

VOCABULARY KNOWLEDGE DEVELOPMENT AND GENDER DIFFERENCES IN A SECOND LANGUAGE

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Previous research on vocabulary choice and acquisition from varied perspectives has shown that gender differences in EFL are relevant. However, studies in the area of L2 vocabulary size development concerning sex at different ages and educational stages have either revealed indefinite results or have been scarce, especially in the context of primary education. This study attempts to compensate for this paucity. We examined the importance of gender in receptive vocabulary size acquisition for 176 (94 males and 82 females) young Spanish students of EFL. They answered the 2000 word frequency-band from the receptive version of the VLT (Schmitt, Schmitt, & Clapham, 2001 version 2) over the 4th, 5th, and 6th grades of primary education and the 1st, 2nd and 3rd years of secondary education (grades 4 to 9). Results proved that males and females increased their receptive knowledge of English words across grades and that their results showed highly significant differences in vocabulary size from one year to the next. Furthermore, learners increased their vocabulary knowledge in a linear way, although there was a tendency to show a significant gain in the last period tested. Finally, size differences in the mean scores of male and female learners were non-existent. In spite

of these findings, female learners showed higher vocabulary gains than males for the first three intervals. For the last two intervals, this tendency reversed and male learners were found to incorporate more new words into their lexicons than their female peers.

Key words: *Receptive vocabulary, VLT test, English as a foreign language, gender differences, longitudinal study*

Diversas investigaciones previas sobre elección de vocabulario y adquisición de vocabulario han demostrado que las diferencias de género son relevantes en el aprendizaje de inglés como lengua extranjera. Sin embargo, otros estudios en el área del desarrollo léxico en la L2 obtienen resultados poco concluyentes en lo concerniente a las diferencias de género a lo largo de varias edades y contextos educativos. Los estudios son especialmente escasos en el contexto de educación primaria. El presente estudio pretende compensar dicha escasez. Se examina la importancia del género en el vocabulario receptivo de 176 aprendices españoles de inglés, 94 de ellos hombres y 82 mujeres. El test de las 2.000 palabras más frecuentes del inglés (Schmitt, Schmitt and Clapham 2001, version 2) se usó como instrumento de recogida de datos en 4º, 5º, 6º de primaria y 1º, 2º, y 3º de secundaria. Los resultados revelan que tanto hombres como mujeres aumentaron su repertorio léxico de manera significativa de un año escolar al siguiente. Este incremento léxico es lineal, es decir, se aprende un número similar de palabras cada año, aunque hay una tendencia a un incremento significativamente mayor en el último intervalo evaluado. Finalmente, vemos que no existen diferencias significativas en el tamaño de vocabulario receptivo de hombres y mujeres, aunque las mujeres muestran incrementos mayores en los tres primeros intervalos. En el último, esta tendencia se invierte y los varones incorporan más palabras nuevas a su lexicón que las mujeres.

Palabras clave: *vocabulario receptivo, test VLT, inglés como lengua extranjera, diferencias de género, estudio longitudinal*

1. INTRODUCTION

Gender is one of the most relevant factors used in SLA research to distinguish among learners. A great number of studies have been devoted to researching gender differences in several areas of second language acquisition such as reading comprehension (Brantmeier, 2003; Young & Oxford, 1997), learning strategies (Jiménez, 2003; Young & Oxford, 1997) or error production (Agustín Llach et al., 2006; Jiménez, 1992;). The results of these studies indicate contradictory findings, because some highlight the superiority of males over females, others emphasize girls being better language learners than boys and still some others demonstrate that gender is irrelevant in second or foreign language acquisition.

Concerning the field of vocabulary acquisition, the role of gender has also occupied a prominent place. Studies that address gender differences in the several aspects related to lexical acquisition are abundant. Results are inconclusive within this area as well, with variability depending on the aspect examined. A number of studies have examined receptive and productive vocabulary knowledge of learners, and have reached different conclusions. Boyle (1987) determined that, exceptionally, boys are superior to girls in the comprehension of heard vocabulary. Similarly, Scarcella and Zimmerman (1998) found that men performed significantly better than women in a test of academic vocabulary recognition, understanding, and use. In Lin and Wu (2003), Lynn et al. (2005), and Edelenbos and Vinjé (2000), males also outperformed females in vocabulary knowledge in the foreign language (henceforth FL). By contrast, in Nyikos' (1990, cited in Sunderland, 2000, p. 206) study women performed better than men in a memorisation test of German vocabulary. Nevertheless, Jiménez and Terrazas (2005-2008) discovered no significant gender differences in performance in a receptive vocabulary test. Meara and Fitzpatrick (2000) and Jiménez and Moreno (2004) also pointed out that female learners performed better than males in productive vocabulary in Lex30. Additionally, highly significant differences were found in favor of females in the mean number of words produced in response to the 15

cues of a lexical availability test (Jiménez & Ojeda, 2009). A set of recent studies compiled in Jimenez (2010) also point to mixed results on gender differences or tendencies. As Sunderland (2010) claims, a careful analysis of this compilation allows us to conclude that the relationships between vocabulary and gender are not enduring, but may be context and test type-specific with other “third factors” such as L1, age or L2 proficiency, influencing them. Therefore, gender is acknowledged as a complex and nuanced issue. Likewise, regarding the role of gender in vocabulary learning strategies, Jiménez (2003) observed that girls were superior to boys in quantitative and qualitative terms. In other words, girls used a greater number of strategies and also a wider range of strategies than their male peers. Grace (2000) also concluded that there are differences in the strategies used by members of both sexes, although she reports similar results for receptive vocabulary knowledge and retention rate.

From a qualitative perspective, Jiménez (1992) claimed differences in favour of females in productive vocabulary in written compositions. Likewise, Jiménez (1997) provided evidence of women outperforming men in the election of word topics related to social matters. Furthermore, Jiménez and Ojeda (2007) found subtle differences in the use of conventions in letter writing with girls preferring to use conventions in openings and closings. In a quantitative study of the same data, these authors (2007, 2008) also found out that female learners produced significantly more tokens than their male counterparts, and nearly significantly more types in their written compositions. However, there were very slight differences in the most common words used by girls and boys and the semantic fields to which these belong.

