

# Examining the impact of amount of exposure on L2 development with CLIL and non-CLIL teenage students

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**Resum. L'impacte de la quantitat d'exposició en el desenvolupament de la L2 amb adolescents d'un programa AICLE i no AICLE.** Des de l'època dels noranta hi ha hagut un augment d'exposició de la segona llengua en escoles de primària i secundària, concretament en la llengua anglesa. Una metodologia utilitzada ha estat l'AICLE, la qual s'està desenvolupant des de fa uns anys en diferents nivells educatius, amb un bon resultat pel que fa l'adquisició de la segona llengua. S'han fet molts estudis en aquest àmbit, però gairebé tots ells es centren en el guany lingüístic comparant els grups d'AICLE i no AICLE. No obstant això, hi ha una manca d'estudis fets pel que fa als efectes i el tipus d'exposició d'aquests estudiants a la segona llengua. Així, aquest estudi analitza els efectes generals d'exposició a una segona llengua en oposició als efectes específics de la mateixa (per mitjà de classes AICLE, concretament classes de tecnologia en anglès). L'estudi compara grups d'estudiants amb una quantitat i tipus d'exposició a la llengua diferents; el desenvolupament de la L2 es mesura a partir de la correcció de l'escriptura, la complexitat lèxica, la complexitat sintàctica i la fluïdesa d'escriptura.

**Paraules clau:** AICLE, exposició a la llengua, segona llengua, llengua estrangera, adquisició de segones llengües.

**Abstract. Examining the impact of amount of exposure on L2 development with CLIL and non-CLIL teenage students.** Since the 1990's there has been an increase of foreign language exposure in primary and secondary schools. One of the methodologies used is called CLIL, which has been developed since some years ago in different educational levels, with a good result in student's second language acquisition. Many studies have been made on this field, but nearly

all of them have focused on the language gains of CLIL vs. Non-CLIL students. Therefore, given the lack of studies made on the possible effects of L2 exposure, this paper aims to examine the effects of general L2 exposure vs. specific language exposure (through CLIL classes, namely technology classes in English). To do this, the study compares different groups of students with a different type and amount of language exposure measured in terms of written accuracy, lexical complexity, syntactic complexity and written fluency.

**Keywords:** CLIL, language exposure, L2, foreign language, second language acquisition.

## 1. Introduction

Globalization, together with the international economic and social forces, has a direct impact on people's lives, and consequently on their linguistic choices. Probably for these reasons, governments have decided to increase multilingual education by enhancing the students' exposure to a second or foreign language (L2 and FL respectively), and therefore this has resulted in promoting the implementation of an academic subject in an FL in the schools, commonly named as Content and Language Integrated Learning (CLIL). CLIL refers to situations where subjects are taught through an FL with both the aim of learning the content and the FL (Coyle *et al.* 2010, Mehisto *et al.* 2008, Aguilar and Muñoz 2014, Ruiz de Zarobe and Jiménez-Catalán 2009a and Dalton-Puffer and Ute Smit 2007). Since the introduction of CLIL programmes in the 90s, many studies have examined the effects of CLIL from different perspectives, and in general terms it has been found that CLIL has a positive impact on L2 learners (Banegas 2012, Lasagabaster 2011, Nikula 2005, Ackerl 2007, Celaya and Ruiz de Zarobe 2010 and Villarreal and García Mayo 2009). However, all these studies have focused on analysing the effects of CLIL on the L2 development by comparing groups of CLIL learners and non-CLIL learners, without controlling for the greater amount of exposure of CLIL participants over non-CLIL participants. This paper aims to contribute to the field of Second Language Acquisition (SLA) by providing a study which examines first the impact of L2 learning approach of a group of secondary students learning English (L2); it does so by comparing the written fluency, lexical and syntactic complexity, and accuracy of a group of students who take CLIL lessons with a group of students who do not take CLIL lessons (non-CLIL). Secondly, it compares the effects of amount of L2 exposure by distributing participants into high and low L2 exposure groups.

