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Extra-Mural Activities and Their Effect on Second Language Development

*A Comparative Study of Upper Secondary Swedish L1 Gamers and
Non-Gamers*

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Abstract

Today, English is the most studied second language, being used in academia, international relations, social forums and mainstream entertainment, resulting in English becoming a common topic of research in the study of second language acquisition. One particularly interesting form of entertainment is the hobby of online digital gaming as English has become the *de facto* language used in absence of a shared native language among players. Because so many young people play these types of games, recent research has focused on the relationship between activities such as online digital gaming and English proficiency levels. This study aims to further this research by exploring whether any differences in conversation skills/strategies, lexical diversity and utterance length exist between Swedish speaking Upper Secondary School MMORPG gamers and non-gamers in an English, task-based setting. The theoretical background consists of theories in second language acquisition and conversation analysis in combination with studies relating to online digital gaming and English development. Results revealed few differences in conversational skills/strategies between the two groups, but did show differences in lexical diversity and average length of utterances, especially in relation to age. The study's conclusion is that differences regarding conversation skills/strategies were difficult to see due to their high level of English skills, but that gamers had a slightly higher lexical diversity and average utterance length in comparison to non-gamers of equal age. This was likely due to the large amounts of input and interaction provided by the Massive Multiplayer Online Role-Playing Games (MMORPGs) they play. This has educational implications, encouraging teachers to take new approaches to teaching, while encouraging students to engage in extra-mural activities that benefit their language development.

Keywords: SLA, EFL, ESL, lexical diversity, oral proficiency, utterance length, VocD, vocabulary, extramural activities, video games, MMORPG

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1. Introduction

Last year, as part of my teaching program course, I conducted my practicum at an upper secondary school in southern Sweden, teaching 1st and 2nd year students English. During that time, I noticed that many of my students who regularly played different video games were all very skilled in English, having very little trouble holding conversations, and some even possessing exceptional creative writing skills. This sparked an interest in the connection between video games and English proficiency and inspired me to conduct the current study.

No other language in the world has been as widely spoken as English is now, overtaking French after World War II as the *lingua franca*, or rather *lingua anglica*, of the world. When examining the top three most spoken languages in terms of native speakers, English comes third after Chinese (all dialects) and Spanish, with 357 million speakers; a mere third of the total native speakers of what is collectively called ‘Chinese’ (Melitz, 2014). However, regarding the total number of speakers worldwide, English is neck-and-neck with Chinese, at around 1.1 billion total speakers (Melitz, 2014), indicating that there almost 750 million non-native speakers of English. This makes it the most widely studied second language in the world, giving rise to concepts such as English as a Foreign Language (EFL), English as a Second Language (ESL) and English to Speakers of Other Languages (ESOL). It is thus important to gain more understanding as to how young people today learn English and how activities they engage in outside of school impact their English development. This study aims to add to the body of knowledge that exists already concerning language use outside of school and how it affects language development. With the rise of English as the contemporary common language, it is becoming more important for people to become competent in English if they wish to continue in higher studies, do international business or just communicate with people from other countries over the internet.

With the rise of the internet, our world suddenly became connected in a way that it never was before. With the possibility of instant connection and communication to other parts of the globe, a new type of entertainment developed — online games.

Games are an ever present aspect of modern life, with countless games for the computer, different consoles, and on phones. Recently, games have been studied in learning contexts, and are now seen to facilitate learning due to their immersive, interactive and engaging nature (Gee, 2003; Rankin et al. 2006; Sundqvist 2009; Vahdat & Rasti Behbahani, 2013; Wu et al. 2014). Particularly, massive multiplayer online role-playing games, henceforth, MMORPGs, are noted for being beneficial because “players [...] often collaborate in teams, each using a different, but overlapping, set of skills, and share knowledge, skills, and values with others both inside the game and on various internet sites” (Gee, 2003, p. 3). An MMORPG is story driven, online digital game, in which players create a persona and character in a virtual world shared with large numbers of other players. Because of the social nature and immersive qualities of MMORPGS, they have become of particular interest regarding second language acquisition (SLA) (Ranking et al., 2006), and with the developing global status of English, it is becoming the *de facto* language used among gamers who do not share a native language (L1). As a result, recent studies have investigated the possible relationship between language-learning and digital gaming, showing a positive correlation between digital gaming and English vocabulary knowledge and receptive/oral proficiency, as well as highlighting motivational factors relevant to communicative language use (Rankin et al., 2006; Sundqvist 2009; Vahdat & Rasti Behbahani, 2013; Wu et al., 2014).

Because of the linguistically diverse and interactional nature of MMORPGs, I am interested in whether engaging in this type of activity has effects on the discourse management skills/strategies, vocabulary and oral proficiency of the players. This poses the following research questions:

1. Is there a difference in how often gamers and non-gamers negotiate for meaning, and how much modified output they produce?
2. Is there a difference in how the two groups converse using simultaneous speech and latching during conversation?
3. Are there qualitative differences between gamers and non-gamers in their lexical diversity and utterance lengths?

For the purpose of this study, a gamer is defined as one who plays MMORPGs plus any other online digital games, while the non-gamer is defined as one who does not play any type of digital video game.

Meaning negotiation defined as the process by which speakers address non-understanding or linguistic issues during conversation or through self-repairs of errors. Modified output defined as the changed linguistic output that can occur as a result of MN or other reasons.

1.2. Disposition

This thesis begins with a background section which covers three things: 1) a brief outline of what playing an MMORPG can entail, 2) the theories in SLA and conversation analysis which are relevant to this study, and 3) recent research on the effects of online digital gaming and language development. This is then followed by the methods section where the methodological choices are detailed in relation to previous research. It finishes with the results and a discussion of said results in relation to the research questions.

2. Background

2.1. What Does Playing an MMORPG Entail?

As stated, an MMORPG is an online game that involves a large, open, free-to-explore virtual world in which players can create and role-play their digital character together with countless others. The games involve “leveling up”, resulting in progressively stronger and better equipped characters, capable of taking on harder challenges presented to them by the game. Often the games have other engaging activities that the players can take part in, such as crafting items, learning about lore, partaking in player-led marketplaces and forming parties/guilds or other social groups. Players receive and embark on quests given to them by non-player characters (NPCs), i.e in-game characters who are not real players. When receiving a quest from an NPC, the player is often subject to somewhat lengthy monologues describing the quest’s backstory and what completing it entails. The player is also often given the chance to ask the NPC predetermined questions regarding the quest if they want to find out even more about the backstory to it. In the case of English MMORPGS, these NPCs are often voiced by actors and can speak in different accents or dialects and in different registers or sociolects, exposing the player to realistic and varied forms of English. Although not necessary, the game’s design promotes and encourages social interaction between the players, and it is not uncommon for long distance, international friendships to be forged through these games. Even if socializing to make friends is not the main goal, chatting via text or voice with other players while playing is not only common, it is sometimes required in order to effectively complete or execute plans made by parties, with talk related to in-game events being the most common topic among players (Siitonen, 2007). Thus, not only do MMORPGs expose the players to large amounts of authentic and varied English input, they also promote and facilitate communicative language use among players through different in-game activities.

2.1. Vygotsky's Sociocultural Theory of Learning

Since the rise of the Vygotskian Sociocultural Theory of Learning around the mid 1900s, a more social and interactive approach to learning has been adopted. The teacher's traditional role as transferer of knowledge has shifted to that of a guide and facilitator of interaction and learning. This theory states that interaction is paramount to learning, and in regards to SLA, the sociocultural perspective on learning is one that sees the knowledge of language as being co-constructed between people in interaction and dialogue, which puts the role of the more proficient, or the guide, up front (McLeod, 2012). According to Vygotsky, learning best takes place in what is called the Zone of Proximal Development, and is defined as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem-solving under adult guidance, or in collaboration with more capable peers" (Vygotsky, 1978, p. 86). In short, the Zone of Proximal Development refers to the developmental difference between what the learner can do by themselves and what they can do with guidance (McLeod, 2012). Thus, the role of the more capable is simply to provide the appropriate knowledge or guidance, as the learner's own developmental stage will prompt the necessary content to be provided. In a broader educational perspective, the learner would be guided by the more capable (a teacher or peer for example) through the Zone of Proximal Development with scaffolding exercises, wherein support is provided and gradually diminishes as the learner's own independent capability grows. In an SLA perspective, this can occur both in formal educational settings, such as the classroom, as well as in informal settings, such as in conversations between a more proficient speaker and a less proficient one. In informal dialogue, the more proficient speaker must adapt their language to be within the learner's Zone of Proximal Development, otherwise using a too complex language will result in non-understanding. Therefore, the interaction and adaptation of language by the more proficient speaker naturally acts as a guide through the learner's own Zone of Proximal Development.

2.2. Theories in Second Language Acquisition

In the last 40 years, theories regarding SLA such as the input hypothesis, interaction hypothesis and the comprehensible output hypothesis (Krashen, 1981; Long, 1982, Swain, 1985) have been put forth tested and revised. The question of which is most effective at facilitating language development has driven research, with plenty of disagreement. However, what united the research is that they all questioned which method was most effective at facilitating language learning, specifically in an educational setting. This is a valid question, but as stated, language learning does not happen solely in formal educational settings, but also among peers and strangers in every day interaction. Therefore, a more holistic approach to language learning research has been adopted, reaching new conclusions about the role of input, interaction and output (Ortega, 2009).

2.2.1. Input Hypothesis

Krashen's input hypothesis, first put forth in 1981 stated that acquisition happens solely through comprehensible input, or "i+1", which he defined as linguistic input containing that which the speaker understands, plus a little bit more which is just outside of their scope of knowledge (Krashen, 1985). He also described what he called the "affective filter", defined as the learner's mental block that prevents them from using the received input for language acquisition (Krashen, 1985). Some factors that can affect the filter are stress, motivation, attitude and environment (Lundahl, 2012). Lundahl summarizes Krashen as such: input can lead to language development only if it fulfills the following criteria (Lundahl, 2012, p. 196):

- There are large amounts comprehensible input
- The input needs to be natural, that is to say, communicative and not grammar focused.
- The learner's affective filter needs to be low.

