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Vocabulary learning strategies in Primary teacher training students in Spain: The effect of proficiency and bilingual education*

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Alcaraz-Mármol, Gema. 2021. Vocabulary learning strategies in Primary teacher training students in Spain: The effect of proficiency and bilingual education. Linguistic Research 38(Special Edition): 1-24. This study is based on the application of a new version of Gu and Johnson's Vocabulary Learning Questionnaire. The questionnaire contained 52 items which deal with the use of seven different vocabulary strategies, namely, metacognition, inferencing, dictionary use, note-taking, practicing, codifying and activation. It was administered to 100 undergraduates in the Primary Education teaching degree of two different proficiency levels - 42 had a B1 level of English and 58 a B2 level - and educational background, where 53 had a bilingual educational background and 47 had received English instruction in a non-bilingual context. The purpose of the study is to explore the vocabulary learning strategies used by this group of participants and see whether the variables of proficiency and formal language learning context - bilingual or non-bilingual - determine the type of vocabulary strategies used. A quantitative methodology was adopted where both descriptive and inferential statistics were applied for data analysis. Results show that inferencing and dictionary use ranked the list among the participants, whereas metacognition and activation were at the last positions. No significant differences were found in terms of proficiency. However, the bilingual variable did make a difference in the use of certain strategies. On the basis of these results, our research encourages the promotion of vocabulary learning strategies, paying special attention to those which require high cognitive effort such as metacognition and activation. (Universidad de Castilla-La Mancha)

Keywords bilingual education, second language, strategies, tertiary education, vocabulary learning

1. Introduction

The ultimate goal in the learning-teaching process of a foreign language (hereafter

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FL) pursues becoming proficient in the different communicative skills, that is listening, reading, writing and speaking (Common European Framework of Reference, 2016). Thus, one of the core elements for the accomplishment of this goal is the learner's vocabulary size in the target language. Melanlioglu (2020) states that the learners' use of their second language (hereafter L2) skills strongly depends on the extent to which their vocabulary size allows them to do it. Nation (2001) claims that the lack of L2 vocabulary is behind the difficulties faced by learners in using their receptive and productive skills. L2 vocabulary literature (Gorman 2012; Milton et al. 2010; Rassaei 2017) shows the direct relationship between L2 skills and vocabulary, and how the quantity and quality of L2 vocabulary can predict proficiency.

Several studies on L2 vocabulary learning carried out in the Spanish context show that a considerable part of students does not seem to reach an elementary level of vocabulary after compulsory education, even though they averagely receive around 8 years of foreign language instruction. Jiménez-Catalán and Moreno-Espinosa (2005) and Jiménez-Catalán and Terrazas (2008) conducted studies where the L2 level of primary and secondary students was tested. These investigations revealed that students had a low L2 vocabulary level in spite of the number of hours of exposition to the target language. Similarly, Mora (2014) compared primary education students in bilingual and non-bilingual settings. He found out that those in bilingual settings had a higher L2 level, although the author claimed that both groups showed a poor lexical competence.

Nation (2001) states that at least 2000 words should be acquired in order to be able to communicate in a L2. This number grows up to 5000 if an advanced communicative competence is pursued, and to 10000 if communication is given in specialized contexts. Within the foreign language scope, where the contact with the target language is basically limited to the classroom, the teaching of the vocabulary size which is needed by students becomes challenging. On this matter, the new version of the Common European Framework of Reference (2016) remarks the importance of training students in self-regulation and the role of strategies, which are given pride of place in this document. Several types of language learning strategies (hereafter LLS) can be found in the four descriptors that compose the volume, namely reception, production, interaction and mediation. In fact, the concept of strategy is one of the parameters upon which the development of each descriptor is built. Nevertheless, despite the considerable amount of L2 vocabulary literature, how vocabulary is learned, together with the different strategies for

vocabulary learning merits further attention.

2. Language learning strategies and self regulation

The field of LLS has been widely approached from different perspectives. It has provided empirical evidence, which has called the attention of L2 researchers, teachers and students. Pawlak (2019: 2) points out that the steps taken by learners to enhance their language learning are "tangible and amenable to pedagogical intervention". One of the first approaches to LLS is found in Rubin (1975). Since the publication of her study, the concept of LLS has evolved and gone through several definitions. Among the most influential ones is that offered by Oxford (1989: 235), who describes LLS as "behaviours or actions which learners use to make language learning more successful, self-directed and enjoyable". She further complemented this definition adding that these actions help to transfer what learners acquire to new situations (Oxford 1990).