In relation to the topic of gender differences in the use of the semantic fields, we highlight the studies conducted by Meunier (1995/1996) and Yang (2001). The first study concluded that males were superior to females in acquiring vocabulary related to geographical facts, and females were better acquiring vocabulary pertaining to story characters. In the same line of specific vocabulary areas are the results of Yang’s (2001)

study, which clearly pointed to a female superiority in size and accuracy of colour vocabulary. These results were in line with those obtained by Jiménez and Ojeda (2007), who stated that girls tend to talk about colours, and kinship, whereas boys prefer the topic of sports and use numbers more frequently.

Considering research-related studies, we can state that results are inconclusive regarding the role of gender in the acquisition of the FL and in particular in lexical acquisition. Furthermore, the type of word knowledge explored, the learning context, or the task used for data gathering seem to play a relevant role in the establishment of gender tendencies. Moreover, the great bulk of studies address foreign vocabulary acquisition in secondary school contexts. Studies dealing with primary school learners are very scarce. Within this context, we do believe that it is necessary to carry out longitudinal studies in order to, first, investigate receptive vocabulary development throughout the different stages of primary and secondary education, and second, to learn more about the tendencies in lexical development for boys and girls.

In this paper we present a longitudinal study which analyses the vocabulary size of learners over six years of primary and secondary education and with six times of data collection, once every year. Our main aims are: (1) to investigate the progression of learners' lexical knowledge, and (2) to contribute to research by determining if there are any differences in receptive vocabulary size regarding the sex of young English as a Foreign Language (henceforth EFL) learners.

2. RESEARCH QUESTIONS

With these considerations in mind, we were interested in answering the following research questions:

1. What is the vocabulary size of young EFL learners as they move up grade levels and turn from primary to secondary school?

2. Do students learn significantly more words each year as they go up grade?
3. Are there gender differences in vocabulary size and vocabulary growth over the six years tested?

3. METHOD

3.1. Participants

A total of 176 learners (94 males and 82 females) participated in the study. These were Spanish-speaking learners of EFL who were tested in six consecutive years. All participants were learners of English, which was a compulsory school subject for them. Longitudinal studies are prone to participant attrition; unfortunately, this one was no exception. One hundred and six students dropped out of their program during the six sessions, so there are no longitudinal results for them. Data were collected in four primary schools in Logroño, La Rioja, Spain, in spring from 2004 to 2009. By the first time of data collection, learners had been learning English for three school years in periods of 3 to 4 hours per week and were attending 4th grade of primary education. They averaged 9 to 10 years of age and had received approximately 419 hours of instruction in the FL. We again collected data once a year in the subsequent five years until learners were in their 3rd year of secondary education (grade 9) and were aged 14 to 15. By the time of the sixth data-collection period participants had been exposed to 944 hours of instruction in EFL. Table 1 presents the learners' characteristics.

Grade	N	Age	Approximate hours of instruction
4th	176	9-10	419
5th	176	10-11	524

Grade	N	Age	Approximate hours of instruction
6th	176	11-12	629
7th (1st year of Secondary)	176	12-13	734
8th (2nd year of Secondary)	176	13-14	839
9th (3rd year of Secondary)	176	14-15	944

TABLE 1. LEARNERS' CHARACTERISTICS

3.2. Instruments

In order to measure vocabulary size, we used the 2000 word frequency band from the receptive version of the Vocabulary Levels Test (Schmitt, Schmitt, & Clapham, 2001, version 2) (henceforth, 2k VLT). This test consists in matching a target word with its definition in English. Target words, which were selected among the two thousand most frequent in English, are organized in groups of six with three definitions. The test used here consists of ten groups of six words and three definitions. Accordingly, the minimum score to be obtained in the test was 0 and the maximum score 30. Learners had 10 minutes to complete the test (see Appendix 1). The test selection was conditioned by the language level and age of the learners. The test had been validated and was proved to be within the grasp of the informants in primary and secondary education.

3.3. Procedures and Analysis

Data were collected in a single session in regular class time for six consecutive years. Students had ten minutes to complete the vocabulary size test. At the beginning of the test, clear instructions were given both orally and in written form in the learners' L1 to make them understand what they were being asked to do. No dictionaries, grammar books, notes, or any other help was permitted as support.

Once data were collected, we proceeded to score the tests. One point was given to each correct response up to 30 points. Points scored were converted into words to have a clearer picture of the vocabulary size estimates. This was done following Nation's (1990) formula . In order to calculate descriptive values and to measure differences among male and female learners, we used the SPSS 15.0 to perform descriptive and inferential statistics.

4. RESULTS

In this section, we present the results of vocabulary size estimates over the six years tested, thus answering our first research question. Table 2 shows the descriptive results for the six years. As can be observed, mean values increase as learners go up grade. This is no surprise, since learners receive constant exposure to the target language. As expected, minimum and maximum values increase as well.

	N	Min.	Max.	Mean	S.D.
Grade 4	176	0	17	5.42	3.32
Grade 5	176	0	20	7.9	4.22
Grade 6	176	0	23	9.94	4.80
Grade 7	176	2	21	12.54	4.22
Grade 8	176	1	26	14.78	4.88
Grade 9	176	3	28	18.09	5.50

TABLE 2. DESCRIPTIVE RESULTS FOR SCORES ON THE 2K VLT AT EACH GRADE LEVEL

In number of words, that is, applying Nation's (1990) formula learners stay way behind one thousand words in 4th grade (see table 3), but they increase their lexical knowledge up to over one thousand words in grade 9. Standard deviation values are very high, which leads us to the conviction that the sample is very heterogeneous, with some learners showing knowledge of very few words in English, and others performing much better and displaying higher vocabulary sizes.

	N	Min.	Max.	Mean	S.D.
Grade 4	176	0	1133	361	220.53
Grade 5	176	0	1333	527	281.04
Grade 6	176	0	1533	663	320.3
Grade 7	176	133	1400	836	281.12
Grade 8	176	67	1733	987	325.42
Grade 9	176	200	1867	1206	366.83

TABLE 3. NUMBER OF KNOWN WORDS FOR THE 2K VLT AT EACH GRADE LEVEL

The following box plot represents the spread of the distribution graphically. The long whiskers show that there are indeed big differences among learners in the sample, despite the constant growth of mean and median values. We can also observe the presence of several outliers (i.e., learners who score especially high or low). These outliers may contribute to elevate mean and median values, and are more frequent in the early years.