2.2.2. Interaction and Comprehensible Output

However, since Krashen, several researchers (Swain, 1985; Long 1982; Ellis 1994; Ellis et al., 1994; Ortega, 2009) have addressed the shortcomings of the input hypothesis, adding to, and revising it along the way. One of its criticisms was that it saw comprehensible input as *necessary* for acquisition, which has been proven to be false in Ellis (1994), citing studies (Piske & Young-Scholten, 2009) which show that input was not enough for acquisition of some grammatical forms, concluding that overgeneralizations and fossilization need corrective feedback in order to be corrected.

This corrective feedback is part of what Long (1982) called meaning negotiation, which is a key factor in his interaction hypothesis. Meaning negotiation, also called negotiation for meaning/negotiated meaning, henceforth MN, is the process of linguistic interaction that takes place when mutual understanding falls apart during a conversation, for example in the case of a phonetic, lexical or grammatical error, but also due to context. Long asserts that MN and corrective feedback facilitate language development; claims which are supported by several studies (Loschky, 1989; Ellis, Tanaka, & Yamazaki, 1994; Kawaguchi & Ma, 2012).

The interactive nature of conversation requires more than comprehension from the learner. It also requires them to create comprehensible output, i.e. to use the language in a way that is comprehensible to the listener. Swain's (1985) Comprehensible Output hypothesis argues that learners must be put in a position to create meaningful and coherent language in order to test the internal language they are constructing (Krashen, 1998). She claims that the linguistic output produced during MN can be a source of acquisition for the learner (Krashen, 1998). During interaction, both speakers provide output, which, in turn, becomes input for the other. This output/input needs to be comprehensible in order for the dialogue to continue. If a communication breakdown occurs, the MN that takes place in order to regain understanding provides both modified input and output, while at the same time drawing the speaker's attention to language form, which should benefit their language development (Lundahl, 2012).

Ortega (2009, ch. 8) reviews the development of the above mentioned theories from Krashen Long and Swain, citing and discussing key studies for each theory, and concludes the chapter with a summary and synthesis based on the results of said studies. He states that the studies indicate that input, interaction and output all play an important part in SLA and that none of them alone can guarantee development. Adding to these three variables, Ortega also extrapolates two more from the studies he reviews, compiling a list of five important variables that have a large impact on the success of acquiring a second language. The five variables are: (Ortega, 2009, p. 79)

1. A positive and acculturated attitude towards the target linguistic and cultural community.
2. Comprehensible input
3. Pushed output
4. Negotiated interaction
5. The capacity (natural or cultivated) to be sensitive to language form

2.2.3 Communication Breakdowns and Meaning Negotiation

In order to study the interactional modifications of any conversation, a proper examination of the speech of both participants is necessary (Ellis, 1994). What this means is that we need to observe the interactions taking place when communication breakdowns occur in order to see in what ways it is addressed. Ellis refers to a model developed by Gass and Varonis (Gass & Varonis, 1985; Varonis & Gass, 1985) which is used to describe the structure of instances of non-understanding where MN takes place. This structure consists of three parts, listed below, which are collectively called a *pushdown routine*, an example of which can be seen Ex. 1.

- Trigger: the utterance or part of the utterance that causes a problem in understanding
- Indicator: The response to the trigger whose purpose is to inform the speaker that what was previously said was not understood
- Response: This is the speaker's answer to the indicator, which can be in the form of a corrected, or *repaired*, version of the previous utterance. However, a response does not have to be a correction as seen in Ex. 2.

Utterance	Function
NG1: [...] uhm because it might help, uh then it's a >> full ((unclear)) loaded pistol for safety	Trigger
NG2: a:: huh?	Indicator
NG1: uh a fully loaded pistol	Response/Repair

Example 1: Pushdown Routine: Sample from NG1&2 dyad.

Utterance	Function
NNS1: My father now is retire.	Trigger
NNS2: Retire?	Indicator
NNS1: Yes.	Response
NNS2: Oh yeah.	Reaction to Response

Example 2: Pushdown Routine Gass and Varonis (1985) see Ellis (1994, p. 264)

Plejer (2004) defines four different reparation strategies that speakers can take during a conversation:

1. Self-initiated self-repair: This repair occurs when the speaker, on their own accord, repairs their own utterance. This repair can occur because of an error that the speaker made and catches themselves, or because of a spontaneous desire to reformulate or reiterate what they just said. These repairs can manifest as repetitions or replacements, the former being a simple repetition of what was said, and the latter replacing what was previously said. A speaker can repair themselves in the absence of an error, and Plejer discusses that these types of self-repairs are due to the speaker's desire to formulate and express the ideal utterance for what they are thinking. This desire can change in the middle of an utterance, leading to the speaker abandoning the original utterance and replacing it with another, *repairing* it.
2. Self-initiated other-repair: This type of repair occurs when the speaker needs aid in what they are trying to say, such as in the case of not finding the proper word or failing to pronounce something properly. In this case, the speaker may ask the interlocutor for help,

which is then provided. A typical example of this type of repair would be the answer following a *how do you say?* question.

3. Other-initiated self-repair: This type of repair occurs when the speaker repairs their previous utterance due to being prompted to do so by the interlocutor. This is what would be seen during a push-down routine, when the interlocutor indicates that they do not understand or need clarification, leading to the speaker repairing their previous utterance.
4. Other-initiated other-repair: This type of repair occurs when the interlocutor addresses something in the speaker's previous utterance on their own accord, without being prompted to do so by the speaker. Corrective feedback is a type of other-initiated other-repair, as when a teacher corrects a student's error through recast.

Foster & Ohta (2005) show in their study of two separate data samples of English L2 interactions and Japanese L2 interactions, that a quantitative analysis of MN and *pushdown routines* revealed few instances. However, a qualitative analysis highlighted other MN mechanisms at work such as peer-assisting, co-construction, self- and other-repairing and invitations to continue. These mechanisms happened without "interrupting the flow of the interaction [...]" regard this as a sign of success these learners have in using the target language in these classes. They are sharing their meanings while monitoring and modifying their own and each other's utterances, minimizing overt communication breakdowns, and the accompanying frustration" (Foster & Ohta, 2005, pp. 424–425).

2.3. Conversation Analysis

According to Ortega (2009), the goal of conversation analysis is to discover the mechanisms by which organized talk is possible, allowing us to delve into what would normally be seen as a mundane and regular accomplishment, i.e conversing, and explore what is actually taking place.

2.3.1. Turn-Taking

A conversation may seem spontaneous, but there are in fact rules and guidelines present, which dictate how an ideal conversation is to be held (Norrby, 2012). One of the most prominent

mechanisms in conversations is how turn taking is handled. Norrby states that speakers use linguistic and extralinguistic cues such as syntax, prosody, context and body language to infer when a turn's possible end has been reached and when they can start their own turn. The place at which there is a possible change in turns is called the Turn Relevance Place (TRP). A change of turns can occur in three ways (Norrby, 2012): 1) The next speaker can be appointed by the previous turn holder, for example by asking a question, using a name or getting eye contact; 2) The next speaker can nominate themselves; 3) The previous speaker can extend their own turn either if no one takes the next turn or if they do not wish to give it up.

Pause length between turns, in addition to intonation and tempo, is often referred to as a signal to whether the speaker's turn is over or if they intend to continue. Although it differs between cultures and depends on the relationship of the speakers, a commonly accepted pause length is around one second, after which the silence compels the speaker to continue or another to take the turn (Norrby, 2012). There are 3 types of silences (pauses): *Lapses*, *gaps* and *pauses*. *Lapses* are the pauses after a turn is over and no one takes the next turn. This can lead to the conversation dying out. A *gap* is a type of *reaction pause* which is the time it takes the next turn holder to realize a turn has ended, think of and formulate an utterance and begin to say it. *Pauses* occur within a speaker's turn, for example when searching for a word or pausing to formulate this ideal utterance.

2.3.2. Simultaneous Speech and Latching

Despite the abundance of linguistic and extra-linguistic cues to indicate turn change, often the reality of a conversation is that of simultaneous speech, interruptions and a rapid seamless change of turns between speakers.

Simultaneous speech can be classified depending on where it occurs and what function it fills. Due to a conversation's inherent two-way nature, listeners will often give verbal (or non-verbal) signals in order to show the speaker that they are still listening and engaged in what they have to say (Norrby, 2012). These small utterances such as *yeah*, *mhm*, *mm*, *etc*, are known as

back-channel signals, and will often turn up in the small pauses within a turn, but also at the same time as the turn holder's utterances, or at the very end, resulting in an overlap (Norrby, 2012). In the case of simultaneous speech where the listener begins to speak longer utterances in order to show appreciation or support for what the turn holder is saying, it is called *cooperative*, or *recognitional overlap* (Norrby, 2012; Jefferson, 1984). *Transitional* and *progressional overlap* are instances of overlap in which the next turn holder starts an utterance near the end of the previous speaker's turn, resulting in small instances of overlap at the perceived TRP. These two types of overlap function to move the conversation forward (Jefferson, 1984).

Back-channeling, recognitional overlap and transitional/progressive overlap are forms of simultaneous speech which are not seen as interruptive.

Interruptive speech is distinguishable from the above mentioned overlap types by the apparent function it fills, i.e to overtake an ongoing turn. A speech act is labeled as interruptive if it occurs where there is no apparent TRP, which can be indicated by prosodic, syntactic and pragmatic means (Norrby, 2012). Interruptive speech is either labeled as successful or unsuccessful, the difference being whether the speaker succeeds in taking the turn before it is over or not, indicated by the speaker not finishing their utterance.

