UNIVERSITY OF MURCIA

International Journal of English Studies

IJES

www.um.es/ijes

Exploring the Increase of Receptive Vocabulary Knowledge in the Foreign Language: A Longitudinal Study

MELANIA TERRAZAS GALLEGO & MARÍA DEL PILAR AGUSTÍN LLACH[1]
University of La Rioja

ABSTRACT
This paper tracks the increase in the overall word reception knowledge of 224 young pupils in their 4th, 5th and 6th grades of primary education and in their 1st year of secondary education (7th grade), who learn EFL in a formal context. The 2,000 word frequency band of The Vocabulary Levels Test (Schmitt, Schmitt and Clapham, 2001, version 2) is used to establish their word knowledge level. Results reveal that the development of these students' receptive English vocabulary size is incremental and constant, and that it falls within the 1,000 frequency level. Learners increase their receptive vocabulary knowledge in a significant way from one grade to the next. The rate of the gain remains constant across grades.

KEYWORDS: Receptive vocabulary size, longitudinal study, primary and secondary learners, English as a Foreign Language

[1] ***Address for correspondence***: Melania Terrazas Gallego, Departamento de Filologías Modernas, Universidad de La Rioja, Edificio de Filologías, C/. San José de Calasanz, s/n, 26004 Logroño (La Rioja), Spain; e-mail: melania.terrazas@unirioja.es

María del Pilar Agustín Llach, Departamento de Filologías Modernas, Universidad de La Rioja, Edificio de Filologías, C/. San José de Calasanz, s/n, 26004 Logroño (La Rioja), Spain; e-mail: maria-del-pilar.agustín@unirioja.es

I. INTRODUCTION

Size of vocabulary knowledge, either receptive or productive, is generally acknowledged to be incremental (Schmitt, Schmitt & Clapham, 2001: 79). Schmitt (2000) highlights that vocabulary is incremental in a number of ways. First, as regards the incorporation of new words into the mental lexical store; second, concerning the different aspects of word knowledge gradually being acquired. The aspects are not acquired on a yes/no basis, but as Schmitt (2000: 120) says, "it may be better to consider the degree of receptive/productive control of the various *word-knowledge* aspects".

The vocabulary size of foreign language learners also depends on their L2 proficiency level and as students' experience with the target language increases, vocabulary size increases as well. Nevertheless, foreign language learners do not usually succeed in accumulating as large a lexical storage as native speakers do. In fact, the latter are constantly incorporating new words into their L1 lexicon, even well into adult life. Concerning this issue, there is no definitive longitudinal research evidence to conclude that foreign language learners continue storing new words into their L2 lexicon throughout their language acquisition process.

Knowing the vocabulary size, both receptive and productive, of learners provides us with an idea of what FL tasks learners are able to perform. To start with, having a large vocabulary size is essential to interacting in the foreign language. In this sense, researchers have addressed the issue of the number of words necessary to understand spoken discourse (Adolphs & Schmitt, 2004; Nation, 2001) and to read and comprehend texts in the native and foreign language (Anderson & Freebody, 1981; Laufer, 1997). Among the former researchers, Adolphs and Schmitt (2004) estimate that, at least, 2,000 word forms have to be mastered in order to understand around 90% and 94% of spoken discourse in different contexts. Among the latter, Laufer (1992, 1997), for example, states that a text coverage of 95% can be reached with a 5,000-word English vocabulary or 3,000 word families (see also Cobb & Horst, 2004; Hazenberg & Hulstijn, 1996; Nation, 1993, 2001). More recently, Nation (2006) contends that 8,000 to 9,000 word families are needed for understanding a written text and a vocabulary of 6,000 to 7,000 word families for comprehension of spoken text, if 98% coverage of a text is desired. Hirsh and Nation (1992) also point out that knowledge of 5,000 word families is necessary to enjoy reading. As we have seen, estimates based on word frequency criteria have been calculated and research claims that gaining command of the 2,000-3,000 most frequent words as soon as possible is vital for the language learner to communicate orally and in written form in the foreign language (Nation, 1993; Nation & Waring, 1997). The sooner the most frequent words are learned by students, the better their language performance will be. As Schmitt (2000: 137) claims: "The learning of these basic words cannot be left to chance, but should be taught as quickly as possible, because they open […] the door of further learning"

Different research studies have also concentrated on tracking the development of vocabulary knowledge of language learners from different perspectives. Within this trend, we can identify two main groups: one) those studies that have addressed vocabulary acquisition of young learners in their native language, and two) those that deal with foreign language development. Among L1 vocabulary acquisition studies, some focus attention on the development of depth of vocabulary knowledge (Carlisle, 1988; Moya Guijarro, 2003; Triguero & Barrientos, 1984). Some other L1 studies deal with how receptive vocabulary evolves with time and proficiency (Armayor, 1979; Averril, 1956; García Hoz, 1977; Smith, 1941), and finally, some other studies address the issue of L1 receptive vocabulary size at specific moments of development (Dolch, 1936; D'Anna, Zechmeister and Hall, 1991; Goulden, Nation & Read, 1990; Nation & Waring, 1997; Shibles, 1959). Table one provides estimates of previous investigations that are devoted to the examination of receptive L1 vocabulary knowledge for pupils with different language and learning environments from several countries in a more graphic manner.

Study	**Vocabulary size**	**Language**	**Learners' age**	**Participants & learning context**
Smith (1941)	80,300 words (with 24,000 in grade 1)	English	6-19 years	English native speakers from 1st grade to 12th grade
Shibles (1959)	26,363 words	English	6 years	English native 1st graders
Goulden, Nation and Read (1990)	20,000 word families	English	21 years	University graduates
Armayor (1979)	15,000 words	Spanish	6-14 years	400 primary and secondary school learners
D'Anna, Zechmeister and Hall (1991)	14,000-17,000 words	English	19.6 years	University undergraduates
García Hoz (1977)	11,278 words	Spanish	9 years	2774 primary school learners
Averril (1956)	5,500 words	Spanish	8-10 years	Primary school learners
Nation and Waring (1997)	4,000-5,000 word families	English	5 years	Infant learners
Dolch (1936)	2,703 words	English	6 years	English native 1st graders

Table 1. Average receptive vocabulary size, subjects and learning contexts in L1 vocabulary studies

From the findings of these studies we can conclude two basic points: one) results reveal very different vocabulary size estimates for native speakers, especially as far as the English language is concerned. The different methodologies followed to ascertain the number of words speakers master at different ages may account for the aforementioned disparate calculations (see Dolch, 1936; D'Anna et al., 1991; Shibles, 1959; Smith, 1941). Two) Scores show that mother tongue vocabulary acquisition is a quick and gradual process with learners rapidly increasing their lexical store as they grow older. Regarding this topic, researchers point

to vocabulary sizes between 10,000 and 15,000 words for Spanish native speakers during their school years and between 5,000 word families and 26,000 words approximately for English native-speaking primary school learners. Having estimates of native speakers' vocabulary size is very valuable for teachers of English as a Second Language because, as Nation and Waring (1997) maintain, these "can provide some indication of the size of the learning task facing second language learners."[1] In any case, research findings point to much smaller receptive vocabulary sizes in L2 than in L1 as explained further down.