In order to ascertain whether the increase in the vocabulary size of learners from year to year was significant, we decided to examine this increase in greater detail. The sample did not meet the normality assumption, so we decided to conduct non-parametric tests of mean comparison. In particular, we used the Wilcoxon signed rank test for two paired samples. Results display highly significant differences in vocabulary size from one year to the next. Thus, it could be stated that learners know significantly more words in 5th grade than in 4th, in 6th than in 5th, in 7th than in 6th grade, in 8th than in 7th, and in 9th than in 8th. Table 4 indicates the figures of the non-parametric analysis for two paired samples.

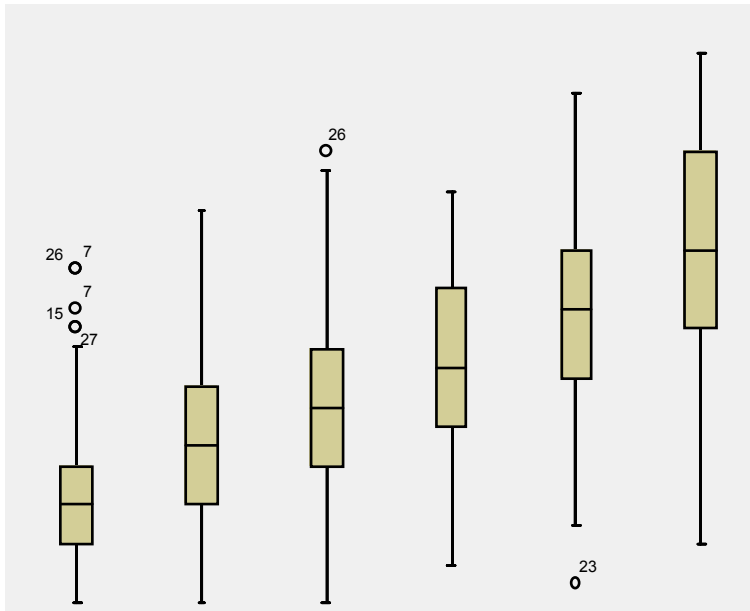


FIGURE 1. BOX DIAGRAM OF SCORE VALUE FOR 2K VLT ACROSS GRADES

	grade 5/ grade 4	grade 6/ grade 5	grade 7/ grade 6	grade 8/ grade 7	grade 9/ grade 8
Z	7.128	6.246	6.814	5.752	7.253
p (two-tailed)	.000	.000	.000	.000	.000

TABLE 4. INFERENCE STATISTICS FOR DIFFERENCES IN VOCABULARY KNOWLEDGE ACROSS GRADES

Our second research question went a step beyond raw vocabulary size, and focused on the nature of the increase in the learners' lexical growth. In order to answer this question, we decided to find the differences in the test results from one year to the next. We observed that, in general terms, mean results are higher from one grade to the next. This

means basically that taking the sample as a whole, students learn some new words every year. Nevertheless, if we look at the particular cases, we realize that some learners do in fact decrease in the number of words they recognize from one year to the next. We thought this issue could shed further light on the development of learners' vocabulary sizes, and decided to examine it. We conducted an analysis to find out how many students decreased in the number of words from one year to the next.

Table 5 presents the raw numbers and the percentages of the learners who decrease in number of correct responses to the VLT and of those who increase their responses from 0 to 5 right answers, from 5 to 10, and from 10 to 30 (from 10 onwards).

	4th-5th	5th-6th	6th-7th	7th-8th	8th-9th
Decrease	39 (22.2%)	43 (24.4%)	40 (22.7%)	45 (25.6%)	38 (21.6%)
Increase 0-5	82 (46.6%)	85 (48.3%)	73 (41.5%)	81 (46%)	62 (35.2%)
Increase 5-10	50 (28.4%)	40 (22.7%)	55 (31.3%)	38 (21.6%)	58 (33%)
Increase 10-30	5 (2.8%)	8 (4.5%)	8 (4.5%)	12 (6.8%)	18 (10.2%)

TABLE 5. RAW NUMBERS AND PERCENTAGES OF VOCABULARY DECREASE AND INCREMENT ON THE 2k VLT AT EACH GRADE LEVEL

As we can observe, percentages remain quite stable, except for the maximum increase which takes place in the last grades and tends to grow. The following table (Table 6) offers the results of the minimum values (negative values mean that learners lose knowledge of some words as they move up grade), maximum values, and mean number of the increases across grades:

	N	Min.	Max.	Mean	S.D.
Increase 4-5	176	-12	13	2.48	4.03
Increase					
5->6	176	-9	11	2.05	4.06
Increase					
6->7	176	-9	19	2.6	4.45
Increase					
7->8	176	-11	16	2.24	4.90
Increase					
8->9	176	-13	20	3.31	5.31

TABLE 6. DESCRIPTIVE RESULTS OF THE DECREASES AND INCREASES
ON THE 2k VLT AT EACH GRADE LEVEL

Figure 2 clearly shows evidence of a linear increase. Every year a similar number of words is learned which, added to the old words known, is what makes the increases significant.

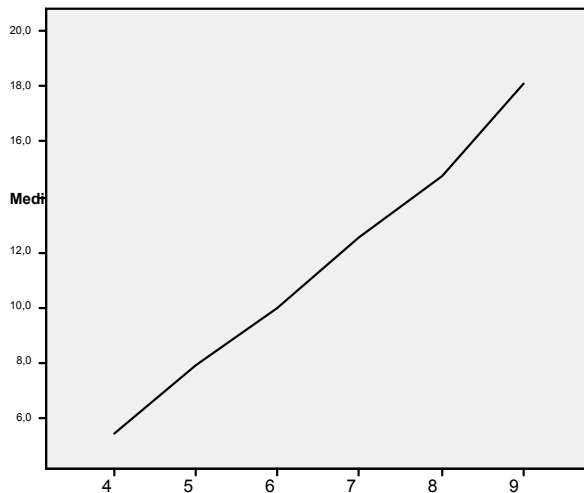


FIGURE 2. EVOLUTION OF THE INCREMENT OF WORD KNOWLEDGE OVER THE SIX-YEAR TIME SPAN

We were also interested in ascertaining the nature of this increase. In other words, we wondered whether students would incorporate more words to their lexicon as they become more proficient and know more words in absolute terms. From a quick observation of the mean values across grades (Table 6) which are rather similar, and of the figure (Figure 2) showing the increase in the incorporation of words, we could infer that differences were not to be found. However, to obtain statistical values, we conducted non-parametric tests of means comparisons for two-paired samples, in particular Wilcoxon signed ranks tests. As expected, the results of Table 7 clearly point to a lack of significant differences in the values of the increase rates. This indicates that there is a steady increase in a linear way. Learners incorporate roughly the same amount of words in one grade as they had incorporated the year before, although there is a tendency toward a significant gain in the last period tested.