With the help of the cues and context to indicate turn change, speakers can predict the next TRP and begin their turn exactly at the end of the previous one. This results in a relay-like change of turns in which there are no gaps between turns and is known as *latching* (Norrby, 2012).

3. Previous Research on Digital Gaming and Language Development

The effect of digital gaming and learning has been investigated, showing statistical significance in their results. Sundqvist (2009) conducted a study on young Swedish L1 speakers around the age of 12, investigating whether engaging in extra-mural English activities had a significant

impact on the students' oral proficiency and vocabulary. Using surveys, proficiency/vocabulary tests and language diaries outside of school to map the students' engagement in these activities, the results show that the amount of time students engage in English activities has both a positive and significant impact on the size of vocabulary and oral proficiency, with a slightly stronger correlation between certain activities and size of vocabulary. Sundqvist noted that some activities were more beneficial than others, namely ones that required more engagement from the student and/or required them to produce language instead of solely receiving it. The types of activities that had a more positive impact on the students' English were activities such as reading books, playing video games and surfing the Internet, in comparison to more passive activities such as listening to music or watching a movie /TV-show. Her results also found that boys spent significantly more time on active extra-mural English activities than girls, resulting in them performing better on the oral proficiency and vocabulary tests. The connection between oral proficiency and socio-economic status was also investigated, with the results showing that oral proficiency was clearly connected to the parents' level of education, urban vs. rural residency, parents' working status and traveling experience.

Vahdat and Rasti Behbahani (2013) investigated whether digital games had an effect on vocabulary learning, the results showed that the group that was exposed to the target language via a digital game showed significant development in their vocabulary compared to the control group that received the target language via text-drill chapters designed by the researchers. The digital game that was used was selected according to certain criteria, the first being that every task for learning was presented using Nunan's 3 P's (Present, Practice, Produce). The second criterion was to be an adventure style game, which according to Gamefaqs.com, was the most popular genre at the time (Vahdat & Rasti Behbahani, 2013). Finally, the third criterion was that the game had to allow the player to move around freely within the game and examine and move objects, a so called open-world game. The authors mention that they are unable to give a clear explanation for this, but do accredit the game's social interactive context and the repetitive skill learning, among other things, to the language development seen in the results (Vahdat & Rasti Behbahani, 2013). The results also showed that the male participants performed better than the

female participants. This could be due to several factors such as a difference in competitiveness and the ability to handle certain challenges. In addition, the game genre could have had an effect as well; the authors note that the game was about a male character, doing male-oriented actions in a male-dominated gaming atmosphere (Vahdat & Rasti Behbahani, 2013).

Rankin et al. (2006) showed similar results when investigating the effect of digital games and vocabulary learning on ESL students using the MMORPG *Ever-Quest 2* over the course of 4 weeks, 4 hours per week. The participants' English skills ranged from high-beginner to advanced; they had varying levels of computer literacy; they were all inexperienced with digital games. The results showed that the participants increased their English vocabulary by 40% as a result of game play interactions with NPCs in the game. In addition, the intermediate and advanced ESL participants engaged in conversation with player-characters, resulting in a 100% increase in chat messaging with other players. One participant, in particular, is mentioned who generated an average of 60% more messages than any other participant, and readily "took advantage of the faceless interactions to initiate questions with players outside of her group when she needed assistance". (Rankin et al. 2006, p. 4). This participant also expressed a positive attitude towards the game's potential for ESL acquisition and recommended the game as a tool for ESL students. The high-beginner participant, however, expressed difficulty and frustration with adapting to the game's environment, being forced to balance gameplay, language comprehension and the use of a dictionary for unfamiliar vocabulary. This is taken as an indication that the game is well suited for developing vocabulary, but that a certain level of English proficiency is required for the development of conversational skills (Rankin et al., 2006, p. 5)

Another study (Wu et al., 2014) used *Self-Determination Theory* (SDT) as a point of departure to investigate how MMORPGs could meet the need for autonomy, competence and relatedness, which are the three factors within SDT that affect a person's intrinsic and extrinsic motivation. The study also used a list of 10 motivational subcomponents developed by Yee (2006) as a point of departure for their questionnaire, in which the participants ranked which subcomponents they

perceived to facilitate communicative language best. A qualitative analysis of their results showed that for both female and male players, the top three subcomponents were socializing, relationship and teamwork. The participants also rated the three factors of SDT in order of importance for communicative language use, giving the same result for both genders — relatedness, competence and lastly autonomy. Finally, their results show that these three factors were all being addressed by the game. By being allowed to customize and openly explore the in-game world, the players' needs for autonomy were fulfilled. The ability to learn game mechanics, level-up, acquire new skills and survive in harsh environments fulfilled their need for competence development, and the subsequent player interaction, group formations, quests and teamwork fulfilled their need for relatedness. The researchers discuss their limitations, namely that they only had 19 participants and an imbalance in sexes, but go on to point out that all 19 participants “converged in terms of identifying the most important component for promoting communicative language use — relatedness” (Wu et al., 2014, pp. 79–80).

4. Method

This section will outline the study's method. First, the study's design is outlined and motivated for. Second, the participants and the inclusion criteria are lifted, followed by a description of the communicative task and transcription/coding process, and ending with the methods of analysis.

4.1 Study Design

This study aimed at comparing L2 English skills in upper secondary school students with experience from MMORPG playing (referred to as “gamers”) to students without such experience (referred to as “non-gamers”). The linguistic skills were investigated through an elicited conversation in within-group dyads. Methodologically, the study used an task-based design, where the gamers (n=6) and non-gamers (n=6) were assigned to a within-group dyad and given a communicative task, with the purpose to elicit a dialogue that could form the ground for the linguistic analyses of the linguistic skills.

The conversations were later transcribed and analyzed qualitatively using tools inspired by conversational analysis to investigate turn-taking and meaning negotiating, and quantitatively using tools from CLAN to investigate utterance length and lexical diversity.

The control for factors such as engagement in English activities outside of school, English proficiency levels and other socioeconomic factors, two digital questionnaires, and a short English Cambridge test¹ were distributed to the students. The first questionnaire was distributed to all possible participants and used to check inclusion criteria. The test and the second questionnaire was distributed immediately following the communicative task.

A more detailed description of each process will be done in Sec. 4.2–4.6.

4.2. The Questionnaires

This study's first questionnaire (see Appendix), designed and modeled after Sundqvist (2009), aimed to capture the breadth of the participants' extra-mural English activities by asking how often (daily, weekly, monthly, never/almost never) they engaged in different English activities such as reading texts (both digital and non-digital) watching movies/TV-shows/Youtube, whether they use subtexts while watching, whether they played online digital games, and for how long. It was also important to capture the breadth of their productive (speaking/writing) English use in addition to their receptive (listening/reading) use. Thus, students were also asked whether they engage in any productive English activities such as speaking/writing with friends or family, and to what extent.

The second questionnaire, also designed and modeled after Sundqvist (2009) aimed to gather information about the four factors presented by Sundqvist (2009) that correlated with oral proficiency: Travelling experiences; Parent's level of education; Reading at home; Residency (urban vs. rural). It also directed a question to the gamers, asking them to describe their English speaking experiences when playing online games. This question aimed to capture the gamers'

¹ <https://www.cambridgeenglish.org/test-your-english/general-english/>

own perceptions and experiences of communicating in a second language on this type of platform.

4.3. The Participants

In order to participate in the study, the students needed to fulfill the following inclusion criteria:

- Be native Swedish speakers
- Be 17 years of age (This proved too difficult to control, leading to two 16 and three 18 years olds participating)
- Half of them must be gamers, and half must be non-gamers
- Have similar amounts of engagement in extra-mural English activities
- Have similar English proficiency levels (This was also harder to control for due to the difference in age of the participants)
- Equal gender distribution (This also proved too difficult to control, leading to six male gamers, five female non-gamers and one male non-gamer.

It was important to define what a gamer is and isn't. The concept of "games" can encompass many types of activities besides traditional digital games or board games. So, for the purpose of this study, a gamer was defined as one who plays MMORPGs and any other online digital games, while a non-gamers was defined as one who does not play any kind of video or computer game. For this study, an MMORPG was defined as a game in which players create an avatar that is controlled by them in-game, which is an online, open-world, role-playing digital game where a player was one among a multitude of others playing simultaneously in this shared world. Games such as World of Warcraft, Elder Scrolls Online, Star Wars: The Old Republic and Ever-Quest are examples of such games.

The gamers' gaming habits were also inquired into, showing that in addition to the English related activities above, they also spend at least five hours a week, but commonly ranging from 15 and upward, playing online digital games. In Table 1, the time spent in hours on either MMORPGs and/or other online games, along with the total time spent playing per week is

represented. The gamers also reported their games to be English interfaced, and when asked about their communication habits, four gamers reported communicating “very often” while two reported communicating “often”, with an equal amount of it being in both written and spoken form. In addition, half of the gamers reported that they communicate predominantly in English with others online, while the other half reported using both English and Swedish in equal amounts.

Participant	MMORPG	Other Online Games	Total
G1	0–5	5–10	5–15
G2	10–20	5–10	15–30
G3	5–10	10–20	15–30
G4	10–20	30+	40+
G5	5–10	10–20	15–30
G6	30+	5–0	35–40

Table 1: Hours spent gaming per week on MMORPGs and other online games

All gamers spend at least five hours a week, but commonly ranging up to 20 hours a week playing MMORPGs. In addition to this, they also play other online digital games anywhere between 5–30 hours a week.

Excluding gaming, the participants had similar levels of engagement in similar types of extra-mural activities. The data in Table 2 below represents a score that each participant’s answer was given when reporting how often they engaged in each activity. When given a value, each answer was worth one to four points, with “never or almost never” being worth one point, and “every day” being worth four. Each activity could receive up to a total 24 points from each group (4 total possible points from 6 gamers). Fig. 1 and 2 give a visual representation of the data in Table 2.

