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Informal exposure, motivation and lexical variety in young EFL learners.

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Resumen

La exposición a la lengua objetivo fuera de las aulas puede jugar un rol altamente importante a la hora de aprender nuevos idiomas en alumnado de educación primaria. Esta exposición informal combinada con un aumento de la motivación pueden llegar a potenciar la adquisición de nuevo vocabulario, ampliando así el rango de palabras del alumno o alumna. Sin embargo, no existen muchos estudios que analicen concretamente la exposición fuera de las aulas a la lengua extranjera en relación a la variedad léxica que el alumnado más pequeño puede producir. El presente estudio analizará la exposición al inglés fuera de las aulas a través de un cuestionario y se realizará una posterior prueba oral para medir la variedad léxica de los participantes. Los resultados indican que cuanto mayor es la exposición a la lengua objetivo, mayor es la variedad y cantidad de vocabulario producidos a niveles generales.

Palabras clave: Aprendizaje informal, exposición fuera de las aulas, variedad de vocabulario.

Informal exposure, motivation and lexical variety in young EFL learners.

Abstract

Informal exposure to the target language (TL) outside of school plays a crucial role when primary school learners try to learn a new language. This type of exposure combined with a high level of motivation can end up causing the acquisition of new vocabulary, enhancing the vocabulary range of the students. However, there is still a very limited amount of research specifically addressing the exposure to the foreign language (FL) in relation with the vocabulary variety that young learners are able to produce. The present study addresses the out-of-school exposure to English through the use of a questionnaire, and a later oral task will be performed by the participants so as to measure their lexical diversity. Results suggest that the higher the exposition to the target language (TL) is, the higher the lexical diversity in most of the cases.

Key words: Informal learning, out-of-school exposure, lexical diversity.

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ABBREVIATIONS

EFL	English as a foreign language	7
FL	Foreign language	9
ICTs	Information, communication and technologies	9
L1	Mother language	10
L2	Second language	9
MMOG	Massive multiplayer online games	9
OSLE	Out of school learning environments	12

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INTRODUCTION:

A growing body of research supports the notion that informal learning generates new and engaging ways of creating learning contexts for the students, contexts that should be encouraged and promoted by the teachers if out-of-school learning is to happen. Examples of this type may include watching TV, series or playing video games.

The learning context, as argued by Guo (2011), is critical if we are aiming to achieve successful learning. Often, when informal learning takes place, learners may not realise that they are being involved in a learning process, making it much more enjoyable and natural for them (Olmedo, 2015). Students, thus, could be able to benefit from video gaming, TV viewing or music listening without even noticing so. By contrast formal learning is likely to generate rejection in learners, as pupils tend to be directed by an authority, being unable to initiate and guide their own learning process (De Wilde et al., 2020).

Specifically, if a student is to acquire new vocabulary by watching a film, they will have the need to be motivated. This is one of the key variables concerning learners, as it refers to a goal-directed behaviour in which a person gets engaged and passionate (Oroujlou & Vahedi, 2011). Motivation can be manifested by the learner through attitudes, which are the values and behaviours that are brought to the process of a foreign language learning (Chambers, 1999). One of the key parts of this learning process is vocabulary acquisition and retention, a complex process that cannot be addressed by exposure to formal learning alone (Coyle & Gómez, 2014).

In respect to external factors, out-of-school exposure and informal learning have proven to be more effective. English exposure out of school at home might allow students to keep their own learning pace in a more relaxed setting, diminishing the potential anxiety that formal education may generate. Self-image, peer approval, anxiety, fear or rejection are some of the factors which tend to diminish the oral production of learners (Clément et al., 1994).

However, even though there have been studies assessing this topic, there are few or no studies specifically addressing the impact that technology, understood as a tool for learning the target language (TL) (watching TV series, video gaming, music listening), has in the lexical diversity when performing an oral task.

The aim of the present work is to shed some light on the extent to which exposure to English out of the class affects the lexical diversity of the vocabulary used by the student and to pave the way for further research of this kind.

1. THEORETICAL FRAMEWORK

The literature review of the present study is made up of two parts. The first one dealing with the definition of informal learning and exposure to English out-of-school, followed by a categorization of the exposure (types) and its relation to motivation. The second part will focus on research on oral vocabulary and lexical diversity in young learners using the TL.

1.1 OUT OF SCHOOL EXPOSURE TO ENGLISH (INFORMAL LEARNING)

1.1.1. Informal learning and types of exposure

Informal learning has been a challenging concept to be defined by scholars, and has generated some debate around it, in which different definitions have been discussed. In the present work, we will attempt to provide the most relevant ones.

According to Livingstone (2000), informal learning involves a willing interest in acquiring new concepts, information or skills taking place outside the formal institution that provides teaching (i.e. the school). This definition was later refined by Livingston himself, arguing that it involves all kinds of individual or collective intentions of learning, happening without the direct supervision of an authority or an organized institution (Livingstone, 2006). However, as argued by Guo (2011), it is the context in which the learning is happening that influences learning the most, having an even more important role when acquiring a new language. As learners studying in non-English speaking countries are not surrounded by an authentic English context, their only approach to the language might be through formal learning (Guo, 2011).

Regarding the learning context of the student, those that are seen as engaging by the learner's perspective tend to differ from the traditional and common formal education format, where the English as a Foreign Language (EFL) classroom is guided and ruled by an authority (Reinhart, 2008, as cited in D. Konetes, 2010). Various alternatives such as educational simulation softwares or games are able to provide students with a different type of learning environment. These multi-user virtual environments (MUVE) let the learner dive into a three-dimensional setting in which they can actively interact with various objects or other real users (Annetta et al. 2008).

Sefton-Green (2004) argued that informal out-of-school learning has been reinvented during the last decade due to the constant technological innovations. Information, communication and technologies (ICTs) have enlarged the scope of what learners can acquire, offering new and revamped ways of learning contents or skills. It could be argued that teachers should look beyond what formal learning offers as technology sets up new opportunities and ways for the students to acquire what we would call 'traditional information'.

Unlike formal learning, where the teaching process is guided by an authority or a role model inside a classroom, informal exposure involves all the aspects of the English language to which learners are exposed throughout the course of the day (MacLeod & Larsson, 2011).

Skolverket (2006) stated that the use of the foreign language (FL) inside the traditional classroom may work as a good stimulus for the learner to embrace out-of-school exposure and learn about that TL. Besides, another student may get hooked on to the FL by constant out-of-school exposure, and be consequently engaged during the formal learning situations inside the classroom. Both types of exposure, formal and informal 'might supplement one another, since formal learning inside the classroom might be far from being sufficient enough to successfully practice the TL (Guo, 2011).

Throughout the following section, we will be tackling different types of out-of-school exposure, trying to provide a summary of the most relevant ones for the present work.

Out-of-school exposure to technology

We have previously discussed the shift that education is undergoing in relation to ICTs and technological innovations. The encounters that learners experience with the digital media can result in an increase in the linguistic level of the second language L2 (Ivars Olmedo, as cited in Andueza, 2021).

As Muñoz (2017) stated in her research, direct interaction with the TL native speakers is likely to trigger interest and meaningful learning. When playing certain types of video games such as massive multiplayer online games (MMOGs), students have the chance to interact with native speakers or players with a fluent oral production of the TL. Learners may sometimes be forced to interact via (audio) chat in order to discuss strategies and tactics with the players of their same team. As a result, learners will be able to pick up certain expressions or words throughout constant exposure (Ryu, 2013, as cited in De Wilde et al., 2020).

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According to a study carried out by Lingerden and Muñoz (2013), video gaming positively influences the reading and listening skills of the learner.

Music listening

The learners' vocabulary and listening ability have proven to be associated with the amount of music that students listen to outside of school. The brain is activated when listening to music, which can lead up to the improvement of various skills such as fluency, accuracy or grammar. In addition, vocabulary can be acquired by learning song lyrics and singing short phrases (Musa & Fojkar, 2019). Lindgren and Muñoz (2013 as cited in Peters, 2019) discovered a positive relationship between listening to songs and the reading and speaking levels of the students.

TV viewing

According to Lingerden and Muñoz (2013), TV viewing has a really strong impact on the FL level of the learner. When they are exposed to a L1 (mother language) film for instance, they have to process a lot of inputs at the same time: storyline, image, sound or soundtrack. All of this can have a positive effect on the development of the FL (d'Ydewalle & Van de Poel 1999, as cited in Lingerden & Muñoz, 2013). The process is complex and requires a lot of attention from the viewer. In the case of a subtitled film, the viewer receives the FL input in the written form while complementing it with other various sources. As a result, these situations will probably result in the interiorization of certain words in relation to the context of the scene or visual input (Lingerden & Muñoz, 2013).

Out-of-school learning offers new and alternative ways of studying the L2, immersing the learner in a different context in which they can perceive the benefits of acquiring that language. However, proper learning cannot be achieved just through informal learning, it should be complemented with the formal one. A balance should be achieved if they are to develop in both contexts.

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1.1.2. Motivation and informal learning

There is a large number of factors and variables affecting students along their learning process, and motivation is one of these elements. It plays a crucial role in the acquisition of a FL (Dönyei, 1998).

Motivation is what characterizes the reasons that a learner has so as to become engaged and participate in the acquisition of a FL (D. Konetes, 2010). It becomes empowered by the desire to reduce the gap between the current state of the individual (in this case, the current English level) and the image of themselves that they are willing to achieve in the future Dörnyei (2005, as cited in Henry & Cliffordson, 2017). What is to say, if the student has a self-image that they want to achieve in the future, it will produce a strong motivational factor that will guide the learner during the process.

According to Oroujlou & Vahedi (2011), motivation plays such an important role in the learning process of the student that language teaching cannot be successful if the teacher does not comprehend the correlation between the motivation of the learner and the effects that it has on their language acquisition. One of the key aspects of motivation is what we call 'passion' which links the desires and intrinsic goals of the person. However, those goals need to be internalized if they are to become effective motivators (Deci et al. 1999, as cited in Kormos et al. 2011).

Falk (1978 as cited in Oroujlou & Vahedi, 2011) stated that the most successful learners inside the EFL classroom are the ones who show a greater interest regarding the culture, ideas, people, costumes and context of the TL. This is what we would call an integrative motivated student, someone who has the aim or objective to be integrated inside the FL culture. Hernández (2006) examined the impact and effects of integrative motivation in a second language L2 classroom. Findings revealed that there was a correlation between integrative motivation and the learners' ambition to keep studying that FL beyond a specific semester. It did also prove that this kind of motivation can be used as a predictor for oral aptitude.

