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**Vocabulary learning strategies outside the classroom context: what adults learn in a technology-based learner-centred environment.**

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Abstract

In the last few years Massive Online Open Courses (MOOCs) have attracted attention as an outstanding innovation in the field of Foreign Language Teaching and Learning. This article reports on a large-scale study carried out with 736 Spanish course participants who joined a beginners’ English MOOC where they were expected to learn the meaning of the 1,000 most common words in English and start to read short texts. Course participants were not traditional learners in a classroom context but came from an array of different academic and personal backgrounds, while sharing a common interest in getting started with English. During the 8-week course, participants were specifically trained in a number of vocabulary learning strategies through video demonstrations, explicit instruction and task completion. When the course finished, participants were given an online questionnaire to check: (a) what strategies they found more useful and why, and (b) what strategies they thought they were likely to continue using in the future. This data was correlated with performance as pre- and post-tests were used to assess course participants’ attainment on the course. Participants also reported both using new strategies during the MOOC and a strong intention to continue doing so afterwards.

Key words: Vocabulary learning, strategies, MOOC, learner autonomy.

1. MOOCs and language learning

In the last few years the incorporation of new technologies in everyday life has changed interpersonal communication and many social habits, to varying degrees, in many places around the world. This technological revolution has also reached the fields of language teaching and learning; nowadays we cannot think of the classroom as the only or even the most convenient context for second language learning and development. There is no doubt that the Internet can play a crucial role, both as a provider of authentic input, oral or written, and as a means of accessing teachers, other learners and quality learning resources.

 MOOCs have recently burst into the field of language teaching and learning. These are online courses containing audio-visual teaching content that are meant to be used totally online, particularly in non-academic contexts. These courses are also free, and have been conceived for huge numbers of users who can study languages without the need for personalized teacher assistance. Previous studies have analysed MOOCs and other Open Educational Resources’ (OERs) in terms of their sustainability both in financial and technological terms (Annand, 2015; de Langen, 2012; Gourley & Lane, 2009; Lawton & Katsomitros, 2012; Sclater, 2016), their target audience (Chacón-Beltrán, 2014; Macleod et al. 2016; Pursel et al. 2016; Schulze, 2014), their implications for self-directed learning (Bentley et al., 2014; Kop, & Fournier, 2011; Yeager, Hurley-Dasgupta & Bliss, 2013; Milligan, Littlejohn & Margaryan, 2013; Tschofen & Mackness, 2012), and their implications for the field of language teaching and learning (Beaven, Codreanu & Creuzé, 2014; Chacón-Beltrán, 2017; Heinsch & Rodríguez Pérez, 2015; Koutropoulos et al. 2012; Sokolik, 2014). What the aforementioned references have in common is an agreement that language learners all over the world can benefit greatly from free access to quality language learning resources that will allow them to learn languages collaboratively and at their own pace.

Probably the most innovative teaching and learning methodological feature of MOOCs is their reliance on crowdsourcing; that is, students not only interact but also cooperate in their English language development by correcting each other’s work with the help of correction rubrics and guided activities. By improving language knowledge, language MOOCs are socially beneficial to participants as well as providing professional skills, enhancing their employability and professional capabilities.

Participants in the present study took part in a Language MOOC (‘Empieza con el inglés’ or ‘Beginner English’) offered by the Spanish UNED. The UNED is a state-wide distance-learning university that innovatively offers a set of MOOCs in various areas of interest with the aim of supporting the social role of the university trying to support people that are not necessarily enrolled in university programs. To this end, a relatively short English course of 24 study hours was designed; it aimed to help students with no knowledge of English to learn enough vocabulary to read short English texts, as well as teach strategies that would allow them to subsequently tackle longer texts and engage in wider reading and learning. In order to suit the nature and needs of this target group, the course designers –two teachers in the English Department experienced in distance teaching– worked to:

1. establish realistic objectives that would not disappoint or frustrate students;
2. carefully design materials that would suit a range of learners’ needs;
3. design transparent, user-friendly and feasible activities that would allow course participants to interact smoothly with other participants and the course facilitator;
4. create a clear, comprehensible structure of the course content that would allow course participants to become engaged and motivated, as this type of course requires motivation and self-discipline to learn autonomously (for a more detailed account of course design and students’ profile, see Chacón-Beltrán, 2014; 2017).