	Non-Gamers	Gamers
Books	17/24	10/24
News	15/24	17/24
Cartoon Series	7/24	9/24
Websites	21/24	24/24
Movies/TV-Shows	22/24	22/24
Music	24/24	23/24
Podcasts/Radio	13/24	12/24
Audiobooks	8/24	9/24
Youtube	20/24	24/24
Total	147/216	150/216

Table 2: Score of each extra-mural activity for gamers and non-gamers

Table 2 shows that the scores for each activity, and the total score for each group is very similar, indicating that the participants engage in similar types of activities for similar amounts of time.

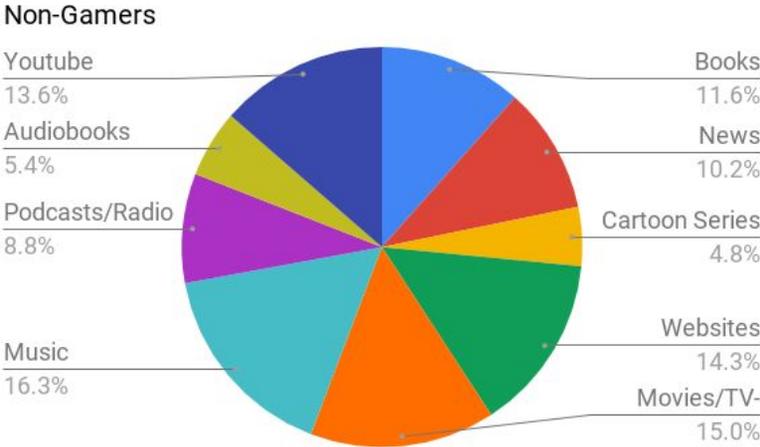


Figure 1: Score of each activity for non-gamers in percent

A visual representation of the data in Table 1 more clearly shows which activities are most popular. For non-gamers, listening to music, watching movies/TV-shows and visiting websites are the top three English activities.

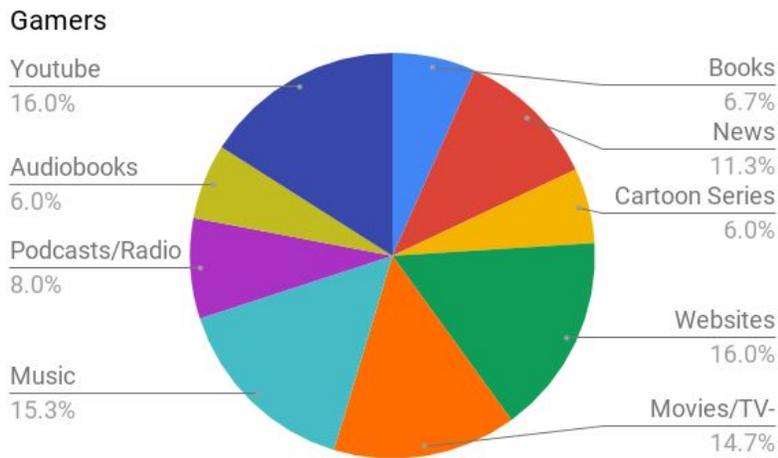


Figure 2: Score of each activity for gamers in percent

A visual representation of the data in Table 1 more clearly shows which activities are most popular. For gamers, visiting websites, watching Youtube channels and listening to music are the top three activities.

The participants also reported any other instances of when they speak English outside of school. Two of the non-gamers reported speaking English to friends living abroad, one answering daily, and the other a couple of times a week. Four of the gamers reported speaking English daily with friends online while gaming, and two reported speaking English a couple of times a week with siblings, stating that speaking in different accents is humorous, or when they forget the word they are looking for in Swedish.

The students reported similarly in regard to the four socioeconomic factors described by Sundqvist (2009). Only one participant reported never having travelled outside of Sweden. Reading books was the only factor that differed somewhat between the participants. Seven of them (five non-gamers & two gamers) reporting that they read at home, while eight (four non-gamers & four gamers) reported having parents who read at home. All students expressed positive attitudes towards English as a school subject and recognized its importance in future studies and career options, and only two non-gamers expressed that they thought English was a difficult subject in school.

The results of the Cambridge English test, consisting of 25 questions, can be seen in Table 3 below, along with their ages. During transcription, each participant was assigned an anonymous tag. The six gamers each received a tag ranging from G1–G6, while the six non-gamers received a tag ranging from NG1–NG6.

Participant	Result	Participant	Result
NG1(17)	21/25	G1(18)	25/25
NG2(18)	22/25	G2(18)	23/25
NG3(17)	21/25	G3(16)	18/25
NG4(18)	22/25	G4(16)	19/25
NG5(17)	17/25	G5(17)	25/25
NG6(17)	18/25	G6(17)	20/25

Table 3: English test results

The results show that the students are at slightly different levels. The difference in age seems to coincide with the score, indicating that with age, the students’ English proficiency level increases.

4.4. The Communicative Task

Previous research has shown that different tasks and different group constellations elicit different types of meaning negotiation (Luciana, 2005; Long, 1983a, 1983b; Aziz Ahmad & Ngoi, 2015; Foster, 1998). Open tasks tend to have triggers associated more with content, while closed task triggers are more commonly associated with lexis and task complexity (Aziz Ahmad & Ngoi, 2015). There is conflicting data as to whether one-way tasks or two-way tasks elicit more MN. Luciana (2005) asserts that one-way tasks provide greater opportunities for MN, whereas Long (1983a, 1983b), cited in Luciana (2005), asserts that two-way tasks provide greater opportunities for MN. Luciana (2005, p. 54) proposes that the shared background of the participants may account for the lower frequency of MN. As this study was interested in the conversational skills of the students, a two-way, open task was used to elicit more dialogue. Foster (1998) states that dyads show more instances of MN, and were grouped accordingly. The way they were grouped depended on their relative location, as the recording was done at the school on their time. Thus, no students from different schools were paired together, and the dyads were named as such: G1&2, G3&4, G5&6, NG1&2, NG3&4, and NG5&6.

The task consisted of the students finding themselves in a hypothetical survival scenario, being given a list of items which they had to first individually rank in order of importance. Following this, they had to report their lists and their motivations as to why they gave the items that particular rank. Finally, the students had to cooperate in order to make a common list on which they both agreed.

4.5. The Transcription and Coding Process

Due to the transcription process being time consuming, and the length of each dyad's conversation varied from 13 minutes to the full half hour given to complete the task, only five minutes of each dialogue was transcribed and coded for. An objective point was chosen to decide where in each conversation to start transcribing; the point being when each dyad starting discussing how to rank their common list. In these five minutes, four different aspects of the dialogue were looked at: Overlap, latching, reparation strategies, and collaborative conversation construction. The Analysis of Speech Unit (ASU) was used to segment the speakers' speech into utterances. As defined by Foster et al. (2000, p. 265), the ASU is an independent clause, or sub-clausal unit, together with any subordinate clauses. This unit of measurement takes into consideration intonation and pause length in order to more clearly define a boundary between two units. Foster et al. (2000) state that two clauses are part of the same ASU unless the first phrase ended in a falling or rising intonation and was followed by a pause longer than 0.5 seconds. Pauses that occurred mid-utterance that were not turn-related, as explained by Norrby (2012), were not a deciding factor when segmenting units.

However, when coding for pushdown routines and instances of MN in direct relation to linguistic errors or issues, an analysis of each dyad's entire dialogue was conducted. The frequency and type of trigger were noted as done by Aziz Ahmad and Nguoi (2015), and were grouped into lexical, contextual, grammatical or phonetic categories. In addition, the manner and frequency of modified output/repairs in response to- and in absence of indicators, were coded. The coding of types of repair was done according to Plejert (2004), who defined four types of repair:

Self-initiated self-repair; self-initiated other-repair; other-initiated self-repair; and other-initiated other-repair. Self-repairs in the form of repetitions and replacements of words in absence of a clear error were further coded into whether they occurred because of a desire to reach the ideal utterance, or because of turn-competition, such as instances of overlap. Finally, instances of overlap, latching, and co-construction were coded. Instances of overlap were further coded into the type of overlap, i.e back-signal/recognition, transitional/progressional, or interruptive.

The different symbols used for transcribing and their meanings are listed below.

[] Overlap

== Latching

:: Extended Segment

/ Falling Intonation Indicating More Could Come

// Final Falling Intonation

, Rising Intonation Indicating More Could Come

? Final Rising Question Intonation

(xxx) inaudible

(()) Transcriber's Notes Contained within Parentheses

- Truncation, or Sudden Stop

Italicized Word Swedish Word

SISR Self- Initiated Self-Repair

SIOR Self-Initiated Other-Repair

OISR Other-Initiated Self-Repair

OIOR Other-Initiated Other-Repair

4.6. Analysis of Lexical Diversity and Utterance Length

In order to procure data about the participants' lexical diversity and average utterance length, two program commands – VocD and MLU – were used in the text analysis program, CLAN. VocD is a program that measures for lexical diversity, often being used in child language

research to see the progression of language development (MacWhinney, 2000). It is “based on an analysis of the probability of new vocabulary being introduced into longer and longer samples of speech or writing” (MacWhinney, 2000, p.136). The MLU program computes the mean length of utterances, defined as the ratio of words to utterances (MacWhinney, 2000, p. 135).

5. Results

The results of the study will be presented in three parts: First, the the results of instances of MN and modified output are presented, followed by the results of the conversation analysis regarding turn-taking, simultaneous speech and latching. Lastly, the results of the VocD and MLU commands are presented. Due to the low number in participants, parametric statistics could not be used, and therefore a descriptive approach to the statistics will be used instead. Table 4 shows the total length of each dyad’s dialogue. The star next to a dyad’s name indicates that the participants had not met before.