In their research, Abdul et al. (2012) stated that instructors who pay attention and identify motivation are more likely to help learners by empowering their integrative motivation. Something that is very similar to what Oroujlou & Vahedi (2011) discussed about the importance that the teacher has in identifying and empowering the passion of the student. As integrative motivation amplifies the interest of the learner in the TL, it is more likely that they will consciously expose themselves to the FL outside the classroom (the formal learning setting).

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On the other hand, and in contrast to the type of motivation that we have just seen, lies the term of instrumental motivation. It refers to the desire of getting some kind of prize or reward from the study of the L2 (Hudson 2000 as cited in Oroujlou & Vahedi, 2011). According to Lens et al. (2009), Instrumental motivation is by definition extrinsic motivation. For instance, one student may be interested in playing a certain video game in the FL due to peer pressure or aiming to get peer approval, especially in the young teenagers groups (Bartram, 2010 as cited in Hell, 2020).

Attitude is another intervening factor in the learning process. Unlike motivation, attitude is the cause of doing something. Smith (1971 as cited in Oroujlou & Vahedi, 2011) argued that "an attitude is a relatively enduring organization of beliefs around an object or a situation, predisposing one to respond in some preferential manner." (p.997). Taking a look at a different orientation of the definition in relation to language learning, students' attitude includes the values and implications which contribute to the learning process of the (FL) (Chambers 1999). Motivation and attitude are dependent on each other, if the learner develops a positive attitude towards the TL and the English culture, they will be motivated to be in contact with the language in their spare time outside of the regular classroom.

Yildirim (2020) studied the effects that using out-of-school learning environments (OSLE) has on motivation. It was more specifically focused on the science subject and measured both the control and experimental groups during 12 weeks. Findings revealed that the students from the experimental group had higher levels of motivation than the ones from the control group. In other words, the usage of (OSLE) seemed to increase the motivation of the learners.

Language learning is also greatly influenced by social factors, a statement closely linked to Krueger's (2014) perspective, who stated that our attitudes and views tend to emerge from social interaction. This is also related to motivation, thus it is also greatly dependent on the social context of the student. The learners' immediate environment plays a very important role in their attitude, goals and self-efficiency convictions. Other influential factors include the peers, teachers and instructional materials, in other words, the school environment (Kormos et al. 2011). The socialization process plays a very big part in shaping the positive and negative opinions of the learner towards the TL (Aboud 1999, as cited in Donitsa-Schmidt et al., 2004), young learners tend to approach the acquisition of a FL by adopting the behaviors of their parents or other close relatives towards the TL (Djigunović, 2009 as cited in Hell, 2020).

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A study carried out by Muñoz (2017) demonstrated that the exposure to the TL outside the school had very positive effects on the learners. Having real contact with the language throughout students exchanges and watching content throughout the internet ultimately resulted in something meaningful for them. As students were using the TL for real purposes, their integrative motivation was triggered, making them passionate about what they were doing. Social interaction (specially with the FL speakers) has proven to be a very good motivator for the EFL students.

In relation to peers, students in formal learning contexts are more likely to be influenced by the social pressure of the setting and, thus, find themselves into more anxious situations. In their research, Yan & Horwitz (2008), described how different students from the same group acted when facing an anxious or complicated situation. The more anxious students perceived those settings as hostile and uncomfortable, diminishing any kind of motivational effect. Whereas other students saw this pressure as a way of empowering their motivation, simply because it was a way for them to work harder and longer. It is true that those last students were motivated, but not in the way that it was intended.

On the contrary, out-of-school exposure allows the learners to set their own pace in a more relaxed way and eliminating the anxious situations that formal learning may generate. The motivation that arises is very different from the one seen in Yen & Horwitz investigation, which is characterized by the will of eliminating the pressure that is generating that motivation. In the sense of extrinsic motivation, the prize that the student wants to reach is to finish the work as soon as possible. The engagement is not in the study itself, but on the thought that it is going to end. As a whole, informal learning may be able to constitute a less hostile or daunting learning environment for the learner which can lead up to better results.

It has been clear that motivation affects the learning process in various ways, not only in formal learning settings, but also in informal ones. Out-of-school exposure is very much dependent on motivation. However, out-of-school exposure can also be seen as the motivational tool for the learner, and consequently, that passion and attitude could ultimately be transferred to the formal learning environment.

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1.2 CHILDREN VOCABULARY

A common concern that teachers have regarding the acquisition of vocabulary with children learners lies in the idea that the vocabulary retention rate is relatively low, and several studies have addressed this issue (Pitts et al., 1989; Knight, 1994; Paribakht and Wesche, 1997; Horst et al., 1998, as cited in Pladevall, 2015). There is a need for different types of exposure to the TL in order to enhance and fasten the learning of new vocabulary. This is an essential part in the acquisition of a FL (Coyle & Gómez, 2014). In addition, vocabulary acquisition is dependent on many variables such as intelligence, exposure or familiarity, and some students may consequently find the process harder than others (Bruland, 1974).

In terms of lexical diversity regarding in EFL contexts, a significant load of studies have focused on the writing skill with young adults and adults (Yu, 2012; Sadeghi & Karvani, 2013; Wang, 2014; Juanggo, 2018; Ryoo, 2018; Hassanzadeh et al., 2021). Some others have studied oral proficiency in the same ranges of age (David, 2008; Fergadiotis & Harris, 2011; De Jong et al., 2012; Yu, 2012). However, and even though studies have been carried out with children (Watkins et al., 1995; Owen & Leonard, 2002; Silverman & Bernstein, 2002; Stokes & Fletcher, 2010; Charest & Skoczylas, 2019) most of them have either focused on the study of a specific language impairment or have treated very young learners (2-3 year olds). The following subsection will try to cover the most relevant information and investigations regarding lexical diversity and word acquisition with children using technology, however, older learners' studies will be discussed too due to the lack of specific articles. Various other means for acquisition will be addressed as well.

Vocabulary acquisition is thought to be especially important at early ages due to the fact that according to Cook (2008 as cited in Kimsesiz et al., 2017) "children were better at learning a foreign language than adults." (p.427). According to Tomasello (2014), word learning is "a kind of mini-linguistic lesson in which objects are pointed for children". It can be seen as a process in which the learner associates the word with the visual or oral input. At the beginning of the acquisition process, students tend to learn or remember those words whose meaning can be easily guessed or demonstrated (Kimsesiz et al., 2017). This is likely to happen with expressions similar to the ones of their L1 such as Spanish-English chocolate, animal or centre (Spanish 'centro').

There are two types of vocabulary that students manage: receptive and productive vocabulary. The fist of them is often defined as "the ability to recognise the form of a word" (Laufer & Goldstein, 2004). This may also refer to the ability to translate that word to the

learner's L1 and as so, understand its meaning (Webb, 2009, as cited in Zhong, 2016). Productive vocabulary on the contrary, is related to the ability to retrieve both meaning and form, producing the word according to its L1 counterpart (Webb, 2009, as cited in Zhong, 2016).

According to Bruland (1974), there are three different school-initiated ways of acquiring FL vocabulary: direct teaching, context learning and incidental learning. Direct teaching is made up of the required words that are needed for the understanding of a content unit and are selected by the teacher. The word load in this type of learning might be too ambitious for the students to learn. This manner of acquisition can also be applied through the use of meaning sources such as dictionary use habits. Context clues are also a fundamental part of vocabulary acquisition, and they are needed so as to avoid constantly using outside sources which tend to be time-consuming. It is true that context alone is not always enough to give meaning to an unknown word, nevertheless, it is a relatively easy skill to acquire and can be improved through consistent training. Lastly, incidental learning is the most common way of acquiring new L2 words in children. Context does certainly help, however, it can be imprecise. A new word acquires meaning for a student when seeing it in different ordinary situations and therefore give meaning to it. For example, a student may not be aware of the meaning of the term "Staff", however they see it written on the shirt back of the employees working in a bowling alley. Later they see the word written on the jacket sleeve of people working in a cinema, in that way the learner makes the mental connection that leads to the understanding of the word.

Given the reduced exposure to the TL in the formal learning setting and the difficult and complex process of learning new L2 vocabulary, it would be appropriate to find new ways, settings or resources to empower learners' attention and motivation (Coyle & Gómez, 2014). This vocabulary acquisition can be achieved by different means such as reading, TV viewing, video games and songs.

Recent research concerning the acquisition of FL or L2 vocabulary has mainly focused on the reading context (Hill and Laufer, 2003; Horst, 2005; Waring and Donkaewbua, 2008; Pellicer-Sánchez and Schmitt, 2010). According to Nation (2015 as cited in Peters et al., 2019), reading and especially extensive reading has the potential to increase the vocabulary range of the learner. However, in relation to out-of-school exposure and reading, mixed findings have been revealed (Briggs, 2015; González-Fernández & Schmitt, 2015; Lindgren & Muñoz, 2015; Peters, 2018; Schmitt & Redwood, 2011).

Pladevall (2015) stated that when the learner encounters an unknown word while reading a text, they will most likely want to access the meaning of that particular word.

However, the main focus will be on the content and not on the form, because that is the most useful procedure for them to keep reading and understanding the flow of the text.

Print exposure is one of the most important environmental factors that have a great impact on the learners' literacy development. According to Lee (2020), print exposure refers to "the amount of out-of-school reading that learners engage in." (p.88). Print exposure involves the voluntary reading behaviors by the learner which constitute a very powerful tool for the improvement of the linguistic abilities and motivation (Lee, 2007).

Findings have revealed that vocabulary does facilitate reading comprehension (Lee, 2020). The knowledge of vocabulary can be a very strong predictor of the learners' reading comprehension levels (Share & Leikin, 2004 as cited in Lee, 2020). This can be seen as a loop, as the reading comprehension tasks in the FL help the learner develop and increase their lexical knowledge, this will facilitate and fasten the reading, empowering the first principle even more.

Regarding TV viewing, one of the first studies concerning the acquisition of language throughout exposure to television was carried out by Neuman & Koskinen (1992, as cited in Peters, 2018). In their work, they studied seven and eight graders among 17 groups. Those learners from the experimental group showed a large gain in their vocabulary compared to the control group, since they were exposed to various short clips of a science program for kids. Peters (2018) confirmed previous findings concerning vocabulary acquisition as for TV viewing exposure. In his research, it is shown that incidental vocabulary acquisition is very likely to occur when learners are exposed to this kind of input. Moreover, as watching TV is a common and commonly enjoyed activity to do, it should offer great potential for FL acquisition in the future.

