Muñoz, C. (2020) Boys like games and girls like movies. Age and gender differences in out-of-school contact with English. *Revista Española de Lingüística Aplicada* 33(1): 172-202

1. Introduction

It is commonly agreed in the field of foreign language (FL) learning that, in the absence of massive amounts of input in the traditional classroom, FL learning is a long and slow process for the majority of students (Muñoz, 2008; Nunan 1991; Pickard, 1995). Recent research has highlighted the key role of the amount and intensity of input in this process, together with its quality (Muñoz, 2012). However, in many contexts nowadays, FL learners are enriching their *limited* contact with the target language in the classroom with *unlimited* contact outside the classroom thanks to the easy and immediate availability of the Internet and digital media. And this phenomenon is likely to continue: according to the Standard Eurobarometer on Media Use in the European Union (2017), over three-quarters of Europeans use the Internet at least once a week, and over two-thirds do so every day or almost every day. Take, as an example, the emerging change in traditionally dubbing countries, where more viewers than ever choose to access original version (OV) audiovisual input. Impatient adolescents do not wait for their favorite series to go through the slow process of dubbing; they access them through the Internet in the original version, with or without subtitles. Neither are gamers afraid of confronting the latest challenges on their own or with multiple players, even if to do so they need to use the FL (receptively and productively). This immediacy is providing learners with authentic FL input in amounts that teachers could only dream of a couple of decades ago (the "expanded" classroom; see Collins & Muñoz, 2016). Moreover, engagement in these activities and learner autonomy (Holec, 1981) are boosted in ways that open up expectations for potential lifelong learning of other languages.

Although there is now a growing body of research into the potential of out-of-school contact with the target language, most studies address teacher-guided experiences (see Sundqvist & Sylvén, 2016). However, studies examining the ways in which individuals engage with TL input in their leisure time are in short supply. To our knowledge, none has systematically compared differences arising from age and gender (though some studies have noted gender-related preferences; see the section below). To fill these gaps, this study aims to document the characteristics of the contact with

English (EFL) that a large sample of learners have outside the classroom and, while so doing, to explore possible age-related and gender-related differences in the amount and type of this contact. Another aim is to examine the association between out-of-school contact and classroom grades. The paper uses both the terms “out-of-school contact” and “out-of-school exposure” because, although most activities concern viewing and reading and engage receptive skills, the former term also includes productive activities such as talking and certain types of gaming.

2. Background

This section presents a selection of research concerned with out-of-school contact with the FL, with a focus on studies that have investigated long-term naturalistic exposure (excluding studies where participants intentionally engage in activities to improve their FL, either within an educational programme or of their own accord; see Sundqvist & Sylvén, 2016). The participants in these studies vary in age (they may be children, adolescents, young adults); educational level (prior to formal instruction, primary, secondary, and university); and context (same context or across contexts).

1.1 Before school instruction

A number of studies have focused on the effects of ambient exposure to English before the beginning of school instruction. For example, in Iceland, where the number of Internet users is very high (93% in 2010 and 98% in 2017, according to the 2017 report by the European Commission), Lefever (2010) investigated listening, reading and oral communication skills in English in 182 children before the start of classroom instruction. This study found that the children had learned words and phrases by watching movies in English with subtitles in Icelandic, and that over half of the sample were able to take part in a simple conversation in English.

In the Flemish region of Belgium, Kuppens (2010) investigated the effects of long-term use of English language media (television programmes and movies, computer games and music) on nearly 400 Flemish (Dutch-speaking) children (age 11) who had not yet received English instruction in school. The children completed two oral translation tests, one from Dutch to English and one from English to Dutch. The results

of the study showed that children who frequently watched English language television and movies subtitled in Dutch performed significantly better on both types of translation, with the effect being stronger for girls than for boys. Playing English computer games also had a significant, though limited, effect on the English-to-Dutch translation skills, with boys engaging more frequently in playing computer games than girls. The effects of long-term watching of subtitled English television programmes were also observed in an experiment with fourth and sixth graders by Koolstra and Beentjes (1999). The main finding and focus of their experiment was that children who had watched a Dutch-subtitled English language documentary performed significantly better in a vocabulary test than children who had watched it without subtitles and a control group who had watched a Dutch television programme. In addition, other significant findings were that though fourth graders had not yet had English in school, they performed above chance level, and children who reported frequently watching subtitled English television programmes outperformed those who reported watching them with a low or mid frequency.

More recently, De Wilde and Eyckmans (2017) conducted a study in Flanders that also investigated the incidental language acquisition of 11-year-old children (n =30) who had not received any formal English instruction. In this study, the participants' English proficiency was measured by means of a receptive vocabulary test and a general proficiency test (which measured the four skills). The results showed that receptive skills (vocabulary recognition and listening comprehension) were more developed than the skills of reading, writing and speaking, a finding that the authors attributed to the participants' predominant exposure to spoken English through a variety of media. In particular, the amount of gaming in English was significantly related to all tests and the number of hours of computer use to receptive vocabulary size, speaking ability, and reading and writing skills. In that study the differences in test results between boys and girls were not significant, and nor was there a difference in the time spent gaming between boys and girls. Still in Flanders, Puimège and Peters (2018) explored English vocabulary size in 300 children (9-12 years old), and found that these children knew a mean of 2,000 English word families prior to formal instruction. For both meaning recognition and meaning recall, cognateness and frequency were the most important word-related determinants, and L1 and gender (male) were the most important learner-related determinants, followed by out-of-school exposure. Older pupils also presented better performance.

1.2 School learners

In Sweden, where the penetration of English in society is high, Sylvén and Sundqvist (2012) conducted a study of 86 Swedish children (11-12 years old) administered an English vocabulary test. The analysis showed that children who frequently gamed in English outperformed moderate gamers on the test, who in turn outperformed non-gamers. In another study (Sundqvist & Sylvén, 2014), these researchers investigated the degree to which 76 4th graders (10-11 years old) engaged in English language-related activities outside school, and the relationship between playing digital games and a number of factors, including children's gender, L1, motivation for learning English, self-assessed English ability and self-reported strategies for speaking English. The researchers used a questionnaire and a one-week language diary. Results showed that the children engaged extensively in English activities out of class, with boys spending twice the amount of time as girls and spending significantly more time than girls on digital gaming and watching movies. The study by Sundqvist and Wikström (2015) also found boys to be more frequent gamers than girls, and reported significant correlations between the frequency of gaming and boys' vocabulary knowledge. The relationship between gaming and the development of English vocabulary was also confirmed by the study of Hannibal Jensen (2017) with 107 Danish-L1 children (a group of 8-year-olds and a group of 10-year-olds). Using a one-week language diary, the study found that the children spent most time on gaming, listening to music and watching television. It also found that boys who gamed frequently scored higher on a receptive vocabulary test. Further, the study revealed an influence of gender and age: gaming with both oral and written English input was significantly correlated with receptive vocabulary scores for all groups, except for younger girls who hardly gamed at all; gaming with English written input was significantly correlated with vocabulary performance for older boys only. Hannibal Jensen notes that the latter were very active combining their gaming with walkthroughs of gameplay on YouTube in order to reach higher levels in the games, a practice which may have enhanced their English language learning.

In an ethnographic study in Mexico, Sayer and Ban (2014) talked to 61 fifth and sixth grade EFL students and their parents. Among the uses of English outside the classroom, the children and parents identified 16 distinct functions, the first one of which was listening to songs in English, followed by watching movies in English,

especially without subtitles, and video games. On the basis of the data drawn from the interviews, the authors suggest that video games can have positive effects on English learning because of the strategies children had to develop in oder to navigate the levels of video games.