	Increase 5->6/ increa- se 4->5	Increase 6->7/ increa- se 5->6	Increase 7->8/ increa- se 6->7	Increase 8->9/ increa- se 7->8
Z	.675	.719	.450	1.843
P (two-tailed)	.500	.472	.652	.065

TABLE 7. INFERENCE STATISTICS FOR DIFFERENCES IN RATE OF VOCABULARY INCREMENT ON THE 2K VLT ACROSS GRADES

Our third and last research question examined gender differences in vocabulary size and vocabulary growth over the six years tested. As can be observed in Table 8, descriptive results reveal very similar means, maximum and minimum values for male and female learners.

	N	Min.	Max.	Mean	S.D.	
Grade 4	Males	94	0	17	5.38	3.2
	Females	82	0	17	5.46	3.44
Grade 5	Males	94	0	18	7.55	4.12
	Females	82	1	20	8.3	4.3

	N	Min.	Max.	Mean	S.D.	
Grade 6	Males	94	0	23	9.55	4.65
	Females	82	0	22	10.4	4.96
Grade 7	Males	94	4	21	11.93	4.25
	Females	82	2	21	13.24	4.1
Grade 8	Males	94	4	25	14.24	4.81
	Females	82	1	26	15.4	4.9
Grade 9	Males	94	3	28	17.74	5.53
	Females	82	4	28	18.49	5.48

TABLE 8. DESCRIPTIVE RESULTS OF MALES' AND FEMALES' SCORES
ON THE 2K VLT AT EACH GRADE LEVEL.

Female learners' means are higher than male learners' all over the years, with a rather constant difference rate between them (0.8 in 4th grade, 0.73 in 5th grade, 0.83 in 6th grade, 1.32 in 7th grade, 1.16 in 8th grade, and 0.74 in 9th grade, always in favour of females).

In order to gain statistical value of the nature of the differences between male and female informants, we conducted non-parametric tests of means comparisons for two independent samples. Specifically, we conducted the Mann-Whitney test. Results reveal a lack of gender differences at a significance level of 1% ($p \geq 1$) in vocabulary size estimations for the six years examined (see Table 9).

	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9
Mann-Whitney U	3814	3456	3434	3119.5	3291	3572.5
Wilcoxon W	8279	7921	7899	7584	7756	8037.5
Z	.119	1.184	1.249	2.184	1.673	.836
p (two-tailed)	.905	.237	.212	.029	.094	.403

TABLE 9. INFERENCE STATISTICS FOR GENDER-BASED DIFFERENCES
IN RECEPTIVE VOCABULARY KNOWLEDGE.

These figures are revealing because in grades 7 and 8 (i.e., 12-14 years of age) female learners' vocabulary size surpasses their male peers' significantly at the 5% and 10% levels, respectively (see Table 9 (p values for grades 7 and 8)). However, as can be noticed in Table 10 male learners at this stage start learning more words than girls thus inverting the previous tendency.

The nature of students' vocabulary growth was also submitted to analysis regarding gender differences. We noticed that, in general, male and female learners roughly incorporate similar numbers of new words to their lexicon from year to year, with a very slight advantage in favour of females. In the last two years, however, males incorporate on average more words than their female peers.

	N	Min.	Max.	Mean	S.D.	
Increase						
4->5	Males	94	-5	12	2.17	3.7
	Females	82	-12	13	2.82	4.38
Increase						
5->6	Males	94	-9	11	2	4.17
	Females	82	-9	11	2.09	3.94
Increase						
6->7	Males	94	-8	19	2.37	4.77
	Females	82	-9	11	2.85	4.06
Increase						
7->8	Males	94	-11	16	2.31	5.21
	Females	82	-9	14	2.15	4.55
Increase						
8->9	Males	94	-10	18	3.5	5.32
	Females	82	-13	20	3.08	5.31

TABLE 10. COMPARISON OF GENDER-BASED GROWTH OF VOCABULARY KNOWLEDGE (2K LEVEL) OVER THE SIX-YEAR TIME SPAN

Despite these facts, we still conducted non-parametric tests of means comparisons for two non-related samples. Table 11 confirms a lack of statistically significant differences.

	Increase 4->5	Increase 5->6	Increase 6->7	Increase 7->8	Increase 8->9
Mann-Whitney U	3325.5	3808.5	3451	3767	3665
Wilcoxon W	7790.5	8273.5	7916	7170	7068
Z	1.573	.135	1.198	.259	.562
p (two-tailed)	.116	.892	.231	.796	.574

TABLE 11. INFERENCE STATISTICS FOR THE INCREASE COMPARISON

We, nonetheless, wanted to examine whether there were any significant internal differences in the increase or the number of new words incorporated each year for both groups. We used Wilcoxon signed rank tests to measure significance. Results for both turned out to be non-significant for every increase ($p \geq 1$) (see Table 12).

	Males	Females
Increase 5->6/ increase 4->5	Z = -.033	Z = -.962
	p=.973	p=.336
Increase 6->7/ increase 5->6	Z = -.154	Z = -.990
	p=.878	p=.322
Increase 7->8/ increase 6->7	Z = -.252	Z = -1.080
	p=.801	p=.280
Increase 8->9/ increase 7->8	Z = -1.605	Z = -.959
	p=.109	p=.338

TABLE 12. INFERENCE STATISTICS FOR VOCABULARY INCREMENT
ACROSS GRADE LEVELS FOR MALE AND FEMALE LEARNERS.

The following box plot (Figure 3) shows the similar means and median values of the two learners groups. It is interesting to observe the performance of male learner number 269 because he repeatedly scores notably over the rest of his male peers.

