training affected the learners’ performance negatively. However, the study also indicated a positive effect in that the native speakers took on roles as leaders, which yielded interaction that elicited extensive TL output. As the game progressed, the students became more comfortable and the output of chat messages increased over time (Peterson 2010, p. 436), which implies that inclusion of NES can serve to enhance the learning experience through utilization of sociolinguistic and strategic competences.
3. Education in an Increasingly Digitalized World

Johnson (2005) argued that non-literary popular culture (games, the internet, television shows and movies) resources provide us with skills that are different from, but just as important as the ones derived from reading books. Moreover, Johnson (2005) argued that books do not provide enough stimuli in that they often follow a fixed linear path, and that this property becomes a problem for young people who are raised on interactive narratives. In relation to this fact, Johnson (2005), posed the question of why any student today would “want to embark on an adventure utterly choreographed by another person?” (p. 20). Apart from an interactive narrative, games also have a property that enable a drive in players which Johnson (2005) called seeking: an “elemental form of desire: the desire to see the next thing” (p.38). Even though classical novels might evoke this form of desire as well, perhaps games take it one step further in terms of associability and operational qualities. Johnson (2005) stated that the internet has reshaped the way we think and our ways of taking in information, something that has “challenged our minds in three fundamental and related ways: by virtue of being participatory, by forcing users to learn new interfaces, and by creating new channels for social interaction” (Johnson 2005, p. 117,118). The design of a webpage is quite different from that of a page in a regular novel, and even though it might be more similar to a page from a textbook in another subject (e.g. Geography or Social Science), these still might not be seen as enticing as digital presentations. Such textbooks lack the interactive dimension that web pages offer as well.

Zichermann (2011) argued in his presentation on TEDtalks (a non-profit conference on various topics related to technology, entertainment and design) that one cause for drops in some students’ results could be that, for them, the world is moving too slow, which leaves them under-stimulated in traditional classroom settings. According to Zichermann (2011), playing games leads to better multitasking, and this is a feature that can be utilized in school by the introduction of more varied tasks that induce motivation and offer stimulation. In this vein, Johnson (2005) claimed that students of today are consuming texts “in shorter bursts” (2005, p. 185), even though they are “reading as much as ever and writing more, but the specific, historically crucial kind of reading has
grown less common” (2005, p. 185). As a negative effect of this, the fact seems to be that the popular culture of today is doing a worse job at “training our minds to follow a sustained textual argument or narrative” (Johnson 2005, p. 187). These facts could also be considered as other reasons for rethinking the structure of tasks or how information is presented in and through them. If it is true that non-linear narratives and knowledge seeking serve as motivational aspects of video games, then this fact could, and should, be used to motivate under stimulated students by constructing tasks with them. As a practical example, Zichermann (2011) brought up the approach of Ananth Pai (2011), who restructured his lessons with middle-school students in order to utilize the power of games, and in so doing reached exceptional results. Pai’s way of teaching, or gamifying the classroom, is further discussed in section 4.

Research has suggested that playing games in the appropriate setting might enable the learners to enter a certain flow (Shute et al., 2010). Flow has been defined as “a state of optimal experience, where a person is so engaged in the activity at hand that self-consciousness disappears, sense of time is lost, and the person engages in complex, goal-directed activity not for external rewards, but simply for the exhilaration of doing” (as quoted in Shute et al., 2011, p. 504). Sharp (2012) argued that learners engaged in flow are also engaged in stealth learning, which is “when an instructor uses clever, disguised ways to introduce learning objectives through non-traditional tools, such as games, to encourage students to have fun and learn” (Sharp, 2012, p. 42). Shute (2011), in turn, argued that stealth learning can be assessed by a process called stealth assessment. By using stealth assessment, teachers can assess students’ competency levels in a reliable way without inducing test anxiety or interrupting the flow (Shute, 2011). Moreover, flow can be seen as related to the notion of fluid intelligence, which is utilized when people are immersed in dealing with various types of task. Zichermann (2011) argued that this type of intelligence is on the rise, perhaps, thanks to games.

Fluid intelligence is concerned with human’s capabilities of reasoning, solving problems and adapting to new situations (Salthouse, Pink & Tucker-Drob, 2008) and is also elaborated upon by Kuszewski (2011), whose study of its relationship with the learning of new information is examined in section 4. Fluid intelligence can also be referred to as fluid reasoning (FR) and has been defined by Cattell (1987) as “the capacity to think logically and solve problems in novel situations” (as quoted in Mackey, et al. 2008, p.582). Mackey et al. (2008) sought ways to improve children’s cognitive abilities and claimed that the FR ability “is relevant for scholastic
achievement, and [...] likely to be influenced by environmental factors” (as cited in Mackey, et al. 2008, p. 582). Human working memory (WM) capacity seems to be closely connected to FR since research by e.g. Engle (2002) has shown that “WM capacity… appears to be an important mechanism underlying fluid intelligence” (as quoted in Salthouse, et al. 2008, p. 470). Furthermore, Kane and Engle (2002) argued that fluid intelligence can be viewed as “the psychological core of the statistical construct of general fluid intelligence” (as cited in Salthouse, et al. 2008, p. 471). In addition, Oberaurer et al. (2008) argued that an investigation of working memory capacity and its relationship with intelligence “is psychology’s best hope to date to understand intelligence” (as quoted in Salthouse et al. 2008, p. 471). These realizations of how our minds work in different settings, and how they can be further stimulated with different tasks in order to promote better learning – in ways that are motivational as well – seem to imply that games might just be the perfect tool for this endeavour.