2. Language learning strategies

As stated by Griffiths & Oxford (2014), the concept of learning strategy has stayed on the ground of language teaching and learning for years, and continues to be an area of interest and controversy: “[…] strategies have attracted vigorous debate on a number of levels […]: strategy definitions, strategies and proficiency, theoretical underpinnings, categorization, context, teachability, research methodology, and analysis” Griffiths & Oxford (2014: 1). For the aims of the present study, two of these levels of analysis are of particular relevance: the relationship between strategies and (a) proficiency and (b) teachability. There seems to be a close connection in the context of current research between students’ mastery of independent language learning strategies and achievement in terms of course completion and in equipping themselves with strategies that will allow continued learning once the course is finished; so the correlation between higher achievement and strategy use (supported in previous research like: Green & Oxford, 1995; Griffiths, 2003, 2013; Dreyer & Oxford, 1996; Kyungsim & Leavell, 2006; Park, 1997; Rao, 2016) is analysed in this study. Previous discussion on strategy teachability can be divided into studies where students’ training in strategy use was partially successful (O’Malley, 1987; Rees-Miller, 1993; and Wenden, 1987) and other successful research and teaching programs (Chamot & O’Malley, 1996; Ellis & Sinclair, 1994; Cohen, Waver, & Li, 1998; Cohen, 2011; Chamot, 2004; Oxford & Nyikos, 1989). But in the case of adult learners, the focus has tended towards assessing the adequacy of equipping students with strategies that will help them tackle the task of language learning independently.

Huang (2016) looks into the role of strategy learning from a contextual perspective, analysing learners’ strategy use in different situations. Huang (2016: 11) concludes that the context shapes students’ choices and “[…] new learning demands may need to be trained explicitly in order to equip learners with the ability to handle new expectations”, favouring explicit training to adapt to new contexts or learning situations. In the case of participants in the present study, they also had to adapt to a learning environment that was probably new to them, even if they were familiar with certain aspects like online courses, discussion forums or video-recordings.

Meanwhile vocabulary learning in Foreign Language Teaching and Learning has been an area of interest and research for decades, supported by the prolific research published in the last 30 years (Barcroft, 2009; Gu & Johnson, 1996; Hedrick, Harmon & Wood, 2008; Lawson & Hogben, 1996; Macaro, 2017; Otwinowska-Kasztelanic, 2009; Schmitt, 1997; Segler, Pain & Sorace, 2002). Once language learners have acquired basic skills in the language, and have acquired the commonest words in the language, they have hard work ahead as the lexicon of English, or any language, is extensive. Vocabulary is central to reading ability, writing and listening abilities, and, particularly for second language knowledge, for academic achievement (Willis & Ohashi, 2012).

Previous studies in vocabulary learning strategies have shown how successful students reported using a wide variety of vocabulary learning strategies (Gu & Johonson, 1996). Equipping learners with tools and strategies that will allow them go on learning vocabulary independently and at their own pace is extremely valuable. Nowadays, language learners have access to many tools to learn vocabulary, particularly from new technologies and the Internet, but strategies to enhance their vocabulary can benefit from explicit instruction (Laufer, 1997; Swan, 1997).