The second line of research studies concentrates on exploring L2 vocabulary development. Again within those studies that focus on foreign language acquisition, we distinguish among those that examine vocabulary depth (Jiang, 2000; Mochizuki & Aizawa, 2000; Schmitt, 1998; Schmitt & Meara, 1997), those that concentrate on calculating vocabulary size, and those that try to relate both aspects (e.g. Vermeer, 2001).

There is a considerable number of studies that investigates receptive vocabulary size or the number of words a learner knows. Estimates of vocabulary size range from conservative figures to less moderate ones (see table two below). The vocabulary test used to calculate vocabulary size may be responsible for these different estimates. Most studies coincide in indicating that vocabulary size grows as proficiency level in the foreign language (e.g., Barrow et al., 1999; Fan, 2000), exposure to the target language (e.g., Golberg et al., 2008) or frequency of input (e.g., Vermeer, 2001) increase. Moreover, this gain follows a systematic order related to frequency, since at the lower levels of proficiency learners are familiar with more frequent words, but as their experience with the foreign language increases, less frequent words are incorporated into the lexicon (Barrow et al., 1999; Vermeer, 2001). The probability of a word being known by foreign language learners rises with its frequency, so higher-frequency words have a greater possibility of being known.

Table two presents a summary of previous estimates of receptive vocabulary size of L2 learners of English at different proficiency levels and after having received different hours of instruction. Studies are ordered according to the receptive vocabulary size of learners.

Study	**Receptive vocabulary size**	**Hours of instruction**	**L1**	**Participants & learning context**
Pérez Basanta (2005) *	5,500 words		Spanish	final-year university
Cobb and Horst (1999) *	4,300-4,500 words	3150 in general English and ESP (personal communication)	Chinese	high intermediate university (journalism)
Laufer and Nation (1999)	4,000 words	1800-2400	Chinese	English majors
López-Mezquita (2005a)	3,174 words		Spanish	First-year university (English Philology and

				English Translation studies)
Shillaw (1995); Barrow et al. (1999)	2,000-2,300 words	800-1200	Japanese	university
Horst et al. (1998)*	2,000 words	1350	Arabic (Oman)	university
Waring (1997)*	1707 words	approximately 1,500[2]	Japanese	university undergraduates (English)
Laufer (1998) *	1,600 word families	1260	Hebraic	high school
Nurweni and Read (1999) *	1,220 words	900	Indonesian	university
Quinn (1968)	1000 words	600	Indonesian	university entrants
Qian (2002) *	7,224 words		Korean	secondary school (intermediate level and beyond)
Qian (2002) *	6,663 words		Chinese	secondary school (intermediate level and beyond)
Laufer (1998) *	3,500 words	1500	Hebraic	secondary school
Milton and Meara (1998)	1,680 words	660	Greek	secondary school
Takala (1984, 1985)	1,500 words	450	Finnish	secondary school, grade 9
Milton and Meara (1998)	1,200 words	400	German	secondary school
Cameron (2002)	gaps and problems in the comprehension of the most frequent words in English	10 years of education through English as an additional language	English	secondary school
Arnaud et al. (1985)	1,000 words	400	French	secondary school
López-Mezquita (2005b)	941 words—1,582 words—1,855 words		Spanish	secondary school (4º ESO or 10th form, 1º Bachillerato or 11th form and 2º Bachillerato or 12th form)[3]
Edelenbos and Vinjé (2000)	1,191 words	308	Dutch	primary (elementary) school (8th grade)

[2] The author recognises not being completely satisfied with the methodology followed (personal communication).

[3] Bearing in mind that these students are attending EFL courses at Secondary School in Spain, we predict that Mezquita's students receive approximately 1049 hours of instruction in 10th grade (4th year of secondary education), 1154 hours of instruction in 11th grade (1st year of Bachillerato) and 1259 hours of instruction in 12th grade (2nd year of Bachillerato).

Agustín and Terrazas (2009) *	1,105 words	629	Spanish	primary school (6th grade)
Jiménez and Terrazas (forthcoming) *	559 words	419	Spanish	primary school (4th grade)

Table 2. Average receptive vocabulary size, subjects and learning

As can be seen, the results obtained coincide in showing a rather low receptive vocabulary knowledge on the part of all the learners of English investigated, especially compared with native speakers estimates. L2 students' vocabulary knowledge figures are complex to compare due to differences concerning pupils, the contexts of learning, and the tests administered for calculating vocabulary size. What is more, except for those studies marked with an asterisk, meaning that the VLT is used, the rest of research works use different test formats which, in turn, draw the testing words from different sources as well.

We agree with Laufer (1990; 1991; 1998) and Pérez Basanta (2005) when they claim that studies where L2 vocabulary size is measured at different stages of language learning over a period of time are very scarce. The paucity of studies in the area of L2 vocabulary size increase could be due to the difficulty researchers have experienced with defining the nature of language word knowledge and with designing valid and reliable tests which measure this knowledge over time[3]. More specifically, research studies addressing the longitudinal development of receptive vocabulary size are rare (see Takala, 1984), and those having primary school learners as subjects are even more uncommon.

The present study is designed to compensate for the scarcity not only of quantitative studies where vocabulary size is measured longitudinally, but also of research where the receptive vocabulary size of primary school learners is provided.

II. PURPOSE

Our main aim is to find out the overall receptive vocabulary size of young Spanish EFL learners from 4th grade of primary education to 1st year of secondary education or 7th grade by tracking the receptive vocabulary size increase over the period of four years. We intend to find out whether there is any significant growth in the receptive vocabulary size of our young Spanish EFL students, and whether the rate of increment over the different measuring moments is constant and gradual. Further, we attempt to check whether an increase in the number of hours of exposure to the target language implies a gain in the amount of words learners know receptively. Taking these considerations in mind, we set out to investigate the following research questions:

1. Does the vocabulary size of our learners increase from 4th to 7th grade?
2. If so, is this increment constant?

III. METHOD

III.1. Participants

A total of 224 informants participated in the study. These were Spanish-speaking learners of EFL who were tested over four years, that is, 4th, 5th, 6th and 7th grades with four data collection moments. They averaged 10.39, 11.39, 12.39 and 13.39 years at each testing session. At the first time of data collection, participants had received a total of 419 hours of instruction in the target language, which was a compulsory school subject for them. In the three subsequent data collection moments with a one-year time span between them, learners had been exposed to 524, 629, and 734 clock hours of instruction in the English language, for 5th, 6th, and 7th grades, respectively. The sample was homogeneous as regards social environment and type of instruction. Moreover, learners shared the same L1. Data were collected in four schools in Spain and whole classes were selected for the study. Longitudinal studies are prone to participant attrition; unfortunately, this one was no exception. From the initial 283 participants, 59 students either dropped out of their program or did not attend school during the remaining data collection sessions, so there are no longitudinal results for them.