3.1. Potentiality of Games

Gee argued that games hold a type of semiotic domain that with proper immersion develops, among other things, “[... ] resources for future learning and problem solving in the semiotic domains to which the game is related” (2004, p. 38). A semiotic domain, according to Gee, is “an area or set of activities where people think, act, and value in certain ways” (2004, p. 19). This means that different images, gestures, objects and even people take on different meaning depending on which “semiotic domain” they occur in. A logical consequence of this argument would be to assume that a game’s (as a semiotic domain) content (e.g. dialogue, plot) offered strictly in the English language would develop the player’s potentiality for learning English. However, as stated by Gee, there is no insurance that a person emerges in a videogame (or any other semiotic domain) both actively and critically to the extent that this transition is possible (2004, p. 38).

Furthermore, games’ property of “seeking” (Johnson, 2005), which was brought up in the last section, can also be used to advocate the need for an implementation of games in learning environments. This concept further connects to the neuroscientific statement that human brains will be drawn to systems in which rewards are both clearly defined and achieved by exploring an environment, “even if they’re made up of virtual characters and simulated sidewalks” (Johnson 2005, p.38). A learner’s act of striving towards something unknown further connects to Vygotsky’s Zone of Proximal
Development, which states that students have to be confronted with challenging, but not impossible, tasks in order to attain understanding (Lundahl, 2009). This notion overlaps well with the cognitive scientists’ statement that “the most effective learning takes place at the outer edges of a students competence” (Johnson 2005, p. 177). This is also an implication that acquired knowledge must be used in a challenging way to confront and solve new problems in an environment which syncs with the student’s level of ability (Johnson, 2005).

3.2 Cognitive Implications

It is beneficial for teachers and learners alike to consider cognitive skills and how they work in relation to games and communicative competence since, as Chik (2012) stated, we are presently “only beginning to understand the roles of gameplay in human-console interaction and player-interaction” (p.112). For teachers, this understanding could be an aid in constructing tasks that challenge the students mentally in the best possible way, which might also benefit more skill-sets than just communicative competence. In a study by Reinders and Wattana (2011), which focused on Thai students’ language acquisition in the context of a MMORPG, the researchers stated that actively participating in a communicative exchange poses “cognitive demands on learners’ language systems (Levelt, 1989) and prevents learners from allocating limited resources to both exchanging meaning and paying attention to grammar” (Reinders & Wattana, 2011 p. 183). This fact, alongside deHaan’s (2008) finding that students who simply observe gameplay learn better than those who play due to lesser cognitive strain, imply that if students are better prepared to handle the cognitive demands, they will also be in a better position to appropriate knowledge.

3.3 Brocanto

By using Event-Related Potential (ERP) technique to measure brain reaction to certain linguistic stimuli, Reichle (2012) has been able to investigate the connection between games and language learning in a novel way. The ERP technique is utilized in cognitive neuroscience and is a way to measure “momentary changes in electrical activity of the brain when a particular stimulus is presented to the subject” (Ashcraft 2006, p. 68.), through the use of electrodes attached to the scalp of the subject. It has previously been established that the brain of a native-like speaker exhibits certain reactions when
confronted with either syntactic or semantic anomalies. These reactions are different from how brains of learners of a language react (Reichle 2012, p.142). Measuring these differences could be one way to measure the extent of language acquisition in different contexts. In addition, measuring these differences is of importance since Reichle’s (2012) stated that “recent work has shown that increasingly nativelike ERPs correspond to increasing proficiency for learners of natural languages like English and French – including for the processing of other types of linguistic anomalies and constructions, such as those relating to focus structure” (2012, p. 143).

Reichle (2012) referred to a study by Friederici, Steinhauer, and Pfeifer (2002) concerning a game called Brocanto, which measured the acquisition of a miniature artificial language. This language (also called Brocanto) could be considered a natural language in its syntax, but it differed from e.g. German in its morphosyntax, and was taught to German speaking participants using two different approaches. The first group were taught using the game Brocanto, in which the players had to beat each other by conducting moves towards an opponent’s pieces verbally. The players were taught the grammar of the language through having to express their moves, and subsequently updating the board according to the moves made. The computer provided auditory corrective feedback and penalties for invalid moves throughout the sessions. The control group was instead trained by receiving instruction in the vocabulary of Brocanto (but not its morphosyntax). The collecting of ERP data subsequently began when all participants had reached 95 percent accuracy, which should imply that the participants from the different groups were on the same level of proficiency. However, the results indicated that the brains of the participants who had been trained via the videogame exhibited native-like effect when they were confronted with morphosyntactic anomalies, whereas those who had not been trained via the videogame beforehand did not. The study first served to provide evidence that “language learners are capable, under the right conditions, of exhibiting nativelike brain signatures of syntactic processing, even when language learning occurs after any putative critical periods for L2 acquisition” (Reichle 2012, p. 144). Although these results are very interesting to consider as a language teacher or researcher, Reichle (2012) also argued that the simple fact that participants reached higher proficiency in a language by just playing a game should also be of interest to anyone concerned with games and language acquisition.