3. The study.

3.1. Aims.

This study taught 14 vocabulary learning strategies to adult learners of English as a Foreign Language at beginner level whilst they learnt the 1,000 commonest words in English. The aim of this study was to test the effect of teaching these strategies on attainment. We also monitored the students’ development in the use of strategies before and after the MOOC, and their preferences in terms of strategy use. The strategies in question were:

1. Looking up the meaning of a new word in the dictionary. (S1)

2. Trying to infer the meaning of a new word, paying attention to similarities with Spanish. (S2)

3. Keeping a “new words” diary, either in writing or in a file in their computer. (S3)

4. Memorising lists of words. (S4)

5. Copying words several times to memorise them. (S5)

6. Rehearsing the pronunciation of words out loud. (S6)

7. Inventing sentences that would contain the new word. (S7)

8. Looking for sentences containing the new words. (S8)

9. Using mnemonics to remember words, for instance linking the word to an idea or object to remember it more easily. (S9)

10. Grouping words in thematic clusters, like: baby, little, mother, love, name, home, love, grow. (S10)

11. Recycling vocabulary by reviewing it from time to time. (S11)

12. Looking for new words in English around them, in advertisements, lyrics, etc. (S12)

13. Inventing rhymes or plays upon words with new vocabulary. (S13)

14. Translating sentences containing those words. (S14)

 Consider, for example, making use of lexical similarities with their L1: their L1 (Spanish) and their target language (English) showed many patterns that students could take advantage of by positive transfer like: Sp. *doctor* > Eng. doctor; Sp. *idea* > Eng. idea; Sp. *original* > Eng. original. Previous studies have also found using cognate vocabulary is an effective strategy in learning English (Haastrup, 1991; Jessner, 1999; Ringbom, 2007; Swan, 1997), and more recently Otwinowska-Kasztelanic (2009: 142) shows that “[…] cognates combined with language awareness activities strongly enhanced the process of learning vocabulary by Polish beginning learners of English […]”.

 The following summary shows how this particular strategy (S2) was presented to the students both in writing and as a video-recording they could watch in the virtual course.

Analyse the following words:

1. Words which are identical in writing in English and Spanish.

|  |  |
| --- | --- |
| **English** | **Spanish** |
| probable | probable |
| region | regi**ó**n |
| television | televisi**ó**n |
| director | director |

2. Words which are similar but a particular ending is added in Spanish, which normally responds to regular patterns.

|  |  |
| --- | --- |
| **English** | **Spanish** |
| result | result**ado** |
| president | president**e** |
| modern | modern**o** |
| music | m**ú**sic**a** |

3. Words that drop a final letter and a different ending is added in Spanish.

|  |  |
| --- | --- |
| **English** | **Spanish** |
| produce | produc**ir** |
| future | futur**o** |
| vote | vot**ar** |
| minute | minut**o** |

4. Patterns of regularity in English and Spanish.

|  |  |
| --- | --- |
| **English** | **Spanish** |
| educa**tion** | educa**ción** |
| na**tion** | na**ción** |
| informa**tion** | Informa**ción** |
| ac**tion** | ac**ción** |

5. Other words that are quite similar in Spanish and English.

|  |  |
| --- | --- |
| **English** | **Spanish** |
| system | sistema |
| community | comunidad |
| number | número |
| difficult | difícil  |

*Figure 1*. Instance of S2 in the MOOC. (The presentation of this strategy has been adapted as the original one was longer and written in Spanish.)

3.2. Research methodology.

The research presented in this study comprised three phases. First, students enrolled in a language MOOC offered by the UNED (a) completed an initial online questionnaire in order to gather background information about the informants, a questionnaire about students’ use of strategies for vocabulary learning and a pre-test to check students’ knowledge of the target vocabulary in writing. (b) Course participants took an 8-week MOOC that involved short explanatory videos, participation in discussion forums and completion of individual activities that were corrected by fellow students on the course. Third, course participants completed another online questionnaire where they reflected on the vocabulary learning strategies that had been used during the course, their intention of using them in the future and they also completed a vocabulary achievement post-test that would be compared with the pre-test.