In Flanders, Peters (2018) investigated the types and frequency of media to which two groups of adolescents (16 and 19 years old) are exposed and the relationship with their vocabulary knowledge. She found that these Flemish learners are frequently exposed to English language media, and in the following order of frequency: listening to songs, watching subtitled and non-subtitled TV programmes and movies, playing computer games, and using the Internet. Out of these types of input, watching non-subtitled TV programmes and movies, reading books and magazines, and browsing the Internet had a positive relationship with vocabulary knowledge. In contrast, there was no correlation betweeen playing computer games and vocabulary knowledge in these learners. Peters also looked for gender-related differences: she found that boys were more frequently engaged in playing computer games than girls, in agreement with the above studies, but she found that gender did not affect the vocabulary test scores. As for age differences, this study found no significant differences between the type of exposure in the 16- and the 19-year old learners. However, Peters suggested that the type of exposure may change over time: the younger group was more frequently engaged in playing computer games than the older university students, whereas the latter watched non-subtitled TV programmes and movies more often than their younger peers. Another interesting finding was that out-of-school exposure appeared to have a stronger influence on learners' vocabulary knowledge than length of instruction, in line with previous research (Muñoz, 2011, 2014).

In Japan, Barbee (2013) conducted a survey with 151 high-school students (16-17 years old) focusing on the connection between exposure to extracurricular English input and motivation, on the basis that "when learners have a choice as to what types of input they are exposed to, this exposure will be more directly related to their personal motivations" (p. 8). Barbee found out that, regardless of language proficiency, Japanese teenagers had much more exposure to certain extracurricular sources of English input (music, online media, movies/TV, and non-native speakers) than to others (written English input). These teenagers found exposure to English music the most enjoyable, and exposure to native-speakers the most effective and the most motivational for

learning English. The amount of exposure was most highly correlated with how enjoyable the students rated each source of input.

Only a few studies have taken a comparative perspective. A large cross-context comparison was conducted within the ELLiE (Early Language Learning in Europe) project (see Enever, 2011). Questionnaire data from seven different European countries were explored in order to assess the role of out-of-school factors on children's FL development (Lindgren & Muñoz, 2013). A total of 865 questionnaires were answered and returned by parents of 10-11 year-old children from Croatia, England, Italy, the Netherlands, Poland, Spain and Sweden. The FL was English in all of them, except for England, where participants had either French or Spanish as the FL. The seven country contexts differed greatly in terms of the amount of contact with the FL; a high level was found in the Netherlands and Sweden, the two countries in the sample whose languages are most closely related linguistically to the TL (English), but also in Croatia where the linguistic distance between the two languages (Croatian and English) is much larger. The factors that had the most significant influence on reading and listening comprehension skills were cognate linguistic distance and out-of-school exposure. Further, it was found that watching subtitled movies was the strongest out-of-school predictor for both listening and reading comprehension scores, although the most frequent types of exposure were listening to music, watching movies and gaming, in that order.

Another study that compared two different European contexts was conducted by Muñoz, Cadierno and Casas (2018). This study was concerned with the comparison between the English receptive skills (vocabulary and grammar recognition) of Danish children aged 7 and 9, at the very beginning of formal English instruction (after only 10 or 13 hours of class respectively), and of Catalan-Spanish children of the same age groups, after several hundred of hours of class (287 and 520 hours respectively). The analysis of this study revealed, first, no significant differences in vocabulary recognition skills between children of the same age from the two contexts and also a significant advantage on cognate recognition by Danish-L1 speakers. It also revealed that audiovisual input in English had a positive influence at the age of 9, which was not (yet) visible at the age of 7. The researchers attributed the age-related difference found (i.e., the Danish 9-year-olds obtained higher scores on both receptive vocabulary and grammar than the 7-year-olds prior to instruction) to the former's higher cognate awareness as well as to the longer exposure time to English (being two years older).

Some studies have highlighted the influence of age among school learners. For example, in an investigation with 168 early learners (aged 4 and 5) in The Netherlands, Unsworth, Persson, Prins, and de Bot (2015) found that out-of-school exposure was not a significant predictor of English receptive skills. The researchers attributed this finding to the children's young age and suggested that, as children grow older, their exposure to English outside school may increase and become a significant predictor. Indeed, other studies have observed an increase of this kind with age. For example, in Indonesia, Lamb (2007) found that the amount of exposure to English increased during junior high school (especially, through the use of computers and watching TV programmes). Similarly, a series of studies in Sweden (Sundqvist, 2009, cited in Sundqvist & Sylvén, 2016; Sundqvist & Sylvén, 2014; Sylvén & Sundqvist, 2012) allowed these authors to compare the amount of weekly exposure to English of learners of different age (10-, 12-, and 15-year olds), confirming that the older the learners are, the more time they are exposed to English outside the classroom setting (Sundqvist & Sylvén, 2016).

1.3 Young adults

While young adults are the participants in a few case studies (e.g., Samimy, 2008), most research in this age group has focused on teacher-guided or semi-guided activities outside the classroom, such as extensive reading programmes (e.g., Arnold, 2009; Webb & Chang, 2015), listening logs for extensive listening practice (Gilliland, 2015), or activities participants engage in to improve their FL (English) (e.g. Lai, 2015). Among the exceptions is the study by Kusyk and Sockett (2012) in which French university students who were frequent viewers of online American television series were asked to self-evaluate their comprehension of the 30 most frequently 4-grams in the series (i.e., contiguous sequences of 4 items, such as *I want you to*). Their comprehension was superior to that of non-regular watchers, a finding that indicated positive effects of frequent viewing of television series in English on the acquisition of frequently occurring chunks of language in these series. Moreover, frequent viewers used more idiomatic language when writing fan fiction than non-regular viewers. Similar results were found by Sockett and Toffoli (2012) in a diary study in which six French students were asked to keep a log of their online activities in English over a period of 60 days. Students were able to produce words or expressions that they had encountered during their informal online activities. Other studies with young adults have focused on the

potential vocabulary gains of watching TV programmes and movies. For example, Webb and Rodgers (2009) found that learners with a vocabulary size of more than 3,000 word families who watched English TV programmes an hour every day were likely to achieve significant gains in incidental vocabulary learning.

3. The current study

The current study focuses on extensive contact with English outside the classroom with the assumption that this long-term contact leads to language learning. The type of learning that occurs thanks to such informal exposure is considered to be largely incidental, since one of the senses of incidental learning is that it is the by-product of some other activity, in this case listening or reading for comprehension. A second sense of this term, i.e., the lack of an intention to learn, is more challenging to comply with because assessing learner intent is difficult (Bruton, García López, & Esquiliche Mesa, 2011). Certainly, a number of participants in the above studies may have had the intention to learn, some or most of the time, through their out-of-school contact with the FL – and yet a focus on meaning, essential for incidental learning (Hulstijn, 2003), may be argued to be the main characteristic of the activities they were engaged in (see Malone, 2018).

The review of the literature above has shown gender-related differences, for example in the frequency and characteristics of gaming, that are worth investigating. Moreover, to our knowledge no study has focused on age-related differences, although some indication that these differences exist has been noted above. The present study seeks to contribute to this line of research by documenting the amount and type of contact with English outside school of a large sample of EFL learners and exploring the role of age and gender in both the amount and type of contact, as well as the association between out-of-school contact and English classroom grades. Specifically, this paper addresses the following research questions:

1. How much contact, and through what type of activities, does a sample of EFL learners from Catalonia (Spain) have outside the classroom?
2. Are there age and gender differences in the choice and frequency of out-of-school contact with English?

3. Is there an association between out-of-school contact and (self-reported) English classroom grades?

3.1 Method

3.1.1 *Participants*

The participants in this study were a total of 3,048 learners of English in Catalonia (1,261 male, 1,787 female) who agreed to complete a survey, either online (approximately one third of respondents) or using pen-and-paper forms. They were selected from a larger convenience sample that included younger and older respondents. The participants were from 58 different educational centres in Barcelona and smaller towns around Catalonia: 63.7% were secondary schools, 32.8% university departments, and 3.5% language schools. The participants selected belonged to three age groups: younger adolescents (YA) aged 12-14 (*n* = 1218); older adolescents (OA) aged 15-17 (*n* = 1154); and adults (AD) aged 18 to 39 (*n* = 676).

