



Student-Created Quizlet Flashcards and Podcasts: Effect on Vocabulary Acquisition

Masters' degree final project

Masters' Degree in Secondary Education Teaching

Minor: English

PUBLIC UNIVERSITY OF NAVARRE

2018/19

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0. Abstract

To date, several studies have investigated the potential benefits of using Quizlet and podcasts for vocabulary development, however, they have mainly focused on the use of teacher-created material, its effects on receptive vocabulary acquisition and students' motivation, and relatively little has been done to study the effects of student-generated podcasts and Quizlet study sets on second language vocabulary acquisition including productive skills. Hence, the present study seeks to analyze and compare how student-created podcasts and Quizlet flashcards affect vocabulary retention, taking into account both receptive and productive vocabulary knowledge. The participants in the study were 22 adult students, age 18-61. The instruments used in this research were pre-tests to check students' prior knowledge, immediate post-tests to measure receptive and productive vocabulary acquisition and a questionnaire to gauge students' perceptions of the two methods. Results showed that although there was no major difference between the two methods regarding receptive or productive vocabulary acquisition, and both techniques helped students to retain new vocabulary, participants expressed a greater preference for the Quizlet methodology.

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1. Introduction

The appearance of new technologies has considerably transformed education, changing the teaching and learning processes including the way we acquire and practice new vocabulary. A large and growing body of literature has investigated the effects of Computer Assisted Language Learning (CALL) on vocabulary acquisition (Farangi et al., 2015; Kiliçkaya & Krajka, 2010; Nikoopour & Kazemi, 2014; Roohani et al., 2012), and found that computer assisted techniques have a positive effect on learning new vocabulary (Kiliçkaya & Krajka, 2010; Nikoopour & Kazemi, 2014), enhance students motivation (Nikoopour & Kazemi, 2014; Roohani et al., 2012) and promote independent, autonomous learning (Anjaniputra & Salsabila, 2018; Farangi et al., 2015; Phillips, 2017).

However, the primary focus of these studies has been on teacher-created material, and relatively little has been done to investigate the benefits of student-produced material, despite the fact that research has demonstrated that students' participation in the creation of their own learning material is beneficial for their learning (Farangi et al, 2015; Gholami & Mohammadi, 2015; Nikolova, 2002; Robertson, 2015).

The present study seeks to explore and compare how two easily accessible, widely researched and used online tools, Quizlet and podcasts, affect learners' receptive and productive vocabulary acquisition when the digital flashcards and the podcasts are created by students. The motivation behind this research is to contribute to the continuing quest for effective vocabulary learning techniques that can be used for classroom as well as for individual practice in this era of digital development.

This paper first gives a brief overview of former studies discussing the receptive and productive stages of vocabulary acquisition and looks at previous research investigating the effects of Quizlet and podcasting on learning new vocabulary. Following the literature review, our three research questions are formulated and the methodology used to collect and analyze data is described in detail. Finally, the findings are discussed, conclusions are drawn, and some recommendations are made for the pedagogical application of the findings and further research.

2. Literature review

To date, a large number of studies have demonstrated the importance of vocabulary in second language acquisition. Schmitt (2000) pointed out that "lexical knowledge is central to

communicative competence and to the acquisition of a second language” (p. 55), while Richards in Schmitt (2000) affirmed that “vocabulary and lexical units are at the core of learning and communication. No amount of grammatical or other type of linguistic knowledge can be employed in communication or discourse without the mediation of vocabulary” (p. xi). Vocabulary knowledge is indispensable in mastering the four language skills and developing students’ overall English knowledge, since without sufficient vocabulary second language learners would not be able to do language development activities, such as grammar, reading and writing tasks (Groot, 2000).

Research has shown that second language proficiency largely depends on the range of vocabulary a learner has acquired, and limited vocabulary knowledge could impede successful communication (Alqahtani, 2015; Anjaniputra & Salsabila, 2018). According to Groot (2000), there is a general consent among linguists regarding the minimum vocabulary base needed for functional language proficiency. Laufer (1997) and Nation (1990) set the minimal requirement at 5000 words while Nation (2001) suggests that “to read with minimal disturbance from unknown vocabulary, language users probably need a vocabulary of 15,000 to 20,000 words” (p. 30). He also posed and discussed the question of what it means to know a word.