Kuppens (2010) tried to study the long-term benefits from FL media, as previous studies had mainly focused on short-term effects (Pavakanun and d'Ydewalle 1992; Koolstra and Beentjes 1999; Van Lommel, Laenen, and d'Ydewalle 2006). In Kuppens' research, 274 Dutch students from the sixth course of primary education were tested so as to see if FL media exposure positively correlated with the ability of translating a L2 word to their own L1. Even though the learners had access to a significant amount of English media, they were yet to receive English instruction inside the classroom. A questionnaire was firstly filled out by the learners so as to know to what extent they used FL media outside of school. Significant positive effects were found as a consequence of FL media exposure to FL videogames and music listening.

Another study conducted by Koolstra and Beentjes (1999, as cited in Kuppens, 2010), studied the vocabulary acquisition through TV viewing in 246 Dutch primary students from fourth and sixth course. They were divided into three different groups, one of them watched an English language documentary in original version twice with Dutch subtitles on. The second one, would watch the exact same documentary, also twice, but excluding the subtitles. Finally the third group was exposed to a Dutch-language TV show without any subtitles. After completing a vocabulary test in which learners had to recognize 35 words that were used in the documentaries, subjects from the first group showed a better performance in the test than those who did not watch the subtitled versions of the documentary. In addition, the learners that had previously watched subtitled films or series got even better results in the test. This study, as a whole, shows that the exposure to L2 media with L1 subtitles may be one of the most effective ways of enlarging the lexical diversity of the learners.

As for the acquisition of vocabulary through the use of technology, González-Fernández & Schmitt (2015 as cited in Peters et al., 2019) stated that the use of English language websites also has a positive effect on the learners' vocabulary knowledge. This research focused on vocabulary acquisition in high school and university learners from three different institutions, two secondary schools (second and fourth course) and one university (first course). The use of online websites in the TL correlated positively with their vocabulary knowledge of the FL.

Various other studies have addressed vocabulary acquisition through TV viewing, some of which have stated that watching FL content has a positive effect on single words, collocations and phrasal verbs (Schmitt & Redwood, 2011; González-Fernández & Schmitt, 2015; Peters, 2018, as cited in Peters et al., 2019).

Similarly, songs constitute another alternative procedure for vocabulary acquisition. These have proven to be a very useful resource for the students inside the EFL settings (Murphey 1992; Fonseca-Mora 2000, as cited in Coyle & Gómez, 2014). Retention of new vocabulary is likely to be improved due to the structure of the melody and the repetitive patterns that it contains (Foster, 2006). Consequently, learners might not only acquire new vocabulary, but they are being exposed to whole phrases in which those words have a context, as well as learning the correct way of pronouncing them.

Continuing with technology, research carried out by Hannibal Jensen (2017), studied vocabulary acquisition of young Danish learners (7 to 9 year olds). In his study, Jensen found that those learners who spent more time playing computer games in which they were exposed to oral and written inputs, showed a more varied and wider vocabulary range, that

is, a higher level of lexical diversity. All in all, the amount of exposure to the FL through video gaming correlated positively with learners' vocabulary knowledge.

Consequently, if learners are to develop a greater vocabulary range, they might be needing a constant and sufficient input of the FL. Since formal learning input might not be enough, out-of-school exposure can help learners enlarge their lexicon (Peters et al. 2019).

After what has been previously discussed, it has become clear that out-of-school exposure and informal learning have the potential to increase the vocabulary load that learners are able to understand and use. However, to the best of the author's knowledge at the time of the investigation, there are few or no specific articles analyzing the impact that out-of-school exposure to the TL through the use of technology has in the vocabulary diversity that EFL primary school learners are able to use when performing an oral task. The present study intends to shed some light over this specific topic and pave the way for similar studies.

2. THE STUDY

2.1 Research questions

Based on the literature review from the previous section, the present study attempts to answer the following research question:

To what extent does the use of technology out of the school (watching films, series, games in English), affect the lexical diversity of the vocabulary that is being used when performing an oral communication task?

2.2 Participants

The sample of this study is made up of 30 primary school students from Ermitagaña's public school located in Navarre (Spain). The participants are all in the third course of primary education (mean age of 8.5 years). Students from both groups (A and B) were tested (17 girls and 13 boys).

All of them are enrolled in the PAI program, an EFL or CLIL methodology implanted in most Spanish primary education centers. These students receive around 50% of exposure to the FL as half of the classes involve the use of their L1 (which for all learners is Spanish). Excluding those sessions in which the groups split apart (4 sessions per week), out of those 26 weekly sessions, 46% (12 sessions) are taught using the FL. Students showed a very heterogeneous skill level based on their marks throughout the first and second terms.

Some of the initial subjects were left aside from the study given their language and academic issues.

2.3 Tasks

There were two different instruments used for this study: a questionnaire and an oral task. The first of those was intended to measure the amount of exposure to the FL that learners had out of the school covering various topics and skills such as listening, speaking, gaming, to name but some (see Appendix 1). It was made up of 19 different questions that had to be answered by choosing the amount of frequency that learners exposed themselves to that item. Everything was given to them in the FL. However each item and question was

translated to the L1 of the participants (Spanish) so as to make the questionnaire easier for them.

The oral task of the study consisted of a speaking activity in which the participants had to use their L2 speaking skills in order to tell a short story. They were presented with a series of pictures which made up a little story. Participants were also given some context about the situation throughout a short paragraph that the researcher read (See Appendix 2).

2.4 Procedure

The initial questionnaires used in order to measure the amount of exposure to the FL outside the school were carried out throughout the month of March during the author's placement at Ermitagaña's school center.

Questionnaires had previously been prepared and printed for the students to receive a printed copy of it. The procedure was simple: we made a brief explanation regarding the sense and aims of the questionnaire that they were about to answer. The explanations were mainly focused on how to answer the questions, having a 5 choice range for each of them going from: "never" (no exposure) to "always" (abundant exposure). Since participants were already in the third level of primary education, they were trusted so as to fill in the questions on their own, once all the clarifications had been given. Throughout the answering process, the rest of teachers and the author solved any individual doubts that may have arisen. It took them around 15 minutes to complete the questionnaire. However, some participants finished before that 15 minutes mark.

Once all the participants had filled in the questionnaire, all the answers were decoded and transferred to a chart on which each value (1, 2, 3, 4 and 5) correlates with the option that the student had chosen (never, a little bit, sometimes, often and always). In addition, each participant was given a code to preserve the privacy of the students: M for males and F for the females. However, and due to the researcher's perception towards the outcome of the surveys, 90% of the questionnaires were individually retaken with the subjects so as to receive more reliable answers. This procedure lasted an overall 5 minutes per student.

In terms of the oral task, subjects were tested individually. The researcher read a short introductory paragraph right before the speaking exercise started to set up the story and give the subject some context and perspective. They were told to use the FL as much as possible and only use L1 when necessary in order to assure a potential fluent speech. Each

student was recorded via audio, followed by a transcription of the task by the researcher. A total of 1 hour and 51 minutes were transcribed in order to analyse the vocabulary variety of the 30 learners. 20% of those recordings and transcriptions were checked by the supervisor of this work.

Lexical diversity was analysed using the *Web Vocabprofile* online tool. This software provides different measurements from the BNC/COCA 29 word family lists, of which 25 are based on frequency and range data, and US lists based on Mark Davies' (Brigham Young University) 450-million-word Corpus of Contemporary American English (2012). Frequency ratios are calculated based on the number of words in each frequency list. We examined the proportions of low and high frequency vocabulary displayed by participants, as well as the diversity in the word families present in each of the different frequency levels.

3. RESULTS AND DISCUSSION

In the following subsection we will analyse and show the results of the study so as to answer the research question. Firstly, we will be looking into correlation between the subjects' questionnaire score (theoretical out-of-school exposure level) and the variety of words, both number of words (F) and number of word families (FA), that they managed to produce during the oral task. Word families (FA) are words that refer to the same topic, for example fruit: lemon, orange, apple... that learners are able to use in their speech.

We will later on examine the potential correlations between the subject's informal exposition to the L2 and each different frequency level category (L1, L2, L3, L4, L5, L6 and L8). Each of these categories includes more complex and hardly used words by pupils, i.e. the higher the category is the more complexity and the more words involves. Finally, we will be taking a look at the data from the initial questionnaires to find out what items (means of exposure) have been the most relevant to the overall exposure of the subjects.

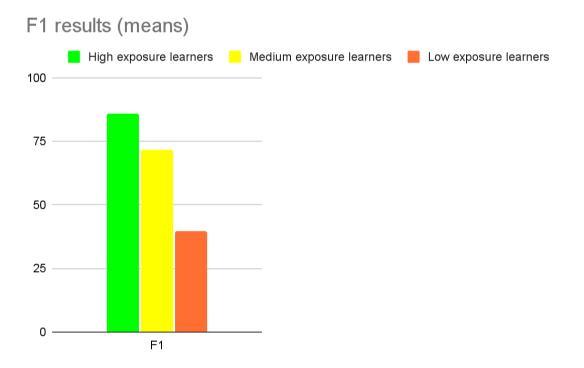
For the sake of clarity, we will break down the participants into three different groups depending on their score in the questionnaire (amount of out-of-school exposure to English). We firstly have the "high exposure learners" group, which is made up of those participants with a score between 3,60 and 2,50. Next we find the "medium exposure learners" going from 2,50 to 2,00. And finally the "low exposure learners", whose score is below the 2 point mark.

The average was done in each category (F1, F2, F3...) and for each group of students (high, medium and low exposure learners). We can see that in every frequency level category, there are three different average scores corresponding to the students' level groups. Green for the high exposure group, yellow for the mid-exposure learners, and orange for the low exposure learners.

We can find a gap between frequency levels 6 and 8 as they did not produce any F7 and consequently FA7 words.

The initial research question tried to address if informal exposure to the FL outside of schools positively correlated with the variety of vocabulary that students were able to produce. Firstly, taking a look at the "high scorers" results, it is clearly observable that overall they produce the highest number of words in almost every complexity level item (as it can be observed in Figure 1, Figure 2 and Table 1). Out of the seven frequency level categories, subjects with the highest amount of exposure to the TL (means between 3,60 and 2,50) have the highest word rates in five of them (F1, F2, F4, F5 and F6).

F1 is a very clear example of the tendency that we are going to observe in most of the cases. It is interesting to see that in all those cases, all participants have produced words from that particular level (see Appendix 4 and 5): levels 1, 2, 4 and 5.