Other studies such as Macaro (2006) and Cohen and Macaro (2007) highlight the cognitive aspect of the LLS. They suggest that there is a close relationship between cognitive psychology and information processing, learning style, subconscious activity and language skills. In an attempt to fine-tune the definition of the LLS, scholars such as Dornyei and Skehan (2003), Chamot (2004) and Griffiths (2008) focused on the learners' awareness and their ability for selection. They all stress the learners' conscious effort, as learners are expected to be actively involved in the learning process.

In addition to searching for a LLS definition, there have been successful approaches to classifying strategies into different types or categories. Strategies can be classified in terms of use. In this sense, Cohen and Weaver (2006) distinguish between what they properly call LLS and the language use strategies. The former refer to those strategies which are used for the learning of language material found for the first time, while the latter imply using the material that has already been learnt to some degree. They also suggest a classification of strategies by skill area, namely, listening, reading, speaking, writing, vocabulary, grammar, and translation. A third way to classify LLS deals with their function. Accordingly, O'Malley and Chamot (1990) talk about metacognitive, cognitive and social/affective categories.

Oxford (1990) expands this classification adding memory and compensatory strategies, as well as considering affective and social categories as independent from each

other. The author further distinguishes between direct strategies –memory, cognition and compensation– and indirect –metacognitive, affective and social. The cognitive and metacognitive strategies deal with the planning and practical aspects of language learning, that is to say, learners are able to control their learning process, check on progress and evaluate their performance. They can also put into practice different actions when using the target language such as identification, rehearsal or comprehension and production. Further, learners resort to memory and compensatory mechanisms in order to help cognitive processes. As for the social type of LLS, learners use them to interact with other learners or native speakers, improving cooperation and negotiation. Finally, the affective category supports students when coping with anxiety by improving motivation and self-encouragement. Yet, Cohen and Macaro (2007: 683) recommend to be aware of the complexity to isolate the impact of a specific strategy, as strategies are "deployed in complex, interactive ways", so that it is highly challenging to try to isolate and find out the strategies used by the learners in each moment.

LLS are closely related to the concept of self-regulation. Self-regulation is linked to terms such as will power, control of emotions, flexibility, state of attention or meeting expectations (Gorgoz and Tican 2020). Tseng et al. (2017: 532) refer to self-regulated learning as "the learners' proactive control over their thoughts and behaviours and involves active use of self- regulatory strategies to achieve goals". The concept of self-regulation should be clarified not to be either mental or academic only. Instead, it encompasses a process which consists of transforming mental skills into academic ones (Zimmerman 2001). In fact, Boakaerts and Cascallar (2006) note the impact of self-regulation in school success, and Hrbackova and Safrankova (2016) remark its bounds to metacognition.

Recent studies have observed the potential of self-regulation in language learning (Bai 2018; Vattoy 2020; Xiao and Yang 2019). Thus, these and other scholars (Boakaerts and Corno 2005; Zimmerman 2002) have been interested in the features that characterize self-regulated learners. They found that this type of learners shows a proactive profile and are aware of their strengths and weaknesses. What is more, they prove to be self-confident when setting goals and adapting strategies, changing and shaping them according to the learning situation, while analyzing the causes of potential failure (Gorzgoz and Tican 2020).

3. L2 vocabulary learning strategies

As stated in the previous section, one of the LLS classifications suggested by scholars is based on skills. In this sense, vocabulary is included by Cohen (2007) as one of the aspects which can be improved through the use of specific strategies. Within the long tradition of L2 vocabulary research, attention to vocabulary learning strategies (hereafter VLS) is relatively recent. One of the first approaches was introduced by Hatch and Brown (1995). They identified five steps for L2 vocabulary learning, which, to a certain extent, have set up the bases for VLS research: a) encountering new words by consulting sources, b) gaining a visual or auditory image of the new words, c) focusing on the word meaning, d) establishing a strong meaning-form link, e) using the new words.

We can find different attempts to classify VLS. One of the first classifications is introduced by Gu and Johnson (1996). They distinguish between two main dimensions, namely, metacognitive regulation and cognitive strategies, which were further classified into six sub- categories: guessing, dictionary use, note-taking, rehearsal, encoding and activating. Schmitt (1997, 2000) proposes two different categories of VLS on the basis of their function, that is, discovery and consolidation. The VLS under the former category are used to find out the meaning of words encountered by the learner for the first time, whereas consolidation strategies help the learner to internalize the word encountered afterwards.