Dyad	Time	Dyad	Time
NG1&2	25:35	G1&2	30:41
NG3&4*	12:42	G3&4	14:21
NG5&6	23:00	G5&6	22:32

Table 4: Total Duration of Each Dyad’s Dialogue in Minutes

5.1. Negotiation for Meaning and Modified Output

An analysis of the transcriptions revealed that few linguistic issues (phonetic/lexical/ grammatical/context) arose during the participants’ conversations, leading to a small total of three pushdown routines. Dyad NG1&2 had 1 phonetic triggered pushdown routine, and the other two occurred in dyad NG5&6. One of these two pushdown routines was lexis triggered, see Ex. 3, while the other was context triggered, although the original reason for non-understanding was originally lexical, as seen in Ex. 4.

((item on list – perhaps <i>parachute</i>))	Trigger (lexical)
NG6: what does this mean?	Indicator
NG5: uh I think it means <i>drake</i> ((kite))	Response/Repair
((pause))	
NG6: oh ... ok	

Example 3: Pushdown routine from dyad NG5&6

NG6: when the water runs out maybe you need something else to-	Trigger (contextual)
((eye contact from NG5))	Indicator
NG6: <i>eller</i> wait what	Indicator
NG5: lighter fluid is <i>tändvätska</i> I think	Repair
((laughter))	
NG5: so I would not recommend drinking that	

Example 4: Pushdown routine from dyad NG5&6

Two indicators were used in the pushdown routine in Ex. 4. The first indicator from NG5 showed that she did not understand the context that NG6 was talking about. This was indicated with eye contact. NG6, having misdefined the word lighter fluid as something you can drink, then indicates that she does not understand NG5's non-understanding. This causes NG5 to repair NG6's definition of lighter fluid in a self-initiated other-repair (initiated by NG6's indicator).

Table 5 represents the instances of MN in relation to the above four linguistic categories and how they were addressed. In total, 13 issues were addressed between all participants. These errors were largely addressed through quick self-repair, with three instances of co-construction, and two of other-repair.

	Co-Construction	Self-Repair	Other-Repair
NG1&2	1	2	0
NG3&4	0	0	0
NG5&6	1	0	2
G1&2	1	5	0
G3&4	0	1	0
G5&6	0	0	0

Table 5: Instances of meaning negotiation related to linguistic issues

Due to the lack of linguistic or conversational issues, no clear distinctions can be made between the two groups. However, We do see that self-repair was the most common form of repair, while other-repair was the least common form of repair when addressing linguistic issues/errors.

The few other errors that occurred were left ignored as they did not impede understanding. These were trivial errors such as using the wrong verb form seen in Ex. 7

NG6: I didn't thought of that
 NG5: I didn't thought of that either

Example 5: Error sample from dyad NG5&6

The data from Fig. 5 represents the total instances of modified output, including those not related to errors, with an overwhelming majority of the repairs being self-initiated. Dyad G1&2 had the most instances of repair, while NG5&6 had the least amount. Three out of four types of repair were not used by half of the dyads.

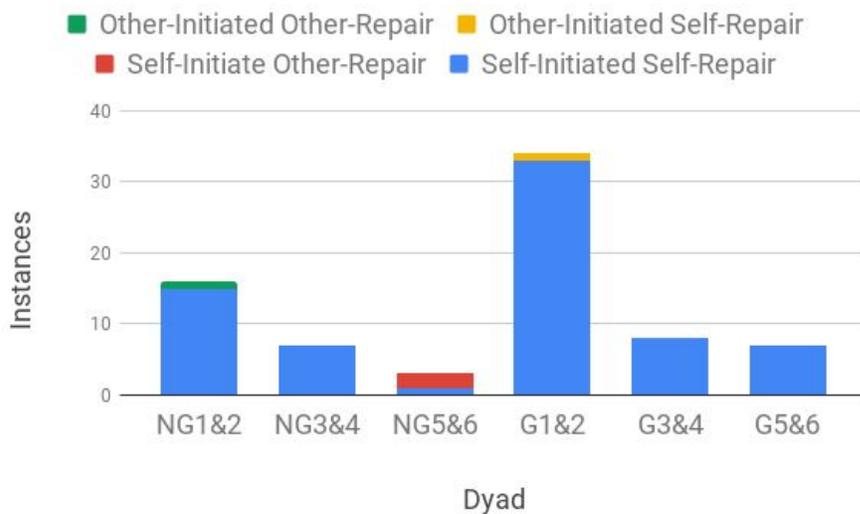


Figure 5: Instances of repairs, including non-error related repairs

Most of these repairs were not related to errors, but to a desire to repeat or replace what was previously said, often in conjunction with overlap during turn competition, as seen in Ex. 6. Fig. 6 shows us the instances of self-initiated self-repair, further dividing them into whether they were related to turn competition or not. An analysis showed that repetition was the most common method of repair during overlap and turn competition, while replacement was more often used for repairing errors or reformulating mid-utterance.

G2: [but **yeah- yeah- let's-**].
 G1: [but- **let's- let's put the-**].
 G2: I- I- I don't find any use for them personally.

Example 6: Self-initiated self-repairs in the form of repetitions

We see that both participants started their utterances simultaneously, causing both of them to repeat in order to extend their utterances to claim the next turn, which G2 ends up doing.

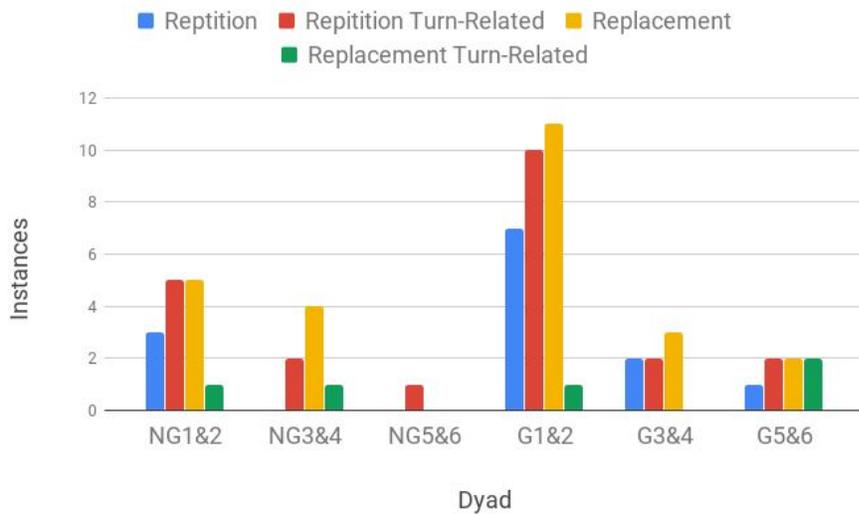


Figure 6: Instances of self-initiated self-repair in relation to turn-competition

Fig. 7 shows the types of triggers that lead to the aforementioned 13 instances of modified output in relation to linguistic issues. Lexical triggers were the most common, contrary to the findings of Aziz Ahmad and Nguoi (2015), where an open task was more associated with triggers related to context.

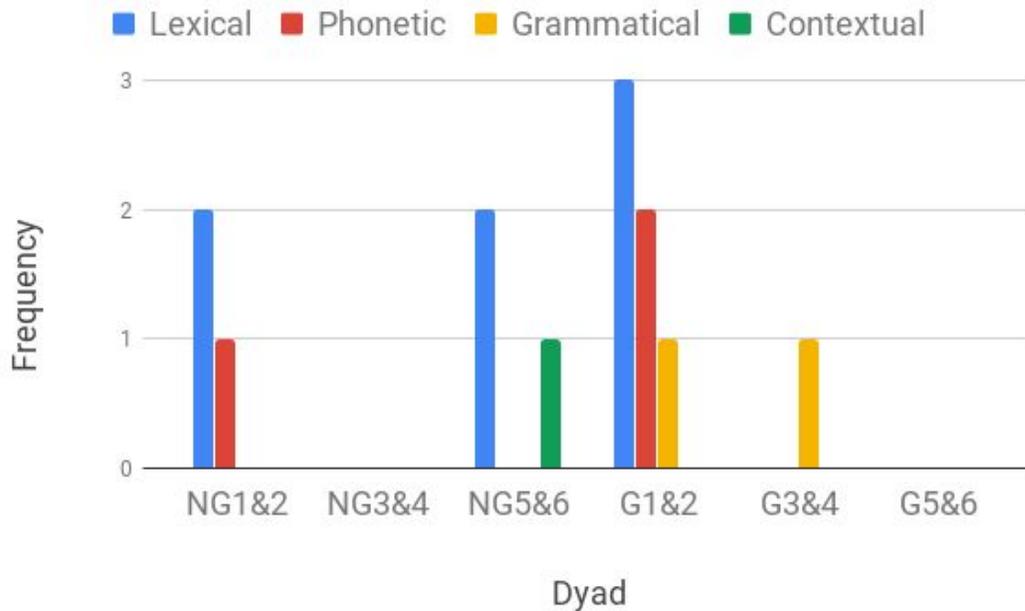


Figure 7: Frequency and type of trigger

5.2. Instances of Simultaneous Speech and Latching

The data in Fig. 3 shows that the non-gamers had more instances of simultaneous speech (total 107 for non-gamers and 71 for gamers), while Fig. 4 shows that the two groups had similar total amounts of latching (total 54 for gamers and 50 for non-gamers), but that it was slightly more common among the gamers. The difference in the type of simultaneous speech among the groups is present in Fig. 3 as well, as we can see that recognitional overlap/back-channeling was quite common, accounting for almost half of all the instances of simultaneous speech, with the exception of NG1&2 and G1&2. Interruptions were mainly present in the NG1&2 dyad, but did occur sparsely in the other groups.