## 2. Literature review

The acquisition of an L2 is a complex process. On the one hand, it deals with psychological processes that affect the success of the learning of a given language, and on the other hand, it also takes into account educational methods that can facilitate

its acquisition. According to Skehan (1998), exposure to input is one of the main requirements for L2 acquisition. However, the input participants receive should meet other requirements, such as being authentic, useful for a communicative end, and varied (Muñoz 2007). Amount and type of exposure to the L2 are also considered crucial factors when learning an L2, and this is probably one of the reasons to implement CLIL programmes since they provide students with the opportunity to receive more input, to process the meaning and the form, and to produce language.

Research on the effects of CLIL programmes has been conducted from different areas. As for vocabulary acquisition, Ruiz de Zarobe and Jiménez Catalán (2009b) examined the receptive vocabulary (that is to say, when participants are not asked to produce any words but to indicate if they know the words they hear or see) of primary female groups of CLIL versus non-CLIL students, with an amount of exposure of 960 hours of English instruction for the CLIL group versus 629 hours for the non-CLIL group, and they found that CLIL students achieved better results than non-CLIL students. In another study, Jiménez Catalan, *et al.* (2006) analysed whether kind of instruction had any relevance on the learner's productive vocabulary size, comparing a group of 10-year-old CLIL students versus non-CLIL students, and they found that CLIL students had a higher lexical richness compared to the others. Vocabulary acquisition has also been investigated with primary students taking CLIL. Canga Alonso (2013), for example, examined the vocabulary size of a group of primary students aged 11-12 with 944 hours of exposure and the results showed that the receptive vocabulary size was higher among CLIL students.

The effects of CLIL on oral production skills have also been investigated. Bret (2011), for example, analysed the effects the oral production skills of a group of primary students that received one hour of CLIL exposure per week for three consecutive years (a sum of 105 hours plus the FL lesson hours), comparing them with a group of students that had not taken any CLIL classes. She examined the oral performance of the students, analysing its complexity, accuracy and fluency, and after three years she found that CLIL participants showed higher gains.

The development of L2 morphosyntax has also been explored with respect to CLIL. Hüttner and Rieder-Bünemann (2007) examined two groups of 12-year-old students in a secondary school (the CLIL group had attended a CLIL program for 7 years). The results showed positive results in favour of the CLIL group in that CLIL participants were more accurate when producing verb errors. Likewise, Villarreal and García-Mayo (2009) compared CLIL versus non-CLIL students aged 15-16 from different secondary schools and with a total amount of English exposure of 1155-1120 hours for the CLIL group and 792 for the non-CLIL group. The former outperformed the latter in that they produced fewer errors of omission on inflectional third person singular -s and simple past -ed. Ackerl (2007) compared the written proficiency of 18-year-old students in a bilingual project (in progress for 4 years) and in a regular one. The results showed that bilingual students used a wider variety of tenses and complex sentences, whereas non-bilingual students stuck to the present and past simple tenses.

Other researchers have explored the impact of CLIL on L2 global development (that is to say, learners who have experienced linguistic gains in more than one skill). Admiral *et al.* (2006), for example, investigated the language achievement of a group of pre-university students in different secondary schools involved in a bilingual education program, comparing students who attended CLIL classes versus non-CLIL for 4 years. After 6 academic years the results regarding reading comprehension and oral proficiency were higher for the CLIL group. Likewise, Navés and Victori (2010) compared a group of CLIL students in Catalonia with a group of non-CLIL students and found that CLIL students had a greater level of general English proficiency and writing proficiency compared with the non-CLIL students. Similarly, Alonso *et al.* (2008) carried out a study in the Basque Country, and examined the educational value and effectiveness of Plurilingual Education established in some secondary schools over a two-year period. The authors did that by analysing the four skills of the students (CLIL vs. non-CLIL) of their L3 (English) through different TESOL tests and found that CLIL students were better than non-CLIL students; that is to say, CLIL students showed higher gains on linguistic and communicative competence, and on equal gains on the content of different English subject areas compared.