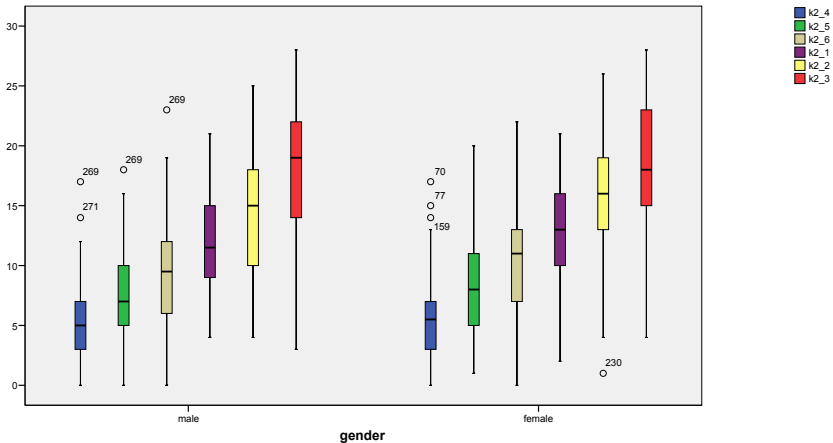


FIGURE 3. BOX DIAGRAM OF MALES' AND FEMALES' SCORE VALUES ACROSS GRADES

Furthermore, as we have noted above, as students move up grade, the performance of male learners starts to get slightly better than that of their female counterparts. In the box plot below (Figure 4), which represents the last grade tested, grade 9 (14-15 years), we observe that the median value of the male group is higher than that of the female group, and that the distribution of scores in the samples is very similar.

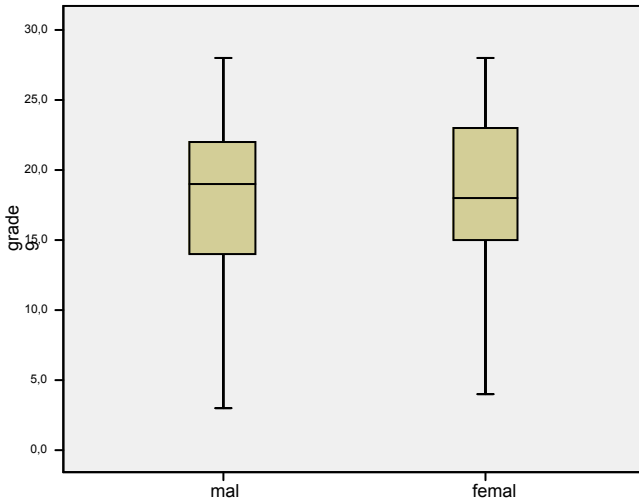


FIGURE 4. BOX DIAGRAM OF MALES' AND FEMALES' MEDIAN AND SCORE VALUES IN GRADE 9

Figure 5 below also presents the steady increase of vocabulary growth for the two gender groups of learners and indicates a constant gain in lexical knowledge according to their scores on the 2k VLT..

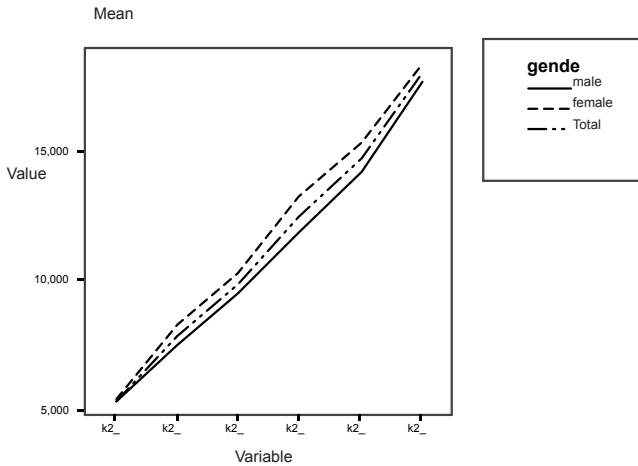


FIGURE 5. VOCABULARY GROWTH BY MALE AND FEMALE LEARNERS

Finally, we wanted to describe the behaviour of male and female learners regarding the evolution of correct responses over the six grades examined. Table 13 shows these results.

	Group	4th-5th	5th-6th	6th-7th	7th-8th	8th-9th
Decrease	Male	24(25.5%)	25(26.6%)	25(26.6%)	26(27.7%)	19(20.2%)
	Female	15(18.3%)	18 (22%)	15(18.3%)	19(23.2%)	19(23.2%)
Increase 0-5	Male	47(50%)	43(45.7%)	38(40.4%)	41(43.6%)	31(33%)
	Female	35(42.7%)	42(51.2%)	35(42.7%)	40(48.8%)	31(37.8%)
Increase 5-10	Male	20(21.3%)	21(22.3%)	26(27.7%)	20(21.3%)	33(35.1%)
	Female	30(36.6%)	19(23.2%)	29(35.4%)	18 (22%)	25(30.5%)
Increa- se10-30	Male	3 (3.2%)	5 (5.3%)	5 (5.3%)	7 (7.4%)	11(11.7%)
	Female	2 (2.4%)	3 (3.7%)	3 (3.7%)	5 (6.1%)	7 (8.5%)

TABLE 13. MALES' AND FEMALES' CORRECT SCORES IN EACH GRADE

These figures clearly reveal, first, that there are more male than female learners who are poor scorers and, second, that there are more girls than boys who belong to the top scorers' group. This evidence also reveals that females are not only more constant but also make up a more homogeneous group than their male peers. Furthermore, alterations and internal differences are bigger in the male group. This finding corroborates Garcia Hoz's (1977) claim, since he discovered a similar behaviour for L1 acquirers. In any case, female lexical acquisition shows a more regular development than male, where changes seem to be more abrupt.

5. DISCUSSION

Firstly we were concerned with describing the receptive vocabulary size of learners across six different grades. Our results clearly point to initial small vocabulary sizes of around 1000 words (4th grade), approaching to almost 2000 known words at the end of the period tested (9th grade). This result is in line with previous studies that highlight that 400-700 hours of instruction lead to vocabularies of around 1000 words

(Staehr, 2008; Terrazas & Agustín Llach, 2009). Factors accounting for these low lexical figures may be various and varied, for instance, practical constraints on lexical development in L2 in instructional settings such as the limited contextualized input in terms of both quantity and quality or the intervention of the existing semantic and lexical settings. If these students receive scarce contextualized input, they may find it very difficult not only to develop their receptive lexical competence, but also to transform this receptive lexical knowledge into conceptual knowledge (cf. Jiang, 2000).