3.3. Participants and learning context.

Participants in this study completed two questionnaires, one at the beginning and another one at the end of the course. The initial questionnaire had five sections: it gathered some personal background information (gender, nationality, country of residence and level of education) as well as some linguistic information such as a self-rating of their overall knowledge of English; it asked about their motivation for joining the course and for learning English; it contained a short pre-test, adapted from from X-Lex (Milton & Meara, 2003), with 48 words taken from the 1,000 and 2,000 bands that students needed to tick if they thought they knew them; and finally participants were urged in this questionnaire to indicate what strategies they used, or knew about, in order to learn vocabulary in a foreign language. It should be clarified that even though the course was initially designed for absolute beginners of English, in a previous edition it was attested that many false beginners were willing to join the course as a way of refreshing and restarting their English.

As is common in MOOCs, many participants joined the course. In this edition 17,582 participants joined; 8,274 questionnaires were analysed (47.6%) as only those which had been answered in full were included in this study. Although there were participants of various ages, 87% of them were between 23 and 58 years old. As far as sex was concerned 41.19% were male, 56.59% were female and 0.23% did not specify. As this was an online course that could be accessed anywhere in the world we thought the place of origin might be relevant. It was found that there was a high proportion of participants from the Spanish-speaking world: Spain (n=6,625; 80.07%), Mexico (n=386; 4.67%), Colombia (n=245; 2.96%), Venezuela (n=152; 1.84%), Peru (n=121; 1.46%), Argentina (n=84; 1.02%), Chile (n=79; 0.95%), Ecuador (n=78; 0.94%). But a few participants were from other countries, including Haiti, Japan, Philippines or Poland, among others.

Also relevant was the educational level of the participants, so they were asked about this before enrolling on this course. It was found that 39.31% (n=3,253) of the participants had at most completed Secondary Education; 43.64% (n=3,611) had completed Higher Education, that is 3-5 years of university studies; and 11.65% (n=964) had completed Post-graduate studies; and 5.4% (n=446) were in a different situation, they didn’t want to answer or they had only attended primary school.

With respect to the participants’ judgement of their own level of English, 66.52% (n=5,504) felt that they had no or a very basic knowledge of English, 28.03% (n=2,319) considered they had an intermediate level; and, 2.99% (n=247) chose not to specify.

The participants’ motivation for learning English in this MOOC was also surveyed, and the three main reasons were: (a) personal interest and personal development (n=4,663; 56.36%); (b) importance for their current work (n=1,330; 16.07%), and finally, (c) value for them in finding a job (n=968; 11.7%).

Finally, participants in the study were asked to describe what specific techniques or strategies they used to learn vocabulary in a foreign language and 86.51% (n=7,158) reported using some sort of technique or strategy. Their responses showed a tendency to confuse the use of a strategy (e.g. memorization of words) with activities to develop their vocabulary like watching TV or films in English with subtitles, translating songs, listening to the radio or *Youtube* videos in English or reading. The actual strategies reported, in order of frequency, were confined to: (a) memorizing lists of words, (b) checking meanings of words in the dictionary, and (c); using new words in sentences.

In the post-test questionnaire, course participants were again presented with the same X-Lex-type test, to check their development. They were also presented with a list of the 14 aforementioned vocabulary learning strategies they had been explicitly taught during the course and they were asked to indicate in a 5-level Likert scale, first, how much they had used a given strategy during the course and, second, how much they thought they would go on using it after course completion. the results will be discussed in section 4.

3.4. Teaching/learning intervention.

The study group was composed of adult language learners with diverse backgrounds and varied experiences in English language learning but who shared a first language –Spanish– and sufficient skills in ICT so as to have found this online course and have enrolled on it. With this in mind, the methodological approach was designed to: (a) propitiate explicit learning; (b) use their first language for instruction and for the learning of new words that were presented with their Spanish translation; (c) ensure that full advantage was taken of previous linguistic knowledge; (d) take advantage of pre-existing cognitive abilities, like the capacity of using the Internet to find the meaning of word in online dictionaries; (e) allow students to find and take advantage of similarities across languages, such as cognate words.