Despite the advantage for CLIL students documented in the above-mentioned studies, there is also previous research that has failed to document positive results for CLIL programs. Seikkula-Leino (2007), analysed if CLIL students had successfully learned the content of the specific subject, and the author also assessed their affective learning factors in terms of motivation and self-esteem. The results neither showed any differences in CLIL students' learning process nor any significant results in self-esteem. Another author that failed to document an advantage for the CLIL programme was Yip (2003). The author analysed the effects of different English immersion's programmes of students from Hong Kong (by analysing the student's written production, class observation and science tests) in order to see CLIL instruction effects. The author did not find any significant results in these programmes.

What must be pointed out is that there are some areas that have not yet been studied. What is more, to our knowledge, few studies on CLIL have controlled for the possible effects of L2 exposure (Admiral *et al.* 2006, Ruiz de Zarobe 2008 and Villarreal 2011), resulting this in an advantage for CLIL students as they are typically more exposed to the L2. Gallardo del Puerto *et al.* (2007) made a distinction on the amount of exposure of the participants (from 14 to 16 years old), who were exposed to the FL exclusively in school and who had an amount exposure that ranged between 693 hours to 1155 hours. They analysed the pronunciation (through degree of foreign accent) of the primary students attending traditional classes compared with those learning it through a CLIL methodology. Given that the effects of CLIL on the participants' written L2 development are not clear and that it is not known whether the results of CLIL are due to the type of language (specificity) or the amount of language to which participants are exposed, the goal of the present study is to add further evidence in this area.

### 3. The present study

The present study aims to examine the effects of general L2 exposure vs. specific language exposure (through CLIL classes, namely technology classes in English). Although a few studies have looked at the effects of exposure to the L2, most of the previous studies have compared the language gains between CLIL and non-CLIL participants. However, the design of this study has a different approach, since it focuses on the effects of amount and type of L2 exposure (high and low general L2 exposure on the one hand, and general versus specific L2 exposure on the other hand). The research questions that guided the present study are:

1. What is the impact that type of L2 exposure (general vs. specific) has on students' L2 (measured in terms written accuracy, lexical complexity, syntactic complexity and written fluency)?
2. What is the impact that amount of L2 language exposure (high vs. low) has on the students' L2 (measured in terms written accuracy, lexical complexity, syntactic complexity and written fluency)?

### 4. Methodology

#### 4.1. School/EFL context

The study was carried out in a semi-private school located in Lleida. The school offers preschool, primary and secondary schooling, covering the three educational stages. Most students who attend this school belong to mid-high socioeconomic class families.

All students attend regular English classes three hours per week, regardless of their grade. However, the school also implements CLIL classes in English from preschool to 4<sup>th</sup> of *Enseñanza Secundaria Obligatoria* (ESO) with a different number of hours in each group (from one hour per week to three hours per week depending on the students' schooling stage). For instance, preschool children receive one hour of CLIL in English per week; primary students take the same CLIL subject each year in English (Computing), and the ESO students take a Technology CLIL course until 3<sup>rd</sup> of ESO. Once they get to 4<sup>th</sup> ESO the only group that has the option to attend CLIL classes is the one taking Technology.

#### 4.2. Participants

The learners who participated in this study were 39 Catalan/Spanish bilingual students in the 4<sup>th</sup> of ESO year, who were distributed into groups. In order to see whether specific language instruction through CLIL led to greater L2 gains, participants were grouped on the basis of the CLIL program attendance (regardless of amount of

exposure to the L2). Thus, two groups emerged from this distribution: participants taking CLIL (16 males, 1 female) and those who were not taking CLIL (14 males, 8 females). Participants not taking CLIL (non-CLIL) had had Technology CLIL classes the previous years of the ESO. All the students received the same amount of English language classes in the school (three hours per week), but they differ in CLIL instruction in that the experimental group has three hours of CLIL in English a week; therefore, CLIL students have a total of 6 hours of English exposure per week at school.