3.1.2 *The survey*

The instrument used to collect data was a questionnaire built on the basis of questionnaires that had been used in previous research (Muñoz, 2011, 2013, 2014, 2018). A two-part validation process was used in the development of this questionnaire. First, colleagues' suggestions and critiques helped ensure that its questions were appropriate for the study at hand. Then, a group of students in a Master's programme in Applied Linguistics completed the questionnaire in order to give feedback and identify potential areas of confusion. Subsequent changes were then made (e.g., incorporating specific Internet activities, such as watching YouTube videos). The questionnaire was piloted several times with learners in the same age ranges (in two primary school classrooms, two secondary school classrooms, and two undergraduate university classes in different faculties), and changes were implemented to improve its clarity and suitability (e.g., temporal reference was anchored in the present because of the evolving nature of habits and to avoid problems with participant's recall).

The questionnaire consists of closed-response questions and a few open-ended questions, and it is divided into five sections. Only two of them (with closed-response questions) are examined in this study: biographical information, in which participants were asked to report the final grade they had had in the last English course they took as:

Fail, Pass, Good, or Excellent (coded as 1-4); and the section containing questions on the frequency of out-of-school activities (see Appendix 2) on a scale of 1-5 (1 = never; 2 = less than once a month; 3 = between once and three times/month; 4 = between once and three times/week; 5 = between four and seven times/week). The coding procedure was similar for the two questionnaire formats (online and pen-and-paper). Questionnaires answered online were first downloaded onto an Excel spreadsheet and answers were coded there. Then, the numeric values were transferred into an SPSS database. The answers to pen-and-paper questionnaires were entered directly into the SPSS database. Respondents answered in a similar way regardless of how they had completed the questionnaire and the answers' length and accuracy did not vary.

3.2 Analyses and Results

As a preliminary step, the reliability and validity of the questionnaire were checked. The overall internal reliability ($\alpha = .87$) was good (Field, 2013). A Principal Components Analysis (PCA) was run on the data to validate the questionnaire. The assumptions of PCA were checked; when there was no linear relationship between variables, these were transformed and outliers were removed. Direct oblimin was used for factor rotation, and factor loadings of .40 or greater were considered significant (Field, 2013). The KMO Measures of Sampling Adequacy were adequate (.82), and Bartlett's Test of Sphericity showed that the variables were significantly correlated ($p = .000$).

Five components with eigenvalues greater than 1 were obtained. Cumulatively, the five extracted components accounted for 60.79% of the variance (rotation converged in eight iterations). The first component loaded on four types of activities involving Internet: listening, watching, reading, and writing. The second component loaded on three types of gaming: multiplayer, massively multiplayer, and single player. The third component loaded on face-to-face talking activities: abroad, and with tourists at home. The fourth component loaded on the questions concerned with watching movies/series with L1 subtitles or L2 subtitles (captions), revealing that they increased together quite strongly, and two other activities: watching movies/series without on-screen text and, with a weaker association, reading books. The fifth factor included three negative associations, involving speaking activities with relatives, with friends, and on skype

respectively. The loadings for each of the variables in this study across the five components are shown in Appendix 1.

In sum, the results reveal five significant constructs in the questionnaire: activities through the Internet, gaming, face-to-face communication with speakers who do not share the L1 (native speakers of English or not), watching movies/series, and (not) talking in English with relatives and friends or on skype. The first four correspond to different choices in the ways in which these participants have informal contact with the English language.

The first research question seeked to document the characteristics of the contact with English outside school of the participants in this study. Table 1 displays the descriptive statistics (mean, median, and the semi interquartile range) for self-reported proficiency (from 1 to 4) and for self-reported exposure to 16 activities through which these learners engage with English outside the classroom: watching OV movies/series with L1 subtitles, with L2 subtitles, without on-screen text; gaming: single player, multiplayer, massively multiplayer; listening to music; reading books/magazines/comics; talking face to face with friends, with relatives, with tourists, while abroad; and Internet activities: talking, writing, reading, watching YouTube videos, listening.

Table 1. Descriptive statistics

	Mean	Median	SIR
Proficiency	2.69	3	0.5
Watching with L1 subtitles	2.31	2	1
Watching with L2 subtitles	2	2	1
Watching without subtitles	2	1	1
Single player	2.34	2	1.5
Multiplayer	2.1	1	1
Massively multiplayer	1.77	1	0.5
Listening to songs	4.71	5	0
Reading	2.26	2	1
Talking FTF to friends	1.96	1	1
Talking FTF to relatives	1.49	1	0.5

Talking FTF to tourists	2.05	2	0.5
Talking FTF abroad	2.28	2	1
Internet Talking	1.68	1	0.5
Internet Writing	2.67	2	1.5
Internet Reading	2.84	3	1.5
Internet Watching	3.75	4	1
Internet Listening	4.06	5	1

Looking at Table 1, input from English music (radio, Internet,...) had the highest levels of exposure, followed by watching YouTube videos and reading on the Internet. At the other extreme, talking in English is the activity these respondents reported engaging in the least often outside the classroom. Figures 1-6 display the frequency in percentages.