Reichle (2012) also brought up a study conducted by Morgan-Short, Sanz, Steinhauer, and Ullman (2010), in which a modified version of Brocanto called
Brocanto2 was used to investigate explicit versus implicit L2 training (Reichle, 2012). In Morgan-Short et al’s study, the participants were divided into two groups: one group who was trained in the grammar of Brocanto by explicit instructions in grammar, and one group who was in an implicit instruction setting that sought to replicate L2 immersion by using meaningful examples from the target language. The results indicated that “induction of L2 grammatical rules is more likely to lead to nativelike processing than explicit instruction” (Reichle, 2012, p. 146). In addition, these findings also serve as an indication that “computer games can be successfully used in conjunction with implicit learning, and that this may even prove more fruitful than pairing the game with explicit instruction” (Reichle, 2012, p. 146).

### 3.4 Pedagogical Theories in Relation to Game Based Tasks

Prensky (2001) referred to the current generation, those who grew up alongside digital technology, as digital natives (as cited in Filsecker and Bündgens-Kosten, 2012). Filsecker and Bündgens-Kosten (2012), in their paper on games and learning, sought to use the concept of digital natives to prevent students from becoming disengaged and bored in school environments. To accomplish this they looked at the results of language acquisition in contexts where students used different games in conjunction with different learning theories. Furthermore, Filsecker and Bündgens-Kosten (2012) argued that additional important factors that need to be taken into consideration in the learning environment today: identifying the learners, the learning environment and “key mechanisms and processes related to teaching, learning, and successful transfer” (2012, p. 51), etc. The different learning theories that were used to explain the impact of language learning from games were the following:

1. The associativist/behaviorist perspective
2. The cognitivist/constructivist perspective and problem-based learning
3. The situated perspective and legitimate peripheral participation

According to Slife and Williams (1995), associationism ties together closely with behaviourism, a connection that Filsecker and Bündgens-Kosten summarized as: “simple and discrete sensations coming from the environment are associated in the brain
with others to form more complex structures” (2012, p. 51). As such, the central theme of behaviourism is that the individual and his or her behaviour is shaped by the environment. Proponents of this school of thought often see learning as something that happens when we experience things, and in Gagné’s (1979) view, these experiences were part of classical learning principles, such as contiguity, repetition, and reinforcement. He further stated that these principles were external to learning and that they could be controlled (as cited in Filsecker & Bündgens-Kosten 2012, p. 52). Contiguity in this theory denotes a closeness in both space and time between learner and the information to be learned. In this setting, the stimulus situation and its response is repeated and finally the learning is strengthened by being followed by a satisfying state of affairs, such as a reward (as cited in Filsecker & Bündgens-Kosten 2012). Filsecker and Bündgens-Kosten summarized the associativist/behaviourist approach by stating that it implicitly “tells us that we need to present information to the learners, make opportunities for practice, while giving learners specific feedback that will strengthen the association of the material” (2012, p. 52), which could be argued is connectable to the approach used in the application of the previously discussed game of Brocanto.

In the cognitivist approach, the human mind and its information processing is seen as closely resembling that of a computer’s. As in behaviourism, individuals learn by experiencing things in an environment, but the difference between these approaches is that the cognitive theory sees direct instruction and practice as key pedagogical strategies. Furthermore, according to, von Glasersfeld, “cognitive change and learning takes place when a scheme, instead of producing the expected result, leads to perturbation, and perturbation, in turn, leads to accommodation that establishes a new equilibrium” (as quoted in Filsecker & Bündgens-Kosten 2012, p. 54). In addition, the notion of perturbation connects to Reichle’s (2012) concept of meta-awareness, which states that when gamers are sufficiently familiar with the structure of games they develop a certain awareness of this: called meta-knowledge. Game designers (or teachers) can use this meta-knowledge to present the player with information that violates the players’ expectations. This would “elicit an emotional response” (Reichle 2012, p. 149) in the player, and subsequently improve engagement and awareness. By utilizing this meta-awareness and violating the students’ expectations, the teacher can effectively create a pause in the gameplay for reflection and processing regarding information or puzzles from the game.

In the constructivist perspective, knowledge is actively constructed through an
individual’s experience with the environment and disregards the “independent, external (i.e., ontological) ‘reality’” (as quoted in Filsecker and Bündgens-Kosten 2012, p.54). The most important aspects of the constructivist approach was narrowed down by Savery and Duffy (1996, p. 2-3), who concluded that “(1) understanding occurs in the interaction with the environment; (2) puzzlement is the stimulus for learning, determining the nature of what is learned; (3) knowledge advances through social negotiation and evaluation of individual understanding” (as quoted in Filsecker & Bündgens-Kosten2012, p. 54). These aspects were then used to create the problem based learning pedagogy, which includes ten pedagogical principles for creating an “authentic, challenging and complex task/problem” (Filsecker et al., 2012, p.54), of which, the most prominent principle seems to be puzzlement. Puzzlement, in agreement with von Glasserfelds’ notion that perturbation leads to accomodation, could be a motivational factor for students through their desire to solve puzzles or problems.