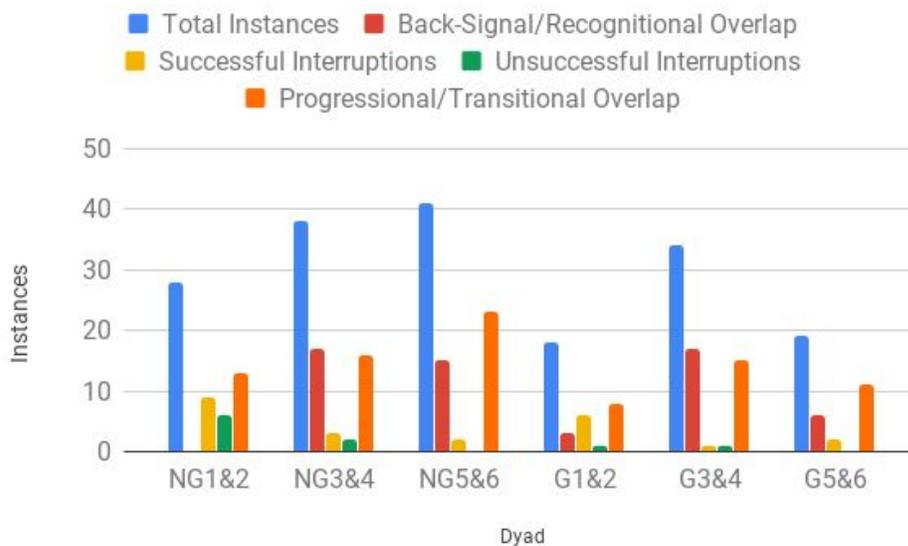


Figure 3: *Instances of simultaneous speech*

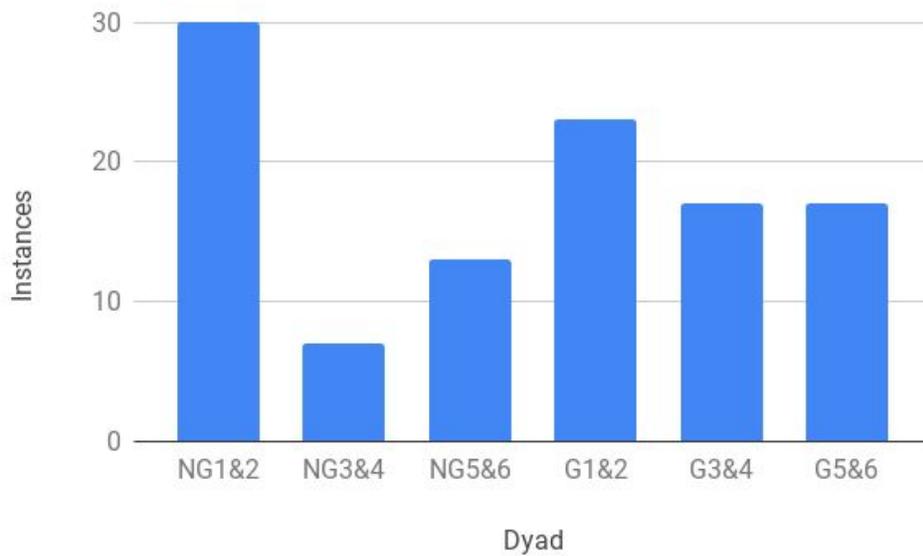


Figure 4: *Instances of latching*

5.3. Analysis of Dialogue with VocD and MLU

Using the program commands in CLAN to analyze the five minutes of dialogue showed differences in lexical diversity and utterance length between the two groups. Table 6 and 7 show the numerical value of these results. The mean lexical diversity for the gamers was 40.09 and 33.7 for the non-gamers, while the median was 35.565 and 28.825 for the gamers and non-gamers respectively. The range in lexical diversity was larger for the gamer group than the non-gamer group

Participant	lexical diversity (VocD)	Participant	lexical diversity (VocD)
NG1	27.39	G1	48.6
NG2	53.67	G2	66.92
NG3	30.12	G3	30.37
NG4	39.84	G4	37.66
NG5	23.65	G5	33.47
NG6	27.53	G6	23.54

Table 6: *lexical diversity distributed over individual participants.*

This data is limited to the transcribed extract of the conversation.

Participant	# of Utterances	# of Words	Ratio Word to Utterances	Standard Deviation
NG1	65	360	5.538	4.386
NG2	76	548	7.211	6.329
NG3	67	386	5.761	6.469
NG4	61	368	6.033	8.051
NG5	56	230	4.107	3.579
NG6	57	271	4.754	4.889
G1	58	502	8.65	10.397
G2	51	517	10.317	8.896
G3	55	397	7.218	8.287
G4	51	352	6.902	6.369
G5	69	463	6.71	5.048
G6	63	303	4.81	5.206

Table 7: Data showing number of utterances and words per utterance for each individual participant. This data is limited to the transcribed extract of the conversation.

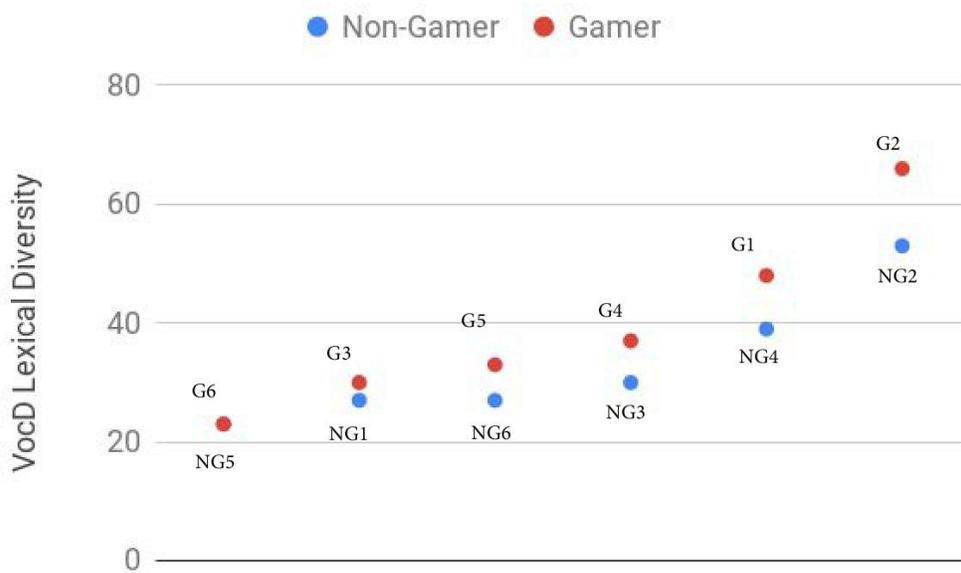


Figure 8: Range in lexical diversity in ascending order

The data shows the range in lexical diversity between the two groups, where each dot represents a participant. NG5 and G6 had very similar values, leading to only one dot being visible on the chart.

Fig. 9 below shows the participants' lexical diversity in order of ascending age. The data shows a similar curve between the two groups, with the exception of the 4th gamer (G6) with a value of 23, showing a general increase in lexical diversity with an increase in age and that the gamers had higher values when compared to the non-gamers of equal or roughly equal age.

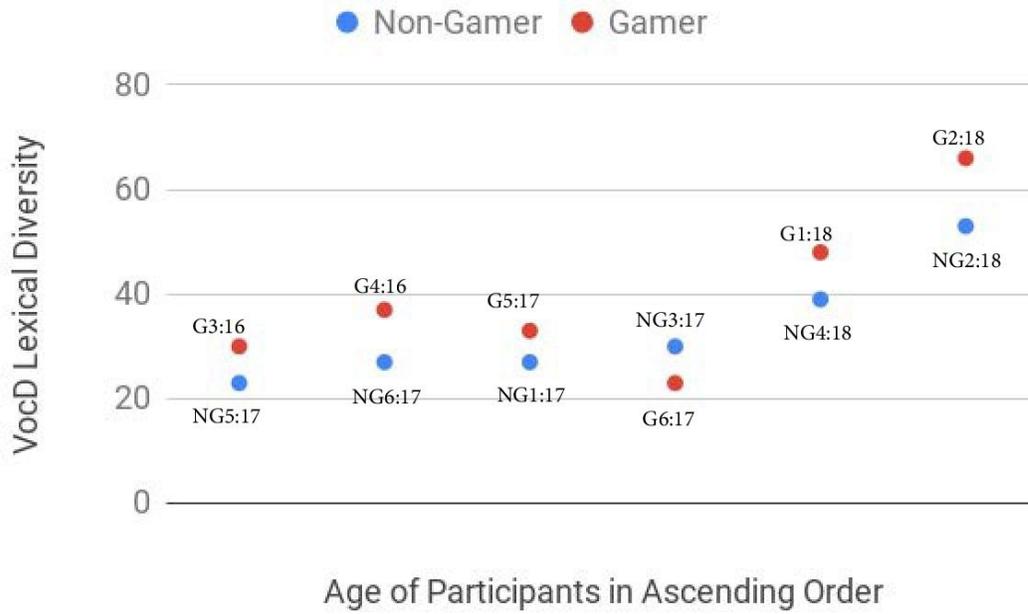


Figure 9: lexical diversity in relation to age

The data shows the range in lexical diversity between the two groups, where each dot represents a participant.

Fig. 10 shows the average length of each participant's utterance in ascending order. Similar to the lexical diversity, we see that the range in average utterance length is larger among the gamers.