Second, in order to see if the amount of L2 exposure had a positive impact on the participants' L2 development, the very same participants were distributed into groups regardless of the type of input they received (CLIL vs. non-CLIL), but according to the amount of input received, thus considering the number of hours taking curricular and extracurricular classes (if any). Therefore, it was decided that students who were exposed to English for 6 hours or more per week would be included in the high exposure group, whereas the students with less than 6 hours would be the low exposure group (see Tables 1 and 2 below for specific information on the participants and their L2 exposure).

TABLE 1: PARTICIPANTS' GROUPING CHARACTERISTICS

	Group	Age	Males	Females	Total	Extracurricular classes	No extracurricular classes
Specificity of exposure	CLIL	15	n= 16	n= 1	n= 17	n= 5	n= 12
	Non-CLIL	15	n= 14	n= 8	n= 22	n= 15	n= 7
Intensity of exposure	High Exposure	15	n= 22	n=7	n= 29	n= 17	n= 12
	Low Exposure	15	n= 8	n= 2	n= 10	n= 0	n= 10

TABLE 2: PARTICIPANTS' AMOUNT OF L2 EXPOSURE

	L2 exposure (M)
CLIL (n= 17)	6.58 h/week
NO-CLIL (n= 22)	4.92 h/week
High L2 Exposure (n= 29)	6.45 h/week
Low L2 Exposure (n= 10)	3.3 h/week

Thus, this study consists of a comparison of the very same groups of participants but arranged differently in order to cater for the effects of L2 exposure and learning approach on L2 acquisition.

### ***4.3. Procedure***

This study has a pre/post test design. The pre-test was administered in January whereas the post-test was distributed two months later, in March, when the participants had received the following hours of instruction: 54 hours for the CLIL group, 27 hours for the non-CLIL group, 58 hours for high exposure group, and 29.7 hours the low exposure group. Both at the pre- and at the post-test, participants were tested while in class. At the pre-test participants were not informed that there would be a post-test to minimize any possible task repetition effects.

### ***4.4. Instruments***

The instrumentation of the present study consisted of a written test and a vocabulary test.

#### ***4.4.1 Written test***

The written test was administered to all the students in class. Participants were asked to describe a story that consisted of six pictures and they were given 30 minutes to accomplish this task. This picture was chosen because previous research had used it successfully (Author 2013 and Tavakoli and Foster 2011).

#### ***4.4.2 Vocabulary test***

The vocabulary test was designed by one of the authors and was also administered to all the participants. This vocabulary test consisted of 19 pictures selected from the materials used in the Technology CLIL classes. Participants were asked to write the names of these pictures, and they were given the exact number of letters that these words had in order to make it easier.

### ***4.5. Measures***

The measures used in this study were the following<sup>1</sup>: Written fluency was computed by the total number of words divided by the number of T-units (Words per T-unit).

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1. With the exception of the vocabulary test, the measures included in this study were considered amongst the most reliable measures by Wolfe-Quintero *et al.* (1998).

Accuracy was computed through Errors per T-unit (Err T-unit) following Wolfe-Quintero *et al.* (1998) recommendation and also because this measure was used in previous studies examining accuracy in L2 acquisition (Llanes 2012) and it was successful when catering for gains in accuracy. Lexical complexity was examined through the Guiraud's Index of Lexical Complexity and through the specific vocabulary test (Guiraud). The former was obtained by dividing the number of types by the square root of the number of tokens, whereas the latter was calculated by the number of correct answers out of a total of 19 pictures. Finally, syntactic complexity was measured through the number of clauses per T-unit (CL/T-unit).