The third theory that Filsecker and Bündgens-Kosten (2012) brought up was the situated perspective, which covers the contextual aspects of learning by focusing on the physical context of learning with regard to tools and such, the social community for learning and how co-operation works inside it. In relation to this perspective, Filsecker and Bündgens-Kosten (2012) discussed legitimate peripheral participation (LPP), which is a part of the situated approach that is concerned with learning in contexts that were not designed for learning. As such, LPP is more concerned with the notion of communities and how values and belief systems are transferred and shared inside them. LPP postulates that we gain experience in communities through conducting authentic, meaningful activities, as well as observing others do the same thing (Filsecker & Bündgens-Kosten2012, p. 59). As almost everyone playing an online game becomes part of a community, or as Filsecker and Bündgens-Kosten (2012) puts it: “games represent opportunities for players to continuously participate in and build a community or ‘affinity group’” (p. 61), and play a particular part in it with their avatars (which almost always includes specific tasks to complete or specific ways to behave in accordance with the co-players), the applicability of this theory becomes quite evident.

Filsecker and Bündgens-Kosten (2012) argued that each of these approaches in conjunction with playing games have their advantages and disadvantages. Games that focus on repetition and reinforcement in a behaviouristic sense might let the player acquire knowledge but “leave little space for teachers, social interaction, and reflection” (2012, p. 63). In games where instead the social context was a key factor (by
incorporating tasks that had to be completed in co-operation with others), the negotiation between participants had been shown to have positive outcomes. Players interacted with each other and created meaning related to the goal of the task, but also shared notions of their individual cultures with each other in a community of practice. (Filsecker & Bündgens-Kosten 2012, p. 64). The constructivism and cognitive approaches can instead serve to remind the learner that, by using authentic problems, he or she is in the centre of a learning experience and that the individual interpretations of this situation influence the acquisition of knowledge. These last two approaches also stress the importance of the teacher as facilitator in the learning environment. (Filsecker & Bündgens-Kosten 2012, p. 63-64)
4. Synthesis

For this section of the paper, it is beneficial repeat the research questions formulated in the introduction:

1. Can games be used to instil communicative competence in language learners?

2. What needs to be considered when using games in an educational context?

4.1 Communicative Competence in Games

The documented reports on games in language learning indicated that parts of communicative competence were achieved in most of the games discussed in this paper. For example, the post-tests administered to the students in Herselman’s (1999) study indicated that the students’ grammatical competence in the Ntyatyambo Preschool had increased by 9% by playing games. Furthermore, Sundqvist and Sylvén’s three studies indicated that grammatical competence (as in increased knowledge of lexical items) was increased via the use of games in extramural activities. Additionally, the studies discussed by Sundqvist and Sylvén (2012) suggested that sociolinguistic competence (increased listening and reading comprehension) was achieved in the same manner. Zheng’s (2006) study on students playing Quest Atlantis indicated that both grammatical and strategic competence was being attained by the students emerged in the game.

As mentioned earlier, communicative competence comprises four dimensions of knowledge. Thus, in order to fully achieve communicative competence in a target language, all four dimensions have to be attained. As some studies showed (e.g. Sundqvist (2012) and Herselman (1999)), the games used did not inherently support all four subcategories of communicative competence (at least not at the same time). Nonetheless, the dimensions of communicative competence not present in the games could hypothetically be supported through different pedagogical strategies. For instance, the study conducted by Sundqvist and Sylvén (2012) indicated that the students’ attained only grammatical competence through games in extramural activities. One way of implementing sociolinguistic competence in the language-learning situation occurring in Sundqvist and Sylvén’s (2012) study would be to let the students work with their newly acquired vocabulary items. For example, the students could keep a
diary of the vocabulary items acquired through extramural English activities (e.g. playing games) and put them to use in productions of text. In this sense, the students would acquire knowledge of semantics (realizing how words carry different meaning depending on contexts and interlocutors), morphology and sentence grammar. Thus, the learners would be achieving sociolinguistic competence. Moreover, one way of introducing discourse competence would be to instruct the students (in the form of homework) to document any examples of cohesion and coherence found in extramural English activities. The same type of pedagogical strategies could complement the usage of games in Herselman’s (1999) study. The study discussed by Herselman (1999) indicated that playing games increased the students’ grammatical competence. However, a way of implementing sociolinguistic competence would be to include variations of context in the game: shifting the content focus of the game to norms of convention or purpose of interaction. Furthermore, post-tests in Rankin’s (2008) study indicated that Chinese ESL learners increased their vocabulary through interaction with native speakers in the game Everquest 2. Thus, grammatical competence was being achieved by the act of playing and communicating in the game. Even so, in an interactive communicative setting such as the one discussed in Rankin’s (2008) study, it is possible to introduce other dimensions of communicative competence. Since the Chinese students were interacting with native speakers through a videogame, it is possible to instruct the students to use both non-verbal and verbal strategies to communicate (e.g. utilizing programs such as Skype or TeamTalk for oral communication). Consequently, strategic competence can thus be implemented in the game play as well.