The content was presented in 6 sequential modules that dealt with different aspects of everyday life like *World and society*, *Hobbies*, *At work*, etc. Students could watch 15 short videos where they were presented in Spanish with the content of the modules, that is, vocabulary organised in thematic clusters (Lawley, 2010) (for an example of a thematic cluster see Appendix 1.) and learning strategies, as well as some practice task they needed to complete and which would be corrected by other course participants with the help of a rubric. Students were also provided with a detailed guide written in Spanish that contained course content and transcripts of all the videos, along with some additional reference materials and instructions on the timing for each activity.

3.5. Post-test and questionnaire.

A post-test and a questionnaire was distributed to the participants that had finished the course and again only those that completed the post-test and questionnaire in full were taken into account, that is n=736. It is common in MOOCs that only a proportion of course participants finish the course because of the inherent features of the course (Chacón-Beltrán, 2014).

 With regard to the questionnaire, we were interested in getting to know what strategies students reported having used while completing the MOOC. Students were asked to complete a 5-level Likert scale where they had to indicate how often they used each of the strategies that were explicitly taught in the course –the video– recordings had provided precise instructions and examples on the strategies. In order to make the course even more accessible these strategies were not only taught in the video recordings but transcripts of these recordings were also provided in the MOOC for students to download and follow the course offline if that was convenient.

4. Data analysis.

4.1. Results of course attainment.

An adapted X-Lex test (Meara & Milton, 2003) was used before and after the learning period. The performance of those participants who completed both the pre- and post-tests improved significantly in the post-test as compared the the pre-test. A random selection of 110 course participants obtained a global score of 3,046 words they knew in the pre-test and these same participants obtained a score of 4,097 words they knew in the post-test, which means an increase of approximately 35%.

4.2. Results of the questionnaires.

14 different strategies were presented and explained to the students in a similar way. The following figure shows the strategies in question and their reported usage among students.

*Figure 2*: The 14 strategies that were taught during the MOOC and the percentages in which course participants **reported having used** them during the MOOC.

Having used a 5-level Likert scale and having combined the answers for *Frequently* and *Very frequently* on the questionnaire we can see that strategies 3 (59.92%), 4 (60.73%), 6 (61.68%), 11 (60.19%), and 14 (64.13%) were used the most by students. Of these, only strategy 3 was reported as being a common strategy students used before the beginning of the course. This shows a particularly strong strategy learning effect on the part of the course participants for these 5 strategies; there was also a smaller but still substantial strategy use and learning effect reported in strategies S1 (52.04%), S2 (48.78%), S5 (41.58%), S9 (41.98%), and S12 (53.8%). Strategies S7 (32.74%); S8 (36.96%); S10 (36.96%) and S13 (18.75%) appeared to be less commonly used, and probably less preferred by course participants.

Students were also asked to report on their expected use of these strategies in the future; that is, how often they thought they would use these same strategies once the course had been completed. It was hoped that this question would shed some light on which strategies students felt more comfortable with and, therefore, which they found more appealing.

*Figure 3*: The 14 strategies that course participants thought they would **keep on using** after the completion of the MOOC. The answers in this questionnaire were consistent with those shown in Figure 2.

For half of the strategies, more than 10% more students expressed an intention to use them “frequently” or “very frequently” after the course compared to their reported use during the course. These were strategies S1 (80.16%), S2 (60.6%), S7 (52.45%), S8 (51.22%), S10 (48.37%), S12 (68.21%), and S13 (35.19%). This shows an important increase in the use of strategies for vocabulary learning on the part of the students. It seems that once they have been instructed in the use of strategies, and they are aware of their existence, course participants are more willing to use them.

 Satisfaction on course completion was also surveyed in this study and analysed; students were asked to report on the six objectives below:

1. The learning of all or most of the new vocabulary presented in the MOOC.

2. The learning of new techniques and strategies to learn vocabulary.

3. The use of new technological resources for vocabulary learning.

4. The use of a dictionary for learning new vocabulary.

5. The use of a dictionary for the pronunciation of new words.

6. The learning of enough vocabulary to read short texts.

*Figure 4*: Satisfaction on course completion.