Recent proposals for the classification of VLS have been made by Nation (2001), Fan (2003) and Taga (2018). Nation (2001) classifies VLS into planning, source and process. The first one is related to where, how and how often the learner should focus on vocabulary, for instance, by selecting which words are important and how to learn them. As for source strategies, they encompass the aspect of how to gain information about a word, which may involve dictionary use, inferring from context or even resorting to morphological information of the word. Finally, process strategies deal with the learners' awareness of their vocabulary learning process. In the case of Fan (2003), she draws attention to the degree of deepness behind the cognitive process when using VLS. She distinguishes between deep and surface processing strategies. For instance, rote memorization is considered one of the VLS which does not imply deep cognitive process the better for learning. In this line, Read (2000) considers that those VLS which

trigger deep processing are better than surface VLS such as rote memory. However, Fan (2003) argues that the findings about the effect of VLS and deepness are rather conflicting and there are other factors, namely individual differences affecting VLS, which have a relevant role in L2 vocabulary learning. Alternatively, Taga (2018) explains that the vocabulary strategies are those applied when a word is encountered for the first time only. She mentions three basic actions: the use of contextual clues, the use of dictionaries and attention to the morphological and lexical elements of the new word such as prefixes and suffixes.

Studies have explored the use of VLS among L2 learners from different angles. Many of these studies delve into the relationship between VLS and L2 proficiency or L2 vocabulary level. As for L2 proficiency Kocaman et al. (2018) found out that those with higher L2 level used more and more varied VLS than those with a more elementary L2 level. Similarly, Goundar (2019) observed that linguistically proficient students made better use of VLS than those who were in lower language courses. Others such as Zhang and Lu (2015), Little and Kobayashi (2015), Asyiah (2017) and Choi (2020) hinged on the link between the effect of VLS and L2 vocabulary learning. Zhang and Lu (2015) focused on the vocabulary dimensions of breadth and depth and how VLS might affect their development in L2 learners. Their results revealed that VLS such as association and form-focused attention were good predictors of vocabulary depth and breadth knowledge. In the same vein, Asyiah (2017) and Little and Kobayashi (2015) could observe the positive effects of VLS on L2 vocabulary acquisition, the latter being particularly focused on ESP (English for Specific Purposes).

Some other scholars address individual differences such as gender and motivation. Regarding gender, we highlight Gu (2002), Jiménez-Catalán (2003), and more recent research such as Soureshijani (2011) and Okyar (2021). The first two coincide in the greater use of VLS on the part of female learners. What is more, Jiménez-Catalán (2003) observed that males and females opted for different VLS. Indeed, whereas the former tended to use visual strategies, the latter resorted to rehearsal and planning strategies. The results obtained by Soureshijani (2011) also draw attention to the different VLS used by male and female learners. Significant differences were found between women and men, however, the type of strategies preferred by males and females were different from the ones observed by Jiménez-Catalán (2003). In Soureshijani (2001) women tended to use antonyms and synonyms connections, whereas men frequently used gestures when studying new words. Recent research has put the focus on the frequency of use of these

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strategies. Scholars such as Yang and Wu (2015) and Baskin et al. (2017) claim that there should be an interest not just in which VLS are applied, but also how often and to what an extent they are applied. In both studies, it was observed that more proficient students did not use a wide variety of strategies for vocabulary learning. Yet, they chose one or two and used it consistently. Also, but to a lesser extent, the educational context has been another factor to be considered in the exploration of VLS. Castellano (2019) compared the vocabulary strategies used by students in a CLIL (Content and Language Integrated Learning) context and those used by students in a non-CLIL context in a secondary school. Results showed that more and more varied VLS were used by students in the CLIL context.

In order to identify and measure the use of VLS, different recent scales have been developed for validation and application. Tseng, Dörnyei and Schmitt (2006) presented their self-regulating capacity in vocabulary learning scale, with 20 items which were grouped into five categories: commitment control, metacognitive control, satiation control, emotion control, and environment control. Even though its taxonomy can be applied to L2 vocabulary learning, the items composing the scale are based on generic actions for learning control, and they are not directly related to vocabulary learning tasks. Kocaman and Kizilkava-Cumaoglu (2014) developed a scale based on the strategy inventory for language learning (SILL) by Oxford (1990). The researchers adapted this taxonomy to the specific case of English vocabulary and added some other new ones in the category of compensation strategies, for instance, the use of technology. Melanlioglu (2020) also took into consideration new technologies in the design of his scale, as one of the four parameters of the scale was technological material. The other three referred to learning process, psychological process and visual material. Yet, this scale has not been widely validated and further development is claimed. In fact, Gu (2018) warns that, unfortunately, most vocabulary taxonomies are not properly validated, which affects the reliability and validity of the scales and questionnaires built upon.

The present study differs from previous research in three relevant aspects. In the first place, the vocabulary questionnaire that is used here takes Gu's taxonomy (2018) as a basis. Unlike most taxonomies mentioned above, this vocabulary taxonomy of strategies has been fully validated and updated accordingly (Gu 2018). As far as we are concerned, the revised and updated version used here has not been applied yet. In the second place, the sample of participants belong to a specific group of university students, that is, Primary Education teacher training students. Most studies dealing with VLS focus on

undergraduates from business and technical degrees. We consider that students in teacher training degrees are particularly interesting for the research field of L2 vocabulary, as many of them are going to lead the teaching/learning process at schools in the near future. Finally, one of the questions addressed in this work points to VLS in different educational settings, namely bilingual and non bilingual. Literature on bilingual teaching contexts has shown the benefits of this type of setting over traditional FL contexts regarding different aspects within the communicative competence (Nieto 2016; Pérez-Cañado 2018). However, to our knowledge, the variable of bilingual education in VLS research is underexplored, particularly in the Spanish context.