However, Andersen et al’s (2008) study which investigated the effects of the game America’s Army on the students’ listening comprehension showed no increased ability in the participants’ listening skills. This would suggest that this implemented game in particular had no or little effect on students’ communicative competence. Andersen et al. (2008) argued that this was due to the fact that the instructions of the game was delivered too fast for the students. This fact, coupled with the students’ unfamiliarity with the topics brought up in the game, caused much of the information to pass by without a chance for uptake. Additionally, the study showed that many of the students wished for extra teacher assistance while playing the game, which is a measure that might have improved their uptake. Andersen et al’s (2008) study gave indication that there are certain factors that determine whether implementation of a videogame in a
language-learning context is successful or not, such as the need to sufficiently introduce and scaffold a new topic with its relevant vocabulary before game play (if the topic of the game is one that the students are unfamiliar with).

Despite some of the discussed negative results, we argue that the documented research discussed in this paper strongly points to the indication that games can function as an exceptional tool for students to improve communicative competence if properly implemented. As such, what kinds of precautions that are beneficial will be discussed in the following section.

4.2 Considering Games in Educational Contexts

As mentioned in section 2.2, the Swedish media council argued that video/computer gaming is a more and more popular activity among young people in Sweden (Reinders, 2012, p. 190). Relative to this fact, the study conducted by Sundqvist and Sylvén (2012) suggested that playing games outside school (in the form of an extramural activity) increased vocabulary acquisition (Reinders, 2012, p. 201). Sundqvist and Sylvén (2012) argued that this consequently has pedagogical implications since learners will come into the classroom with varying levels of experience in extramural English activities (e.g. playing games). According to Sundqvist and Sylvén (2012), some of the students will be so familiar with the English language (through the use of extramural activities) that they recognize English as their second language. On the other hand, some students will instead be so unfamiliar that they perceive English as a foreign language (Sundqvist & Sylvén, 2012, p. 203). Sundqvist and Sylvén stated that teachers must address this discrepancy in proficiency in order to stop it from increasing (2012, p. 203). One way of doing so is to acknowledge learners’ different extramural English activities, perhaps by recording their activities in the form of journals. In this sense, the extramural (outside school) English activities become intramural (inside school) (Sundqvist & Sylvén, 2012, p. 203). With this information in mind, teachers should have increased chances to facilitate individualized teaching strategies in order to meet the needs of their students (Sundqvist & Sylvén, 2012, p. 203). Furthermore, bringing extramural activities (such as gaming) into the classroom increases the chances that the students will experience an intrinsic motivation to learn and feel autonomous in their work (2012, p. 203).

However, Sundqvist and Sylvén (2012) suggested that there might be complications in bringing students’ extramural activities into the classroom. Firstly, Sundqvist and
Sylvén (2012) argued that one complication might be that the teachers perceive an inclusion of extramural activities incompatible with the standardised school system (p. 203). Secondly, teachers might not be familiar with the types of extramural activities students engage in, such as gaming. This might lead to the teacher feeling insecure about including the extramural activities in the educational context, and it is important that the teacher feels sufficiently familiar with games if they are to be used. As was shown in research by Chik (2012), teachers who were not familiar with computer games also displayed reluctance towards working with it and regarded text in games as being worth less than classical texts. In the light of Andersen et al’s (2008) study, where students expressed that readily teacher assistance was a necessity in order to understand the content in the game *America’s Army*, it becomes evident that the teacher’s degree of acquaintance with the game is of importance (p. 2).

Apart from complications such as the student not being able to comprehend the content of games, there is also an economical disadvantage accompanying the use of digital games in language learning. For example, in Andersen’s (2008) study each of the students was supplied with a dual-core Windows Vista OS desktop (or other computers of similar capacity) (p. 2). In addition, the students were supplied with headphones to ensure that the students would not interfere with each other’s gaming session. Logically, these computers and headphones cost significant amount of money, finances that most schools might not have to spare in order to introduce language learning via games. In this sense, the financial complication of the technology necessary for language learning with games becomes relevant. However, research conducted by deHaan (2008) on games and English as second language learning suggested that students observing the game play learnt more than the ones playing (Young et al., p. 75). Young et al. (2012) argued that it might not be necessary to supply each learner with a computer or console (e.g. Nintendo DS) to benefit from the language learning found in a game: “[…] for teachers who face the challenge of classroom management while getting students to play an educational video game, this research suggests that some effects of video games are inherently social, so not every student needs to play the game to receive the benefits of video game interactions” (2012, p. 75).

The pedagogical theories brought up by Filsecker and Bündgens-Kosten (2012) indicated several factors that also need to be considered in order to increase the games teaching potential. Filsecker and Bündgens-Kosten (2012) stated that “no single theory could account for the kinds of learning that happens inside and outside of schools” (p. 35).
and they also stressed the importance of taking “a complementary rather than an oppositional stance” (p. 64), which seems to be a wise approach in the matter of games and education, since one theory cannot readily account for every aspect of teaching communicative competence with games.