III.2. Data gathering instrument

One instrument was used to measure the receptive vocabulary size of these subjects, that is, the 2,000 word frequency-band from the receptive version of the VLT (Schmitt, Schmitt and Clapham 2001, version 2). The Appendix offers the complete 2k VLT used here. A previous pilot study was carried out with this test and it proved to be suitable for these informants' age and language level.

This test is based on the frequency lists collected by West (1953) in the *General Service List* and the Thorndike and Lorge (1944) list, which were checked against the list compiled by Kucera and Francis (1967), known as the Brown Corpus.

In the 2k VLT, test-takers have to match a target word with the corresponding definition. A total of 60 target words are used for testing. Ten groups of six words and three definitions make up the test. Each correct answer, i.e. matching each target word with its definition is given one point, so that the maximum score of the test is 30 points. We did not use tests of lower frequency bands, because these were too difficult for our learners.

The research studies that have reported on the validity and reliability of the 2k VLT (see Beglar & Hunt, 1999; Laufer, 1998; Read, 2000) evidence that the test is not only valid and consistent in its measurements, but also that, in fact, it measures what it sets out to measure. Many studies have used the VLT in any one of its versions to test the receptive vocabulary size of subjects either for descriptive, comparative or correlational purposes.

Some of these studies are: Cameron, 2002; Clark & Ishida, 2005; Cobb & Horst, 1999; Fan, 2000; Laufer and Paribakht, 1998; Pérez Basanta, 2005; Qian, 2002, 1999.

III.3. Procedures and analysis

Data were collected in one session during class time for each of the four data gathering moments. The time allotted to complete each task was 10 minutes during class time. At the beginning of each test, clear instructions were given both orally and in written form in the students' mother tongue to clarify what they were being asked to do.

Descriptive and inferential statistical analyses were carried out with our data. We used the SPSS program version 15.0 to carry out these statistical analyses.

IV. RESULTS

The present study aims to track the incremental acquisition of receptive vocabulary of 224 young Spanish learners of English as a Foreign Language over four years. Our first research question asks whether the receptive vocabulary of learners grows as they move up a grade and increase their amount of exposure to the target language. The following table (Table three) presents the descriptive statistics for results on test scores for the four years under research.

	N	Min.	Max.	Mean	SD
4th grade, 2k	224	0	17	5.41	3.209
5th grade, 2k	224	0	20	7.63	4.243
6th grade, 2k	224	0	23	9.47	3.799
7th grade, 2k	224	2	21	12.26	4.307

Table 3. Scores on the 2k VLT

From the table, we can observe that mean figures increase from 4th to 7th grade. Minimum figures show that for the first three grades tested there are learners who score cero points on the test. Maximum correct scores show that learners progress in the first three grades but this score vacillates from 23 to 21 in the last grade tested. In order to find out the reason of this vacillation, we decided to look for the student who obtained the maximum score, and trace his performance throughout the four years. Student 269 is responsible for maximum scores in 6th and 7th grades. So, we can argue that maximum score in 7th grade is not anomalous, but atypical and that it decreases slightly due to the performance of a single learner. We believe that extra-linguistic factors affecting this particular learner such as fatigue, disinterest, or student's entering adolescence may explain this decrease. Notwithstanding this vacillation in the maximum score, results reveal that 76.8 % of learners increase their scores from 6th to 7th grade, and only 23.2 % show a decrease in test scores. Mean results reveal that students obtain considerably low scores in the first two courses of primary education, and slightly higher ones in 6th and 7th grades. Students' scores are

translated into a number of known words for each frequency level at each grade.[4] Results for this appear in the following table.

	N	2k words
4th grade	224	361
5th grade	224	509
6th grade	224	631
7th grade	224	817

Table 4. Number of known words for each frequency level at each grade

Figures show that there is a steady increase in the overall scores of the pupils over time. These data imply that our EFL learners know English words from the 2,000 frequency-band of the Vocabulary Levels Test by the time they are in 4th grade of primary education, and that their receptive vocabulary knowledge grows considerably from this moment on. By the time students conclude their 7th grade, they know one third more of the first two thousand most frequent words in English than when they began their 4th grade of primary education.

The following figure shows the evolution of vocabulary knowledge for this level tested in a graph. From this figure we can observe clearly that learners progress in word knowledge at this level.

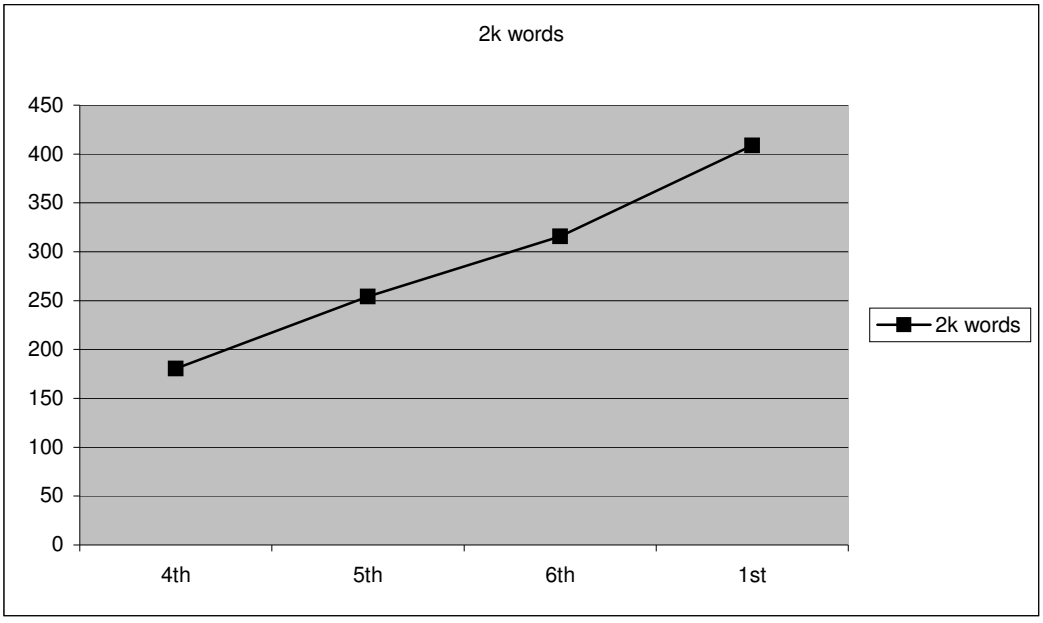

Figure 1. Evolution of receptive word knowledge (2k level) over the four-year time span

A box diagram with the median values of test scores is obtained (Figure two). From this diagram, we can appreciate the spread of the scores along the scoring continuum. Comparing the spread of scores in 4th and 7th grades, we observe that this is bigger in the upper quartiles than in the lower quartiles, but this situation changes with time, since the scores are more widely spread in the last year tested. In other words, learners' scores become less and less homogeneous in the lowest quartiles showing thus progression in vocabulary learning and bigger differences among them.