#### ***4.6. Data analysis procedure***

The data gathered were transcribed and analysed using CLAN (MacWhinney 2000) by one of the authors of the present study. To compute the inter-rater reliability, the second author coded a random 10% of the transcriptions and the agreement between both researchers was 94.2%. As for the intra-rater reliability, the first author recoded 15% of the same data that she had previously coded and the agreement was 94.8%. Next, preliminary assumption testing was conducted to check for normality and it was found that data were normally distributed. The next step was to check if both groups of students were comparable at the pre-test, and for the CLIL non-CLIL comparison, the Independent samples T-test revealed that in the pre-test non-CLIL students scored significantly higher in Guiraud ( $t(37) = 3.256$   $p = .002$ ) and fluency ( $t(37) = 2.387$   $p = .022$ ), whereas CLIL students scored higher in vocabulary ( $t(37) = -4.000$   $p = .000$ ). Hence, a multivariate analysis of covariance (MANCOVA) was used to explore the between-groups differences, because this test allows the researcher to control for certain variables that the researchers think might influence the results. The MANCOVA analysis was conducted with the scores of the post-test as dependent variables, the scores of the pre-test as covariates, and group (CLIL vs. non-CLIL) as the fixed factor. The same procedure was applied for the high vs. low exposure groups. The Independent samples T-test revealed that the low exposure group scored significantly higher in fluency in the pre-test ( $t(37) = 2.235$   $p = .032$ ) and that the high exposure group scored higher in the vocabulary test in the pre-test ( $t(37) = -2.600$   $p = .013$ ). For the same reason mentioned above, a MANCOVA test was run to examine differences between both groups of participants with the scores of the post-tests as dependent variables, the scores in the pre-tests as covariates and 'Exposure group' (high vs. low) was the fixed factor. For space constraints only significant results will be discussed.



## 5. Results

### 5.1. Learning approach (CLIL vs. non-CLIL)

Table 3 below yields the descriptive statistics of all the measures explored for the CLIL and non-CLIL analyses. As can be observed, the descriptive statistics show that participants in the CLIL group always scored higher in the post-test in all the measures but Err/T-Unit (accuracy), whereas participants in the non-CLIL group scored higher in the post-test in all the measures.

TABLE 3: DESCRIPTIVE STATISTICS OF ALL THE MEASURES FOR THE CLIL AND NON-CLIL GROUPS

Test	N	Cl/t-unit		Words per T-unit		Err T-Unit		Guiraud	
		M	Sd	M	sd	M	sd	M	sd
CLIL PR	17	1,36	,287	8,04	1,91	1,75	,737	4,67	,780
CLIL PT	17	1,51*	,204	8,90*	1,56	1,65	,503	4,74	,670
NCLIL PR	22	1,52	,227	9,50	1,88	1,31	,458	5,54	,864
NCLIL PT	22	1,73*	,390	10,5	1,92	1,49	,896	5,76	1,15

Note: NCLIL= Non-CLIL (control group), CLIL = experimental group, PR = Pre-test, PT = Post-test, CL= Clauses, \* = Statistically significant result.

A paired-sample *T*-test was run to explore if the difference between the scores in the pre- and post-test was significant for each of the groups. As can be observed from the data displayed in Table 3, CLIL students experienced two significant differences between the pre- and the post- tests, namely in syntactic complexity ( $t(16) = -2.133, p = .049$ ), and written fluency ( $t(16) = -2.893, p = .011$ ). With regards to the non-CLIL students, results also reveal one statistically significant value that students experienced between the pre- and the post-test: grammar complexity ( $t(21) = -2.347, p = .029$ ).

Table 4 shows the descriptive statistics of the vocabulary test. The paired-sample *T*-test revealed that there is a significant difference in the non-CLIL group between the pre- and the post- tests regarding vocabulary ( $t(21) = -6.035, p = .000$ ). These results indicate that the non-CLIL group significantly improved in the vocabulary test from the pre- to the post-test while the CLIL group's improvement was not significant.