Accordingly, our study aims to explore the vocabulary learning strategies used by this particular group of participants studying a teacher training degree, and see whether the variables of proficiency and language learning context (bilingual vs. non-bilingual) determine the type of vocabulary strategies they use. In order to do so, three research questions were posed: a) What type of VLS are used by teacher training undergraduates? b) Does proficiency level have a significant impact on the use of VLS? c) Do bilingual programs predict the use of VLS?

4. Methodology

4.1 Participants

A sample of 100 undergraduates of the Primary Education teacher training degree (68 women and 32 men) participated in the study, of whom 42 were in their first year and 58 in their third year. All of them studied their degree in the Faculty of Education of the University of Castilla-La Mancha. Their ages ranged from 18 to 30, although most of them were around 18 and 19 in the first year and 21 in the third year. All participants were tested in terms of their proficiency level of English. The test was a place test designed ad hoc by the Center of Foreign Languages of the University of Castilla-La Mancha, and was similar to the Linguaskill test by Cambridge, and whose results are aligned to the Common European Framework of Reference (CEFR). The test included the four communicative skills plus a use of English section. Participants in both groups proved to be homogeneous in this sense. Those in the first year (42) had B1, that is, equivalent to intermediate level of English according to the Common European

Framework of Reference, whereas those in the third course (58) had reached B2 or upper-intermediate. Among participants in both groups there were 53 undergraduates who had belonged to bilingual settings during their compulsory education, whereas 47 received EFL instruction within a traditional non-bilingual context. The 53 participants who had studied in bilingual settings had been immersed in bilingual programs at primary and secondary school. These programs had at least two content subjects which were developed in English. In the case of students in non-bilingual EFL contexts, they had received English instruction three days a week in sessions of 50 to 60 minutes both at primary and secondary school.

4.2 The questionnaire

The instrument that we used to identify and measure the VLS is a new version of the Vocabulary Learning Questionnaire (VLQ), initially designed by Gu and Johnson (1996). In 2003, Gu published an updated version, which was only validated and used with Chinese learners. The latest version of the VLQ was designed and adapted to the online format by Gu in 2017. This new VLQ, which is originally written in English, was specifically designed for ESL learners. However, we have translated the items into Spanish, so that it can be fully understood by our participants who were all native speakers of Spanish. Prior to its application, the Spanish version of the questionnaire was validated by three native speakers.

The questionnaire is built upon 52 statements about L2 vocabulary learning. It is based on a 7-point Likert scale, where 1 means 'extremely untrue of me' and 7 means 'extremely true of me'. The items are classified into 7 different categories of vocabulary strategies, namely, metacognition, inferencing, dictionary use, note taking, practicing, codifying and activation. The metacognitive strategies involve selective attention and self-initiation actions, which are represented in items such as: 'Sé si una palabra es importante para entender un texto' [I know whether a new word is important in understanding a passage]. Inferencing basically comprehends guessing strategies found in items such as: 'Hago uso del contexto cuando intento adivinar el significado de una palabra' [I make use of the context when guessing the meaning of the word]. Items such as 'Cuando veo una palabra desconocida una y otra vez, la busco en el diccionario' [When I see an unfamiliar word again and again, I look it up] clearly belong to the

strategy of dictionary use. Taking notes is another VLS considered by Gu here, and is related to choosing which word to put into a notebook and deciding which information goes into notes with items such as '*Hago una nota cuando veo una expresión o frase útil*' [I make a note when I see a useful expression or phrase]. Practicing includes the use of word lists, oral and visual repetition shown in items such as: '*Cuando intento recordar una palabra, me la digo en voz alta*' [When I try to remember a word, I say it aloud to myself]. The strategy of codifying involves different types of enconding, that is, visual, auditory, contextual and word-structure. Among the items we can find in this category are: '*Represento gestualmente algunas palabras para recordarlas mejor*' [I act out some words in order to remember them better]. The last strategy in the questionnaire is activation, where participants have to think about items such as '*Intento usar en situaciones reales las palabras nuevas que he aprendido*' [I try to use newly learned words in real situations].

The questionnaire was distributed online and adopted a Google-form format. Students did the test in two computer rooms. Prior to starting, instructions were explained in Spanish and some doubts were solved. They had no time limit, although the test did not take more than one hour.