Vocabulary knowledge can be divided into receptive and productive skills, the first one referring to the ability to recall and recognize the word in reading and listening while the latter means the ability to use it in speaking and writing (Nation, 2001). Laufer (1998) used the terms “active” and “passive” vocabulary knowledge for the same concepts, and distinguished a third category that represents the transition between passive/receptive and active/productive knowledge. She called it “controlled active” or “controlled productive” knowledge, which entails the ability of using the word occasionally, especially “when prompted by a task”, whereas learners with “free productive knowledge” are able to use the word at their “free will”, without the need for “any specific prompts” (p. 257).

Second-language (L2) learners tend to have higher receptive skills whereas they generally need more time and effort to improve their productive skills and knowledge. There are several reasons behind that. As Laufer (1998) claims there is often a lack of correlation between the size of passive and active vocabulary knowledge. At a lower stage of language learning, the size of passive/receptive vocabulary is usually small, as it generally contains useful and necessary lexis that cannot be avoided in speaking. The repeated use of these words facilitates their transition from passive to active knowledge. However, when one’s passive vocabulary is enriched with less frequent lexis, the gap between receptive and productive knowledge widens, since meaning can be conveyed without the use of the less common

vocabulary, so it could take longer for those words to become part of the productive/active vocabulary. According to Laufer (1998), if learners are not encouraged or “pushed” to use less common lexis, it may never become part of their productive knowledge (p. 267). This idea seems to support Swain’s output theory, which claims that language production favours second language acquisition in different ways (Swain, 1995). When learners are encouraged to produce output, they are given an active and responsible role to play in the learning process. Producing output requires a bigger cognitive effort than receiving input and enables learners “to process language more deeply” (p. 128). Unfortunately, in a language class, the limited time and large group sizes do not allow for extensive practice on productive language skills, hence, it is important to explore different techniques that provide learners with opportunities for self-practice. The two techniques, Quizlet and podcasting, investigated in this paper, have been proved effective in fostering independent, autonomous learning (Anjaniputra & Salsabila, 2018; Philips, 2017), however, only a few studies have looked at whether they are useful to enhance receptive or productive vocabulary knowledge.

Quizlet enables students to create their own digital flashcards and offers different learning modes for students to practice and study the flashcard sets. These learning modes include 1) *flashcards* to review the vocabulary items and their meaning; 2) *learn* mode where students have to choose the correct term or definition out of three options; 3) *spell* mode which requires students to write the word or expression they hear; 4) *test* mode that generates different tests based on the student’s flashcard set; 5) *match* where students drag and match terms with the correlating definition racing against time; and 6) *gravity* which challenges students to type the correct term or definition in order to save the planet from the falling asteroids. Research has demonstrated that students creating their own flashcards sets using Quizlet contributes to widening their receptive vocabulary knowledge (Milliner, 2013). Furthermore, if students decide to study those vocabulary sets, they have the option to set learning modes 1, 3, and 6 in a way that it requires them to produce the term in a written or spoken form, which might enhance their controlled productive knowledge.

When creating a podcast, learners produce and contextualize, acquiring procedural knowledge by practicing the use of the L2 word in a communicative context. As Oxford and Crookall (1990) suggest, production practice allows learners to broaden their vocabulary in different ways. Speaking and writing help learners to access existing schemata they created when they learnt the meaning of the new word, and enable them to put it into practice. However, they stress that production practice solely is not enough to acquire new vocabulary, since the new word has to exist in the learner’s memory before it can be used in production. The use of

flashcards can help to create the schemata in the learner's memory, however, according to Oxford and Crookall (1990), the use of flashcards has a rather limited value for students in vocabulary acquisition due to their decontextualized nature. Nevertheless, if the flashcards are created by the students, the words can be used in a meaningful context, images, visual support can be added and the act of the creation itself might benefit kinaesthetic learners (Oxford & Crookall, 1990).