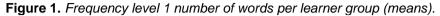
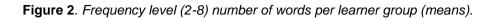
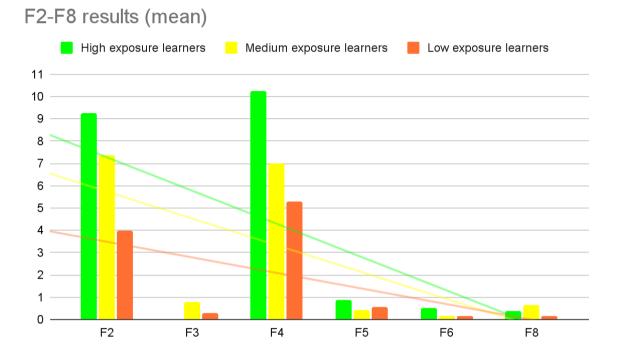


Figure 2 shows results from F2 to F8 and the tendency lines clearly show how data progresses among the levels.

The only frequency levels in which "medium exposure learners" are able to produce more words are F3, F8. Even though data shows this, we need to see why and how this has happened. For instance, taking a look at F3, only 9 out of the 30 subjects (see Appendix 4) have produced words from this category. In the case of the eight frequency level column (F8), a total of 5 students have been able to produce words of this level of complexity (16% of the participants). It is true that this is a very reduced amount of data but we are talking about the highest level of word complexity and not a lot of subjects will be able to get into this category.





"Medium exposure learners" (the subjects that have a moderate exposure to the FL outside of the school) generally show a lower vocabulary variety than those from the previous group (high scorers), This implies that the lower the exposure is, the lower the vocabulary variety of the student, a trend that keeps going as we observe from the data of the "low exposure learners" group. In the case of those learners with moderate exposition, their estimated score in the oral task should be in the middle score between the ones who had the highest and the ones who got the lowest one). The average number of words per frequency level is lower than the "high scorers" in 5 out of the 7 items (71%).

Table 1.

Average number of words and different word families used in the oral task by the "high exposure learners" group, classified by level of complexity.

LEVEL N^o of words (mean) (F) Word families (mean)

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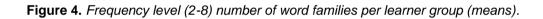
L1	85,75	20,50
L2	9,25	3,50
L3	0	0
L4	10,25	2,88
L5	0,88	0,88
L6	0,50	0,38
L8	0,38	0,25
MEAN	15,29	4,05

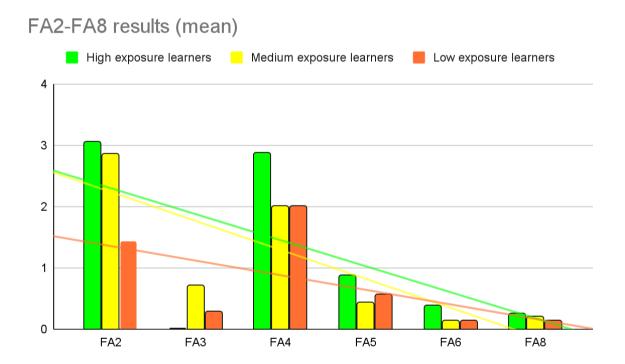
In terms of the word family variety that subjects with high exposure to English are able to produce, we can observe a very similar trend. These learners were capable of using the largest number of word families when performing the oral task in almost every frequency level (see Figure 3 and 4), being FA3 the only exceptional case. We will be discussing this unexpected result throughout the data discussion when we take a closer look at the raw results from some of the frequency level categories.

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Figure 3. Frequency level 1 number of word families per learner group (means).





"High exposure learners" do generally show the highest number of words produced per frequency level (both number of individual words and families). Out of the 14 combined items, those learners with a higher informal exposure to the FL have produced the highest number of words (mean) in 11 cases (78%). This tendency is especially prominent in word families variety, as it is one of the aspects in which learners with an elevated level of exposure to the TL do better (see Figures 3 and 4).

However, we do actually have to take into consideration the rare case that can be seen in the F3 and FA3 items, as "high scorers" have not been able to produce a single word from this specific frequency level category. This consequently means that the trend breaks down, as the numbers should progressively decrease as we go down the levels.

In terms of raw data, "medium scorers" show a lower but similar distribution of the mean words per frequency level. Results are closer to the "high scorers" in the word families distribution, especially in the FA1, FA6 and FA8.

Nevertheless, we again find a rare situation regarding the L3 which interrupts the logical trend (as the complexity level of that category should be lower than the fourth one, in which the results are way higher).

Table 2.

LEVEL	№ of words (mean) (F)	Word families (mean)
L1	71,86	19,50
L2	7,36	2,86
L3	0,79	0,71
L4	7	2

Average number of words and different word families used in the oral task by the "medium scorers" group, classified by level of complexity.

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MEAN	12,60	3,31
L8	0,64	0,21
L6	0,14	0,14
L5	0,43	0,44

"Low exposure learners" (subjects whose out-of-school exposure to the language is the lowest) have mostly shown the poorest word variety among all the participants. The data we can see in Figure 2 and 4 and Table 3, supports the notion that the lower the exposure is, the lower the variety of words in the FL that the learner will be able to produce. Looking at the mean scores, this is clearly the case, due to the fact that low exposure learners do only beat the mid-exposure ones on two occasions (F5 and FA5).

In this case, raw data is clearly the lowest in most of the cases, especially when looking at the number of words per frequency level, as in most situations the results reveal that "low exposure learners" have half of the average of words used by the previous group (medium scorers). This is the case for example of F1, F2, F3, F8, FA2, FA3.

Table 3.

Average number of words and different word families used in the oral task by the "low scorers" group, classified by level of complexity.

	LEVEL	№ of words (mean) (F)	Word families (mean)
	L1	39,71	12,86
	L2	4	1,43
	L3	0,29	0,29

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MEAN	7,16	2,29
L8	0,14	0,14
L6	0,14	0,14
L5	0,57	0,57
L4	5,29	2

As a whole and taking a look at the data from all three level groups (high, medium and low exposure learners), it is clearly visible that those subjects with a high score in the initial questionnaire are able to produce the largest number of words and word families when looking at the mean scores.

We will now be looking into some specific data analysing the amount of words per frequency level category. We will be paying special attention to those moments in which there is a sudden or uneven distribution of the results.

Graphic charts will be used to distribute two variables, the green line being the one representing the amount of informal exposure of the subjects, going from the highest score (3,58) to the lowest one (1,21). This green line will be stable among the following figures in order to compare it to the other variable: the number of words produced by each learner in that particular frequency level. However, they do not actually represent the exact number of words. Questionnaire scores have been classified following the number of words that they have produced in that item (from the biggest number of words to the lowest amount). Take for instance a subject with a high questionnaire score (2,50) but that has only produced a single word in a certain frequency level category. This learner will be placed at the right-hand side of the chart, whereas another student with a lower score in the questionnaire but the largest number of words said in the oral task, will be the first one in the left hand side of the figure. Subjects correspond to the codes in the lower side of the figures (F) for females and (M) for males. They will be ordered in accordance to the number of words that they were able to produce for each item, not by their exposure.

The closer the orange line is to the informal exposure one in green, the higher the correlation between the amount of out-of-school exposure and the variety of vocabulary.

Starting with F1 and F2, we can see a clear pattern especially at the second complexity level comparison (as seen in figures 5 and 6). In the case of the first frequency level, the section in which we can observe the biggest correlation between the two variables is around the middle, middle-left part of the chart (figure 5). Biggest data deviations lie in between learners M9 and F4, creating a strange mountain shape that does not correlate with the green (informal exposure level) which they should theoretically have. Even though some deviations may occur, those do not represent the whole data, tendencies and conclusions that we have found out.

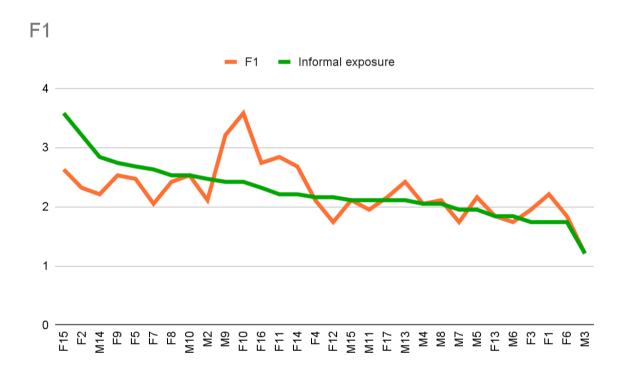


Figure 5. Number of words produced in F1 vs. informal exposure.

In this second frequency level, both lines are closer and the orange one shows a clearer smooth descending pattern. Even though there are some deviations (less than in F1 where there is a big one in the middle), we have to take into consideration the overall tendency. The part in which the correlation is highest is once more located around the middle and middle-right parts of the figure

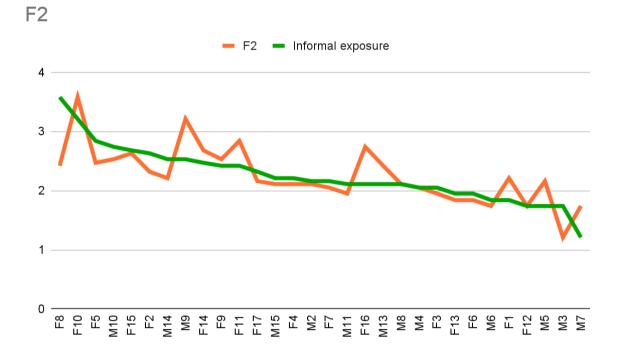


Figure 6. Number of words produced in F2 vs. informal exposure.

We have previously discussed the rare case of complexity level three both in the number of words produced and the different families used by the subjects. However, in this Figure 7, the representation is more visual. The orange line is smaller in this case due to the fact that only 9 participants have been able to produce words from this F3. In addition, none of those subjects belongs to the "high exposure learners" group as the line is always below the 2,50 points mark.

The absence of words in this specific level can be a result of the oral task that the investigator proposed and the type of vocabulary that is generally used concerning those situations. The F3 words used by the participants were the following ones: "orange" (4 times), "passed" (3 times), "driving", "drive", "milk", "cake", "passing" and "woke". All of them are in accordance with the pictures presented in the oral task, however some subjects may not have thought about giving details such as food names or certain verbs.