The associativist/behaviourist perspective posited that learners need a possibility to connect the experiences in the game with the real world environment. This implies that the game should not be too far from the learners’ immediate reality and is also consistent with the notion of a Zone of Proximal Development, which further resonates with Gee’s semiotic domains. The cognitive implications held that confronting the learner with puzzles, or unexpected schemes, leads to perturbation that encourages thinking and problem solving. Lastly the situated perspective brought up the concept of LPP that seems to be of same origin as stealth learning and seeks to surreptitiously induce motivation and learning in settings that are not designed explicitly for learning. An approach that gains extra strength when related to the cognitive studies on the game Brocanto, which indicated that games in conjunction with implicit learning might prove to be better than games and explicit instructions. The situated approach also covers how a community can help a learner to progress in developing different skills that, language-wise, ties together with the sociolinguistic and discourse competences. In these communities, that usually are an important part of online games and their culture, players both conduct and observe activities of one’s own and others’ avatars in an LPP manner (learning by doing and observing). The act of observation here, according to Young et al. (2012), might also have a positive effect on students, since they use less cognitive energy by observing than playing which leads to greater improvement of the communicative competency. Not only restricted to the avatars, this type of observational learning is also accomplished whenever the player looks at the chat-box (where communication related either to the player directly, to his friends/groups/guild, as well as conversations between complete strangers can be witnessed) or other on-goings on the screen. It can also be done afterwards by letting a student, either verbally or in writing, recount the different happenings in the game after a period of gameplay, as previously suggested.

Even though communicative competence does not seem to hold nativelike competence as the ultimate goal, the cognitive effects that surfaced in the usage of games such as Brocanto certainly holds positive implications. If a game can be constructed to covertly and automatically instruct learners to become more cognitively
nativelike in a language, then this should be an interesting area to further explore; not only in pronunciation but further as a tool to teach grammatical competence (such as word order). As an effect, teachers will not have to devote the same amount of time to explicitly teach grammatical rules (which might be considered a time consuming and unappreciated enterprise), and instead focus on other areas of competence that needs to be improved. In the case of Brocanto, this was done by declaring that “language mastery in both production and perception was necessary to win the game” (Reichle 2012, p. 144) and then relying on the students and computers to work together in order to play the game and practice language usage. This study does not evaluate how the students perceived this game in terms of motivation and enjoyment, which would be of interest since it seems to be more of a Serious Game than a game designed for entertainment (such as WoW or EQ2). Such a post-test evaluation could help to elicit the properties of Brocanto that lead to such a high level of language acquisition. When these are identified they should hopefully be transferable to another game, e.g. WoW, in order to improve its potential practice of communicative competence while still retaining its motivational properties.

4.3 Teaching with Games

The pilot study we conducted investigated whether language teachers in the Skåne region used games in their teaching. The outcome of the study suggested that games were not being used since nine out of ten of the participating teachers stated that they had never used computer games in their classrooms. The studies included in this survey paper suggested that communicative competence can be achieved through the use of games, and therefore, it can be further argued that games are an underutilized tool for language learning. However, as demonstrated in this paper, the aspects that need to be considered by teachers in game usage, their application and how they perform with different students are many. One strong implication seems to be that the more acquainted teachers are with games in general, the better the chances for success. For instance, the study conducted by Herselmann (1999) showed that twitch games are suitable for RD learners, which would also imply that these types of games should be used with students at lower levels of language proficiency. If a teacher did not know this, then perhaps he or she would have tried to implement a game that would be too complex for some students, with an ineffective learning situation as a result (e.g. using
WoW or EQ2 with students who cannot form complete sentences). As the learners’ language proficiency progress, the teacher’s knowledge serves as an aid in choosing correct games according to the student’s learning curve. After a while, the students will hopefully seek out the positive learning aspects of games themselves, and use them as tools to experience individual freedom in language exploration and motivational expanding of their communicative competences. This could happen when they reach a level that allows them to use such games that are able to promote seeking (Johnson 2005) or problem-solving behaviour (e.g. Quest Atlantis, WoW or EQ2).

Apart from looking at documented research on games and language learning, we have explored some of the research on how games might help to balance differences in social backgrounds in order to create a better learning environment. The information brought up in section 3 should serve as an aid in reflecting on how, in contemporary society, students’ everyday life and school contexts might influence each other on individual levels. For instance, in writing about fluid reasoning (FR), Zichermann (2011) referred to a study made by Kuszewski (2011). In this study, Kuszewski gave a cognitive scientific approach to how humans can increase their FR, which ties in with many of the potentialities and properties in games that have been discovered to be both motivational and fruitful for learning. If applied in other contexts, it could also benefit students of varying levels of proficiencies. Kuszewski’s (2011) steps can be summarized as follows:

a) Seek novelty: learning new domains creates new synaptic connections between activities and cognitive processes.

b) Challenge yourself: research has shown that playing “brain-training” games such as Sudoku or Tetris displays an initial increase in cortical thickness, which then starts to decline after a while. Seeking out new activities instead of mastering the ones already known is, therefore, more beneficial.