Especially remarkable is the evolution of the scores in the lower 25 %. In 4th grade, this learner population is very homogeneous in the sense that the spread of the scores in this lower 25 % is small (from zero to three points). As students in the lower 25 % move up a grade, the spread of their scores becomes greater. Consequently, students are increasing their scores and so learning new vocabulary. In 7th grade, the scores of the lower 25 % double those obtained by students in 4th grade with over eight points on average. This fact implies that these low performance learners have incorporated new words into their lexicon and that these students, who know less at the first testing moment, learn more as time evolves. This may seem commonsense, but it is important to notice that learners whose scores are highest have not even reached half of the scoring in 4th grade. Therefore, these high performance subjects still have a lot to learn in the years ahead. From the information contained in the box diagram, we notice that learners are in fact progressing in their learning. In 4th grade, 75 % of students score below seven points. However, by 7th grade 75 % of the students obtain scores around 16 points. Thus, in three years, this 75 % of students in the lower three quartiles more than double their scores.

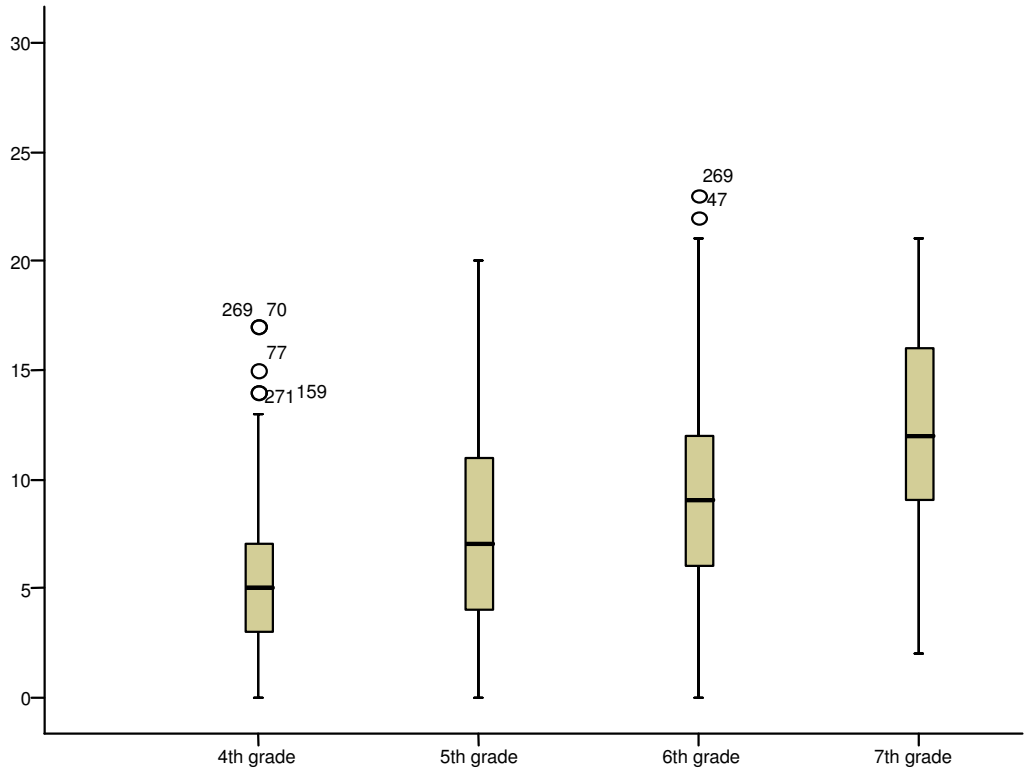

Figure 2. Box diagram of score value for 2k level across grades

In order to ascertain whether there are significant differences between the number of words known for this frequency level at each grade, we perform inferential statistics.[5] Test of normality distribution of samples reveal that our data are not normally distributed, so we decide to perform non-parametric tests of means comparison, more specifically the Wilcoxon signed rank test. Results reveal that learners know significantly more words as they move up a grade with respect to the previous year. The following table presents these results.

	2K VLT
	Z
4th to 5th year	-7.334 ($p < .000$)
5th to 6th year	-6.206 ($p < .000$)
6th to 7th year	-7.891 ($p < .000$)

Table 5. Results of inferential statistics for differences in vocabulary knowledge across grades

As we can see from the table, differences in vocabulary knowledge are significant for all grades for this test of receptive vocabulary knowledge. We can infer from this, that for a similar learner population to ours receptive vocabulary knowledge increases significantly from one grade to the next.

With all, we still wanted to go one step further and find out whether this increment in the learners' receptive vocabulary knowledge was constant. This was our second research question. To carry out this task, we obtained the number of words gained every year for this level. From 9 to 10 years old, that is, from 4th to 5th grade, students increase their receptive vocabulary size (148 words), from 10 to 11 years old, that is, from 5th grade to 6th grade, the rate of growth decreases, i.e. 122 new words learned. Finally, the degree of receptive vocabulary growth increases again (186 words) when students are 13 years old, in 7th grade, which marks the beginning of their secondary education. Table 6 shows the trend of receptive vocabulary growth for the test administered. The increase obtained in each grade for this test task is presented graphically in Figure three.

	2k words
From 4th to 5th grade	148 words
From 5th to 6th grade	122 words
From 6th to 7th grade	186 words