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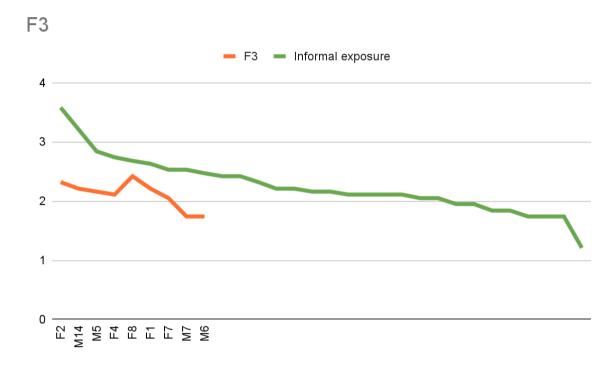


Figure 7. Number of words produced in F3 vs. informal exposure

The tendency now in F4 (Figure 8) is again more stable, very similar to the data distribution in F1 and F2 (figures 5 and 6). However we can see some deviations especially at the beginning, since "high scorers" should be on that first part of the graph.

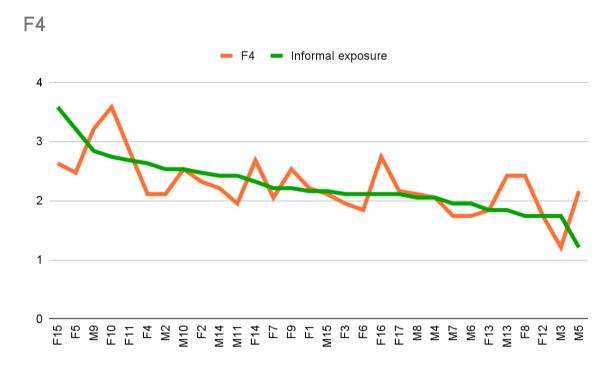


Figure 8. Number of words produced in F4 vs. informal exposure

Next rare or different results can also be observed in Appendix 6. The first three figures represent the results of frequency level 5, 6 and 8 items. We firstly see that the line is very short (same case as in F3, Figure 7). Taking a closer look at F5 raw data, not all the subjects have been able to produce words from this category of complexity. However, those who did have only managed to produce a single word. That is the reason why the line is completely straight, because there is not a significant word variety. We calculated the mean score among the subjects that got into the category in order to show a more reliable representation of the results. On the contrary, if we took the real scores, they would be ordered from highest to lowest, something that would not be in accordance with the data. However, it is interesting to see that among the 17 subjects that have managed to produce one word from the fifth frequency level, 7 of them were high exposure learners, 6 of them mid-exposure learners, and 4 low exposure students.

Levels of frequency 6 and 8, again show a similar weird pattern, because a limited portion of participants have produced those kinds of more complex words. In addition, the correlation is not particularly high, instead results look random.

This same comparison has been done with the number of word families per frequency level category as can also be seen in Appendix 6 (FA1-FA8). Results are relatively similar, especially on those frequency levels in which we could see an abnormal distribution of the results before (FA3, FA5, FA6).

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In the following Table 4, we will analyse the results of the questionnaire itself on their own, focusing on which kind of exposure to the FL is more relevant to the results we have previously observed in the oral task data analysis.

Table 4.

Informal exposure rates (means) all items.

ITEM	SCORE (MEAN)
Q1.1 (I watch English films/TV series)	2,10
Q1.2 (I watch English films/TV series with subtitles)	2,64
Q1.3 (I watch English films/TV series with Spanish subtitles)	2,87
Q2.1 (I play computer games in English)	2,97
Q2.2 (I play online games to improve English)	3,07
Q2.3 (I play English board games)	1,93
Q3.1 (I read book in English)	3,17
Q3.2 (I read comics in English)	1,97
Q3.3 (I read newspapers in English)	1,33
Q3.4 (I read YouTube comments in English)	2,50
Q3.5 (I read tweets in English)	1,13

MEAN	2,25
Q6.4 (I speak in English with native speakers through the internet)	1,40
Q6.3 (I speak in English with native speakers)	1,63
Q6.2 (I speak in English with my friends)	2,07
Q6.1 (I speak in English with my family)	2,30
Q5.2 (I do extracurricular activities in English)	2,10
Q5.1 (I go to an English academy)	2,10
Q4.2 (I listen to English podcasts)	1,43
Q4.1 (I listen to music in English)	4,13

Taking a closer look at the data, those items in which the exposure is bigger are: Q2.1, 2.2, 3.1 and 4.1. The first two of them (2.1 and 2.2) imply video gaming. This rate is 0,75 points above the mean level of exposure, so playing computer games is one of the biggest ways in which the subjects expose themselves to the TL. Item 2.2 with a slightly higher mean score, refers to the online websites or games that students use to improve and practice their English. As they usually work with the web "live worksheets", it is very commonly used at home.

Another high result is related to the Q3.1 item, implying that reading is another important exposure factor. This is indeed the second highest score in the questionnaire. As we have discussed in the theoretical framework,

Results from the first three questions of the questionnaire (Q1,1, 1.2, and 1.3) are interesting, due to the fact that exposition seems to get higher as "aids" are

added to help the viewing process in the FL. The item with the highest exposition score is Q1.3, referring to the viewing of TL content with L1 subtitles. This follows the same pattern as the study conducted by Koolstra and Beentjes (1999, as cited in Kuppens, 2010) in which the group of students that was exposed to English media with L1 subtitles (Dutch in this case) did better in the word recognition test than the other group (no subtitles).

Music listening is one of the most prominent means of exposure for these subjects, having the greatest score (4,13) by a great margin. 15 subjects have stated they receive a very high or "always" (level 5) exposure and 9 of them a level 4 (usually). There were only three students who did not receive any (or very little) exposure to music listening. Guo (2015), argued that informal learning contexts may be taking place spontaneously, without the learner knowing that they are involved in a learning context. This may be the case when listening to music, the highest mean of exposure to the TL for these subjects, while not being perceived as a learning context by them. Incidental learning of the words is acquired when seen in various ordinary situations, they know the word and they give meaning to it when they see that word "in action" in a real context. This is one of the three main ways explained by Bruland (1974), in which students are able to learn new vocabulary.

Meanwhile, those items in which students have shown a low level of exposure are Q2.3, 3.3, 3.5, 4.2, 6.3, 6.4. Learners 'do not' seem to read in English throughout social media or newspapers, as this is not very common at this age (questions 3.3 and 3.5). However, question 3.4 shows that some social media sites may be more popular among young learners, this is the case of YouTube.

Data distribution seems to be more stable around the middle and middle end of the figures previously presented. See, for example, figures 7, 8, 10, 15 and 17.

So in this study, with this type of participants and using this specific task, we can associate the amount of out-of-school exposure (informal learning) with the load of vocabulary diversity that young EFL students are capable of producing, proving that this kind of exposure has a positive effect on the learner's vocabulary knowledge. Consequently, learners with a low rate of informal exposure have shown

a lower level of vocabulary variety both in number of words and number of word families.

CONCLUSIONES

Este estudio se ha centrado en investigar el impacto que la exposición al inglés fuera de las aulas (aprendizaje informal), puede tener en la diversidad de vocabulario y riqueza léxica del alumnado de primaria utilizando el inglés como lengua extranjera. A lo largo de esta sección trataremos de analizar hasta qué punto el aprendizaje informal, y especialmente el uso de las nuevas tecnologías, afecta a la diversidad de vocabulario de dichos alumnos y alumnas.

Generalmente existe una tendencia en los resultados analizados en la sección anterior que indica que aquel alumnado con una mayor exposición informal al lenguaje objetivo, tendrá más opciones de producir una mayor cantidad de palabras en todos los niveles de complejidad. Sin embargo, esta no es siempre la tendencia, pues la misma se ve alterada en algunos ítems en concreto como el F3 o FA3. Estos casos no deben ser tomados en cuenta como factores que no prueban la evidencia, ya que no todos han producido palabras en ese nivel de complejidad léxica. Encontramos el mismo caso con mayor frecuencia en los niveles superiores de complejidad (F6, FA6, F8, FA8), algo más normal pues estamos hablando de los niveles más complejos. No necesariamente debemos establecer correlaciones para casos en los cuales el alumnado ha podido producir un vocabulario más complejo del que teóricamente debería. Casos en los que la suerte u otras circunstancias pueden afectar a los resultados.

En primer lugar, observaremos cuales son los tipos de exposición informal que han causado el mayor impacto en el aprendizaje informal de los participantes. Eso nos ayudará a determinar de manera más concreta que provoca o no un incremento en el rango de vocabulario. Uno de los medios más importantes de exposición informal a la lengua inglesa son las canciones (tal y como hemos podido observar en este estudio). Estas representan el mayor medio de exposición para estos participantes por un margen muy elevado (así como podemos observar en el Apéndice 3 y la Tabla 4). Los resultados obtenidos demuestran que un nivel elevado de exposición fuera de las aulas (las puntuaciones del cuestionario inicial), se correlacionan con una mayor variedad y cantidad de palabras producidas en la prueba de expresión oral.

En relación con la teoría mencionada con anterioridad, es altamente probable que nuestro vocabulario se vea incrementado si escuchamos o memorizamos letras de canciones o cantamos pequeñas estrofas en la lengua extranjera (Musa & Fojkar, 2019). Ese ritmo y patrón repetitivo que las canciones poseen, pueden convertirse en fuertes potenciadores para la adquisición de nuevo vocabulario (Foster, 2006). Además, Lindgren y Muñoz (2013 citado en Peters, 2019), descubrió una relación positiva entre la escucha musical y la capacidad oral

El alumnado ha mostrado también elevados niveles de exposición a videojuegos y actividades interactivas on-line en inglés, que han contribuido a aumentar sus niveles generales de exposición informal. A través de los juegos online en equipo, el alumnado es capaz de interactuar con hablantes nativos para planear estrategias o superar obstáculos (Muñoz, 2017). De tal forma, el alumnado podrá ir adquiriendo algunas expresiones sencillas o nuevas palabras en la lengua extranjera. (Ryu, 2013, citado en De Wilde et al., 2020). De hecho, una de las preguntas del cuestionario hace referencia a cuánto hablan los participantes con hablantes extranjeros por internet. La media de exposición no es muy elevada pues únicamente un 30% de los participantes han admitido tener algo de exposición al idioma en este ámbito concreto (9 de 30). Analizando con mayor detenimiento el resto de datos de esos mismos alumnos, en 7 de los 9 casos reciben una exposición considerable a videojuegos en inglés (de nivel 3 o superior). Por lo tanto, podría existir una correlación, pues podrían estar poniendo en práctica el idioma tal y como (Muñoz, 2017) plantea en su investigación.