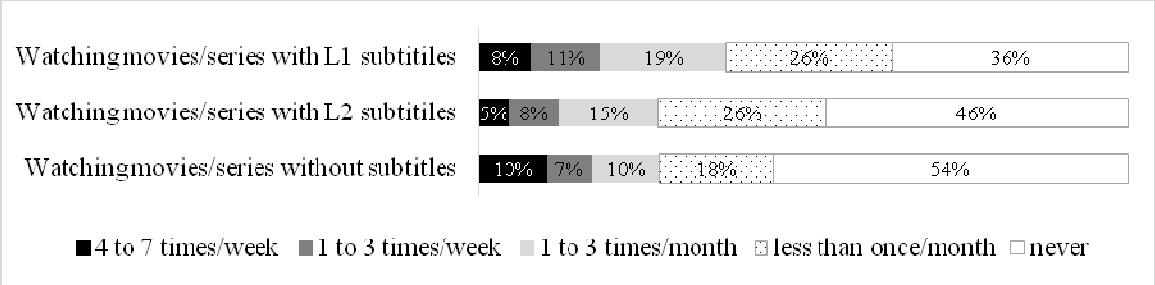


Figure 1. Watching OV movies/series

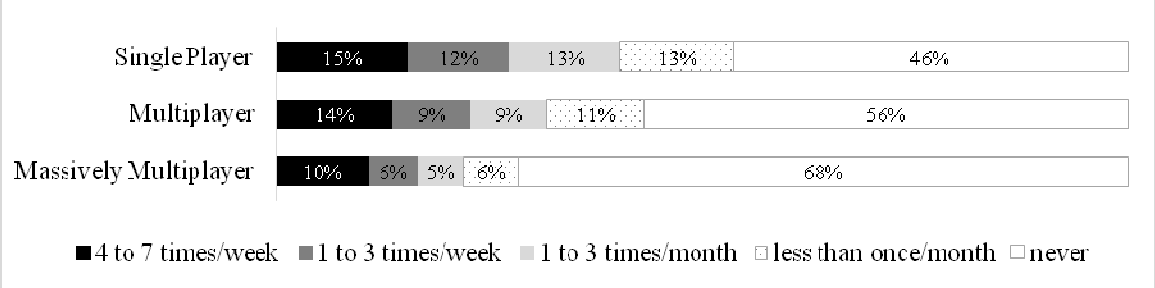


Figure 2. Gaming

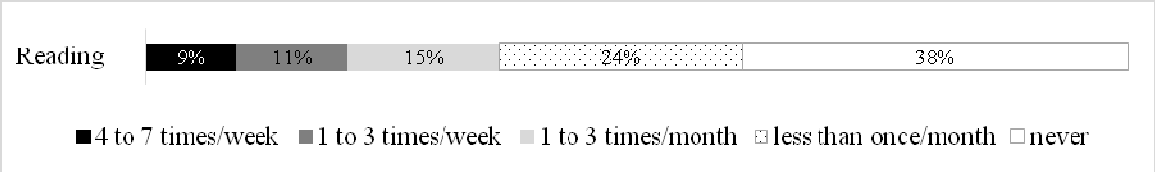


Figure 3. Reading books, magazines and comics

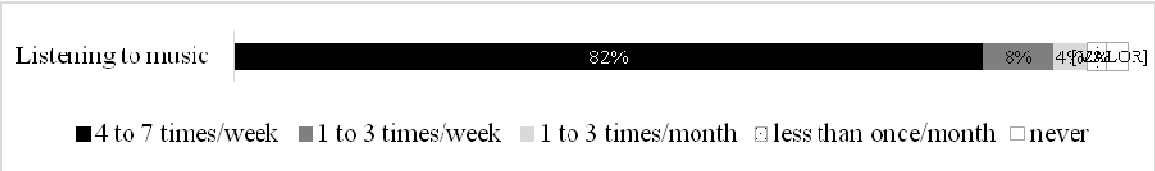


Figure 4. Listening to music

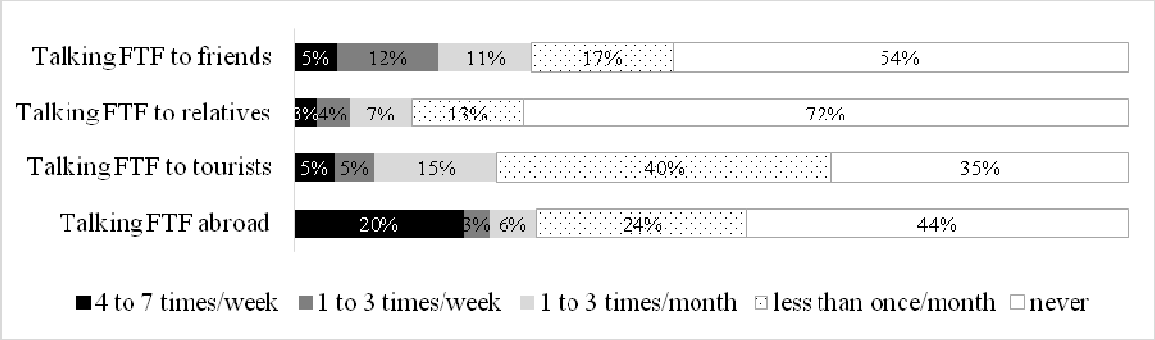


Figure 5. Talking face to face

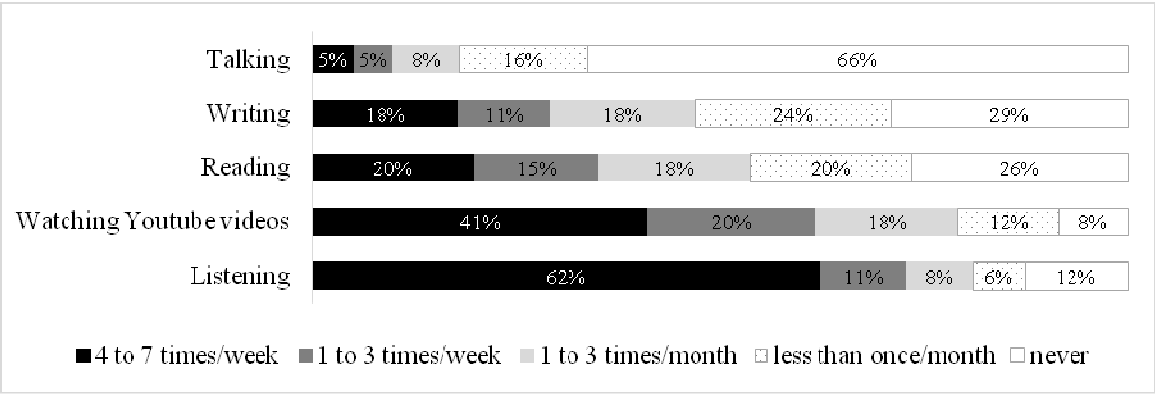


Figure 6. Internet activities

To answer the second research question, respondents were distributed into six groups according to their age and gender. Table 2 shows the number of respondents in each of the six groups.

Table 2. Respondents: age-and-gender groups

Age group	Males	Females	Total
Younger adolescents (YA) (12-14)	582	636	1218
Older adolescents (OA) (15-17)	481	673	1154
Adults (AD)	198	478	676

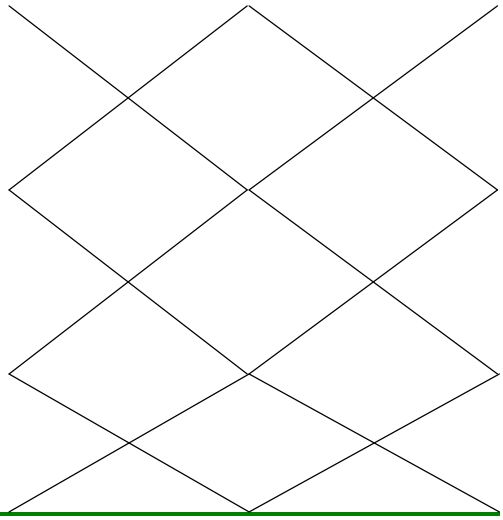
(18-39)			
Total	1261	1787	3048

To conduct the comparative analyses of the frequency with which the respondents reported engaging in the different out-of-school activities in English, non-parametric tests were chosen because of the characteristics of the data: some variables were ordinal and not all of them had a normal distribution. First, a series of Kruskal-Wallis tests were run with each of the 16 types of activities as the dependent variable, and the variable age-and-gender group as the independent variable with six levels: younger male adolescents; younger female adolescents; older male adolescents; older female adolescents; male adults; and female adults. Significant differences were revealed on all variables except for watching movies/series without subtitles, and talking (face to face) abroad. The tests that showed significant differences were: Watching-L1: $\chi^2(5) = 81.38$, $p = .000$; Watching-L2: $\chi^2(5) = 115.77$, $p = .000$; Single player: $\chi^2(5) = 596.35$, $p = .000$; Multiple player: $\chi^2(5) = 832.43$, $p = .000$; Massively multiple player: $\chi^2(5) = 670.07$, $p = .000$); Reading: $\chi^2(5) = 174.99$, $p = .000$; Listening to music: $\chi^2(5) = 81.51$, $p = .000$; Talking to friends: $\chi^2(5) = 30.17$, $p = .000$; Talking to relatives: $\chi^2(5) = 91.18$, $p = .000$; Talking to tourists: $\chi^2(5) = 64.89$, $p = .000$; Internet Talking: $\chi^2(5) = 8.63$, $p = .013$; Internet Watching: $\chi^2(5) = 24.94$, $p = .000$; Internet Listening: $\chi^2(5) = 125.97$, $p = .000$; Internet Reading: $\chi^2(5) = 101.31$, $p = .000$; Internet Writing: $\chi^2(5) = 31.47$, $p = .000$.

To further explore the differences between the six age-gender groups, Mann-Whitney U tests were run across the groups ($\alpha = .0033$, Bonferroni corrected). The results showed that both age and gender play a strong role in the choice of exposure and contact with English of the participants in this study (see Tables 1-6 in Appendix 3 for the results of all comparisons that are statistically significant). Tables 3 (activities not on the Internet) and 4 (activities on the Internet) indicate which activities were engaged in with significantly different frequencies for each pair of participant groups. In these tables, the leftmost column indicates the two age groups that are being compared, the first of which showing a significantly higher frequency than the second one (A > B). The next two columns show the activities in which males engage significantly more frequently than females, and viceversa. The two columns on the right show comparisons for the same gender (and different age).