Table 6. Rate of vocabulary increment for each frequency level at each grade

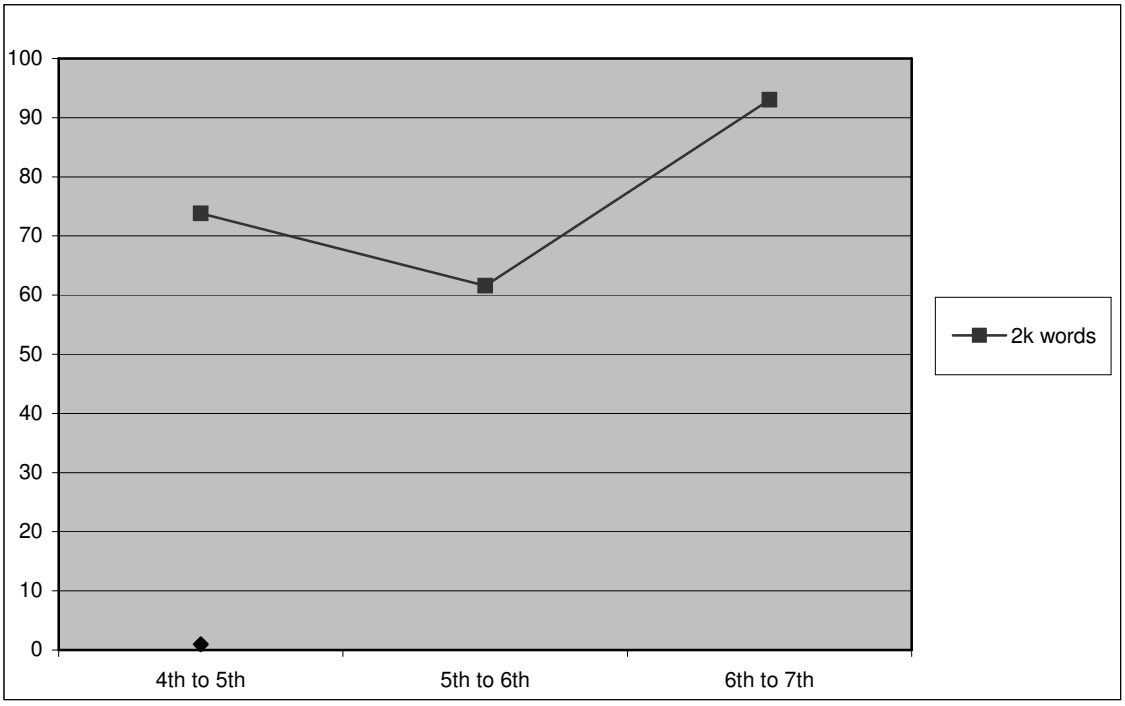

Figure 2. Evolution of the increment of word knowledge (2k level) over the four-year time span

In order to ascertain whether differences in the rate of growth between each of the three intervals tested (4^{th} to 5^{th}, 5^{th} to 6^{th}, and 6^{th} to 7^{th}) are significant, we perform several tests of non-parametric means comparison. Results reveal that there are no significant differences in the increments. Therefore, we conclude that the growth of receptive vocabulary knowledge from 4^{th} to 7^{th} grade is constant, that is, similar or non-significantly different amounts of words are incorporated into the lexicon every year.

Despite these facts, there are not enough data to draw conclusive inferences regarding the evolution of the vocabulary knowledge of our subjects. In other words, from our data we cannot conclude whether the evolution of learners' vocabulary knowledge will follow a linear function or rather, a parabolic one.

V. DISCUSSION

This study has tracked the increase of receptive vocabulary knowledge of the 2,000 most frequent words in English in young learners of EFL. The first research question aimed to investigate total receptive vocabulary size across grades. According to our estimates, our pupils know below one thousand words of the most frequent 2,000 in English. Moreover, this longitudinal study has shown that Spanish EFL learners increase in a significant way the number of words they know receptively as they move up a grade. However, learners reveal considerably smaller receptive vocabulary sizes in EFL than estimates of English native speakers (see table one). Regarding this, we highlight the work by Staehr (2008), who, although not giving exact figures, found that the majority of his secondary school informants had not acquired the most frequent 2000 words after seven years of English learning

equivalent to a minimum of 570 hours of instruction to English. Although Staehr (2008: 150) considers his finding quite alarming, he believes that, in general, "400-700 hours of instruction lead to vocabulary size of less than 2000 words". This contention coincides with our present results.

As mentioned earlier, studies on estimates of L2 learners' receptive vocabulary knowledge are complex to compare due to distinctions regarding pupils, learning contexts, and the tests used for assessing receptive vocabulary size. As far as we are concerned, our learners show vocabulary size within the same ranges as learners of approximately the same age, and who have received similar amount of instruction in the L2 (Arnaud et al., 1985; Edelenbos & Vinjé, 2000). Furthermore, our research reveals that informants show lower levels of receptive vocabulary size than learners who have received similar amounts of instruction in EFL, but who are older (secondary and university students) (Barrow et al., 1999; Milton & Meara, 1998; Shillaw, 1995; Takala, 1985). We may think that the fact that our learners are young is a great impediment in their L2 vocabulary development. Learners' chronological age at the time of testing can be thought of as quite a determinant factor, even as relevant or more than hours of instruction as pointed out by Muñoz (2008). We agree with Muñoz (2008: 588) in that in instructed foreign language learning, chronological age at time of testing "has a negative effect on the performance of the youngest learners in comparison with older learners". Specifically, age at testing may have a relevant impact on test taking skills with adult and adolescent learners performing better than children due to their superior cognitive development. This allows learners to understand the testing task better as well as to choose more appropriate strategies for accomplishing a task (Muñoz, 2008: 588). This is especially relevant for comparison purposes, since most studies devoted to estimating EFL receptive vocabulary size use the VLT as their testing instrument (see table two), the same testing task as administered in the present study. Furthermore, the motivation and attitudes towards learning English of secondary and university students may be higher than that of children.

Considering that previous estimates of the vocabulary necessary to interact in the foreign language (Adolphs & Schmitt, 2004; Cobb & Horst, 2004; Hazenberg & Hulstijn, 1996; Laufer, 1997; Nation, 2006) set the threshold for successful language use and understanding around 5,000 words for 95% text coverage, or around 8,000 and 9,000 words for 98% text coverage, the vocabulary sizes of the participants in the present study reveal themselves as insufficient to accomplish these FL tasks successfully. We may think, however, that as learners grow older and more proficient, their receptive vocabulary sizes will increase as well.

As previous research findings (Barrow et al., 1999; Vermeer, 2001) have shown only as foreign language proficiency increases, learners incorporate less frequent words into their lexicon. This idea is in line with Nation's point that testees' knowledge of uncommon words implies knowledge of the most frequent words, but not the other way round (Nation 1983,

1990). It might also be possible that the low scores of the 2k obtained by our learners simply reflect the great demands made by this test task.

Concerning the first research question, our results reveal a significant growth of receptive vocabulary knowledge across all grades tested. In other words, learners show significantly higher receptive vocabulary sizes from one grade to the next. This result confirms that the acquisition of receptive vocabulary is incremental in a significant way. As the amount of instruction in the target language increases, the receptive vocabulary learners know increases as well. As students move up a grade and become more proficient in the foreign language[6], they show receptive knowledge of significantly more words than years before. Therefore, vocabulary knowledge may serve as an indicator of development and general language acquisition, because, according to our data, the more words a learner knows, the higher their level of proficiency in the foreign language will be. This fact can have serious repercussions and applications in level diagnosis and placement tests.