Also, as learners gain in proficiency and move up grade level, they clearly show significantly higher vocabulary sizes. As exposure to the FL augments the number of words known increases as well. This fact is not new and other studies (Edelenbos & Vinjé, 2000; Goldberg et al., 2008; Nurweni & Read, 1999) have already revealed that amount of exposure is relevant for receptive vocabulary size. Moreover, the fact that our students increased their receptive vocabulary knowledge significantly from year to year implies that teaching may have been another factor affecting the pattern of their lexical development in L2. In other words, our young learners' instructors might have concentrated not only on introducing new words, but also on enhancing their students' knowledge of previously presented words (Schmitt, 2000).

Our second research question asked about the nature of the increase in vocabulary size. Results present us with a picture in which we observe a linear increase, i.e., every year roughly the same number of new words are incorporated, but with a tendency to a slight growth in this number in the last interval tested. Even though these findings contradict Takala's (1984), who observed that a larger proportion of vocabulary is known at lower stages than at upper stages of education, our results corroborate Schmitt's (2000, p. 120) claim that word learning is an incremental or gradual and also complicated process. In this sense we wonder whether learners will reach a plateau in their lexical development, where they stop learning new words and their vocabulary size no longer increases and/

or does so very slowly. With the present data we cannot but speculate on this in two opposite directions. On the one hand, results show that despite the lack of significant results, the increases grow each year. This may point to a subsequent period where lexical gains are high and probably significantly bigger from one interval to the next. However, on the other hand, the tendency in previous related research scenarios shows that: (a) learners' lexical repertoires may get bigger in size, for example, because they have multiple exposures to more frequent words (Schmitt, 2000) and (b) lexical development may proceed in other directions, for example, in lexical depth (cf. Jiang, 2000). In other words, learners acquire new aspects of already known words namely, meanings, frequencies, syntactic restrictions, register restrictions, etc. Most probably this second scenario may follow from the first.

Concerning the reasons why learners may not augment their receptive vocabulary profile as much as it would be advisable, we may think of students' lack of interest in general vocabulary. As García Hoz (1997) claims, at the end of secondary education, students must take specialised courses depending on the type of job they wish to carry out in their future careers. Perhaps, an earlier teaching of specific and less frequent vocabulary would be advisable to develop students' vocabulary size. According to Fernández and Terrazas (2012), "Instrumental motivation, i.e., learning the language with a pragmatic purpose, is mostly detected in the last years of Secondary Education rather than in Primary Education or the first years of Secondary Education, where intrinsic motivation is usually the most frequent type (Gardner, 2007; Tragant & Muñoz, 2000)" (p. 53). In our view it is very likely that a lack of instrumental motivation of our subjects at the end of secondary education has an effect on their low receptive vocabulary profile. As the learners in the sample are still at intermediate levels of proficiency, further research with learners at higher levels of linguistic proficiency is warranted.

Regarding gender differences, the results of this large sample size study revealed very slight and generally non-significant differences

among males and females across grades in the context of Spanish primary education with respect to their receptive vocabulary knowledge. One may reasonably argue that the uniform teaching methods and materials, the formal context of language acquisition, and the age and language level of the respondents account for a lack of significant gender differences. The participants in the present study make up a very homogeneous sample of students regarding their individual characteristics and those of their learning context. We agree with Sunderland (2010) who claims that the FL context, in which the FL is just another school subject, and identity issues are not salient, waters down any possible gender differences. Jiang (2000) also believes that teaching is an important factor that may affect the pattern of lexical development in L2. Within this line of research, we agree with Jiménez and Ojeda (2009) that a key issue for the Spanish educational authorities reflected in educational general guidelines is to ensure that by the end of the compulsory education learners of both sexes have an equal command of the FL. It seems logical that teachers and schools follow the same approach and use the same input materials with all learners disregarding sex. This fact may contribute to absence of differences.

Obviously, as Sunderland (2010) indicates, this type of quantitative study is prone to show inter-group similarities (between girls and boys) and intra-group differences (among girls and among boys). This point suggests that these are tendencies rather than straightforward, definitive conclusions.

In descriptive terms, the meanings of words known receptively by male and female learners point to a slight female advantage, however, girls peak in grade 7 and from that moment on, boys start incorporating more words into their lexicon, up to the point that they surpass the number of words incorporated by female peers in the last interval tested. Thus, the gap in receptive vocabulary knowledge, which had reached a peak in grade 7 tends to get smaller for grades 8 and especially 9. This result concurs with what Garcia Hoz (1977) concluded for mother tongue vocabulary acquisition, where girls were found to progress at a faster rate

than boys, until the moment they enter adolescence. Girls reach their peak behaviour in grade 7, age 12-13. Girls start their adolescence earlier than boys, these latter start around 14, and it is at this stage when boys start getting better and even surpass their female peers, i.e., higher vocabulary growth from grade 8 to 9. In this regard, our results show an L2 lexical behaviour that mirrors L1 vocabulary acquisition (cf. García Hoz, 1977).

Moreover, following Fernández and Terrazas' (2012) point, we may speculate that, up to 7th grade, the types of motivation (intrinsic/instrumental) of our male and female subjects differ and that these differences may explain the two distinct results obtained by males and females until then.

If gender differences were explored from a cognitive, psychological, and social perspective, the results derived from our findings would suggest that the formal or FL context contributes to ruling out socially based differences. Psychologically and physiologically gender-based learning differences occur in the early adolescent years. Thus girls clearly mature earlier than boys, and when these enter the teenage years, they focus, catch up and even outperform female learners. Since our data stop at this stage, that is, before we can see higher male advantages, we tend to think that such advantages will appear late at the end of high school and previous to university entrance but this cannot be confirmed and is merely speculative.

We could also track down the improvement of male performance as students go from a lower to an upper grade. There seems to be a tendency of male learners to exceed their female peers in vocabulary learning as they get older and move up a grade. The special characteristics of this period of life, teenage years, may also account for this difference in favour of males. As suggested, female learners mature earlier than male learners and may start thinking about other issues (girls, clothing, going out, diet, etc.) that may affect them, somehow neglecting or leaving aside learning a little bit more than before. As males have yet to reach this maturing stage, this may account for the increasing male advantage.

This study runs counter to previous research which demonstrate sex differences in several areas of vocabulary acquisition (see Jiménez, 1992, 1997; Jiménez & Moreno, 2004; Jiménez & Ojeda, 2007, 2008, 2009; Meara & Fitzpatrick, 2000; Nyikos, 1990). Nonetheless, other studies on receptive vocabulary size concluded that there were no gender differences (Grace, 2000; Jiménez & Terrazas, 2005-2008).