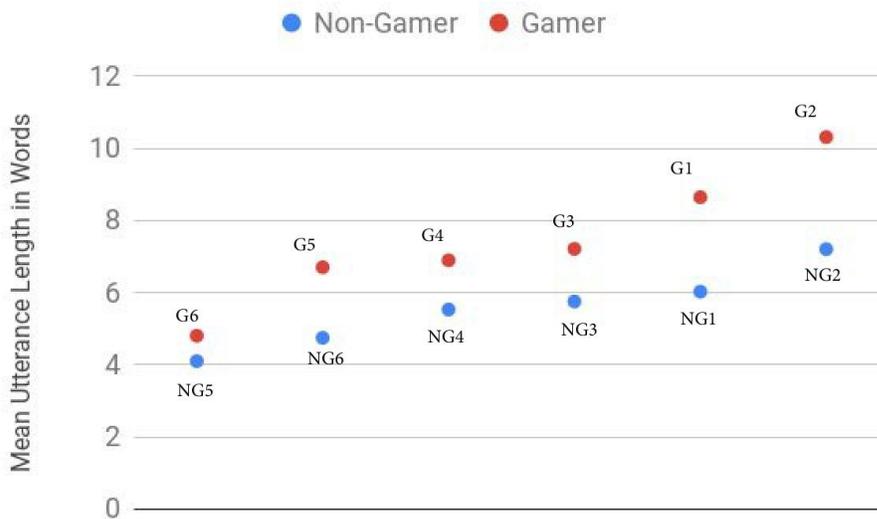


Figure 10: Mean length of utterances in words per participant

The data shows the range in mean utterance length between the two groups, where each dot represents a participant.

Fig. 11 represents the average length of each participant's utterances in order of ascending age. Here we see a similar trend that with age, the average length of utterances increases, with the exception of the 4th gamer. When compared to the non-gamers of equal or roughly equal age, we see that the gamers had a longer mean lengths of utterances.

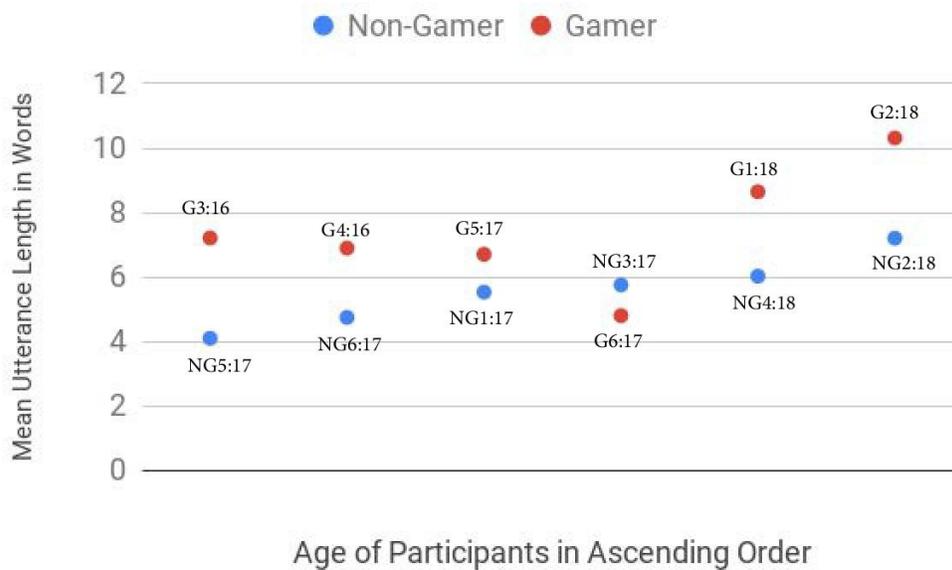


Figure 11: Mean length of utterances in words per participant in relation to age

The data shows the range in mean utterance length between the two groups, where each dot represents a participant.

6. Discussion

This section will discuss the results in regard to the aim of this study, which was to investigate any possible differences in conversation skills/strategies in relation to MN, lexical diversity and mean utterance length between the two groups – MMORPG gamers and non-gamers. This will

be followed by a methodological discussion in which limitations and actions for possible future research are lifted and discussed.

6.1. Meaning Negotiation and Modified Output

Is there a difference in how often the two groups initiate negotiation for meaning and how much modified output they produce?

An analysis of the participants' dialogue revealed few patterns between the groups. This is probably due to the fact that the participants all had high level English skills, allowing them to move through the conversation virtually error free. As presented in the results, the data shows that self-initiated self-repairs were the most common type, often being used in conjunction with turn competition or to reformulate what was previously said to come closer to the ideal utterance, as discussed by Plejert (2004). Self-initiated self-repairs in the form of repetitions and replacements were also used to address the few errors that were made. Other-repairs were the least common method of modified output. These results are along similar lines as Foster & Ohta (2005) who showed that linguistic issues and errors are not commonly addressed through explicit pushdown routines, or even made apparent or addressed as they can slow down the flow of the conversation and be confrontational. Foster and Ohta (2005) discuss how these errors are dealt with by other means, such as co-construction and other forms of other-repair. However, the participants in this study all demonstrated high levels of English proficiency, making it difficult to differentiate between the two groups, as few errors were made. We do see, though, that the errors that were made were addressed swiftly and efficiently, often by the one who made the mistake. This can be seen as evidence that supports Foster and Ohta's claim that issues and errors are mainly dealt with without being explicitly addressed by means of MN.

The dyads G1&2 and NG1&2, interestingly, had more instances of turn related repairs than any other dyad. The number of repairs related to turn competition could be explained by the level of engagement of the speakers and the turn-taking customs of that particular conversation. Norrby (2012) explains that in a fast-paced conversation where both speakers have a lot to say, pauses

between turns are short and few, making it important for each speaker to be quick in order to claim the next turn. The traditional back and forth turn-taking norms may be discarded and replaced by first come, first serve, with speakers hastily nominating, or re-nominating themselves at the next TRP. The speaker's desire to claim or hold on to a turn can manifest itself in the form of repetitions that act as conversational space-takers that fill the pauses discussed by Norrby (2012) in section 3.4.1, indicating the speaker's desire to keep or take the turn. The reason for the level of engagement is more difficult to explain however. Both participants knew each other from before, which is likely to have an effect on interaction (Norrby, 2012). However, all dyads except NG3&4 were familiar with each other, and they all had less instances of interruptions and simultaneous speech. The particular relationship of the students is likely to have had an effect as well, with some having known each other for longer than others.

6.2. Simultaneous Speech and Latching

Is there a difference in how the two groups interact regarding simultaneous speech and latching?

No clear patterns between the gamers' and non-gamers' interactions regarding simultaneous speech and latching were visible. However, the mixed gender dyad NG1&2 and the gamer dyad G1&2 did exhibit more instances of interruptions and latching, with fewer instances of back-channeling than the other dyads. This could be a result of NG2 (male) asserting a type of conversational dominance, being responsible for most of the interruptions of the conversation. It could be extrapolated from this, that if the power dynamics of a conversation are not in balance, the desire to show recognition of what the other person has to say diminishes. Norrby (2012) explains that listeners in a conversation will use back-signaling and recognitional overlap to show that they are engaged and receptive to what the speaker has to say. Interrupting can in a way show that the speaker is not listening actively, but instead thinking about what they want to say, resulting in less back-signaling, as may have been the case in G1&2. Likewise, if constantly interrupted, a person can become less engaged in the conversation as they feel they are not being

listened to, also resulting in less back-signaling or recognitional overlap, as in the case of NG1&2.

As stated though, because of non-results of the groups, the above mentioned explanation mainly indicates that all participants, independent of gaming background or not, demonstrate a similar behavior, typical for the conversation they were having.

6.3. Lexical Diversity and Mean Length of Utterances

Is there a qualitative difference in the two groups' lexical diversity and mean utterance length?

Results from the VocD and MLU commands in CLAN showed that the ranges in lexical diversity and mean utterance length were larger among the gamers than the non-gamers. They also revealed that these two variables may also be connected to age, as there was a tendency for the value of each to increase with the students' age in both groups, with the exception of one gamer (G6). Since VocD take text length into account, the fact that G6 was not very vocal during the 5 minute transcription should not be an explanation for this. However, a qualitative analysis of the dialogue showed that many of G6's turns were short responses to simple questions asked by his partner regarding which items were next on the list. Many of his responses were simple agreements such as *yeah*, or just naming the next item on the list. His partner (G5) was doing most of the talking during this time, as he was the one who had the idea to compile the list in the manner that they were doing it in, in addition to having some ideas about what to do with said items. G6's level of engagement increased after the students completed the list and proceeded to make a plan of action for the scenario, which was much more discussion oriented and involved more than just answering yes or no, or naming items on the list. Essentially G6's speech became more spontaneous and content filled rather than just agreeing, naming items or asking about items. This could be a possible explanation, but as only 5 minutes were transcribed, it is not possible to know.

The values from the data in relation to age show that the gamers in the study have, with the exception of G6, higher lexical diversity and longer average utterances than non-gamer peers of equal or similar age. Sundqvist (2009) reports that some types of extra-mural activities such as playing video games and reading books/articles are more beneficial than others such as watching movies or TV-shows and that even a small increase in these extra-mural activities has a significant impact on oral proficiency and vocabulary. The difference in self-reported engagement in extra-mural English activities (excluding gaming) between the two groups is minimal, with only slight differences in the types of activities. However, the time spent on gaming adds a minimum of 5 and up to 50 hours of extra-mural English activity to some of the gamers. This paired with the gamers' reports of the world they play in being a generally friendly, helpful and positive linguistic environment, rich with input, interaction and even negotiation for meaning during non-understanding, strongly suggests that not only is the input found in MMORPGs valuable, but that the actual environment itself is one that facilitates learning. It does so by in part by creating intrinsic motivation to stay engaged, thus lowering the affective filter, making the input more likely to lead to acquisition. It also does so by providing opportunities for MN, allowing issues of communication to be addressed in relevant and communicative ways, all deemed important for acquisition as discussed by Ortega, 2009; and Lundahl, 2012.

6.4. Influence of Input and Interaction

The data presented in this study, along with Sundqvist's results and Ortega's (2009) discussion of the role of input, output and interaction, indicate that the students' engagement in MMORPGs and other online digital games may have impacted their lexical diversity and utterance length.