c) Think creatively: this step is concerned with creative cognition which recruits both halves of the brain and “involves divergent thinking” which means that a wide range of topics or subjects should be implemented in order to facilitate cognitive growth. Research by Sternberg (2005) has shown that by teaching students to think creatively about problems, they learn more, have more fun
while learning and are also able to transfer that knowledge to other areas of academic performance (cited in Kuszewski 2011).

d) Do things the hard way: instead of letting technology make it easier on the brain by simplifying various tasks, technology should be used to practice one’s problem-solving, spatial, logical and cognitive skills.

e) Network: connect with other people through social media and/or face-to-face interaction in order to experience new ideas, environments and people. This will enable one to see things out of another perspective, or with newly acquired insights.

In light of the findings in this paper, it seems that the elements brought up by Kuszewski (2011) are a big part of games, and also what helps to make them successful in educational contexts. Furthermore, if teachers are aware of this information, it will hopefully lead to more beneficial application of their tasks (whether game-based or not), in that they might improve teaching approaches and strategies to students in different situations. In general, this kind of knowledge might also promote new ideas regarding how prosperous educational situations can be constructed.

Ananth Pai (2011), who we brought up in section 3, raises several interesting indications for gamifying the classroom, and gives a good example for practical application of game based teaching. Pai’s (2011) approach also illustrates how different theories about knowledge in general and approaches to teaching and learning can be mixed together, since he, from his former career in business, has taken with him some notions that are unusual in an ordinary classroom. For example, Pai realized that data and statistics, which he still works with on his spare time, could be applied to improve education as well. This is done through the use of individual accounts for students which track their progress in the games, and further provides this data to the teacher for use in assessment. Furthermore, Pai (2011) has devised his own way of keeping track and displaying students’ progress by recording earnings into a special bank.

Another reason for Pai’s blending of disciplines owes to his realization that the degree of variation in students’ proficiency level posed a problem since it is difficult for one teacher to consider every student in a class of 20 – 25 students. According to Pai (2011), this problem cannot be solved by human capacity alone. Therefore, to devise a way for students to work more independently on a level that suited their needs was of
importance, and he realized that this could be accomplished with the aid of technological equipment. Pai’s class are in a classroom which has 7 laptops, 2 desktops, 11 Nintendo DS’s, 18 games for math, reading, vocabulary, geography, etc. and 21 digital voice recorders. According to Pai (2011), this equipment costs less than a smartboard, and should therefore not put such a significant economical strain on a school budget. Even though the games used in Pai’s classroom might be more in the vein of serious games, it might be suitable in certain situations to begin in this manner in order to get both teachers and students acquainted with the new learning process. As previously stated in this paper: in accordance with the progress that occurs, new games that foster other aspects of learning such as communicative competence can be utilized at a later stage.

Pai (2011) also stresses that simply putting all this technology in the classroom is not sufficient for learning to occur. Pai (2011) improves the learning effect by grouping students together depending on how their brains work and scaffold the lessons accordingly. Regarding the results of his way of gamifying the classroom, they indicated that most students, regardless of special needs (such as behavioral ones), or special giftedness, thrived – unless they had significant reading impairment (Pai, 2011). Other positive benefits were the previously mentioned alignment between learner and games which enables the teacher to guide students with minimally invasive feedback. This should also have a positive effect on the students flow in working. According to Pai’s presentation, in which he compared the proficiency in a gamified classroom to a non-gamified one at the end of three academic years between 2009 – 2012, the results showed that a gamified class overall reached higher proficiency every year. The first year showed a difference between 95% and 78%, the second 86% versus 58%, and the third 76% versus 63%. He only provided the measured results in reading proficiency from two academic years, but these showed an increase as well with 80% proficiency for the gamified class versus 70% for the non-gamified class in 2009-2010, and 82% versus 77% in 2010-2011.

The Northwest Evaluation Association (NWEA, a non-profit organization working alongside school districts to create a culture that values and uses data to improve instruction and student learning) has, according to Pai (2011), stated that students who achieve typical growth will remain at approximately the same percentile score over time. Pai’s students did not remain at the same percentile score but further evolved in their proficiencies, which is a result that contradicts NWEA’s statement. This is a
positive implication for the use of games as learning tools in school, because it shows that old conceptions in the school system and views on educational barriers might be challenged and broken with the help of it.
5. Summary

The research summarized and contrasted in this survey paper on digital games and language learning indicates that communicative competence could be achieved through the use of games. For example, Zheng’s (2006) study indicated that students playing the game *Quest Atlantis* would frequently finish sentences of non-native speaking participants provide feedback (through confirmations) and correct each other’s grammar. Being able to understand verbal strategies that are used in the cases of communicational breakdowns (e.g. finishing each other’s sentences) are parts of what is considered strategic competence. Additionally, Zheng’s (2006) study also indicated that the students would correct each other’s grammar in the game, an act that suggests that the students were expressing grammatical competence (having knowledge of morphology, sentence grammar and syntax). The results from research such as these resonates with Young’s (2012) implication that, games which can provide settings that promotes immersion, or “exolingual experiences”, seem to be very useful.