Further interest in analysing the nature of the increases from grade to grade led us to perform statistical analyses on the rate of growth. This was our second research question. Our results reveal that increases remain constant and fairly similar across grades with no significant differences being observed. In short, learners acquire roughly the same number of new words every year. Our finding concurs with Goldberg et al. (2008), who found that vocabulary showed a continuous growth across three years tested. Further support to our finding comes from Averril (1956), who also found a constant, lineal growth of vocabulary knowledge in Spanish L1 with the same number of words being incorporated from year to year during 12 years. These findings run counter to a previous study on Spanish L1 vocabulary acquisition carried out by García Hoz (1977: 30), who points out that vocabulary development in the L1 follows a parabolic function. In other words, the number of new lexical items incorporated each year decreases, so that vocabulary gains are reduced over years.

In a study by Milton and Meara (1995) on L2 vocabulary growth learners at advanced levels of proficiency incorporated around 2,500 new words into their lexicon per year. We also observe in our data that vocabulary growth increases from the second to the third interval tested, that is from 122 to 186 words, yet the difference is not significant. Thus vocabulary growth does not follow a parabolic function by any means. Still, we have too few data values to conclude any analytic function from them. More longitudinal data would be necessary in order to explore the evolution of vocabulary development in more detail and more reliably.

From these results, it seems reasonable to conclude that the number of words incorporated into the learners' lexicon from year to year during the last three grades of primary education and their first grade of secondary education remains stable. With all this increase accounts for significant differences in vocabulary sizes at different grades. Considering that vocabulary acquisition is an incremental process in which words are gradually incorporated

into the lexicon and where word frequency plays a relevant role, we believe that vocabulary teaching should reflect these research findings as well. In this sense, we agree with Laufer (1994: 31) when she points out that exposure to L2 vocabulary is too limited (by comparison with L1), so explicit vocabulary teaching is needed to compensate for the insufficient quantity of input. By the same token, Schmitt (2000: 137) alluding to the incremental nature of vocabulary acquisition concludes that a balanced combination of explicit teaching and incidental learning appears to be essential for learning the most frequent words of any L2, a knowledge that seems to be crucial for effective vocabulary and language use. Because we did not collect data directly on this respect, we can only speculate that our subjects could benefit from this approach to vocabulary instruction, especially as less frequent words are concerned. For these reasons, we believe that the explicit instruction of more and more infrequent words will contribute to enhancing the natural process of receptive word learning.

This will allow them to give satisfactory performances in FL reading and oral exchanges. Moreover, from this we can argue that up to their 7th grade learners are not engaged in communicative tasks with authentic materials. Rather their experience with the FL is limited to materials (textbooks, readers, listening episodes) especially designed and developed for the FL classroom. Providing learners with more authentic materials in English, as well as augmenting their amount of exposure to the target language either in formal or naturalistic contexts may contribute to enhancing their vocabulary sizes to such an extent that they can be able to interact successfully in the foreign language.

One way to augment vocabulary knowledge can follow Schmitt's advice (2000: 158) that "vocabulary acquisition is an incremental process, and teachers must concentrate not only on introducing new words, but also on enhancing learners' knowledge of previously presented words". In the case of our young subjects of study, we believe that if instructors followed Schmitt's (2000: 132) suggestion on carrying out discrete activities like "memorising, repeating and taking notes" on the 2,000 most frequent words in English, they would facilitate the students' vocabulary learning of these words.

Apart from the generally acknowledged limitations of the VLT that concern that one) it only measures vocabulary recognition; and two) it does not give any information about either depth of vocabulary knowledge, or about the ability of learners to use the words tested productively (Pérez Basanta, 2005: 8), we claim that from a statistical point of view two main limitations can be brandished as regards our instrument of data collection. First, we believe that in order to increase the validity and reliability of the testing, the sample of words tested each year should change. In other words, the 30 words of the first year should be substituted by another 30 words of similar characteristics (word class, length, etc.) for the subsequent year, and successively with other years.

Second, and in relation to this, we think it advisable that as learners grow older and more proficient, the number of words in the testing sample should increase; up to 40 or 50 words, for example. This would not affect Nation's formula of converting tests scores into

number of words known, but would increase the validity and reliability of the test and inferential statistics would be even more dependable.

As a further general limitation to the testing format used, we can argue the guessing effect present in VLT implementation. Several researchers (Kamimoto, 2008; Webb, 2008) have pointed out that there is a 17 % chance of learners guessing the correct responses with no knowledge of any of the cue words. The possibility of guessing correctly increases with knowledge of some words.

Finally, we have thought that the so-called test effect could also be at work in this research study, increasing artificially the number of words known as learners move up grades. But, as can be seen in the box diagram, there are some learners that lose words from one session to the other, thus annulling this test effect.

The results of this paper raise several questions that could be analysed in future studies. First, previous research has demonstrated a relationship between vocabulary knowledge and L2 proficiency (Fan, 2000; Goldberg et al., 2008; Hanania & Shikhani, 1986; Jochems & Montens, 1988; Lapkin & Swain, 1977). The question is whether there is a positive correlation between the 2,000 word frequency band of the VLT and proficiency level of the students in the context of EFL in 4th, 5th, 6th, and 7th grades. Second, it is interesting to find out whether young learners' receptive vocabulary will grow higher in subsequent grades of Secondary Education.

In this study we provided some quantitative results on the receptive vocabulary size of young EFL learners. Whether the increase of their productive vocabulary will grow at the same rate as their receptive vocabulary is very unlikely. Rather, we believe that as our learners progress in their proficiency level, the gap between their receptive and productive vocabulary knowledge will increase (see Laufer, 1998). In this sense, it may also happen that our students' productive vocabulary will probably extend their receptive vocabulary (see Henriksen, 1999; Melka, 1997; Nation, 1990) or even, as Melka (1997: 87, as cited in Henriksen, 1999: 313) suggests "some aspects" may become "productive, while others" may "remain at the receptive level." Therefore examination of productive vocabulary growth should be addressed in future research too.

A quantitative research of receptive vocabulary size like ours is very valuable. But in order to explore "the complex nature of the vocabulary learning process as both item learning and system changing" (Henriksen, 1999: 310), studies addressing vocabulary depth are very much needed as well.

VI. ACKNOWLEDGEMENTS

This study has been carried out under the auspices of a research project funded by the Spanish 'Ministerio de Ciencia y Tecnología' and FEDER, Grant nº HUM2006-09775-C02-02/FILO. We are very grateful to Montserrat San Martin for providing us with very valuable statistical assistance and helpful insights into data interpretation. Any remaining errors are our own.

VIII. REFERENCES

Adolphs, S. and Schmitt, N. (2004) Vocabulary coverage according to spoken discourse context. In Bogaards, P. and Laufer, B., editors, *Vocabulary in a Second Language*, Amsterdam: John Benjamins, 39-52.

Agustín Llach, M. P. and Terrazas Gallego, M. (2009) Examining the relationship between receptive vocabulary size and written skills of primary school learners. *Atlantis* 31, 129-47.