Although both Quizlet and podcasting are computer-based tools, they differ in a sense that Quizlet combines visual elements with audio, while podcasting means creating only-audio material. Various researches have investigated the effect of visual elements on vocabulary acquisition. For example, Hashemi and Pourgharib (2013) studied how to enhance students' lexical knowledge by using visual materials such as flashcards, pictures and realia. Participants in their study were divided into experimental and control group and studied the new words with the aid of visual elements in the former, while using translation in the latter. According to the findings, students in the experimental group had significantly higher scores in the post-test and were able to retain and recall those words more easily.

Nevertheless, if we only focus on the process of creating a flashcard set or a podcast, on a cognitive scale, the former requires less mental effort. Making flashcards means copying or reproducing terms and definitions, which need lower cognitive skills than creating content by using new words in a meaningful context.

A large and growing body of literature has demonstrated the benefits of using digital flashcards to enhance students' vocabulary acquisition. However, research on the subject has been mostly restricted to describing learners' perception, engagement and motivation using qualitative methods. Studies have established that the use of Quizlet fosters students' autonomy and persistence, and turns learning vocabulary into an enjoyable experience (Anjaniputra & Salsabila, 2018), while it also increases students' overall engagement compared to more traditional methods, such as textbooks (Stroud, 2014). Chien (2015) pointed out that students find online vocabulary websites, especially Quizlet, motivating and a helpful tool for vocabulary acquisition. Participants in his study also felt that by using Quizlet, their vocabulary knowledge improved. Korkealehto and Siklander (2018), who based their findings on students' diary entries and responses to a questionnaire, also reported that students believed Quizlet enhanced their written and oral language skills.

Nonetheless, a relatively low number of research has measured the effectiveness of Quizlet in vocabulary acquisition with quantitative methods and the focus was primarily on receptive vocabulary knowledge. Dreyer (2014) examined how the use of Quizlet affected

students' vocabulary test scores in an urban high school language arts class, and demonstrated that students using Quizlet steadily outperformed students in the Non-Quizlet group on weekly vocabulary tests. Likewise, the results of pre- and post-tests in Dizon's study (2016), which was carried out with Japanese students who used Quizlet over the course of 10 weeks, revealed that "learners were able to make statistically significant gains" (p. 40), and perceived Quizlet as a useful tool for vocabulary acquisition. These results are in congruence with other studies showing that the use of the Quizlet application in Mobile Assisted Language Learning has a similarly positive impact in improving students' vocabulary acquisition and, at the same time, fosters students' autonomy and motivation (Ali & Kassem, 2018; Davie & Hilber, 2015).

Similarly, the vast majority of research on using podcasts for vocabulary acquisition have found that they have increased students' motivation and helped creating a positive attitude towards learning (Farshi & Mohammadi, 2013; Gholami & Mohammadi, 2015; Hasan & Hoon, 2013; Mashhadi et al., 2016). However, Philips (2017) also claimed that the novelty associated to using this technology might evoke feelings of apprehension and anxiety in students who had never used podcast before and are unfamiliar with new technologies. Some participants in her study found producing podcast time-consuming and also expressed that they did not like the sound of their recorded voice. Hence, she suggested that students should be guided throughout the whole process and should be able to discuss their doubts with the investigator. This way they might be able to gain confidence with new technologies, and students who feel insecure about speaking English in class and participate in real-time interaction might benefit from working at their own pace.

A number of studies have also demonstrated its effectiveness in learning new vocabulary. Mashhadi et al. (2016) found that integrating podcasts in vocabulary teaching and learning produced better results than conventional methods. Kargozari and Zarinkamar (2014) came to a similar conclusion after measuring the lexical development of 32 EFL learners who studied new lexical items through podcasts or in the traditional way. The investigators found that students in the experimental group, who had been exposed to podcasts containing some highlighted words, outperformed the students in the control group, who were taught the same words in a traditional way, in the post-test.

However, most of the research investigating the impact of Quizlet and podcasting on students' vocabulary acquisition used investigator-created material and relatively little has been done to study the benefits of student-created podcasts and Quizlet study sets, despite the fact that various studies have demonstrated the cognitive, affective and motivational benefits accrued from students' creating their own learning material (Gholami & Mohammadi, 2015;

Milliner, 2013; Nikolova, 2002; Philips, 2017). For example, Nikolova (2002) investigated how effective vocabulary acquisition is when students participate in the creation of the learning material. Learners in her research were told to study a French text downloaded from the Internet on a computer. Students in the control group had visual, audio and textual annotations for 20 low-frequency words, while students in the experimental group were asked to create the annotations for the same words. She found that the students in the experimental group learnt the words significantly better than students in the control group, which suggests that students' participation in producing their own learning material positively affects vocabulary acquisition.