4.3 Data analysis

Both descriptive and inferential statistics were used for data analysis. Descriptive statistics allowed us to offer means of the participants' answers for each strategy, whereas with inferential statistics we compared those means, so as to see whether possible differences were statistically relevant. Accordingly, two analyses of variance (ANOVA) were carried out. The first one compared answers in terms of the respondents' proficiency, and a second one compared participants' as regards their bilingual or non-bilingual setting.

5. Results

5.1 What type of VLS are used by teacher training undergraduates?

Table 1 reveals the means of the seven strategies. The means have been calculated

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taking into consideration the scores of the items that compose each strategy, which are also contained in the table. As can be observed, inferencing and dictionary use are the strategies which are preferred by participants, with means of 5.60 and 5.12 in the 7-point Likert scale, respectively. They are followed by note-taking, codifying and practicing of which means are over 4. Activating and metacognition are the least used with 3.87 and 3.85 in in the Likert scale. Within inferencing, statement 3- 'Compruebo que el significado que he intentado adivinar tiene sentido en el texto donde la palabra aparece'[I check my guessed meaning in the paragraph or whole text to see if it fits in]has obtained the highest score (5.99) followed by 'Hago uso del contexto cuando intento adivinar el significado de una palabra en inglés' [I make use of the logical development in the context (e.g., cause and effect) when guessing the meaning of a word] (5.87), which is also found in inferencing. As regards dictionary use, it is statement 1- 'Cuando veo una palabra que desconozco una v otra vez, la busco en el diccionario' [When I see an unfamiliar word again and again, I look it up] (5.78) which presents the highest score in the category. The statement with the lowest score among all items (2.49) is 'Hago tarjetas de vocabulario (donde pongo la palabra y el significado) y las llevo conmigo a cualquier sitio que voy' [I make vocabulary cards and take them with me wherever I go], which belongs to the strategy of practicing. This is followed up by 'Intencionalmente estudio cómo se forman las palabras' [I intentionally study how English words are formed in order to remember more words] (3.27) and 'Utilizo gestos para recordar mejor ciertas palabras en inglés' [I act out some words in order to remember them better] (3.35) within codifying.

Table	1.	Means	of	VLS	use
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VOCABULARY LEARNING STRATEGIES	Mean
Metacognition	3.85
I know whether a new word is important in understanding a passage.	4.52
I know which words are important for me to learn.	4.36
When I meet a new word or phrase, I know clearly whether I need to remember it.	4.37
Besides textbooks, I look for other readings that fall under my interest.	4.02
I wouldn't learn what my English teacher doesn't tell me to learn (reversed value).	3.25
I only focus on things that are directly related to examinations (reversed value).	3.48
I wouldn't care much about vocabulary items that my teacher does not explain in class	3.11
(reversed value).	
Inferencing	5.60

I make use of the logical development in the context (e.g., cause and effect) when 5.87

I write both the new words and their translation in my native language again and again in order to remember them. Codifying	4.27
	4.05
I memorize the spelling of a word letter by letter.	3.59
When I try to remember a word, I write it again and again.	3.89
Repeating the sound of a new word to myself would be enough for me to remember the word.	3.84
When I try to remember a word, I repeat its pronunciation in my mind.	5.03
When I try to remember a word, I say it aloud to myself.	5.27
I make regular reviews of new words I have memorized.	3.67
I make vocabulary cards and take them with me wherever I go.	2.49
I go through my vocabulary list several times until I remember all the words on the list.	4.66
Practicing	4.19
I note down examples showing the usages of the word I look up.	4.14
I write down both the meaning in my native language and the English explanation of the word I look up.	4.37
I write down the English explanations of the word I look up	3.81
I make a note when I see a useful expression or phrase.	5.06
I make a note when I think the word I'm looking up is related to my personal interest.	4.93
I make a note when I think the meaning of the word I'm looking up is commonly used.	4.89
Note-Taking	4.54
the meanings of related words	
I check the dictionary when I want to find out the similarities and differences between	4.63
When I want to know more about the usage of a word that I know, I look it up	4.38
it up	
When I want to have some deeper knowledge about a word that I already know, I look	4.54
I pay attention to the examples when I look up a word in a dictionary	5.08
which it appears	5.05
I look up words that are important to the understanding of the sentence or paragraph in	5.65
When not knowing a word prevents me from understanding a whole sentence or even a whole paragraph, I look it up	5.42
When I see an unfamiliar word again and again, I look it up.	5.78
Dictionary Use	5.12
I make use of the part of speech of a new word when guessing its meaning.	5.06
I make use of the grammatical structure of a sentence when guessing the meaning of a new word.	5.02
a word.	
I look for explanations in the reading text that support my guess about the meaning of	5.77
to guess the meaning of the new word.	5.00
When I don't know a new word in reading, I use my background knowledge of the topic	5.68
I check my guessed meaning in the paragraph or whole text to see if it fits in.	5.99
guessing the meaning of a word. I use common sense and knowledge of the world when guessing the meaning of a word.	5.68