Not only are their games another source of rich English input, but the MMORPG games that they play also provide a space for the gamers to practice their language skills, i.e produce output, and not only be subject to input. Also, the fact that the linguistic environment of MMORPGs is generally reported to be helpful and friendly provides the gamers with a non-threatening environment in which to possibly dare to take linguistic risks and even receive feedback.

If we look at Ortega's (2009) summary of the five vital factors to successful language acquisition, we see that at least four of them are present in MMORPGs and online digital gaming in general. Each variable is followed by a short discussion of its relation to the current study.

1. A positive and acculturated attitude towards the target linguistic and cultural community, essentially an aspect of the gamer's affective filter.
 - a. The gamers clearly have a positive attitude towards the MMORPGs and their communities, otherwise they would not be engaging in it in the first place. In addition to the games often being in English, the fact that communication is intrinsic to the game and that the *de facto* common language is English serves as an intrinsic motivation to become more proficient in it.
2. Krashen's Comprehensible Input
 - a. The game's own input to the player as well as the countless spoken and written interactions with other players provides rich and varied linguistic input. The player can choose to engage in or not, giving them a level of control over the situation. This sense of control makes the linguistic situation less threatening, lowering the affective filter of the player, thus making it more likely that the input can be used for acquisition.
3. Swain's Comprehensible Output
 - a. Due to MMORPGs' inherent social nature, the players are pushed into producing linguistic output, lest they become isolated in the world they play in, defeating the purpose of the game's obvious social factor.
4. Long's Negotiated Interaction
 - a. Using the gamers' responses from the questionnaire, we see that negotiation for meaning can occur in an online gaming setting. Players will reportedly adapt their language to other players and help each other if necessary. Although not necessarily a routine occurrence, the fact that it happens sets the stage for learning in yet another way.
5. The capacity (natural or cultivated) to be sensitive to language forms.

- a. This factor is not explicitly present in a gaming context, as it is a personal trait, rather than a trait of the hobby itself. However, this trait can be inducted into a learner by a teacher for example.

The design of the games naturally involves scaffolding, providing the player with more content and input as it progresses. In-game tutorials or other players act as the guide to lead one through Vygotsky's (1978) Zone of Proximal Development regarding both the game-play and even language encountered during game-play.

6.5. Methodological Discussion

Due to time constraints and difficulty acquiring participants that fit the original inclusion criteria, some important variables were difficult to control. The first variable was that a gender equal group of participants was not able to be used. It was difficult to find male non-gamers and even more difficult to find female gamers. The second variable was age, resulting in participants ranging from 16–18 years old, instead of the intended 17-year old mark. This led to other interesting results in the data, but also made it difficult to ensure whether some differences were because of the participants' extra-mural activities or gaming habits or because of age-related English skills. The Cambridge test that the students completed was intended to be used as a sort of second gauge of the students' English skills. However, this test has its drawbacks, and is by no means an encompassing method of testing the students' English skills.

The relationship of the students with each other was also difficult to control for. Fortunately, only two of the students had not met before. However, because the students were in different grades, some had known each other for longer than others. This affects their relationship as well, of course, and may have had unknown effects on their interaction.

Using the questionnaire to map the students' engagement in extra-mural English activities gave a good estimate as to the frequency (daily, weekly, etc), but is not enough to give specific

information as to how much time is actually spent on them. This does not apply as much to the gamers' gaming habits as they reported specific amounts of hours spent.

For possible future research interested in investigating the relationship between online-digital gaming and English proficiency, a more longitudinal study involving a language diary like Sundqvist (2009) would be appropriate. This would give more accurate data regarding engagement in extra-mural activities, allowing for a tighter control over external variables like type of input/output and time spent on different activities. Further, because of the results of the data regarding lexical diversity and utterance length, it would be interesting to be able to use a larger group of participants, transcribe more of the dialogues, with age and gender controlled for, to be able to get more quantifiable data².

As the results for research question 1 showed few patterns due to the overall English level of the students, it could be interesting to emulate this study with students from a different country in Europe – one whose citizens are not as proficient in English at such an early age as they are in Sweden. This might set the stage for more instances of MN and modified output.

7. Conclusion

Using the results from the study, we can see that the participants spent similar amounts of time on similar types of extra-mural English activities, aside from gaming, and that all participants showed good conversational skills, being able to complete the task without linguistic difficulty. However, we can possibly see the effects of the additional amount of time spent on gaming visible in the differences in lexical diversity and utterance length. This data is interesting as it shows that with age, both groups' participants lexical diversity and utterance length increased, but that the gamers were slightly higher than their equally aged peers, with the exception of G6.

² My supervisor ran a non-parametric statistical test for the VocD and MLU data, showing strong tendencies for differences in MLU, but otherwise no significant differences between the two groups. This is in all likelihood because the data sample was too small.

This is a possible indication that the students follow a similar curve of progression through that age, but that the extra activity of gaming resulted in a slight increase in these values.

To sum up, it is difficult to say if differences in lexical diversity and utterance length are a direct consequence of gaming. However, the results of this study strongly suggest MMORPGs have traits that facilitate language development, and that the act of playing MMORPGs for the amount of time that some gamers do has a positive impact on their English language skills if we use Ortega's five factors (2009) and the results of Sundqvist's (2009) study as a point of departure. The fifth factor of possessing an ability to be sensitive to language forms can be taught by a competent language teacher during class, which brings us to the implications of the study.

Seeing as games can provide a fun, engaging and rich linguistic environment for learners, language educators may want to try to incorporate different types of games into their lessons, or perhaps encourage students to engage in them themselves during their free time. These games include, but are not limited to digital ones, and content can be addressed by the use of games in class. This combined with a purposeful and pedagogical approach to teaching language form — and sensitivity to it — provides the learner with the tools to engage effectively in an authentic setting to develop their language skills. However, not all students enjoy playing games, and this suggestion is therefore not applicable to everyone. Instead, in a broader perspective of extra-mural English activities, the results of this study support the claim that any and all extra-mural English activities are beneficial due to their input, intrinsic motivation, and possible output/interaction, depending on the type of activity. In the case of the current study, not only is the input from the games beneficial, but so are the frequent chances the gamers get to actually practice their English, and possibly even receive feedback and learn from it. Learners should therefore be encouraged to engage in their hobbies in English if possible, especially in communicative settings. This can be done outside of school, in forums or other contexts, but also in the classroom. Educators can use students' interests and hobbies as points of departures for content, given that the curriculum allows it, and address appropriate language points as they arise in the content provided.

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Appendix

Consent Form



LUNDS
UNIVERSITET

Informerat samtycke till deltagande i studie kring gymnasieelevers engelska språkvanor

- 1. Bakgrund och syfte**

Syftet är att undersöka hur gymnasieelevers kunskaper i engelska påverkas av hur de använder det i och utanför skolan. Undersökningen är en del av en kandidatuppsats i lingvistik vid Lunds universitet.
- 2. Hur går studien till?**

Studien består av 2 delar: Den första uppgiften utgörs av ett samtal på engelska tillsammans med en jämnårig. Detta samtal spelas in. Den andra uppgiften utgörs av skriftlig enkät om deltagarnas läs- och skrivvanor på engelska. Det hela tar ungefär en timme.
- 3. Hantering av insamlade data**

All data som samlas in kommer att anonymiseras i rapporteringen. Observera att uppsatsens handledare och examinator också får tillgång till data. Under arbetet kommer data att lagras på en extern hårddisk. När arbetet är avslutet och uppsatsen examinerats kommer datan att förstöras.
- 4. Frivillighet**

Deltagande i studien är helt frivilligt, och det är när som helst möjligt att avbryta sitt deltagande. Du kan när som helst kontakta mig för att dra tillbaka din medverkan.

5. Ansvariga

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Victoria Johansson - Handledare

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Med min namnteckning bekräftar jag:

- Jag bekräftar att jag har tagit del av information kring studien.
- Jag ger mitt samtycke till deltagande i studien.
- Jag är medveten om att deltagandet i studien är helt frivilligt och att jag kan välja att avbryta mitt deltagande när som helst under studien, utan att uppge någon anledning
- Jag tillåter att insamlad information hanteras såsom specificerat i den skriftliga informationen.
- Jag ger mitt godkännande till inspelning av samtalet jag deltar i.

Datum/ort

Namnteckning

Namnförtydligande

Communicative Task

It is 10 in the morning. You and your partner were flying over the Sonoran Desert, Southwest USA, when suddenly your plane's engine gave out, forcing your pilot to make a crash landing. Only you and your partner survived. Your small twin-engine plane containing the bodies of the pilot and co-pilot has completely burnt out, with only the frame remaining. Neither of you have been injured. The pilot was unable to notify anyone of your position before you crashed. However, ground sightings taken shortly before the crash suggested that you are about 50 km off course from your original flight plan. A few moments before the crash the pilot indicated that the nearest known town is 100 km away in a North-East direction. The immediate area is quite flat and appears to be rather empty except for the occasional cactus. The last weather report indicated that the temperature would reach 43°C during the day and 5°C at night. You are both dressed in light-weight clothing, short-sleeved shirts, shorts, socks and sneakers.

Before the airplane caught fire, you managed to salvage the items below.

First, individually rank the items yourself, in order of importance. Then, tell each other your rankings and why you gave them. Finally, you must both make a ranked list which you both agree on. You have 30 minutes.

Item	Individual Ranking	Group Ranking
Flashlight		
Pocket knife		
Sectional air map of the crash area		
Magnetic compass		
A fully loaded pistol		
Bandage kit		
Parachute		
Bottle of salt tablets to replenish minerals lost through sweat (1,000)		
1 liter of water per person		
Book entitled "Edible Desert Plants and Animals"		
2 pairs of sunglasses		

2 liters of lighter fluid		
1 coat per person		
1 small handheld mirror		