Similar findings were presented in the scarce research carried out on the impact of student-created podcasts on vocabulary acquisition. Gholami and Mohammadi (2015) studied how three levels of podcast integration (high, low and no integration) affected 90 Iranian intermediate learners' lexical knowledge. In the high integration group, students were instructed to listen to online podcasts as well as to record their own audio file using the new vocabulary items from the podcasts. Then they also had to listen to other learners' recordings and comment on them. On the other hand, students in the low integration group were only required to listen to the podcasts and they did not have to do the recording task or comment on the audio files. Finally, in the no integration group, the podcast files were used as conventional listening comprehension exercises. According to their findings, students in the high integration group significantly outperformed students with no or low podcast integration in their syllabus, and they also demonstrated positive attitudes towards using podcast as a pedagogical tool.

Philips (2017) highlighted the importance of doing research on student-generated podcasts, as producing audio files requires higher cognitive effort than simply consuming them, thus, may lead to greater awareness of some fundamental aspects of the target language, as well as to a more independent and autonomous learning. However, her study only explored students' attitudes and perceptions by means of two surveys and did not measure the impact of recording those podcasts on students' speaking skills.

In conclusion, a great number of studies have demonstrated the benefits of teacher-created Quizlet and podcasts on learner's vocabulary acquisition while research is scarce on the effects of student-created material. As Quizlet and podcasting are easily accessible for both students and teachers, they have been widely used in SLA teaching for different purposes including teaching and practicing new vocabulary, nevertheless, research investigating their effectiveness has mainly looked at how they enhance receptive vocabulary knowledge and students' motivation. To the best of my knowledge, no study has been conducted to compare

the effectiveness of student-created Quizlet study sets and podcasts in vocabulary development taking into account the role they play in both receptive and productive vocabulary acquisition.

3. Research questions

On the basis of the theoretical background discussed above, the present study seeks to answer the following questions:

- 1) Which technique helps students to acquire more new vocabulary: creating a podcast or a Quizlet exercise?
- 2) Are there any differences between the two techniques in terms of receptive and productive vocabulary knowledge?
- 3) Which of these methods do learners prefer for the acquisition of new vocabulary?

4. Methodology

4.1 Context

This research was carried out in the School of Languages of Pamplona (Escuela Oficial de Idiomas de Pamplona, henceforth referred to as EOIP), which belongs to the network of publicly funded language schools in Spain dedicated to the specialised teaching of modern languages. The minimum age of enrollment on a language course is sixteen, so the school is mainly attended by adults. According to the last customer satisfaction survey carried out by the EOIP, the majority of its students are young women from Pamplona with university studies and a full-time contract, nevertheless, there is also a large and growing number of university students, housewives, retirees and unemployed people attending the courses.

Among the five official languages (Basque, English, French, German and Italian) taught in the EOIP, English is the most demanded with almost 2000 students and 22 teachers. The description of the levels in the school's curriculum follow the Common European Framework of Reference for Languages (CEFR). English in the EOIP is taught at all the 6 levels established by the CEFR (A1, A2, B1, B2, C1 and C2). Most courses are face-to-face, however, students at B2 level can also opt for blended learning which combines online educational material and the possibility of online interaction between students and the teacher with face-to-face classes

and tutorials. Face-to-face courses offer students two classes a week, each lasting for two hours and fifteen minutes.

The level of the students within one class is usually quite diverse for various reasons. Firstly, many of them do not have to do a level test before joining a course. Some students automatically go to the next level even if they completed the previous course years ago and have not used English since then. Secondly, although absences are closely monitored, students are still allowed to miss a certain number of classes, which might affect their progress. It is also their decision how much they study throughout the year or whether they take the exam at the end of the course.