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I act out some words in order to remember them better (e.g. jump).	3.35
I create a picture in my mind to help me remember a new word.	4.73
To help me remember a word, I try to "see" the spelling of the word in my mind.	5.09
I put words that sound similar together in order to remember them.	3.69
When words are spelled similarly, I remember them together.	4.23
When I try to remember a new word, I link it to a sound-alike word that I know.	3.74
When I learn new words, I pay attention to prefixes, roots, and suffixes (e.g.,	3.52
inter-nation-al).	
I intentionally study how English words are formed in order to remember more words.	3.27
I memorize the commonly used roots and prefixes.	3.43
When I try to remember a word, I also try to remember the sentence in which the word	4.51
is used.	
I put words in set expressions or sentences in order to remember them.	4.36
I remember a new word together with the context where the new word appears.	4.5
Activation	3.8 7
I make up my own sentences using the words I just learned.	4.11
I try to use the newly learned words as much as possible in speech and writing.	4.4
I try to use newly learned words in real situations.	3.5
I try to use newly learned words in imaginary situations in my mind.	3.5

5.2 Does proficiency level have a significant impact on the use of VLS?

Table 2 reveals that the use of VLS in B1 and B2 students is very similar. Both B1 and B2 participants tend to use inferencing and dictionary strategies, which reveal the highest means. Yet, the groups differ in the least used strategy, which in the case of B1 is activating (3.47), while in B2 it is metacognition (3.80).

		B1		B2
	Mean	sd	Mean	sd
METACOGNITION	3.96	1.65	3.80	1.72
INFERENCING	5.62	1.23	5.60	1.32
DICTIONARY USE	5.19	1.66	5.05	1.83
NOTE-TAKING	4.67	1.83	4.42	1.98
PRACTICING	4.26	2.02	4.13	1.97
CODIFYING	4.27	1.86	4.26	1.96
ACTIVATING	3.47	1.35	4.27	1.78

Table 2. Means of VLS in B1 and B2 groups

In order to know whether these differences are statistically significant, an analysis of

variance (ANOVA) was carried out. Table 3 contains the results of the ANOVA analyses carried out for each vocabulary strategy in terms of the participants' English level. The critical level associated to F (sig.) is much higher than .05 in all strategies, with the exception of activating (sig. 0.000), which indicates that proficiency does make a difference in this type of strategy. Consequently, we can assume that all the other strategies' compared means present no significant differences between them. No significant differences were found between B1 and B2 students, except for activation, where B2 students reported a higher use of this strategy. Put another way, the participants' proficiency level of English does not make a difference in the strategies that they use for vocabulary learning.

		SUM OF	DF	QUADRATIC	F	SIG.
		SQUARES		MEAN		
METACOGNITION	Inter-groups	4.396	1	4.396	1.522	0.217
	Intra-groups	2015.287	698	2.887		
	Total	2019.684	699			
INFERENCING	Inter-groups	0.078	1	0.078	0.047	0.827
	Intra-groups	1158.451	698	1.659		
	Total	1158.53	699			
DICTIONARY USE	Inter-groups	3.167	1	3.167	1.015	0.314
	Intra-groups	2178.141	698	3.120		
	Total	2181.308	699			
NOTE-TAKING	Inter-groups	9.165	1	9.165	2.477	0.116
	Intra-groups	2212.168	598	3.699		
	Total	2221.333	599			
PRACTICING	Inter-groups	3.799	1	3.799	0.952	0.329
	Intra-groups	3580.213	898	3.986		
	Total	3584.012	899			
CODIFYING	Inter-groups	0.045	1	0.045	0.012	0.911
	Intra-groups	4439.846	1198	3.706		
	Total	4439.892	1199			
ACTIVATING	Inter-groups	62.566	1	62.566	23.857	0.000
	Intra-groups	1043.743	398	2.622		
	Total	1106.31	399			

Table 3.	ANOVA	of B1	and	B2	means
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5.3 Do bilingual programs predict the use of VLS?

Table 4 contains the means of the use of VLS in students with bilingual and non-bilingual educational background. Inferencing and dictionary are the most used for both groups, although the bilingual group obtained higher scores. The two groups also coincide in the VLS with the lowest mean, that is, metacognition.