Para concluir podemos resumir los resultados obtenidos en unas pocas conclusiones centrales: (i) aquel alumnado con una mayor exposición informal al inglés, es por lo general capaz de producir un mayor número de palabras y familias de palabras distintas; (ii) la correlación entre la cantidad de exposición y la variedad léxica es especialmente prominente en aquel alumnado con un nivel bajo de exposición; (iii) los medios que ayudan en mayor medida a aportar exposición informal en inglés al alumnado son la música, los videojuegos y el visionado de series o películas en la lengua extranjera con subtítulos en castellano. Por lo tanto, el aprendizaje no formal afecta en gran medida a la variedad léxica del alumnado de primaria utilizando el inglés como lengua extranjera.

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Limitaciones

En cuanto a las limitaciones del presente estudio, los participantes pueden no tener una percepción del todo clara sobre la cantidad de aprendizaje informal y exposición al inglés fuera del colegio a la que están expuestos. Por ello, es posible que las respuestas al cuestionario previo a la prueba oral, no sean completamente fieles a la realidad. Los niveles de exposición podrían variar dependiendo de las percepciones del alumnado. Aunque los cuestionarios fueron realizados dos veces con la gran mayoría de los participantes, no podemos estar completamente seguros de que esas respuestas se correlacionan con su nivel real de exposición a la lengua extranjera.

Además, este estudio ha sido realizado con un total de 30 participantes. Todo el alumnado pertenecía al mismo curso (tercero de primaria) y al mismo centro, no se han analizado diferentes franjas de edad. Por otro lado, el ISEC (Índice socioeconómico y cultural) no ha sido tomado en cuenta para la realización de esta investigación, por lo que podrían existir factores en relación a ello que influyan de una manera u otra a la exposición informal de cada alumno o alumna.

Pablo Usoz Zabaleta

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REFERENCES

- Andueza, L. (2021). Informal exposure, achievement and motivation in young EFL learners. A cross-sectional study.
- Bruland, R. A. (1974). Learnin' words: Evaluating vocabulary development efforts. *Journal of Reading*, *18*(3), 212-214. https://www.jstor.org/stable/40009957?seq=1

Chambers, G. N. (1999). Motivating language learners (Vol. 12). Multilingual Matters.

- Charest, M., & Skoczylas, M. J. (2019). Lexical diversity versus lexical error in the language transcripts of children with developmental language disorder: Different conclusions about lexical ability. *American Journal of Speech-Language Pathology*, 28(3), 1275-1282. https://doi.org/10.1044/2019_AJSLP-18-0143
- Clough, G., Jones, A. C., McAndrew, P., & Scanlon, E. (2008). Informal learning with PDAs and smartphones. *Journal of Computer Assisted Learning*, *24*(5), 359-371. https://doi.org/10.1111/j.1365-2729.2007.00268.x
- Clément, R., Dörnyei, Z., & Noels, K. A. (1994). Motivation, self-confidence, and group cohesion in the foreign language classroom. Language learning, 44(3), 417-448. https://doi.org/10.1111/j.1467-1770.1994.tb01113.x
- Coyle, Y., & Gómez Gracia, R. (2014). Using songs to enhance L2 vocabulary acquisition in preschool children. *Elt Journal*, *68*(3), 276-285. https://doi.org/10.1093/elt/ccu015
- PDAs and smartphones. Journal of Computer Assisted Learning, 24(5), 359-371. https://doi.org/10.1111/j.1365-2729.2007.00268.x
- Cong-Lem, N., & Lee, S. Y. (2020). Exposure to L2 online text on lexical and reading growth. Language Learning & Technology, 24(3), 87-102. http://hdl.handle.net/10125/44740
- Damnik, G., Proske, A., Narciss, S., & Koerndle, H. (2013). Informal learning with technology: the effects of self-constructing externalizations. *The Journal of*

 Educational
 Research,
 106(6),
 431-440.

 https://doi.org/10.1080/00220671.2013.832978

- David, A. (2008). A developmental perspective on productive lexical knowledge in L2 oral interlanguage1. *Journal of French Language Studies*, *18*(3), 315-331. https://doi.org/10.1017/S0959269508003475
- De Jong, N. H., Steinel, M. P., Florijn, A., Schoonen, R., & Hulstijn, J. H. (2012). The effect of task complexity on functional adequacy, fluency and lexical diversity in speaking performances of native and non-native speakers. *Dimensions of L2 performance and proficiency: Complexity, accuracy and fluency in SLA*, 121-142.

https://books.google.es/books?id=C37mxdTZBj4C&lpg=PA121&ots=gjALMsj RpX&lr&hl=es&pg=PA121#v=onepage&q&f=false

- De Wilde, V., Brysbaert, M., & Eyckmans, J. (2020). Learning English through out-ofschool exposure. Which levels of language proficiency are attained and which types of input are important?. *Bilingualism: Language and Cognition*, 23(1), 171-185. https://doi.org/10.1017/S1366728918001062
- Dörnyei, Z. (1998). Motivation in second and foreign language learning. *Language Teaching*, *31*(3), 117-135. https://doi.org/10.1017/S026144480001315X
- Ebrahimzadeh, M. (2017). Readers, Players, and Watchers: EFL Students' Vocabulary Acquisition through Digital Video Games. *ERIC*, *10*(2), 1-18. https://files.eric.ed.gov/fulltext/EJ1125224.pdf
- Engel, F. L., Bouwhuis, D. G., Bösser, T., & Ydewalle, d', G. (Eds.) (1992). Cognitive modelling and interactive environments in language learning : proceedings of the NATO advanced research workshop, Mierlo, 1990. (NATO ASI series. Series F : Computer and systems sciences; Vol. 87). Springer.
- Fergadiotis, G., & Wright, H. H. (2011). Lexical diversity for adults with and without aphasia across discourse elicitation tasks. *Aphasiology*, *25*(11), 1414-1430. https://doi.org/10.1080/02687038.2011.603898
- Forster, E. (2006). The value of songs and chants for young learners. https://ebuah.uah.es/xmlui/handle/10017/1201

- Greenfield, P. M. (2009). Technology and informal education: What is taught, what is learned. *Science*, *323*(5910), 69-71. https://www.science.org/doi/full/10.1126/science.1167190
- Guo, S. C. (2011). Impact of an Out-of-class Activity on Students' English Awareness, Vocabulary, and Autonomy. *Language Education in Asia*, 2(2), 246-256. http://dx.doi.org/10.5746/LEiA/11/V2/I2/A07/Guo
- Hassanzadeh, M., Saffari, E., & Rezaei, S. (2021). The impact of computer-aided concept mapping on EFL learners' lexical diversity: A process writing experiment. *ReCALL*, 33(3), 214-228. https://doi.org/10.1017/S095834402100001X
- Henry, A., & Cliffordson, C. (2017). The impact of out-of-school factors on motivation to learn English: Self-discrepancies, beliefs, and experiences of self-authenticity. *Applied Linguistics*, 38(5), 713-736. https://doi.org/10.1093/applin/amv060
- Hell, A. (2020). Parental and learners' attitude to EFL learning, and learners' speaking performance in peer interaction.
- Hernández, T. (2006). Integrative Motivation as a Predictor of Success in the Intermediate Foreign Language Classroom. *Foreign Language Annals*, 39(4), 605-617. https://doi.org/10.1111/j.1944-9720.2006.tb02279.x
- Jensen, Signe Hannibal. "Gaming as an English language learning resource among young children in Denmark." *Calico Journal* 34.1 (2017): 1-19. https://www.jstor.org/stable/90014675?seq=1
- Juanggo, W. (2018). Investigating lexical diversity and lexical sophistication of productive vocabulary in the written discourse of Indonesian EFL learners. *Indonesian Journal of Applied Linguistics*, *8*(1), 38-48. https://doi.org/10.17509/ijal.v8i1.11462
- Kimsesiz, F., & Konca, M. Y. (2017). The Effect of Project Based Learning in Teaching EFL Vocabulary to Young Learners of English: The Case of Pre-School Children. Online Submission, 5(4), 426-439. https://eric.ed.gov/?id=ED581572

Krueger, C. G. (2014). Exploring the relationship between the instructional use of mobile technology and social media and student foreign language learning (Doctoral dissertation, University of Massachusetts Lowell). https://www.proquest.com/docview/1657420574?pqorigsite=gscholar&fromopenview=true

- Konetes, G. D. (2010). The function of intrinsic and extrinsic motivation in educational virtual games and simulations. *Journal of Emerging Technologies in Web Intelligence*, 2(1), 23-26. http://www.jetwi.us/uploadfile/2014/1226/20141226041015588.pdf
- Kormos, J., Kiddle, T., & Csizér, K. (2011). Systems of goals, attitudes, and selfrelated beliefs in second-language-learning motivation. *Applied linguistics*, 32(5), 495-516. https://doi.org/10.1093/applin/amr019
- Kuppens, A. H. (2010). Incidental foreign language acquisition from media exposure. *Learning, Media and Technology, 35*(1), 65-85. https://doi.org/10.1080/17439880903561876
- Laufer, B., & Goldstein, Z. (2004). Testing vocabulary knowledge: Size, strength, and computer adaptiveness. *Language learning*, *54*(3), 399-436. https://doi.org/10.1111/j.0023-8333.2004.00260.x
- Lindgren, E., & Muñoz, C. (2013). The influence of exposure, parents, and linguistic distance on Young European learners' foreign language comprehension. *International Journal of Multilingualism*, *10*(1), 105–129. https://doi.org/10.1080/14790718.2012.679275
- Livingstone, D. W. (2000). Researching expanded notions of learning and work and underemployment: Findings of the first Canadian survey of informal learning practices. *International Review of Education*, *46*(6), 491-514. https://rdcu.be/cNFp7
- Livingstone, D. W. (2006). Informal learning: Conceptual distinctions and preliminary findings. *Counterpoints*, 249, 203-227. https://www.jstor.org/stable/42979596?seq=1