Anderson, R. C., and Freebody, P. (1981) Vocabulary knowledge. In Guthrie, J., editor, *Comprehension and teaching: research reviews*, Newark, DE: International Reading Association, 203-26.

Armayor, G. (1979) *Determinación del vocabulario técnico escolar en el alumno de 8 de EGB y su incorporación al BUP*. ICE: Universidad de Córdoba.

Arnaud, P., Bejoint, H. and Thoiron, P. (1985) A quoi sert le programme lexical. *Les Langues Modernes* 79, 72-85.

Averril, L. A. (1956) *La vida psíquica del escolar*. Paidós: Buenos Aires.

Barrow, J., Nakanishi Y. and Ishino, H. (1999) Assessing Japanese college students' vocabulary knowledge with a self-checking familiarity survey. *System,* 27, 223-47.

Beglar, D. and Hunt, A. (1999) Revising and validating the 2000 word level and university word level vocabulary tests. *Language Testing* 16, 131-62.

Cameron, L. (2002) Measuring vocabulary size in English as an additional language. *Language Teaching Research* 6, 145-73.

Carlisle, J. (1988) Knowledge of derivational morphology and spelling ability in fourth, sixth, and eighth graders. *Applied Psycholinguistics* 9, 247-66.

Clark, M. K. and Ishida, S. (2005) Vocabulary knowledge differences between placed and promoted EAP students. *Journal of English for Academic Purposes* 4, 225-38.

Cobb, T. and Horst, M. E. (1999) Vocabulary sizes of some city University students. *Journal of the Division of Language Studies of City University of Hong Kong 1.1.* <http://www.er.uqam.ca/nobel/r21270/cv/CitySize.html>

_____ (2004) Is there room for an Academic Word List in French in Bogaards, P. and Laufer, B., editors, *Vocabulary in a Second Language*. Amsterdam: John Benjamins, 15-38.

D'Anna, C. A. and Zechmeister, E. (1991) Toward a meaningful definition of vocabulary size. *Journal of Reading Behaviour: A Journal of Literacy* 23, 109-22.

Dolch, E.W. (1936) How much word knowledge do children bring to grade1? *The Elementary English Review* 13, 177-83.

Edelenbos, P. and Vinjé, M.P. (2000) The assessment of foreign language at the end of primary (elementary) education. *Language Testing* 17, 144-62.

Fan, M. (2000) How big is the gap and how to narrow it? An investigation into the active and passive vocabulary knowledge of L2 learners. *RELC Journal* 31, 105-19.

García Hoz, V. (1977) *Estudios experimentales sobre el vocabulario*. Madrid: Consejo superior de investigaciones científicas.

Golberg, H., Paradis, J. and Crago, M. (2008) Lexical acquisition over time in minority first language children learning English as a second language. *Applied Psycholinguistics* 29, 41–65.

Goulden, R., Nation, P. and Read, J. (1990) How large can a receptive vocabulary be? *Applied Linguistics* 11, 341-63.

Hanania, E. and Shikhani, M. (1986) Interrelationships among three tests of language proficiency: standardized ESL, cloze and writing. *TESOL Quarterly* 20, 97-109.

Hazenberg, S. and Hulstijn, J. (1996) Defining a minimal receptive second-language vocabulary for non-native university students: An empirical investigation. *Applied Linguistics* 17, 145–63.

Henriksen, B. (1999) Three Dimensions of Vocabulary Development. *Studies in Second Language Acquisition* 21, 303-18.

Hirsh, D. and Nation, P. (1992) What vocabulary size is needed to read unsimplified texts for pleasure? *Reading in a Foreign Language* 8, 689-96.

Horst, M., Cobb, T and Meara, P. (1998) Beyond a Clockwork Orange: Acquiring Second Language Vocabulary through Reading. *Reading in a Foreign Language* 11, 207-23.

Jarvis, S. (2000) Methodological rigor in the study of transfer: identifying L1 influence in the interlanguage lexicon. *Language Learning* 50, 245-310.

Jiang, N. (2000) Lexical representation and development in a second language. *Applied Linguistics* 21, 47-77.

Jiménez, R. M. and Terrazas Gallego, M. (forthcoming). The receptive vocabulary of English foreign language young learners. *Journal of English Studies* 5, in press.

Jochems, W. and Montens, F. (1988) The multiple-choice cloze test as a general language proficiency test. *ITL Review of Applied Linguistics* 81, 139-59.

Kamimoto, T. (2008) Guessing and vocabulary tests: Looking at the Vocabulary Levels Test. Paper presented at the 41 Annual BAAL Conference held in Swansea, 11-13 September 2008.

Kucera, H. and Nelson Francis, W. (1967) *A computational analysis of present day American English*. Providence, Rhode Island: Brown University Press.

Lapkin, S. and Swain, M. (1977) The use of English and French cloze tests in a bilingual education program: evaluation, validity and error analysis. *Language Learning* 27, 279-314.

Laufer, B. (1986) Possible changes in attitude towards vocabulary acquisition research. *International Review of Applied Linguistics* 24, 69-75.

_____ (1990) Sequence 'and order' in the development of L2 lexis. *Applied Linguistics* 11, 281-96.

_____ (1991) The development of L2 lexis in the expression of the advanced language learner. *Modern Language Journal* 75, 440-48.

_____ (1992) How much lexis is necessary for reading comprehension?. In J. Pierre L. Arnaud and Béjoint, H., editors, (pp.126-132). *Vocabulary and Applied Linguistics*. London: Macmillan.

_____ 1994: The lexical profile of second language writing: does it change over time? *RELC Journal* 25, 21-33.

_____ (1997) The lexical plight in second language reading. In Coady, J. and Huckin, T., editors, *Second language vocabulary acquisition*. Cambridge: Cambridge University Press, 20-34.

_____ (1998) The development of passive and active vocabulary in a second language: same or different? *Applied Linguistics* 19, 255-71.

Laufer, B. and Nation, P. (1999) A vocabulary size test of controlled productive ability. *Language Testing* 16, 33-51.

Laufer, B. and Paribakht, T. S. (1998) The relationship between passive and active vocabularies: effects of language learning context. *Language Learning* 48, 365-91.

Levenston, E. (1979) Second language acquisition: issues and problems. *Interlanguage Studies Bulletin Utrecht* 4, 147-60.

López-Mezquita Molina, M.T. (2005a) La evaluación de la dimensión léxica a nivel receptivo: un marco para el diseño de instrumentos de medida. In Carrió, P., editor, *Perspectivas Interdisciplinares de la Lingüística Aplicada*, Valencia: Editorial, 381-90.

_____ (2005b) *La Evaluación de la Competencia Léxica: Tests de Vocabulario. Su Fiabilidad y Validez*. Universidad de Granada: Doctoral dissertation.