Next, a MANCOVA analysis was conducted to see whether CLIL and non-CLIL participants differed significantly in the post-test, and it was found that the difference

between both groups was not significant ( $F(5, 28) = 2.343, p = .068, Wilk's \Lambda = .705$ ). Thus, the results obtained so far fail to show an advantage for the CLIL participants given that both groups (CLIL and non-CLIL) experience statistically significant gains from the pre- to the post-test on two measures and that both groups are not statistically significant in the post-test.

TABLE 4 DESCRIPTIVE STATISTICS OF THE VOCABULARY TEST

Vocabulary test			
	N	Mean	Std. Dev.
CLIL PR	17	7,24	3,865
CLIL PT	17	8,82	4,111
NCLIL PR	22	3,18	2,442
NCLIL PT	22	4,95*	2,380

Note: NCLIL= Non-CLIL or control group, CLIL = experimental group, PR = Pre-test, PT = Post-test, \*= Statistically significant.

### 5.2. Amount of exposure (high vs. low L2 exposure)

Table 5 shows the data for the participants in the high and low L2 exposure groups for the pre- and post- test.

TABLE 5: DESCRIPTIVE STATISTICS OF ALL THE MEASURES FOR THE HIGH AND LOW L2 EXPOSURE GROUPS

Test	N	CL/t-unit		Words per minute / Words per T-unit		Error T-unit		Guiraud	
		M	sd	M	sd	M	sd	M	sd
HIGH PR	29	1,45	,294	8,46	1,78	1,50	,679	5,18	1,00
HIGH PT	29	1,67*	,353	9,79*	1,95	1,60	,806	5,21	,879

LOW PR	10	1,47	1,56	10,03	2,28	1,51	,475	5,12	,705
LOW PT	10	1,52	,267	9,902	1,98	1,44	,551	5,63	1,58

Note: High= >3 hours/week language exposure, Low= <=3 hours/week language exposure, PR = Pre-test, PT = Post-test \* = Statistically significant result

The paired-samples *T*-tests reveal that both syntactic complexity ( $t(28) = -3.460$ ,  $p = .010$ ) and fluency ( $t(28) = -3.836$ ,  $p = .001$ ) turned out to be significant for participants in the high L2 exposure group. Participants in the Low L2 exposure group did not experience any significant difference between the pre- and the post- test.

TABLE 6: DESCRIPTIVE STATISTICS OF THE VOCABULARY TEST FOR THE HIGH AND LOW L2 EXPOSURE GROUPS

Vocabulary test			
	N	MEAN	Std. Dev.
HIGH PR	29	5,79	3,90
HIGH PT	29	7,45*	3,88
LOW PR	10	2,50	1,35
LOW PT	10	4,30*	2,06

Note: NCLIL= Non-CLIL or control group, CLIL = experimental group, PR = Pre-test, PT = Post-test.

As seen in Table 6, both the high and low language exposure groups of students experienced a statistically significant gain in the vocabulary test (high L2 exposure group:  $t(28) = -2.900$ ,  $p = .007$ ; low L2 exposure group:  $t(9) = -3.375$ ,  $p = .008$ ). Therefore, the results obtained when comparing participants according to their amount of L2 exposure suggest that a greater exposure to the L2 leads to greater gains.

A MANCOVA test was conducted with the parameters mentioned above but with 'Exposure' as the fixed factor, and the multivariate test showed that the high and low exposure group did not differ significantly ( $F(5, 28) = 2.058$ ,  $p = .101$ , *Wilks'  $\Lambda$*  = .731).

Therefore, the results so far indicate that the high exposure group showed significant gains from the pre- to the post-test in three variables, whereas the low exposure group experienced significant gains in only one variable. However, the difference between the high and low exposure groups was not significant.

## 6. Discussion

This study sought to investigate the effects of amount and type of L2 exposure on L2 acquisition. In order to examine any possible effects of L2 learning approach, participants were grouped depending on the programme they belonged to (CLIL vs. non-CLIL), and despite the fact that the CLIL group experienced one more significant gain than the non-CLIL group (both groups experienced significant improvement in grammatical complexity, but the CLIL group also experienced significant improvement in written fluency), the two groups did not differ significantly. These findings are in line with previous studies that fail to show an advantage for CLIL students (Seikkula-Leino 2007 and Yip 2003).