	BILINGUAL		NON-BILINGUAL	
	Mean	sd	Mean	sd
METACOGNITION	3.91	1.76	3.82	1.62
INFERENCING	5.71	1.30	5.42	1.28
DICTIONARY USE	5.21	1.74	4.99	1.78
NOTE-TAKING	4.55	1.93	4.51	1.91
PRACTICING	3.92	2.17	4.20	1.89
Codifying	4.16	2.02	3.89	1.93
ACTIVATING	4.56	1.89	3.85	1.71

Table 4. Means of VLS in students of bilingual and non-bilingual settings

In order to know whether those differences were statistically significant, an analysis of variance (ANOVA) for each strategy was carried out. In this case, we could observe significant differences between participants with different foreign language experiences, that is, bilingual and non-bilingual. This happened in four out of the seven sections of the questionnaire. As detailed in Table 5, the critical level associated to F is lower than .05 in the strategies of inferencing (sig. 0.002), practicing (sig. 0.043), codifying (sig. 0.018) and activating (sig. 0.000). Consequently, we can assume that the compared means of these strategies present significant differences between participants with bilingual and non-bilingual educational background. Put another way, the participants' bilingual education had an effect on the strategies they used.

Table 5. ANOVA of bilingual and non-bilingual means

		SUM OF	DF	QUADRATIC	F	SIG.
		SQUARES		MEAN		
METACOGNITION	Inter-groups	1.690	1	1.690	0.584	0.444
	Intra-groups	2017.993	698	2.891		
	Total	2019.684	699			
INFERENCING	Inter-groups	15.086	1	15.086	8.960	0.002

	Intra-groups	1175.271	698	1.683		
	Total	1190.358	699			
DICTIONARY USE	Inter-groups	8.133	1	8.133	2.612	0.106
	Intra-groups	2173.174 2181.308	698	3.113		
	Total		699			
NOTE-TAKING	Inter-groups	0.274	1	0.274	0.073	0.785
	Intra-groups	2221.059 2221.333	598	3.714		
	Total		599			
PRACTICING	Inter-groups	17.129	1	17.129	4.089	0.043
	Intra-groups	3761.202	898	4.188		
	Total	3778.332	899			
CODIFYING	Inter-groups	21.808	1	21.808	5.550	0.018
	Intra-groups	4706.721	1198	3.928		
	Total	4728.53	1199			
ACTIVATING	Inter-groups	55.507	1	55.507	17.046	0.000
	Intra-groups	1439.220	442	3.256		
	Total	1494.727	443			

6. Discussion

In general terms, inferencing and dictionary use are the most recurrent strategies among participants. Particularly, most students tend to check if the inferred meaning of the word fits the sentence where that word has been found. They also make use of the context when guessing the meaning of a word. As for dictionary use, participants normally look up unknown words which are encountered several times in a text. These results are in line with previous studies such as Reza and Heshmatifar (2013), Asyiah (2017) and Goundar (2019). These two strategies are considered to encompass deep processing (Fan 2003). Evidence from cognitive psychology indicates that deep manipulation of information in the learning process contributes to the quality of acquisition of this information (Broeder and Plunkett 1994). Accordingly, deep elaboration is expected to lead to better retention. In relation to this idea, Hulstijn and Laufer (2001) paid attention to the concept of involvement. They suggested what they labelled the Involvement Load Hypothesis, which was based on the idea that the higher the degree of involvement in a vocabulary task, the better for vocabulary acquisition. Thus, actions with a high involvement load – which implies deep processing-should be

present in the students' vocabulary learning process.

Prior to this theory, some studies had shown that activities with deeper and more elaborated lexical processing are more effective. For instance, Ellis (1994) suggested that negotiation in communicative tasks promotes better vocabulary acquisition than those tasks with no negotiation. Alongside these lines, Ellis and He (1999) confirmed that activities which require production were more efficient for vocabulary acquisition than those activities where production does not occur. On the basis of Hulstijn and Laufer's hypothesis, there have been studies on L2 vocabulary acquisition which support the benefits of a lexical approach where tasks strongly involve students in their learning process (Namaziandost et al. 2020; Zou 2017). The fact that deep strategies are generally the most used by learners in our study is positive, as they play a role in reinforcing and triggering vocabulary learning. Hence vocabulary learning strategies are not only a tool for general comprehension of the written or spoken message, but they also extend and consolidate the learners' lexical component.