4.2 Participants

The participants in this study were adult students enrolled on a face-to-face C1 course. The research was carried out over the course of three weeks in two different classes (henceforth referred to as Class 1 and Class 2) of 25 students. However, as the end of the academic year was quite near, many students were not coming to class, so the real number of students in a lesson oscillated from ten to twenty. Out of these students, 12 in total (7 in Class A and 5 in Class B) completed the pre-test and post-test and underwent the treatment in the first round, and 11 students (6 in Class A and 5 in Class B) in the second round. The age of the participants ranged between 18 and 61.

4.3 Instruments

To conduct this research, a variety of materials were used. A pre-test was designed to check students' prior knowledge regarding two sets of vocabulary which were later taught to them, so there were two pre-tests. Each pre-test contained 14 words, the vocabulary items in the first pre-test (pre-test 1) were related to the topic of work and employment, whereas in the second (pre-test 2), the words were related to the field of science and technology. In both pre-tests, students had to define the words in English or Spanish. The author of this research tried to choose C1-level words that students were not likely to be familiar with but could later use in class-work for the different tasks and discussions designed for those units. After the treatment, two post-tests, one for each set of words, were given to the students to check vocabulary acquisition. Post-test 1 was designed to check the acquisition of the words related to work and employment while post-test 2 was created to find out how many of the science and technology

related vocabulary students had acquired. Each post-test was divided into two parts. In the first part, which was designed to test receptive vocabulary knowledge, students had to match the 14 words with their definition, whereas in the second part, which served to assess productive vocabulary acquisition, students were given three thought-provoking quotes related to the topic and were instructed to write an opinion essay of around 200 words using the words.

Once the post-tests were done, students answered a questionnaire. The questionnaire was designed based on our review of previous research on the topic, and it aimed to obtain some biodata as indicated by previous authors (Philips, 2017). It contained eighteen Likert-scale and four open questions. The questionnaire was anonymous to encourage students to express their opinion freely although some personal information was collected about the respondents, such as their age, the hours they spent online daily, the type of social networking accounts they had, the internet resources they used to learn English, their way of learning new vocabulary and how confident they felt about using new technologies. The Likert-scale questions were created to find out their opinion about using Quizlet and podcasting for vocabulary acquisition and how much they thought these methods helped them to learn new words. It contained eight statements about both Quizlet and podcasting, and participants were asked to rate how strongly they agreed with each statement on a 4-point scale ranging from strongly agree to strongly disagree. Two additional statements were also included, to gauge students' attitude towards new technologies. In the first one students had to mark on a 5-point scale how confident they felt about using new technologies while the other one was designed to find out how interested students were in learning with new technologies using a 4-point scale. The four open questions gave students the opportunity to express their thoughts and feelings about using the two methods and articulate their preferences more clearly. In the first open question participants were asked whether they preferred Quizlet or podcasting for vocabulary acquisition and to give reasons for their choice. In the research conducted by Philips (2017) participants expressed their dislike about listening to their own voice on a recording, which could create a negative attitude towards podcasting, so one question was included in the survey to gauge participants' feelings about recording themselves. Quizlet and Podomatic websites allow users to share their creations with other people, and students were encouraged to do so with both their Quizlet study set and their podcast audio file. In the questionnaire, two questions were asked to find out whether students opted for this possibility with any of the methods and what motivated their decision.

4.4 Procedure

As this research required students to create vocabulary sets using Quizlet as well as to produce and upload their own podcast on the Podomatic website, the first step was to ensure that they knew how to use those websites. A whole session was dedicated to this purpose. The participating groups were taken to the Resource Room of the School of Languages, where each student was given an iPad and was provided with a detailed guidance on how to create an account on both websites and how to use the main features. The websites were introduced in an attractive way to generate interests. How they could be used for self-learning was also explained. For the majority of students, the two applications were completely new and they demonstrated great interest in learning about them, especially about Quizlet. There was only one student who refused to create a personal account on the websites expressing his concerns about providing personal data to unknown entities on the internet.