Table 3. Significant differences of pairwise comparisons (not Internet)

A > B	Males (A)> Females (B)	Females (A) > Males (B)	Males (A) > Males (B)	Females (A) > Females (B)
YA > OA	Gaming***	Listening*** Reading*** TF*/TR*	TR*	Gaming*** TR***/T***
YA > AD	Gaming*** TR***	Listening* TR***	Gaming*** TR***	Listening*** Gaming*** TR***
OA > YA	Gaming***	Listening*** Reading*** Watching*** TF***/TT**	Listening*	Watching***
OA > AD	Gaming*** TR***	Listening** TR***	Gaming***	Listening*** GMMP*** TR***
AD > YA	GMP/MMP*** Reading*** TT*** Watching***	Listening*** Reading*** TF***/T*** Watching***	Listening** Reading*** TF***/TT** Watching***	Reading*** TT*** Watching***
AD > OA	Gaming*** Reading*** Watching*	Reading*** TF/T*** Watching***	Reading*** TF/TT** Watching***	Reading*** TT*** WL2***
YA - YA	Gaming***	Listening*** Reading*** TF***/R*** WL2**/WL1*		
OA - OA	Gaming***	Listening*** Reading*** TF*/*R*/T* Watching***		
AD - AD	Gaming***	-------		



Note 1: Watching = Watching audiovisual input with L1 and L2 subtitles; WL1 = Watching with L1 subtitles WL2 = Watching with L2 subtitles; Gaming = single, multiplayer, and massively multiplayer;

GMMP = Gaming massively multiplayer; TF = Talking to friends; TR = Talking to relatives; TT = Talking to tourists. When differences hold for one subcategory but not the others, this is specified (e.g. GMMP)
Note 2: * significant at .05; ** significant at .01; ***significant at .003

As seen in Table 3, the comparisons of the frequency with which each group engaged in watching movies or series with subtitles in L1/L2 (no differences were found in relation to watching them without subtitles) show that there is a pattern in which females report a significantly higher frequency than males in both adolescent groups, together with a pattern in which the older groups show a significantly higher frequency than the younger groups. Female adult respondents report higher frequency of watching movies or series with subtitles in L2 than female respondents in the older adolescent group. In general, however, effect sizes are small (<.28) (see Appendix 3).

The comparisons of the frequency with which each group engaged in gaming (single player, multiplayer, massively multiplayer) also show age- and gender-related differences. In this case, the pattern is the reverse of the previous one. Males play videogames more frequently than females, and in all age groups. Younger and older male adolescents report similar frequency, whereas younger female adolescents report significantly higher frequency than older female adolescents. Effect sizes vary from small to medium (the highest comparing male younger and older adolescents to female adults: .63 and .64 respectively; see Appendix 3).

The frequency of reading in English outside the classroom is significantly higher among the female than among the male respondents, but age has an even stronger influence: male adults read English texts (books, magazines, comics) significantly more frequently than male and female adolescents. The pattern is very similar to that found for watching movies/series, but the effect sizes are slightly higher (< .34); see Appendix 3.

Female adolescents report listening to music with higher frequency than male adolescents, and male and female adults. No differences are observed between female and male adults, nor between female adults and male adolescents. Older males (adults and old adolescents) report higher frequency than younger adolescents. The effect sizes are small (< .22); see Appendix 3.

In general, females show higher frequency of talking in English face to face. As for age differences, the two adolescent groups talk more frequently with relatives and the adults talk more frequently with friends and tourists. Effect sizes are small (<. 26); see Appendix 3.

As shown in Table 4, older adolescents and adults report higher frequency of online activities than younger adolescents, and older adolescents also report higher frequency of engagement with Internet activities than adults. The older adolescent group is also the only one that reports a significantly higher frequency of talking online. Somehow surprisingly, females' frequencies are higher than males' in the different age groups in general, and superior to the frequency of males in relation to reading on the Internet in particular. The effect sizes range from small to medium (<.28); see Appendix 3.

Table 4. Significant differences of pairwise comparisons. Internet activities

A > B	Males (A)> Females (B)	Females (A) > Males (B)	Males (A) > Males (B)	Females (A) > Females (B)
YA > OA	-------	-------	-------	-------
YA > AD		IListening***		IListening***
	-------	IReading***	-------	IReading***
				IWatching**
OA > YA	IListening***	IListening***	IListening***	IReading**
	ITalking***	IReading***	IReading***	IWriting*
	IWriting*	IWriting***	IWatching**	
			IWriting***	
OA > AD	IReading*	IListening***	IReading***	IListening***
	ITalking***	IReading***		ITalking***
	IWatching***			IWatching*
AD > YA		IListening***	IListening***	IWatching*
		IReading***	IReading***	
		IWriting***	IWatching**	
			IWriting***	
AD > OA	IWatching*	-------	-------	-------
YA - YA		IListening***		
	-------	IReading***		
		IWriting**		
OA - OA	IListening*	IWatching*		

	IWatching**	
AD - AD	IReading*	
	IWatching***	-------

Note 1: IL = Listening to songs on the Internet; IR = Reading e-texts, browsing web pages on the Internet ; IT = Talking on skype on the Internet; IW = Watching YouTube videos; IWr = Writing on the Internet.

Note 2: * significant at .05; ** significant at .01; ***significant at .003

The third research question seeked to determine whether there are any relationships between out-of-school contact and (self-reported) classroom grades. Spearman's ranks correlations were computed with all the respondents and types of exposure, and they were also run separately for males and females (see Table 5). Significant correlation values are not high, as expected from survey data, and also because the number of categories is low (in our case, a 4-point scale for scores and 5-point scales for frequency answers). However, it should be noted that all the out-of-school activities are significantly associated with the respondents' classroom grades, with the exception of playing videogames (and when those reach significance, the relationship is negative).

Table 5. Classroom grades. Correlations

	All respondents		Male respondents		Female respondents	
	rho	N	rho	N	rho	N
Watching with L1 subtitles	.118**	3013	.112**	1248	.104**	1757
Watching with L2 subtitles	.266**	3011	.269**	1243	.244**	1760
Watching without subtitles	.195**	3012	.186**	1244	.198**	1760
Single Player	-.044*	3001	--	--	--	--
Multiplayer	-.063**	2991	--	--	--	--
Massively Multiplayer	-.073**	2900	--	--	--	--
Reading	.350**	2925	.330**	1213	.332**	1704
Listening to music	.147**	2926	.134**	1213	.125**	1705
Talking to friends	.259**	3023	.219**	1248	.273**	1767
Talking to relatives	.154**	3009	.117**	1241	.176**	1760
Talking to tourists	.173**	3005	.182**	1239	.157**	1758
Talking abroad	.192**	2913	.210**	1206	.181**	1699
Internet Watching	.159**	3019	.158**	1249	.172**	1765

Internet Reading	.307**	3021	.277**	1248	.323**	1765
Internet Listening	.155**	3010	.170**	1243	.110**	1759
Internet Talking	.160**	3019	.150**	1249	.178**	1762
Internet Writing	.233**	3019	.200**	1250	.252**	1761

Note: * significant at .05; ** significant at .001

Table 5 indicates that reading has the strongest correlation with classroom grades (books, etc., and on the Internet). This is followed by watching audiovisual material with L2 subtitles, for all respondents together and for males, while the third highest correlation is with talking to friends for females. At the other extreme, watching audiovisual material with L1 subtitles and listening to English-language songs have the weaker correlations for all respondents together, and they remain so for males and females, separately. Next, to obtain a more global picture, correlations were computed with composite scores of the different categories (e.g., watching with L1 subtitles, with L2 subtitles, without subtitles, online) and the three age groups separately (see Table 6).

Table 6. Classroom grades. Correlations of composite scores and age groups

	Younger adolescents		Older adolescents		Adults	
	rho	N	rho	N	rho	N
Watching	.191**	1200	.325**	1141	.297**	658
Gaming	--	--	--	--	--	--
Reading	.311**	1190	.393**	1068	.394**	665
Listening	.204**	1190	.196**	1067	.104**	663
Talking	.291**	1184	.364**	1064	.273**	654
Internet activities	.240**	1202	.335**	1139	.344**	665

Note: ** significant at .008

Once again, reading has the strongest correlation coefficients in the three age groups. It is followed by talking in the two adolescent groups, and by online activities in the adult group. It is also noteworthy that correlations are slightly weaker in the group of the youngest respondents for all activities, except for listening to music; for talking, the correlation is weaker for this group than for the older adolescents but stronger than for the adults.