On the one hand, the modest superiority of the CLIL group over the non-CLIL group could tentatively be explained because of the greater exposure to the L2 than the non-CLIL group or because of the greater L2 input received. It was found that the CLIL group showed higher scores in the vocabulary test, both in the pre- and the post-test, and this finding was expected since the specific vocabulary test was designed from the materials the CLIL teacher had used during the time of the study. The benefits of CLIL on vocabulary acquisition is in line with Jiménez Catalán and Ruiz de Zarobe (2007), Jiménez Catalán, *et al.* (2006), and Canga Alonso (2010) which show that CLIL programmes have a positive influence on the participants' L2 vocabulary learning. However, it was found that the non-CLIL group significantly improved its scores on the vocabulary test, whereas the CLIL group did not. This finding seems to confirm those of previous research which report that learners with lower initial proficiency level make greater L2 gains than advanced learners, although not specifically in a CLIL programme (Brecht and Robinson 1995 and Freed 1995). Another possible explanation could be that the extracurricular activities of the non-CLIL students are supportive the curricular ones on the specificity of the vocabulary given that some participants in the non-CLIL students group engaged in some extracurricular classes.

In order to explore the possible effects of amount of L2 exposure, participants were grouped according to the amount of L2 exposure. As expected, participants with a higher exposure to the L2 experienced more gains and this confirms what previous studies have found (Muñoz 2012, Nikula 2005, and Ackerl 2007). The superiority of the high L2 exposure group over the low L2 exposure group on complexity and fluency could be explained by the greater input received and by the greater opportunities to produce output (Muñoz 2007). However, it should be taken into account that the high exposure group included some CLIL participants and participants who were engaged in extracurricular lessons (see Table 1 above).

As for the vocabulary tests, both groups (high and low L2 exposure) experienced significant gains from the pre- to the post-test. As Nation (1990) claims, in order to acquire new vocabulary learners should be exposed to it repeated times, given that participants in the high exposure group received more input, it could be the case that these participants encountered some words several times and therefore acquired them, and this would explain the superiority of the high exposure group in vocabulary learning.

However, the lack of significant differences between groups (as opposed to within groups), could be explained by the relatively low number of participants in each group. The lack of significant differences between groups could also be due to the fact that the time elapsed between the pre- and post-test is too short for significant gains to emerge.

## 7. Conclusion and further research

The present study investigated the effects of type and quantity of L2 exposure on L2 acquisition. The results showed a modest advantage for the CLIL group over the non-CLIL group, and it also showed an advantage for participants with a greater exposure to the L2. These findings are relevant because much of the previous research examining the effects of CLIL on L2 acquisition has been done by comparing CLIL students with non-CLIL students, ignoring the amount of L2 exposure of participants. This study suggests that amount of L2 exposure, regardless of the type of exposure, plays a key role when learning an L2. However, our results must be interpreted with caution given the limitations of our study. One limitation is that although the groups of participants were quite homogeneous and we controlled for certain variables, it is still difficult to claim that the results are solely due to the type or amount of L2 exposure only as other factors might come into play. In that sense, it must be pointed out that there was variability of amount of exposure in the 'high exposure' group as some students had received three hours of EFL instruction and three hours of CLIL instruction, whereas some others had received six hours of EFL instruction. Similarly, extracurricular instruction was a possible intervening variable in our study as well as participant's previous exposure. Further research in these lines, which includes more subjects and controls for variables such as those described before may be able to shed further light into the importance of exposure in new second language learning contexts such as CLIL.

The exploratory nature of the study as well as its modest results do not allow for strong conclusions such as suggesting changes in the educational system and programmes. Each piece of research only adds a small grain to the knowledge pile.

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