- Ryoo, Y. S. (2018). Comparing lexical diversity and lexical sophistication in Korean EFL writing: Topic and text length. *Multimedia-Assisted Language Learning*, 21(3), 63-87. https://papersearch.net/thesis/article.asp?key=3629861
- MacLeod, F., & Larsson, P. (2011). Exposure to English outside the Classroom. https://www.diva-portal.org/smash/record.jsf?pid=diva2:1493643
- Muñoz, C. (2017). Tracing trajectories of young learners: Ten years of school English learning. Annual Review of Applied Linguistics, 37, 168-184. https://doi.org/10.1017/S0267190517000095
- Musa, N. N., & Fojkar, M. D. (2019). Correlation between Students' English Listening Skills, Vocabulary Skills and Out-of-school Listening Exposure, *The New Educational Review*, 55(1), 42-53. https://doi.org/10.15804/tner.2019.55.1.03
- Neuman, S. B., & Koskinen, P. (1992). Captioned Television as Comprehensible Input: Effects of Incidental Word Learning from Context for Language Minority Students. *Reading Research Quarterly*, 27(1), 95–106. https://doi.org/10.2307/747835
- Oroujlou, N., & Vahedi, M. (2011). Motivation, attitude, and language learning. *Procedia-Social and Behavioral Sciences*, 29, 994-1000. https://doi.org/10.1016/j.sbspro.2011.11.333
- Peters, E., & Webb, S. (2018). Incidental vocabulary acquisition through viewing L2 television and factors that affect learning. *Studies in Second Language Acquisition*, 40(3), 551-577. https://doi.org/10.1017/S0272263117000407
- Peters, E., Noreillie, A. S., Heylen, K., Bulté, B., & Desmet, P. (2019). The impact of instruction and out-of-school exposure to foreign language input on learners' vocabulary knowledge in two languages. *Language Learning*, 69(3), 747-782. https://doi.org/10.1111/lang.12351
- Pladevall-Ballester, E. (2015). Exploring primary school CLIL perceptions in Catalonia: students', teachers' and parents' opinions and expectations. *International Journal of Bilingual Education and Bilingualism*, 18(1), 45-59. https://doi.org/10.1080/13670050.2013.874972

Sadeghi, K., & Dilmaghani, S. K. (2013). The relationship between lexical diversity and genre in Iranian EFL learners' writings. *Journal of Language Teaching and Research*, *4*(2), 328. http://www.academypublication.com/issues/past/jltr/vol04/02/13.pdf

- Samad, A. A., Etemadzadeh, A., & Far, H. R. (2012). Motivation and language proficiency: Instrumental and integrative aspects. *Procedia-Social and Behavioral Sciences*, 66, 432-440. https://doi.org/10.1016/j.sbspro.2012.11.287
- Sefton-Green, J. (2004). Literature review in informal learning with technology outside school. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.946.9873&rep=rep 1&type=pdf
- Silverman, S., & Ratner, N. B. (2002). Measuring lexical diversity in children who stutter: Application of vocd. *Journal of fluency disorders*, 27(4), 289-304. https://doi.org/10.1016/S0094-730X(02)00162-6
- Stokes, S. F., & Fletcher, P. (2000). Lexical diversity and productivity in Cantonesespeaking children with specific language impairment. *International Journal of Language* & *Communication Disorders*, 35(4), 527-541. https://doi.org/10.1080/136828200750001278
- Tomasello, M., & Merriman, W. E. (2014). *Beyond names for things: Young children's acquisition of verbs.* Psychology Press. https://doi.org/10.4324/9781315806860
- Van Lommel, Sven, Annouschka Laenen, and Géry d'Ydewalle. "Foreign-grammar acquisition while watching subtitled television programmes." *British Journal of Educational Psychology* 76.2 (2006): 243-258. https://doi.org/10.1348/000709905X38946
- Wang, X. (2014). The relationship between lexical diversity and EFL writing proficiency. University of Sydney Papers in TESOL, 9. https://faculty.edfac.usyd.edu.au/projects/usp_in_tesol/pdf/volume09/Article0 3.pdf

- Watkins, R. V., Kelly, D. J., Harbers, H. M., & Hollis, W. (1995). Measuring children's lexical diversity: Differentiating typical and impaired language learners. *Journal of Speech, Language, and Hearing Research*, 38(6), 1349-1355. https://doi.org/10.1044/jshr.3806.1349
- Yan, J. X., & Horwitz, E. K. (2008). Learners' perceptions of how anxiety interacts with personal and instructional factors to influence their achievement in English: A qualitative analysis of EFL learners in China. *Language learning*, 58(1), 151-183. https://doi.org/10.1111/j.1467-9922.2007.00437.x
- Yildirim, Halil Ibrahim. "The effect of using out-of-school learning environments in science teaching on motivation for learning science." *Participatory Educational Research* 7.1 (2020): 143-161. https://dergipark.org.tr/en/pub/per/article/650253
- Yu, G. (2010). Lexical diversity in writing and speaking task performances. *Applied linguistics*, *31*(2), 236-259. https://doi.org/10.1093/applin/amp024
- Zhang, D., & Koda, K. (2013). Morphological awareness and reading comprehension in a foreign language: A study of young Chinese EFL learners. System, 41(4), 901-913. https://doi.org/10.1016/j.system.2013.09.009
- Zhong, H. F. (2018). The relationship between receptive and productive vocabulary knowledge: A perspective from vocabulary use in sentence writing. *The Language Learning Journal*, *46*(4), 357-370. https://doi.org/10.1080/09571736.2015.1127403

APPENDICES

Appendix 1: Informal (out-of-school) exposure to English questionnaire

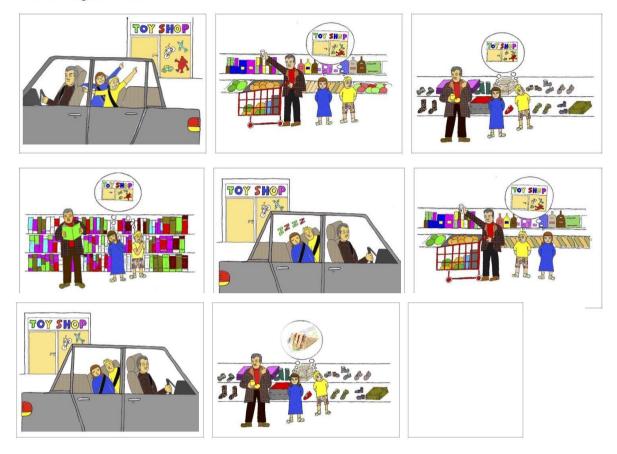
GROUP	3°	Ν	IAME:							
QUEST	IONNAIRE: int	formal (out	-of school) exposure to English							
1. <u>I Wates</u> YO VEO	<u>l</u>	(TRADUCCIÓN)	NUNCA	POCO	A VECES	NORMALMENTE	SIEMPRE			
NO SUBTITLES	ES;FILMS OR CART LÍCULAS EN INGLÉS SII		NEVER	A LITTLE BIT	SOMETIMES	USUALLY	ALWAYS			
SUBTITLES	ES;FILMS OR CART LÍCULAS EN INGLÉS CO		NEVER	A LITTLE BIT	SOMETIMES	USUALLY	ALWAYS			
SPANISH SUBTIT	LÍCULAS EN INGLÉS CO		NEVER	A LITTLE BIT	SOMETIMES	USUALLY	ALWAYS			
2. <u>I PCCUJ</u> YO JUEGO										
	R CONSOLE GAME	the second second second second	NEVER	A LITTLE BIT	SOMETIMES	USUALLY	ALWAYS			
VOCABULARY P	LINE GAMES FOR G URPOSES LINE PARA PRACTICAR I VOCABULARIO)		NEVER	A LITTLE BIT	SOMETIMES	USUALLY	ALWAYS			
2.3 ENGLISH BOA JUEGOS DE	RD GAMES MESA EN INGLÉS		NEVER	A LITTLE BIT	SOMETIMES	USUALLY	ALWAYS			
3. <u>I READ</u> YO LEO										
3.1 BOOKS IN ENO LIBROS EN IN			NEVER	A LITTLE BIT	SOMETIMES	USUALLY	ALWAYS			
	IANGA IN ENGLISH IANGAS EN INGLÉS	ł	NEVER	A LITTLE BIT	SOMETIMES	USUALLY	ALWAYS			
3.3 NEWSPAPERS PERIÓDICOS	IN ENGLISH O PRENSA EN INGLÉS		NEVER	A LITTLE BIT	SOMETIMES	USUALLY	ALWAYS			
3.4 YOUTUBE CC	MMENT SECTION	IN ENGLISH	NEVER	A LITTLE BIT	SOMETIMES	USUALLY	ALWAYS			

COMENTARIOS DE YOUTUBE					
3.5 TWITTER POSTS IN ENGLISH PUBLICACIONES O COMENTARIOS DE TWITTER EN INGLÉS	NEVER	A LITTLE BIT	SOMETIMES	USUALLY	ALWAYS
4. ILISTENTO YO ESCUCHO					
4.1 ENGLISH MUSIC MÚSICA EN INGLÉS	NEVER	A LITTLE BIT	SOMETIMES	USUALLY	ALWAYS
4.2 ENGLISH SPEAKING PODCASTS PODCASTS EN INGLÉS	NEVER	A LITTLE BIT	SOMETIMES	USUALLY	ALWAYS
5. <u>I GO TO</u> YO VOY A					
5.1 A PRIVATE ENGLISH ACADEMY UNA ACADEMIA EN INGLÉS	NEVER	A LITTLE BIT	SOMETIMES	USUALLY	ALWAYS
5.2 EXTRACURRICULAR ACTIVITIES IN ENGLISH ACTIVIDADES EXTRAESCOLARES EN INGLÉS	NEVER	A LITTLE BIT	SOMETIMES	USUALLY	ALWAYS
6. <u>I Speax</u> Yo Hablo					
6.1 IN ENGLISH WITH MY FAMILY EN INGLÉS CON MI FAMILIA	NEVER	A LITTLE BIT	SOMETIMES	USUALLY	ALWAYS
6.2 IN ENGLISH WITH MY FRIENDS EN INGLÉS CON MIS AMIGOS O AMIGAS	NEVER	A LITTLE BIT	SOMETIMES	USUALLY	ALWAYS
6.3 IN ENGLISH WITH FOREIGN PEOPLE EN INGLÉS CON GENTE EXTRANJERA	NEVER	A LITTLE BIT	SOMETIMES	USUALLY	ALWAYS
6.4 IN ENGLISH WITH FOREIGN PEOPLE THROUGH INTERNET (CHATING)	NEVER	A LITTLE BIT	SOMETIMES	USUALLY	ALWAYS

DUGH INTERNET (CHATING) EN INGLÉS CON GENTE EXTRANJERA (CHATEANDO)

Appendix 2: Oral task introductory paragraph and pictures

Alex, María, and their dad are going to buy some products, but going to the TOY SHOP is not in their plans. They get in the car and start driving to the supermarket near their house. In the car, María and Alex see a TOY SHOP and start to get interested.