3.3 Discussion

This study used a questionnaire that showed a good overall internal reliability and that revealed five significant components (or patterns) through a PCA: Internet-based activities; gaming; contact with English speakers; watching OV and reading; and lack of contact with English speakers. The results of the analyses conducted to answer the research questions of this study throw light on these patterns (i.e. whether their frequency is age and/or gender-related). The first research question explored the amount and type of contact learners have with the English language outside the classroom
In line with previous studies in different contexts (e.g., Barbee, 2013; Kuppens, 2010; Lindgren & Muñoz, 2013; Peters, 2018; Sayer & Ban, 2014), listening to English-language songs is the activity respondents most frequently engage with. Next come watching YouTube videos, reading on the Internet, writing on the Internet, playing videogames (single player), and watching movies with L1 subtitles. This result largely corroborates findings from other studies, though some context-related differences are revealed. For example, in Peters's (2018) study, adolescent Flemish learners watched more movies and TV programmes with and without subtitles than the participants in the present study, a result that seems to reflect the respective subtitling or dubbing tradition of the two contexts.

The analyses performed to answer the second research question showed differences between the three age groups in their exposure to English, in both amount and type. In fact, studies with children and young adolescents have shown an increase in exposure to English media with age (Hannibal Jensen, 2017; Lamb, 2007). Sundqvist and Sylvén (2016) observed an increase in the amount of weekly exposure of learners aged 10, 12 and 15. In the present study, though the differences are not very large, the younger adolescent group (age 12-14) generally reports lower frequencies than the older groups. Interestingly, the present study found that the relationship is not linear, and that age preferences depend on type of activity. Adolescents report more gaming and listening to songs than adults. In contrast, adults report higher frequency of reading than adolescents, which supports Peters's (2018) finding that the adolescents in her study did not read English language books or magazines frequently. Adults also show a slightly higher frequency and variety of non-Internet activities than adolescents; this is particularly the case with watching audiovisual material and reading. The situation is

somewhat different with regard to Internet activities, in which the older adolescents (age 15-17) report engaging more often than the younger adolescents and (although the difference is smaller), more often than adults (age 18-39). The adult group also reports a higher frequency of Internet-based exposure to English than the younger adolescent group. In line with the findings of the present study, Peters (2018) found that the 16-year old learners more frequently played computer games while the 19-year olds more often watched non-subtitled TV programmes and movies. Though the differences are not significant, Peters suggests that her findings indicate changes over time in the type of English language media to which learners are most frequently exposed. This is corroborated significantly by the results of the present study.

Moreover, the results of the analyses have shown large differences in the choices of males and females in this sample. The most striking difference lies in gaming frequency: gaming is significantly more frequent among males than among females across the three age groups, and the effect sizes are the largest. This finding is in line with findings from most studies in different contexts, such as Denmark (Hannibal Jensen, 2017), Sweden (Sylvén & Sundqvist, 2012), and Flanders (Kuppens, 2010; Peters, 2018); the exception is the study by De Wilde & Eyckmans (2017) where both 11-year-old boys and girls spent a great deal of time gaming, rendering gender insignificant. Female adolescent respondents, on the other hand, report reading with higher frequency than male adolescent respondents, while no significant difference is observed between male and female adults. Female adolescent respondents also report watching OV movies more frequently than male adolescent respondents, a finding that is at odds with the findings of the study by Sundqvist and Sylvén (2014), in which 10-11 year old boys were observed to watch movies in English more often than girls, but they were younger than the youngest group in the present study. Female adolescent respondents report listening to songs more frequently than all other groups. Females also show a higher frequency of talking face to face, particularly with friends, than males, except (once again) in the adult group. In fact, in the adult group, gender-related differences are only found for gaming and for watching YouTube videos, activities in which males engage significantly more often than females.

In summary, the typical viewers of audiovisual input are female and their viewing frequency increases with age; gamers are male and adolescent; frequent readers are older than non-frequent readers and female; listeners to music are adolescent and female; and talkers are female. As for the profile of those who engage in online

activities, they are more generally older adolescents; and readers on the Internet are typically female.

The third research question in this study focused on the association between exposure to English outside school and participants' English-language classroom grades. The analyses found significant positive correlations with all activities, except for gaming. Gaming was found to have a weaker but still significant negative correlation with grades, which suggests that participants with lower grades (who are possibly less academically oriented) engaged more often in gaming. This contrasts with results from studies that show frequent gamers to have a higher vocabulary knowledge than non-gamers (e.g., Sylvén & Sundqvist, 2012), though it is in line with other studies that have shown no significant associations of gaming frequency with vocabulary knowledge (Muñoz, Cadierno & Casas, 2018; Peters, 2018). These mixed results in relation to vocabulary may very well reflect differences in participants' age, proficiency, the types of games that are chosen in the different contexts (Kuppens, 2010; Sylvén & Sundqvist, 2012), and what children do when playing games (Hannibal Jensen, 2017). While more research is needed to see when and how gaming boosts L2 knowledge, the negative correlation with classroom grades in the present study may indicate that a preference for certain types of gaming outside the classroom may take time from study, or that these respondents felt less pressure from their school commitments (see Barbee, 2013). Why this happens in relation to gaming in particular cannot be answered with the data from the present study, though it might be suggested that classroom tests and grades were not sensitive to the kinds of linguistic knowledge that can be obtained by means of gaming. Moreover, the fact that reading (nondigital or digital) is the activity that had the highest correlation with English-language classroom grades suggests that the grades may be heavily literacy-based.

The second highest correlation is seen with watching audiovisual material with L2 subtitles, a finding that is generally in line with results from previous studies showing the benefits for L2 learning of audiovisual input; for example, Kuppens (2010) and Lindgren and Muñoz, (2013) for children, and Peters (2018) for adolescents and young adults. The fact that the association is higher when subtitles are in the L2 than when they are in the L1 may also indicate that those respondents with higher levels of proficiency are more inclined to choose L2 than L1 subtitles. Next comes the association between the frequency with which respondents are engaged in talking face to face in English and their classroom grades.

For a more general view, the correlations of the composite scores and the three age groups separately highlight the associations of reading, talking, and online activities across the three age groups. The younger adolescent group presents two differences with respect to the older groups: a lower correlation of watching audiovisual input and classroom grades and a higher correlation of listening to English-language songs and classroom grades. With the exception of the younger adolescent group, listening to music has the lowest significant value, corroborating previous findings showing that while listening to music is the most frequent activity, it is not as conducive to learning as other out-of-school activities (Muñoz, Cadierno & Casas, 2018; Lindgren & Muñoz, 2013; Peters, 2018). Gaming has no significant association with any of the groups.

There are very few studies with results that can be compared to the results in the present study. Peters (2018) found that the frequency with which the adolescents in her study engaged with some of these activities was significantly correlated with their vocabulary scores (talking face to face was not included), but the association was strongest for use of the Internet and weakest for reading. This difference may partly be explained by the proficiency measures used in the two studies (vocabulary test vs. classroom grades), and/or by differences in the two populations and their education system. On the other hand, the participants in the study by Lindgren and Muñoz (2013) were 9-year-olds, and watching movies or programmes had the strongest association with comprehension skills; at this age, participants did not frequently engage in reading. Because of the scarcity of research in this emerging area, the results of the current study are most valuable as they reveal the ways in which learners access and use sources of English and how audiovisual multimodality and technologies influence the ways in which learning takes place.