As for the strategies which ranked the lowest positions in the analysis, we find metacognition and activation. On this matter, metacognition was expected to be one of the top strategies in the rank, as it was in Pae et al. (2016), Sosa and Chacín (2013) and Asgari and Mustapha (2011). However, our results are more in line with Gu (2002) and Rabadi (2016) showing a poor use of these two strategies. Most items in the category of metacognition somehow point to the autonomy of the student and self-confidence in deciding what should be learned and which vocabulary is important, without just relying on an external authority such as the teacher. Students at university levels are expected to have self-criteria and be able to discern between what is relevant and what is not so relevant. Yet, that was not the case here, which may suggest the participants' lack of self-regulation despite they are already adults at tertiary education. In a similar way, as for activation, it calls our attention that this strategy is also underused by participants. Adult students are expected to have a more proactive attitude, searching for situations -whether imaginary or real - where they put in practice the vocabulary that has been recently learned or encountered in the classroom. Scholars such as Boulware-Gooden et al. (2007) highlight the role of metacognition and activation in the L2 vocabulary learning process, and their positive effect on communicative skills, particularly reading. In fact, they complain about the lack of interest in the promotion of metacognitive strategies in schools and universities. Ellis (1995) affirmed that language learning takes place in the interaction with others through negotiation. Accordingly, in the process of L2 vocabulary

learning, activating the lexicon is fundamental for retention and automatization. Therefore, the underuse of these two strategies is particularly worrying as the efficiency of the learners' approach to the study of vocabulary may be seriously affected.

The participants' proficiency level is one of the two variables under analysis. Both groups of students -intermediate and upper intermediate - present very similar use of VLS. In fact, the intermediate students present slightly higher means of use in some strategies, although differences to upper-intermediate participants are not generally significant. A higher use of VLS on the part of the lower proficiency group could also be observed in Kocaman et al. (2018), although in that case those differences were statistically significant. Despite the fact that there were generally no significant differences in our research, the strategy of activation was an exception and did show a predictive effect. In this particular case, the upper- intermediate students outstanded the intermediate group. That is to say, B2 participants activated the newly acquired vocabulary more than B1 participants. They did it by recalling new vocabulary in different contextual situations. The strategy of activation can be considered a deep strategy, as it entangles deep cognitive processing (Fan 2003). In this strategy learners detect communicative situations where newly acquired words can be used. Learners are even able to create the type of situations, whether in real or imaginary contexts. Therefore, activation entails certain analytical skills which may be found in upper-intermediate students, but do not seem to be developed enough in intermediate learners. Our results, then, lead us to think that proficiency level is not a good predictor in the use of VLS and that it rather relies on whether users are good language learners (Cöker and Yilmaz 2020) no matter their proficiency level.

The second variable under analysis is the students' bilingual or non-bilingual educational background. Results reveal that participants in both bilingual and non-bilingual groups coincide in the top positions with the strategy of inferencing leading the rank, followed by dictionary use. However, there is a difference in their frequency of use, where higher figures are found in the participants with a bilingual educational background. The two groups also differ in the rest of strategies. Activation, one of the most demanding and beneficial for vocabulary learning (Fan 2003), is used by bilinguals in the third place, while non-bilinguals opt for note-taking and relegate activation to the sixth position. This may be linked to the role of the target language in bilingual and non-bilingual classrooms. In a bilingual setting the target language becomes the medium of instruction and communication, simulating a naturalistic context, which differs from

traditional FL learning experiences (Coyle et al. 2010). Bilingual students are more used to using the target language as a vehicle of communication in the classroom, in a more naturalized way, putting into use and activating the vocabulary that appears in classroom discourse, even without being aware of it. That irremediably influences the way they deal with new vocabulary, where they look for or create situations where the vocabulary can be recalled. On the contrary, non-bilinguals are inclined to other strategies such as note-taking, something that is in line with the way they approach EFL in traditional contexts. Our results point to a higher and more varied use of VLS in participants with a bilingual educational background. This outcome coincides with Castellano (2019) and Yang (2018), where there is a prevalence of recalling strategies, that is, practicing and activation in bilinguals. Therefore, in addition to a wider exposure to the target language, one of the reasons for higher levels of vocabulary in bilingual students might be bound to the way the learning of new words is approached.

7. Final remarks

The present study has attempted to shed some light on the type of L2 VLS used by a group of students of the teacher training degree in Spain. The results indicate that, in general terms, inferencing and dictionary use are the strategies that participants adopt in their vocabulary learning process, whereas metacognition and activation are among the least used. Additionally, the variables of L2 proficiency and bilingual setting were explored. We could observe that the former was not determinant for the selection of VLS. On the contrary, bilingual learning experiences were related to a higher use of four of the seven strategies contained in the questionnaire.

The implications for language teaching put the focus on the need to pay higher attention to strategies in the L2 vocabulary learning process, particularly in the Spanish context, where this field is under. It is important not to assume that adult learners, because they are adults, use strategies for vocabulary learning. Moreover, some strategies such as metacognition and activation, despite their benefits for lexical acquisition, have very little support from the study participants, who prefer others that involve less cognitive effort. Therefore, we consider it is necessary to create more opportunities to promote metacognition and activation, as well as to increase the use of other strategies. The data can also be useful for designing a strategy plan where students could be provided specific training. Action should be taken on developing those strategies which students tend to use the most, and at the same time, reinforcing those which are barely used.

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