It is widely accepted that promoting right to equality between sexes is very positive because this affects students' learning results directly. This aspect of language learning should be very carefully supervised, just in case practical constraints imposed on L2 students (see the beginning of the discussion section) end up preventing either males or females or both from accelerating their natural EFL learning process.

6. CONCLUSIONS AND PEDAGOGICAL IMPLICATIONS

The present study has offered a thorough research into receptive vocabulary size development determining that this is an increasing knowledge. Learners know significantly more words as they go up grade. However, the increase is steady and it progresses in a linear way, with similar lexical gains throughout the years tested. A tendency towards a significant gain in the last period tested can be ascertained, though. As gender differences are concerned, our results allow us to conclude that male and female learners display similar behaviours in lexical learning. A lack of gender differences might be the result of homogeneous EFL school instruction or the type of task accomplished. Small differences appearing at some stages can be due to physiological and psychological changes of adolescence related to motivational issues.

Our findings on learners' word development and performance at Primary and Secondary Schools have not only shown several pedagogical implications for the education of primary and secondary EFL students and the training of their teachers, but have also provided information of vital importance that may be taken into consideration by educational po-

licy-makers. In our view, education should focus on monitoring achievement levels at different learning stages and on vocabulary development, since the level of English of FL learners at the end of secondary education may be insufficient for the professional requirements that students should fulfil as would-be English language users in different working contexts. We agree with Edelenbos and Vinjé (2000) when they claim that “setting clear goals, sequencing materials, frequent questions to monitor progress in the learning process, opportunity to learn, testing and quality feedback are all important characteristics from which early FL learning can benefit tremendously.” (p. 160). It would be advisable that these results in vocabulary size and vocabulary growth were not only reflected upon by instructors, researchers and text designers in the short run, but also converted into effective training and learning.

Even though our longitudinal study has revealed no significant differences in male and female receptive vocabulary knowledge, these have called for a strong awareness of this matter. For instance, information of male and female learners’ receptive vocabulary size at different stages of instruction can show how realistic the expectations of a given lexical syllabus are, or what would constitute an optimal syllabus for each gender group. This is a theoretical conclusion and, possibly, neither feasible nor recommendable in practice. Furthermore, as Bacon and Finnemann (1992) rightly propose, instruction in L2 “must account for and capitalize on potential differences rather than ignore them.” (p. 491).

Further research should concentrate on investigating gender differences concerning different input conditions and learning strategies and the effect of the language learning context on the development of primary and secondary school students’ receptive vocabulary size. Moreover, studies that focus on older students and students that are more proficient in the FL are also called for. In this sense, it would be strongly advisable to examine gender differences in the receptive vocabulary knowledge of the learners of this study as they progress and finish their secondary school studies.

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References

- Agustín Llach, M. P., Fernández Fontecha, A., & Moreno Espinosa, S. (2006). Lexical errors in the written production of young ESL beginner learners: Sex differences. In M. Amengual, M. Juan, & J. Salazar (Eds.), *Adquisición y enseñanza de lenguas en contextos plurilingües. Ensayos y propuestas aplicadas* (pp. 35-42). Palma de Mallorca: Servicio de Publicaciones de la Universidad de Las Islas Baleares.
- Bacon, S. M., & Finneman, M. D. (1992). Sex differences in self-reported beliefs about foreign *language learning* and authentic oral and written input. *Language Learning* 42, 471-495.
- Boyle, J. P. (1987). Sex differences in listening vocabulary. *Language Learning*, 37, 273-284.
- Brantmeier, C. (2003). Does gender make a difference? Passage content and comprehension in second language reading. *Reading in a Foreign Language*, 15, 1-27. Accessible online: <http://nflrc.hawaii.edu/rfl/April2003/brantmeier/brantmeier.html>
- Edelenbos, P., & Vinjé, M. (2000). The assessment of a foreign language at the end of primary (elementary) education. *Language Testing*, 17, 144-162.

- Fernández Fontecha, A., & Terrazas, M. (2012). The role of motivation and age in vocabulary knowledge. *Vigo International Journal of Applied Linguistics*, 9, 39-62.
- García Hoz, V. (1977). *Estudios experimentales sobre el vocabulario*. Madrid: Consejo Superior de Investigaciones Científicas (CSIC).
- Gardner, R. C. (2007). Motivation and second language acquisition. *Porta Linguarum*, 8, 9-20.
- Golberg H, Paradis J., & Crago. M (2008). Lexical acquisition over time in minority first language children learning English as a second language. *Applied Psycholinguistics*, 29, 41-65.
- Grace, C. (2000). Gender differences: Vocabulary retention and access to translations for beginning language learners in CALL. *The Modern Language Journal*, 84, 214-224.
- Jiang, N. (2000). Lexical representation and development in a second language. *Applied Linguistics*, 21, 47-77.
- Jiménez, R. M. (1992). *Errores en la producción escrita del inglés y posibles factores condicionantes*. Madrid: Universidad Complutense de Madrid.
- Jiménez, R. M. (1997). Análisis de los intereses sociales y personales de alumnos navarros de secundaria. In R. M. Jiménez Catalán (Ed.), *Los temas transversales en la clase de inglés* (pp. 7-27). Pamplona: Gobierno de Navarra. Departamento de Educación y Cultura.
- Jiménez, R. M. (2003). Sex differences in L2 vocabulary learning strategies. *International Journal of Applied Linguistics*, 13, 1, 54-77.
- Jiménez, R. M., & Moreno, S. (2004). L2 word associations and the variable sex: An outline according to an electronic tool. In A. R. Celada, D. Pastor, & P. J. García (Eds.), *Proceedings of the 27th International AEDEAN Conference*. Salamanca: Editorial Ambos Mundos (CD-Rom format).