Items number 1 and 6 in the figure above are of particular importance as they represented the central goals of the whole MOOC and those were the objectives that students were presented with at the beginning of the course. The overwhelmingly positive response in these two items implies that students found the course useful and that it achieved its core goals and fulfilled their expectations.

5. Discussion and conclusions

The primary discovery of this study concerns the value of teaching vocabulary learning strategies. Students reported both using new strategies during the MOOC and a strong intention to continue doing so afterwards. Only three strategies were reported by students before joining the course, namely: (a) memorizing lists of words, (b) checking meanings of words in the dictionary, and (c); using new words in sentences. After the course, a whole set of new strategies were added to their repertoire such as: (a) trying to infer the meaning of a new word, paying attention to its similarity with Spanish (S2); (b) keeping a “new words” diary, either in writing or in a file in their computer (S3); (c) copying words several times to memorise them S(5); (d) rehearsing the pronunciation of words out loud (S6); (e) looking for sentences containing the new words (S8); (f) using mnemonics to remember words, for instance linking the word to an idea or object to remember it more easily (S9); (g) grouping words in thematic clusters, such as: baby, little, mother etc. (S10); (h) recycling vocabulary by reviewing it from time to time (S11); (i) looking for new words in English around them, like in advertisements, lyrics, etc. (S12); and, (j) translating sentences containing those words (S14). With regard to the strategies they actually preferred and reported to use the most after course completion, we can highlight that students preferred strategies S1, S2, S3, S6, S11, S12 and S14; this is probably because they felt more comfortable using them or they simply found them more beneficial. It is important to mention that 11 strategies were new to them and were learned during the realisation of the course. So the present study supports previous research on high achievement in relation to strategy use (Green & Oxford, 1995; Griffiths, 2003, 2013; Dreyer & Oxford, 1996; Kyungsim & Leavell, 2006; Park, 1997; Rao, 2016) as well as the teachability of strategies to improve language learning (O’Malley, 1987; Rees-Miller, 1993; and Wenden, 1987) and the fact that students should be specifically trained to learn and use strategies while learning languages.

The analysis of vocabulary knowledge in pre- and post-tests shows how the students that finished the MOOC significantly improved their knowledge of vocabulary, becoming more familiar with the 1,000 commonest words in English. Overall, it can also be said that even though this was an experimental methodology for non-academic language learners, the satisfaction of course participants was high, actually higher than expected given their diverse background.

 The study presented here was a first attempt to see if adult learners could benefit from guided self-instruction of vocabulary learning strategies by means of using MOOCs, a learning context far from traditional classroom teaching and learning and an increasingly popular means for language learning. This learning context is particularly interesting as it represents a considerable innovation in the field of foreign language teaching and learning; the results of this study serve as proof of concept that adult learners can learn languages effectively, on their own, anywhere in the world with the help of appropriate materials and new technologies like MOOCs. With regard specifically to strategy learning, this study has shown how students can be taught with the help of new technologies, such as video recordings. This innovation allows students to learn at their own pace and watch recordings as many times as they need. In this study, the learning strategies were presented and explained in the students’ L1; this probably made it easier to internalise and remember them and may have contributed to the high reported use of a wide range of strategies. In contrast, Macaro (2017: 352) used the L2 for strategy instruction and found that a “[…] very narrow range of strategies was used by most respondents […]”.

6. Implications for further research

Some implications for future research in the field can be drawn from this study. First, it would be informative to repeat the study with younger students in a longer study program, for instance secondary school students in a conventional learning program. It would also be interesting to know what other linguistic aspects can be learned with the same strategy learning, as we understand that learning specific vocabulary can be easier than some other aspects of language learning like grammar, pronunciation, oral fluency, etc. Another aspect that could be studied more in detail in additional research is the extent to which the use of the strategies learned during the course is retained over time.

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Appendix 1

Two instances of thematic clusters.