Informal exposure, motivation and lexical variety in young EFL learners.

Appendix 3: Out-of-school exposure (raw data)

STUDENT		014	010	04.0	00.4	Q2.2	Q2.3	02.4	00.0	02.2
F10	SCODE	Q1.1	Q1.2	Q1.3	Q2.1			Q3.1	Q3.2	Q3.3
		3						5	4	3
M9		2						5	3	5
F11		2			4			5	1	2
F16		2						2	1	1
F14		3			3			4	5	3
F15		1			3			3	5	2
F9		4			4			5	4	1
M10		3						4	1	1
F5		3						2	2	1
M13		4			4			3	2	1
F8		2			1	4		5	1	1
F2		2			4			4	1	1
F1		1			3			4	1	1
M14		2			5			2	1	1
M5		1						2	3	1
F17		2			4		2	2	1	1
M8		1	1	2	3	2	1	2	1	1
F4		3	3 3	4	1	3	1	3	1	1
M2		2			5	1	2	4	1	1
M15		1			3	4	1	3	3	1
M4		3			4			2	1	1
F7		2			1			3	3	1
M11		3			3			3	1	1
F3		1			5			3	1	1
F6		2			1			3	1	1
F13		1			1			3	1	1
M7		2			1			2	3	1
F12		3			1			3	3	1
M6		1			1			3		1
M3		1			2			1	1	1
INIO	1		4	2		1			1	
Q3.4										
	03.5	011	012	05.1	05.2	061	06.2	06.3	06.4	
	Q3.5	Q4.1	Q4.2	Q5.1	Q5.2	Q6.1	Q6.2	Q6.3	Q6.4	3.58
	5	1 5	5 1	3	5	1	4	3	4	3,58
	5	1 E	5 1 1 3	3	5	1	4	3	4	3,21
	5 5 3	1 5 2 4 1 5	5 1 4 3 5 1	3 1 1	5 5 2	1 3 5	4 2 3	3 1 4	4 3 2	3,21 2,84
	5 5 3 5	1 5 2 4 1 5 1 5	5 1 4 3 5 1 5 5	3 1 1 1	5 5 2 1	1 3 5 4	4 2 3 1	3 1 4 1	4 3 2 1	3,21 2,84 2,74
	5 5 3 5 2	1 5 2 4 1 5 1 5 1 5	5 1 4 3 5 1 5 5 5 5 5 3	3 1 1 1 1 1	5 5 2 1 1	1 3 5 4 5	4 2 3 1 1	3 1 4 1 1	4 3 2 1 1	3,21 2,84 2,74 2,68
	5 5 3 5 2 1	1 5 2 4 1 5 1 5 1 5 1 5 1 5 1 5 1 5	5 1 4 3 5 1 5 5 5 5 5 3 5 1	3 1 1 1 1 1 1	5 5 2 1 1 1	1 3 5 4 5 4 5 4	4 2 3 1 1 1	3 1 4 1 1 5	4 3 2 1 1 2	3,21 2,84 2,74 2,68 2,63
	5 5 3 5 2 1 2	1 5 2 4 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5	5 1 4 3 5 1 5 5 5 3 5 1 5 2	3 1 1 1 1 1 1 1	5 5 2 1 1 1 2 2	1 3 5 4 5 4 5 4 3	4 2 3 1 1 1 1 1	3 1 4 1 1 5 2	4 3 2 1 1 2 2 2	3,21 2,84 2,74 2,68 2,63 2,53
	5 5 3 5 2 1 2 2 2 2	1 5 2 4 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5	5 1 4 3 5 1 5 5 5 3 5 3 5 1 5 2 5 2	3 1 1 1 1 1 1 1 3	5 5 2 1 1 1 1 2 5	1 3 5 4 5 4 5 4 3 1	4 2 3 1 1 1 1 3	3 1 4 1 1 5 2 2 2	4 3 2 1 1 2 2 2 2 2	3,21 2,84 2,74 2,68 2,63 2,53 2,63
	5 5 3 5 2 1 2 2 2 2 3	1 5 2 4 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5	5 1 4 3 5 1 5 5 5 3 5 3 5 1 5 2 5 2 5 2 5 1	3 1 1 1 1 1 1 3 3 3	5 5 2 1 1 1 1 2 5 5 1	1 3 5 4 5 4 3 3 1 3	4 2 3 1 1 1 1 3 3 3	3 1 4 1 5 2 2 2 1	4 3 2 1 1 2 2 2 2 2 1	3,21 2,84 2,74 2,68 2,63 2,53 2,63 2,63 2,47
	5 5 3 5 2 1 2 2 3 3 3	1 5 2 4 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5	5 1 4 3 5 1 5 5 6 3 5 1 5 2 5 2 5 1 5 2 5 1 5 1 5 1	3 1 1 1 1 1 1 3 3 3 3 3 3	5 5 2 1 1 1 2 5 5 1 2 2 5 1 2	1 3 5 4 5 4 3 3 1 3 2 2	4 2 3 1 1 1 1 3 3 3 3 3	3 1 4 1 5 2 2 2 1 1	4 3 2 1 1 2 2 2 2 2 1 1	3,21 2,84 2,74 2,68 2,63 2,53 2,63 2,63 2,47 2,42
	5 5 3 5 2 1 2 2 2 3 3 3 4	1 5 2 4 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5	3 1 4 3 5 1 5 5 5 3 5 1 5 2 5 2 5 1 5 1 5 1 5 1 5 1 5 1	3 1 1 1 1 1 1 1 1 3 3 3 3 3 1	5 5 2 1 1 1 1 2 5 5 1 2 2 1 2 1	1 3 5 4 5 4 3 3 3 2 2 1	4 2 3 1 1 1 1 1 3 3 3 3 3 3 3 3 3	3 1 4 1 5 2 2 2 1 1 1 5	4 3 2 1 1 2 2 2 2 1 1 1 1 1	3,21 2,84 2,74 2,68 2,63 2,53 2,63 2,47 2,42 2,42
	5 5 2 1 2 2 3 3 4 1	1 5 2 4 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5	3 1 4 3 5 1 5 5 5 3 5 1 5 2 5 2 5 1 5 2 5 1 5 1 5 1 5 1 5 1 5 1 5 1	3 1 1 1 1 1 1 1 1 1 3 3 3 3 1 5	5 5 2 1 1 1 1 2 5 5 1 2 2 1 5 5 1 5 5 1 5 5 5 5	1 3 5 4 4 3 1 1 3 2 2 1 2	4 2 3 1 1 1 1 1 3 3 3 3 3 3 3 3 3 3 3	3 1 4 1 5 2 2 2 2 1 1 5 5 1	4 3 2 1 1 2 2 2 2 2 2 1 1 1 1 1 1	3,21 2,84 2,74 2,68 2,63 2,53 2,63 2,43 2,42 2,42 2,42 2,32
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M15 2,11 58 7 6 1 M8 2,11 49 5 5 1 F7 2,05 100 6 1 8 M4 2,05 50 5 5 M11 1,95 58 6 9 1 F3 1,95 28 5 6 1 F6 1,84 36 5 4 1 F12 1,74 59 2 2 2		2,11	92	6		10			
M8 2,11 49 5 5 1 F7 2,05 100 6 1 8 M4 2,05 50 5 5 M11 1,95 58 6 9 1 F3 1,95 28 5 6 1 F13 1,84 36 5 4 1 F6 1,84 21 5 6 1 F12 1,74 59 2 2 2		2,11	62	7	2	10			
F7 2.05 100 6 1 8 M4 2.05 50 5 5 5 5 M11 1.95 58 6 9 1 F3 1.95 28 5 6 1 F13 1.84 36 5 4 1 F6 1.84 21 5 6 1 F12 1.74 59 2 2 2		2,11	58	7		6	1		
M4 2.05 50 5 5 6 9 1 M11 1.95 58 6 9 1 1 F3 1.96 28 5 6 1 1 F13 1.84 36 5 4 1 1 F6 1.84 21 5 6 1 1 F12 1.74 59 2 2 2 1		2,11	49	5		5	1		
M11 1.95 58 6 9 1 F3 1.95 28 5 6 1 F13 1.84 36 5 4 1 F6 1.84 21 5 6 1 F12 1.74 59 2 2 2		2,05	100	6	1	8			
F3 1,95 28 5 6 1 F13 1,84 36 5 4 1 F6 1,84 21 5 6 1 F12 1,74 59 2 2 2		2,05	50	5		5			
F13 1.84 36 5 4 1 F6 1.84 21 5 6 1 F12 1.74 59 2 2 2		1,95	58	6		9	1		
F6 1.84 21 5 6 1 F12 1.74 59 2 2 2		1,95	28	5		6		1	
F12 1,74 59 2 2		1,84	36	5		4	1		
		1,84	21	5		6	1		
		1,74	59	2		2			
M7 1,74 43 1 5		1,74	43		1	5			
M6 1,74 33 5 1 5 1		1,74	33	5	1	5	1		1

Appendix 4. Number of words and per frequency level

Appendix 5. Number of word families per frequency level

PARTICIPANT	QUESTIONNAIRE SCORE	FA1	FA2	FA2	FA4	FA5	FA6	FA8
F10	3,58	22	4		4			
M9	3,21	17	2		2	1		1
F11	2,84	20	3		3	1	2	
F16	2,74	19	1		3	1		
F14	2,68	20	3		2	1		1
F15	2,63	25	5		5	1		1
F9	2,53	18	4		2	1		
M10	2,53	23	6		2	1	1	
F5	2,47	23	6		4	1		1
F8	2,42	18	4	1	1			2
M13	2,42	18	3		2	1	1	
F2	2,32	20	4	1	2	1		()
M14	2,21	31	4	2	3	1		
F1	2,21	12	1	1	1		1	
F17	2,16	21	4		2			
M5	2,16	12	1	2	1			
M2	2,11	21	2		2			
F4	2,11	15	3	2	2			1
M15	2,11	15	2		2	1		
M8	2,11	23	2		1	1		
F7	2,05	28	2	1	3			
M4	2,05	16	2		2			
M11	1,95	18	2		2	1		
F3	1,95	11	1		2		1	
F13	1,84	12	2		1	1		
F6	1,84	9	1		2	1		
F12	1,74	14	1		1			
M7	1,74	13		1	3			
M6	1,74	13	3	1	3	1		1



Appendix 6. Informal exposure vs. number of words and word families (F5-F8; FA1-FA8)