3.4 Conclusions and Limitations

This study has documented the characteristics of the informal contact with English of a sample of adolescents and young adults in the second decade of the present century. The study makes several contributions. First, it is the first study in this area that has collected data from such a large number of participants, which lends credibility to its findings. Second, it depicts a situation that is quite novel in that the penetration of English in countries where this language is a FL has never been so high, and contact with this language has never been so easy. Future studies can compare the present

findings with theirs and see the evolution and changes (which are likely to be rapid) that the globalization of English and the new technologies bring over time. Third, it is the first study that systematically focuses on age and gender differences revealing the distinct choices made by males and females at different ages. These differences have pedagogical implications because they may enable teachers to plan classroom tasks which are better suited to their students, or which complement activities that they may freely engage in outside the classroom. More generally, teachers may help learners with suggestions for finding the most effective, and enjoyable, activities in which to engage on their own. Furthermore, as the significant correlations found in this study suggest, teachers cannot ignore the fact that the boundary between formal and informal learning of a FL is becoming increasingly blurred. In addition, with the "anytime anyplace" learning that technology affords, what was once "extracurricular" practice can be built into a course syllabus (as in blended learning or the flipped classroom; see Collins & Muñoz, 2016).

This study is not without limitations. The first one is that respondents' level of proficiency was not obtained through an objective test; their memories may not have been precise or they may have preferred not to disclose their real grades. In addition, research is needed into the types of tests that can measure the different linguistic abilities learners acquire outside the classroom. Another limitation is the fact that the study has only used quantitative measures of contact. More research is needed to define what learners do when engaging in the different types of out-of-classroom activities, and how individual differences may affect the learning potential of this contact. Furthermore, as with any study based on correlations, directional relationships cannot be assumed: it may be that more proficient learners seek more exposure, or a more challenging type of exposure, and it is they who benefit most (the Matthew effect). All these multiple avenues for research into the ways in which an extensive contact with English outside the classroom leads to language learning will substantially contribute to this emerging line of research and, generally, to the field of second language learning.

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APPENDIX 1

Questionnaire. Out-of-school contact with English

	Factor 1 Use of Internet	Factor 2 Gaming	Factor 3 Speaking abroad or with foreigners	Factor 4 Watching OV	Factor 5 Speaking with relatives, friends, skype
Listening (radio, podcasts, music) through Internet	.755				
Watching Youtube videos through Internet	.680				
Reading (ebooks, journals, web pages, blogs, newspapers,...) through Internet	.606				
Writing (email, WhatsApp) through Internet	.573				
Gaming: Multiplayer		.922			

Online Gaming: Massively Multiplayer Online (MMO)	.873				
Gaming: Single Player	.816				
Talking abroad		.879			
Talking with tourists		.833			
Watching movies, series with L1 subtitles			.784		
Watching movies, series with L2 subtitles			.748		
Watching movies, series without subtitles			.468		
Reading books			.407		
Talking with relatives					-.777
Talking with friends					-.681
Talking on skype					-.502

APPENDIX 2

1. Indicate how often you do the following activities.

1a. Watching movies and TV series in original version in English.

	Never	Less than once / month	Between 1-3 times / month	Between 1-3 times / week	Between 4-6 times / week	Every day
With Catalan / Spanish Subtitles						
With English subtitles						

Without subtitles						

1b. Playing videogames in English.

	Never	Less than once / month	Between 1-3 times / month	Between 1-3 times / week	Between 4-6 times / week	Every day
Individual						
Multiplayer						
MMO (Massively Multiplayer Online)						

1c. Indicate how often you do the following activities.

	Never	Less than once / month	Between 1-3 times / month	Between 1-3 times / week	Between 4-6 times / week	Every day
Listening to music in English (e.g. radio, CDs, phone, etc.)						
Reading books, magazines or comic books in English						

1d. Indicate how often, and with whom, you speak English face to face.

	Never	Less than once / month	Between 1-3 times / month	Between 1-3 times / week	Between 4-6 times / week	Every day
With friends						
With relatives						
With tourists						
Abroad						

1e. Indicate how often you do the following activities through the Internet.

	Never	Less than once / month	Between 1-3 times / month	Between 1-3 times / week	Between 4-6 times / week	Every day

Talking in English with someone (e.g. Skype)						
Writing with digital support (e.g. e-mail, chat, WhatsApp, Facebook, Twitter)						
Reading texts (e.g. e-books, magazines, webpages, blogs, newspapers, user guides)						
Watching YouTube videos						
Listening to the radio / podcasts / music on Spotify						

APPENDIX 3

	Watching L1 subt	Watching L2 subt	Single player	Multiplayer	Massively Multiplayer	Listening to music	Reading	Talking FTF with friends	Talking FTF with relatives	Talking FTF with tourists
	p = .000	*p* = .000	*p* = .000	*p* = .000	*p* = .000	*p* = .000	*p* = .000	*p* = .000	*p* = .000	*p* = .000
YAM	YAM<YAF	YAM<YAF	**YAM>YAF**	**YAM>YAF**	**YAM>YAF**	**YAM<YAF**	**YAM<YAF**	**YAM<YAF**	**YAM<YAF**	n.s.
YAF	*U* = 168818	*U* = 167063,5	***U* =112388,5**	***U* = 89634,5**	***U* =96363,5**	***U* = 151384**	***U* = 150453**	***U* = 16460**	***U* = 165081**	
	p = .011	*p* = .005	***p* = .000**	***p* = .000**	***p* = .000**	***p* = .000**	***p* = .000**	***p* = .000**	***p* = .001**	
	r = -.074	*r* = -.081	*r* = -.33	*r* = -.46	*r* = -.45	***r* = -.207**	*r* = -.147	*r* = -.100	*r* = -.094	
YAM	n.s.	n.s.	n.s.	n.s.	n.s.	YAM<OAM	n.s.	n.s.	YAM>OAM	n.s.
OAM						*U* = 121303			*U* = 129804	
						p = .013			*p* =.035	
						r = -.077			*r* = -.064	
YAM	**YAM<OAF**	**YAM<OAF**	**YAM>OAF**	**YAM>OAF**	**YAM>OAF**	**YAM<OAF**	**YAM<OAF**	**YAM<OAF**	n.s.	**YAM<OAF**
OAF	***U* = 157082,5**	***U* =157586,5**	***U* =95097,5**	***U* = 81305,5**	***U* = 88648**	**U=318004**	***U* = 145699**	***U* =174144**		*U* = 177048
	***p* = .000**	***p* = .000**	***p* = .000**	***p* = .000**	***p* = .000**	***p* = .000**	***p* = .000**	***p* = .000**		*p* = .009
	r = -.170	*r* = -.172	*r* = -.45	*r* = -.54	*r* = -.51	***r* = .-212**	*r* = -.174	*r* = -.100		*r* = -.074
YAM	**YAM<ADM**	**YAM<ADM**	**YAM>ADM**	**YAM>ADM**	**YAM>ADM**	YAM<ADM	**YAM<ADM**	**YAM<ADM**	**YAM>ADM**	**YAM<ADM**
ADM	***U* = 44750,5**	***U* = 41328**	***U* = 37086**	***U* = 35965,5**	***U* = 40761**	*U* = 51181	***U* = 38353**	***U* = 49251,5**	***U* = 50131**	*U* = 49274,5
	***p* = .000**	***p* = .000**	***p* = .000**	***p* = .000**	***p* = .000**	*p* = .005	***p* = .000**	***p* = .001**	***p* = .001**	*p* = .005
	r = -.175	*r* = -.225	*r* = -.26	*r* = -.27	*r* = -.21	*r* = -.104	*r* = -.263	*r* = -.120	*r* = -.114	*r* = -.100
YAM	**YAM<ADF**	**YAM<ADF**	**YAM>ADF**	**YAM>ADF**	**YAM>ADF**	**YAM<ADF**	**YAM<ADF**	**YAM<ADF**	**YAM>ADF**	**YAM<ADF**
ADF	***U* = 105352**	***U* = 96310,5**	***U* = 49109,5**	***U* = 46247,5**	***U* = 63177**	***U* = 123735**	***U* = 86410**	***U* = 119872**	**U= 117290**	***U* = 111043**
	***p* = .000**	***p* = .000**	***p* = .000**	***p* = .000**	***p* = .000**	***p* = .000**	***p* = .000**	***p* = .000**	***p* = .000**	***p* = .000**
	r = -.210	*r* = -.273	*r* = -.59	*r* = -.63	*r* = -.54	***r* = -. 119**	*r* = -.332	*r* = -.127	*r* = -.170	*r* = -.172
YAF	n.s.	n.s.	**YAF<OAM**	**YAF<OAM**	**YAF<OAM**	**YAF>OAM**	**YAF>OAM**	**YAF>OAM**	**YAF>OAM**	n.s.
OAM			***U* = 102124,5**	***U* = 77338**	***U* = 83600,5**	***U* = 127252,5**	***U* = 119509**	***U* = 140417,5**	***U* = 127808**	
			***p* = .000**	***p* = .000**	***p* = .000**	***p* = .000**	***p* = .000**	***p* = .011**	***p* = .000**	
			r = -.29	*r* = -.45	*r* = -.41	***r* = -.013**	*r* = -.132	***r* = -.075**	*r* = -.156	
YAF	**YAF<OAF**	**YAF<OAF**	**YAF>OAF**	**YAF>OAF**	**YAF>OAF**	n.s.	n.s.	n.s.	**YAF>OAF**	**YAF<OAF**
OAF	***U* = 185496,5**	***U* =191023,5**	***U* = 176881,5**	***U* = 187007,5**	***U* = 178543**				***U* = 193357,5**	***U* = 188548,5**