- Jiménez, R. M., & Ojeda, J. (2007). La carta como instrumento de identificación personal e interacción comunicativa en L2: Análisis del vocabulario de los saludos y despedidas. Paper delivered at the IX Simposio Internacional de la Sociedad Española de Didáctica de la Lengua y la Literatura. La lengua escrita. Logroño: Universidad de La Rioja.
- Jiménez, R. M., & Ojeda, J. (2008). The English vocabulary of girls and boys: Evidence from a quantitative study. In L. Litosseliti, H. Sauton, K. Harrington, & J. Sunderland (Eds.), *Theoretical and methodological approaches to gender and language study* (pp. 103-115). London/ New York: Palgrave Macmillan.
- Jiménez, R. M., & Ojeda, J. (2009). Girls' and boys' lexical availability in EFL. *International Journal of Applied Linguistics*, 158, 57-76.
- Jiménez, R. M., & Terrazas, M. (2005-2008). The receptive vocabulary of EFL young learners. *Journal of English Studies*, 5-6, 173-191.
- Jiménez, R. M. (ed.) (2010). *Gender perspectives on vocabulary in foreign and second language*. Basingstoke: Palgrave MacMillan.
- Lin, J., & Wu, F. (2003). Differential performance by gender in foreign language testing. Poster for the 2003 annual meeting of NCME Chicago.
- Lynn, R., Fergusson, D., & Horwood, L. J. (2005). Sex differences on the WISC-R in New Zealand" *Personality and Individual Differences*, 39, 103-114.
- Meara, P., & Fitzpatrick, T. (2000). Lex 30: An improved method of assessing productive vocabulary in an L2. *System*, 28, 19-30.
- Meunier, L. (1995-1996). Human factors in a computer assisted foreign language environment: The effects of gender, personality, and keyboard control. *CALICO* 13, 2-3, 47-72.

- Nation, P. (1984). Vocabulary lists. Wellington: Victoria University of Wellington, English Language Institute.
- Nation, P. (1990). *Teaching and learning vocabulary*. New York: Newbury.
- Nurweni, A., & Read, J. (1999). The English vocabulary knowledge of Indonesian university students. *English for Specific Purposes*, 18, 161-75.
- Nyikos, M. (1990). Sex-related differences in adult language learning: Socialization and memory factors. *Modern Language Journal*, 74, 273-287.
- Scarcella, R., & Zimmerman, C. (1998). Academic words and gender. ESL student performance on a test of academic lexicon. *Studies in Second Language Acquisition*, 20, 27-49.
- Schmitt, N. (2000). Vocabulary acquisition. In N. Schmitt (Ed.), *Vocabulary in language teaching* (pp. 116-141). Cambridge: Cambridge Language Education.
- Schmitt, N., Schmitt, D., & Clapham, C. (2001). Developing and exploring the behaviour of two new versions of the Vocabulary Level Test. *Language Testing*, 18, 55-88.
- Staehr, L. S. (2008). Vocabulary size and the skills of listening, reading, and writing. *Language Learning Journal*, 36, 139-52.
- Sunderland, J. (2000). Issues of gender and Language in Second and foreign language Education. *Language Teaching*, 33, 203-233.
- Sunderland, J. (2010). Theorizing gender perspectives in foreign and second language learning. In R. M. Jiménez Catalán (Ed.), *Gender perspectives on vocabulary in foreign and second languages* (pp. 1-22). Basingstoke: Palgrave MacMillan.

- Takala, S. (1984). *Evaluation of students' knowledge of English vocabulary in the Finnish comprehensive school* Jyväskylä, Finland: Reports of the Institute of Educational Research, No. 350).
- Terrazas, M., & Agustín Llach, M. P. (2009). Exploring the increase of receptive vocabulary knowledge in the foreign language: A longitudinal study. *International Journal of English Studies*, 9, 113-133.
- Tragant, E., & Muñoz, C. (2000). La motivación y su relación con la edad en un contexto escolar de aprendizaje de lengua extranjera. In C. Muñoz (Ed.), *Segundas lenguas. Adquisición en el aula* (pp. 81-105). Barcelona: Ariel.
- Yang, Y. (2001). Sex and language proficiency level in colour-naming performance: an ESL/EFL perspective. *International Journal of Applied Linguistics*, 11, 238-256.
- Young, D. J., & Oxford, R. (1997). A gender-related analysis of strategies used to process written input in the native language and a foreign language. *Applied Language Learning*, 8, 43-73.

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APPENDIX 1.

2,000 WORD LEVEL TEST
2005/2006

COLEGIO _____
 CURSO _____ FECHA _____
 APELLIDOS _____ NOMBRE _____

Este es un test de vocabulario. En la parte izquierda te presentamos grupos de seis palabras inglesas y a su derecha, los significados de sólo tres de ellas. **Escribe** junto a éstos, el **número** de la palabra inglesa correspondiente a dichos significados. Observa el siguiente ejemplo:

EJEMPLO	→	RESPUESTA CORRECTA
1 business _____ 2 clock _____ part of a house 3 horse _____ animal with 4 legs 4 pencil _____ something used for writing 5 shoe _____ 6 wall _____		1 business _____ 2 clock <u>6</u> part of a house 3 horse <u>3</u> animal with 4 legs 4 pencil <u>4</u> something used for writing 5 shoe _____ 6 wall _____
1 coffee _____ 2 disease _____ money for work 3 justice _____ a piece of clothing 4 skirt _____ using the law in the right way 5 stage _____ 6 wage _____		1 adopt _____ 2 climb _____ go up 3 examine _____ look at closely 4 pour _____ be on every side 5 satisfy _____ 6 surround _____
1 choice _____ 2 crop _____ heat 3 flesh _____ meat 4 salary _____ money paid regularly for doing a job 5 secret _____ 6 temperature _____		1 bake _____ 2 connect _____ join together 3 inquire _____ walk without purpose 4 limit _____ keep within a certain size 5 recognize _____ 6 wander _____
1 cap _____ 2 education _____ teaching and learning 3 journey _____ numbers to measure with 4 parent _____ going to a far place 5 scale _____ 6 trick _____		1 burst _____ 2 concern _____ break open 3 deliver _____ make better 4 fold _____ take something to someone 5 improve _____ 6 urge _____
1 attack _____ 2 charm _____ gold and silver 3 lack _____ pleasing quality 4 pen _____ not having something 5 shadow _____ 6 treasure _____		1 original _____ 2 private _____ first 3 royal _____ not public 4 slow _____ all added together 5 sorry _____ 6 total _____
1 cream _____ 2 factory _____ part of milk 3 nail _____ a lot of money 4 pupil _____ person who is studying 5 sacrifice _____ 6 wealth _____		1 ancient _____ 2 curious _____ not easy 3 difficult _____ very old 4 entire _____ related to God 5 holy _____ 6 social _____