Meara, P. (1980) Vocabulary acquisition: a neglected aspect of language learning. *Language Teaching and Linguistic Abstracts* 15, 221-46.

Melka Teichroew, F. J. (1997) Receptive versus productive aspects of vocabulary. In Schmitt, N. and McCarthy, M., editors, *Vocabulary: Description, Acquisition and Pedagogy*. New York: Cambridge University Press, 84-102.

Milton, J. and Meara, P. (1995) How periods abroad affect vocabulary growth in a foreign language. *ITL* 107-108, 17-34.

_____(1998) Are the British really bad at learning foreign languages?. *Language Learning* Journal 18, 68-76.

Mochizuki, M. and Aizawa, K. (2000) An affix acquisition order for EFL learners: an exploratory study. *System* 28, 291-304.

Moya Guijarro, A. J. (2003) La adquisición/aprendizaje de la pronunciación del vocabulario y de las estructuras interrogativas en lengua inglesa: un estudio por edades. *Didáctica (Lengua y Literatura)* 15, 161-77.

Muñoz, C. (2008) Symmetries and Asymmetries of Age Effects in Naturalistic and Instructed L2 Learning. *Applied Linguistics* 29, 578-96.

Nation, P. (1983) Teaching and testing vocabulary. *Guidelines* 5, 12-25.

_____ (1990) *Teaching and learning vocabulary*. New York: Newbury.

_____ (1993) Using dictionaries to estimate vocabulary size: essential, but rarely followed, procedures. *Language Testing* 10, 27-40.

_____ (2001) *Learning vocabulary in another language*. New York: Cambridge University Press.

_____ (2006) How Large a Vocabulary Is Needed for Reading and Listening?. *The Canadian Modern Language Review / La revue canadienne des langues vivantes* 63, 59-81.

Nation, P. and Waring, R. (1997) Vocabulary size, text coverage and word lists. In Schmitt, N. and McCarthy, M., editors, *Vocabulary: description, acquisition and pedagogy*. New York: Cambridge University Press, 6-19.

Nurweni, A. and Read, J. (1999) The English vocabulary knowledge of Indonesian University Students. *English for Specific Purposes* 18, 161-75.

Pérez Basanta, C. (2005) Assessing the receptive vocabulary of Spanish students of English Philology: An empirical investigation. In Martínez-Dueñas, J.L., Mclaren, N., Pérez Basanta, C. and Quereda Rodríguez-Navarro, L., editors, *Towards an understanding of*

the English language: past, present and future. Studies in honour of Fernando Serrano. Granada: Universidad de Granada, 1-21.

Qian, D. (1999) Assessing the roles of depth and breadth of vocabulary knowledge in reading comprehension. *The Canadian Modern Language Review* 56, 1-16.

_____ (2002) Investigating the relationship between vocabulary knowledge and academic reading performance: An assessment perspective. *Language Learning* 52, 513-36.

Quinn, G. (1968) The English vocabulary of some Indonesian University entrants. English Department Monograph IKIP Kristen Satya Watjana: Salatiga 7, 4.

Read, J. (2000) *Assessing vocabulary*. Cambridge: Cambridge University Press.

Schmitt, N. and Meara, P. (1997) Researching vocabulary through a word knowledge framework: word associations and verbal suffixes. *Studies in Second Language Acquisition* 19, 17-36.

Schmitt, N. (1998) Tracking the incremental acquisition of second language vocabulary: a longitudinal study. *Language Learning* 48, 281-317.

_____ (2000) Vocabulary acquisition. *Vocabulary In Language Teaching*. Cambridge: Cambridge Language Education, 116-41.

Schmitt, N., Schmitt, D. and Caroline Clapham, C. (2001) Developing and exploring the behaviour of two new versions of the Vocabulary Level Test. *Language Testing* 18, 55-88.

Shibles, B. (1959) How many words does a first-grade child know? *Elementary English* 36, 42-47.

Shillaw, J. (1995) Using a word list as a focus for vocabulary learning. *The Language Teacher* 19, 58-59.

Smith, M.K. (1941) "Measurement of the size of general English vocabulary through the elementary grades and high school" *Genetic Psychology Monographs* 24, 311-45.

Staehr, L.S. (2008) Vocabulary size and the skills of listening, reading and writing *Language Learning Journal* 36, 139-52.

Takala, S. (1984) *Evaluation of students' knowledge of English vocabulary in the Finnish comprehensive school* (Reports of the Institute of Educational Research, No. 350), Jyväskylä: Finland.

_____ (1985) Estimating students' vocabulary sizes in foreign language teaching. *Practice and Problems in Language Testing*. In Kohonen, V., H. van Essen and Klein-Braley, C., editors, *Practice and problems in language testing*. Tampere, Finland: Finnish Association for Applied Linguistics, 157-65.

Thorndike, E. and Lorge, I. (1944) *The teacher's word book of 30,000 words*. New York Teachers College: Columbia University.

Triguero Gordillo, M.T. and C. Barrientos Ruiz-Ruano (1984) Desarrollo de la competencia léxica del niño a partir de la unidad temática "Viajamos en tren". *El desarrollo léxico en los primeros niveles de E.G.B*. Madrid: Nárcea, 37-45.

Vermeer, A. (2001) Breadth and depth of vocabulary in relation to L1/L2 acquisition and frequency of input. *Applied Psycholinguistics* 22, 217-34.

Waring, R. (1997) A comparison of the receptive and productive vocabulary sizes of some second language learners. *Immaculata* (Notre Dame Seishin University, Okayama) 1, 53-68.

Webb, S. (2008) Receptive and productive vocabulary sizes of L2 learners. *Studies in Second Language Acquisition* 30, 79-95.

West, M. (1953) *A general service list of English words*. London: Longman.

NOTES

[1] Moya's findings (2003: 174) also support Nation and Waring's point. As the former researcher points out: "parece existir un desarrollo similar en el proceso de adquisición/aprendizaje de (vocabulario) en la lengua materna y en la extranjera, siempre y cuando se tenga en cuenta que el aprendizaje de [...] vocabulario [...] por parte del alumno español en contextos de lenguas extranjeras se produce en una etapa siempre más tardía que la adquisición de estos mismos aspectos por parte del niño nativo inglés."

[3] For other possible reasons for the neglect, see Levenston, 1979; Meara, 1980 and Laufer, 1986.

[4] In order to calculate the pupils' receptive vocabulary size we applied Nation's formulae (1990: 76), which reads as follows: Vocabulary size = N correct answers multiplied by total N words in dictionary (the relevant word list) divided by N items in test.

[5] Performing statistical analysis on either scores or number of words known is irrelevant for results, because the calculations followed to obtain number of words known respect the mathematical rule of three.

[6] Although L2 proficiency was not measured directly, it was assumed to correspond roughly with learners' amount of instruction in English (see Jarvis, 2000: 294).