	***p* = .000**	***p* = .001**	***p* = .000**	***p* = .000**	***p* = .001**				***p* = .002**	***p* = .000**
	r = -.110	*r* = -.091	*r* = -.15	*r* = -.11	*r* = -.10				*r* = -.087	*r* = -.097
YAF	**YAF<ADM**	**YAF<ADM**	n.s.	**YAF<ADM**	**YAF<ADM**	YAF>ADM	**YAF<ADM**	n.s.	**YAF>ADM**	**YAF<ADM**
ADM	***U* = 52365,5**	***U* = 49957,5**		***U* = 52582,5**	***U* = 49529**	*U* = 57504	***U* = 49688**		***U* = 49118**	***U* = 52052,5**
	***p* = .000**	***p* = .000**		***p* = .001**	***p* = .000**	*p* = .015	***p* = .000**		***p* = .000**	***p* = .000**
	r = -.126	*r* = -.156		*r* = -.12	*r* = -.19	*r* = -.084	*r* = -.148		*r* = -.183	*r* = -.123
YAF	**YAF<ADF**	**YAF<ADF**	**YAF>ADF**	**YAF>ADF**	**YAF>ADF**	**YAF>ADF**	**YAF<ADF**	n.s.	**YAF>ADF**	**YAF<ADF**
ADF	***U* = 123229**	***U* = 117343**	***U* = 98795**	***U* = 112227**	***U* = 130282**	***U* = 139167**	***U* = 114337**		***U* = 114478,5**	***U* = 116297,5**
	***p* = .000**	***p* = .000**	***p* = .000**	***p* = .000**	***p* = .000**	***p* = .002**	***p* = .000**		***p* = .000**	***p* = .000**
	r = -.158	*r* = -.198	*r* = -.33	*r* = -.28	*r* = -.16	***r* = -.092**	*r* = -.201		*r* = -.255	*r* = -.204
OAM	**OAM<OAF**	**OAM<OAF**	**OAM>OAF**	**OAM>OAF**	**OAM>OAF**	**OAM<OAF**	**OAM<OAF**	OAM<OAF	OAM<OAF	**OAM<OAF**
OAF	***U* = 138227,5**	***U* = 141015**	***U* = 86554**	***U* = 68727,5**	***U* = 77116**	***U* = 127239,5**	***U* = 115895,5**	*U* = 147898,5	*U* = 149710,5	***U* = 144711,5**
	***p* = .000**	***p* = .000**	***p* = .000**	***p* = .000**	***p* = .000**	***p* = .000**	***p* = .000**	*p* = .007	*p* = .015	***p* = .003**
	r = -.124	*r* = -.112	*r* = -.41	*r* = -.53	*r* = -.48	***r* = -.138**	*r* = -.158	*r* = -.070	*r* = -.072	*r* = -.086
OAM	**OAM<ADM**	**OAM<ADM**	**OAM>ADM**	**OAM>ADM**	**OAM>ADM**	n.s.	**OAM<ADM**	OAM<ADM	n.s.	**OAM<ADM**
ADM	***U* = 39086,5**	***U* = 152344,5**	***U* = 33480,5**	***U* = 31393**	***U* = 34730,5**		***U* = 30492**	*U* = 41910,5		***U* = 40035**
	***p* = .000**	***p* = .000**	***p* = .000**	***p* = .000**	***p* = .000**		***p* = .000**	*p* = .007		***p* = .002**
	r = -.147	*r* = -.185	*r* = -.24	*r* = -.27	*r* = -.19		*r* = -.266	*r* = -.010		*r* = -.121
OAM	**OAM<ADF**	**OAM<ADF**	**OAM>ADF**	**OAM>ADF**	**OAM>ADF**	n.s.	**OAM<ADF**	**OAM<ADF**	**OAM>ADF**	**OAM<ADF**
ADF	***U* = 92026**	***U* = 201978,5**	***U* = 44786**	***U* = 37883,5**	***U* = 55162,5**		***U* = 69078,5**	***U* = 101808,5**	***U* = 103635,5**	***U* = 89710**
	***p* = .000**	***p* = .000**	***p* = .000**	***p* = .000**	***p* = .000**		***p* = .000**	***p* = .001**	***p* = .001**	***p* = .000**
	r = -.173	*r* = -.220	*r* = -.57	*r* = -.64	*r* = -.52		*r* = -.318	*r* = -.010	*r* = -.111	*r* = -.193
OAF	n.s.	OAF<ADM	**OAF<ADM**	**OAF<ADM**	**OAF<ADM**	OAF>ADM	**OAF<ADM**	n.s.	**OAF>ADM**	n.s.
ADM		*U* = 58671,5	***U* = 54303,5**	***U* = 49575,5**	***U* = 46260**	*U* = 57504	***U* = 51700**		***U* = 57762,5**	
		***p* = .013**	***p* = .000**	***p* = .000**	***p* = .000**	*p* = .01	***p* = .000**		***p* = .001**	
		r = -.084	*r* = -.14	*r* = -.21	*r* = -.28	*r* = -. 089	*r* = -.125		*r* = -.116	
OAF	n.s.	**OAF< ADF**	**OAF>ADF**	**OAF>ADF**	**OAF>ADF**	**OAF>ADF**	**OAF<ADF**	n.s.	**OAF>ADF**	**OAF<ADF**
ADF		***U* = 138657**	***U* = 128743,5**	***U* = 134841,5**	***U* =141158**	***U* = 139178,5**	***U* = 119478,5**		***U* = 135059**	***U* = 139167,5**
		***p* = .000**	***p* = .000**	***p* = .000**	***p* = .013**	***p* = .001**	***p* = .000**		***p* = .000**	***p* = .000**

		r = -.115	*r* = -.20	*r* = -.18	*r* = -.08	***r* = -.096**	*r* = -.173		*r* = -.175	*r* = -.114
ADM	n.s.	n.s.	**ADM>ADF**	**ADM>ADF**	**ADM>ADF**	n.s.	n.s.	n.s.	n.s.	n.s.
ADF			***U* = 30418**	***U* = 29663**	***U* = 33558,5**					
			***p* = .000**	***p* = .000**	***p* = .000**					
			r = -.34	*r* = -.39	*r* = -.36					

Note 1: Adjusting significance level following Bonferroni (.05/15) only p values below .0033 are significant (in bold).

Note 2: younger adolescents/male (YAM); younger adolescents/female (YAF); older adolescents/male (OAM); older adolescents/female (OAF); adults/male (ADM); and adults/female (ADF).