However, to reiterate, research (e.g. Filsecker and Bündgens-Kosten (2012) and Sundqvist and Sylvén (2012)) also suggested some important factors to consider in teaching communicative competence with games. Online games hold the most potential for enhancing communicative competence in their inherent focus on communication and social skills, but there are some aspects that can be improved. One of the things is the in-game scaffolding, which might alleviate some of the weight on the teacher to be ever-present. This can be done by the use of either more intelligent NPC’s that are there to act as facilitators, engaging in dialogue much like other players would. It could also be done with add-ons, which in theory could be programmable by teachers themselves in order to make sure that the information they want the game to transfer is present. As Peterson (2010) also stated: “learning outcomes could be improved if the game included built-in language supports, such as audio for non-player avatars, to support the development of pronunciation skills” (p.435), which means that even oral competence could be enhanced in situations where no co-players are present. By using measures such as intelligent NPC’s or add-ons, it can be made sure that the game is progressing at an adequate level for the student playing, according to either ZPD, the sociocultural view or Gee’s (2007) semiotic domains. Furthermore, Peterson’s (2009) statement:

from the perspective of interactionist research, interaction both inside and outside the
game appeared to engender beneficial types of TL interaction, such as negotiation and collaborative dialog that are held to be important influences on language development (p.435)

should not be forgotten either, especially in the case where non-multiplayer games are used. This is because expanding the happenings of (scaffolding) the game and putting it in broader contexts using other forms of expression (such as diaries, journals, forums, blogs or conversations with peers) also serves as an aid in strengthening communicative competence. For students, writing about the progress in the game and the story and history of the game world might also strengthen their ability to handle longer and sustained narratives or textual arguments. Hopefully it would help to combat the negative effect that popular culture might have of weakening these abilities, which Johnson (2005) proposed happened when texts are only consumed in short bites.

We have also brought up some examples of the function of rewards, one of which implies that it is not necessary to include any rewards if a state of flow can be reached. On the other hand, it might in Johnson’s (2005) and the neuroscientific view be beneficial to display the progression by the use of reward systems. Furthermore, in Gagné’s theory, rewards were used to strengthen, or cement, the learning. Another application of rewards can be as assessment aid for teachers. By giving out rewards for accomplishments, the teacher can, at the same time as the students themselves, gauge their own progressions in a way that might be a bit less intimidating than actual grades (teachers can even chose to assess stealthily or overtly). Rewards can both function as feedback, which we have also stated is of utmost importance, while all the while being a fun and important motivational factor.
6. Conclusion

The research discussed in this survey paper indicate that communicative competence can be instilled in language learners through the use of digital games. However, the pilot study we conducted investigating whether language teachers in the Skåne region used digital games as a learning tool suggested that digital games are not being used to any particular extent (one out of ten participants stated that they used digital games in teaching). Subsequently, we argued that digital games are an underutilized tool in language learning, and should be considered as a useful mean for language teaching. However, the research discussed in this survey paper also indicated that there are vital precautions that need to be considered when implementing digital games in language learning contexts in order for them to be fruitful. For example, Andersen’s (2008) study indicated that proper scaffolding and teacher assistance was necessary for the students to be able to engage with the games content. Moreover, Sundqvist and Sylvén (2012) argued that it is beneficial for teachers to be familiar with the different types of extramural activities (e.g. digital games) that the students are engaged in. As we have also discussed, it is also imperative to choose games according to the learners’ ability of the language. This was indicated in the studies by Rankin (2008), who found that the entry level of the learners’ language proficiency is of importance (as discussed in section 2.5), and Peterson’s (2010) indication of potential cognitive overload in lower-level learners. If these precautions are considered and they are implemented correctly together with the games, then certain games would have the potential to immerse players in language learning the same way that moving to another country to acquire a language there would, since they make it a matter of surviving in social context (Young et al., 2012). Communication through computer games is a new channel for interaction (Johnson, 2005) and also one that is inherently social (Young et al., 2012), but the communication does not end where the game ends. The experiences and knowledge imparted by it will hopefully be able to serve as a basis for further discussions and interactions with peers that foster communicative competence, perhaps on more personal levels as well.
References


Appendix

Video Games in Second Language Learning


   Ja   Nej

Om du har detta, var god specificera vilket:

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Tack för din medverkan,
Jacob Kluge
Jonas Bjärnmark
Video Games in Second Language Learning


Ja

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Om du har detta, var god specificera vilket:

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Tack för din medverkan,
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Jonas Björnmark
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Jonas Bjärrmark
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Jonas Björnmark
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Tack för din medverkan,
Jacob Khoge
Jonas Björnmark
Video Games in Second Language Learning


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Om du har detta, var god specificera vilket:

1. Glosboken.se
2. Vale.Bonnierutbildning.se (spanska)

Tack för din medverkan,

Jacob Kluge
Jonas Bjärnmark
Video Games in Second Language Learning

   
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Jacob Kluge
Jonas Bjärnmark
Video Games in Second Language Learning


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Tack för din medverkan,
Jacob Kluge
Jonas Björnmark
Video Games in Second Language Learning


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