After the participants familiarised themselves with both websites, the same pre-test (pre-test 1) was administered to both groups in the following session to measure students' prior knowledge. It contained 14 words related to the topic of work and employment and students had to define the words in English or Spanish. Once the pre-test was done, participants were taught the vocabulary through an exercise in which they had to guess the meaning of the words from a context in pairs or small groups. After the meanings were elicited and the exact definition for each word was given to them in an open-class feedback, Class 1 was asked to create a study set on Quizlet including all the words while Class 2 had to make a podcast answering a question about the topic using the vocabulary. These tasks had to be done individually by the students at home. In the next class, a post-test was given to students to measure their receptive vocabulary knowledge with a matching exercise and their productive vocabulary acquisition with a writing task.

A week later, when students finished the unit of work and employment and started the topic of science and technology, the same procedure was repeated with a new set of vocabulary but this time Class 1 produced the podcasts and Class 2 created the Quizlet study set. This way we intended to minimize any possible group effects and exclude the possibility that a different set of words would produce different results.

To finish data collection, the questionnaire including eighteen Likert-scale and four open questions was administered to the students to find out their opinions and preferences regarding the two methods (see Appendix 7).

Weeks	Week 1			Week 2			Week 3		
Sessions	1	2	Treatment	3	4	Treatment	5	6	
Class 1	How to use Quizlet and Podomatic	Pre-test 1	Quizlet	Post-test 1	Pre-test 2	Podcast	Post-test 2	Questionnaire	
Class 2			Podcast			Quizlet			

Table 1: Procedure

4.5 Data analysis

To analyze data, participants were divided into two different groups. As Table 2 demonstrates below, Group A included all the students from Class 1 who did at least one treatment and the following post-test, while Group B gathered those students who did at least one treatment and the following post-test in Class 2.

	Work vocabulary			
Treatment	Pre-test 1 Quizlet Post-test 1	Quizlet Post-test 1	Pre-test 1 Podcast Post-test 1	Podcast Post-test 1
Group A	Group 1 7 students	Group 1P 1 student		
Group B			Group 2 5 students	
	Science vocabulary			
Treatment	Pre-test 2 Quizlet Post-test 2	Quizlet Post-test 2	Pre-test 2 Podcast Post-test 2	Podcast Post-test 2
Group A			Group 3 6 students	Group 3P 2 students
Group B	Group 4 5 students	Group 4P 5 students		

Table 2: Groups according to the treatment

After the groups were created, the pre- and post-tests were corrected and the questionnaires were analyzed to obtain data. The results of the pre- and post-tests of each group as well as the quantitative data obtained from the Likert-scale questions were introduced in an excel spreadsheet and the means were calculated. As for qualitative data, the questionnaire contained four open questions, which were analyzed in order to find common recurrent themes.

Firstly, the results of the two groups obtained with the same treatment were compared to gauge if there was any difference between the two groups' test scores after using Quizlet and podcasting. Only the results of those students who underwent at least one complete treatment were taken into consideration. Retention rate was examined next, by analyzing and comparing the results of the two receptive and two productive post-tests to determine which method helped students to retain more vocabulary. After that, recognition and production rates were examined by contrasting the results obtained with the two methods within the same group to see which method benefited more receptive and productive vocabulary acquisition. The results of the tests with the same set of vocabulary were also compared to find out whether the difficulty of the words affected acquisition. Finally, to answer the third research question, students' answers to the Likert-scale and open questions in the questionnaire were analyzed, the means of the quantitative data were calculated while the qualitative data was compared to find some common themes in students' attitudes.

5. Results

In the following part, the findings of this research will be presented in three different sections which correspond to the three research questions formulated earlier in this paper.

5.1 Results according to the method

	Quizlet			Podcast		
	Pre-test	Post-test Receptive	Post-test Productive	Pre-test	Post-test Receptive	Post-test Productive
Group A	1.14	12.86	5	3.17	12.3	3.3
Group B	4.4	13.25	4	3.6	14	5.4

Table 3: Results according to the method

Table 3 above shows the means of the two groups' pre- and post-test results for each treatment. The scores were calculated over 14 points. As can be seen, Group A obtained higher results on both post-tests after the Quizlet treatment, achieving 12.86 points in the receptive and 5 points in the productive post-test, compared to the 12.3 points obtained in the receptive and the 3.3 points in the productive post-test following the podcast treatment.

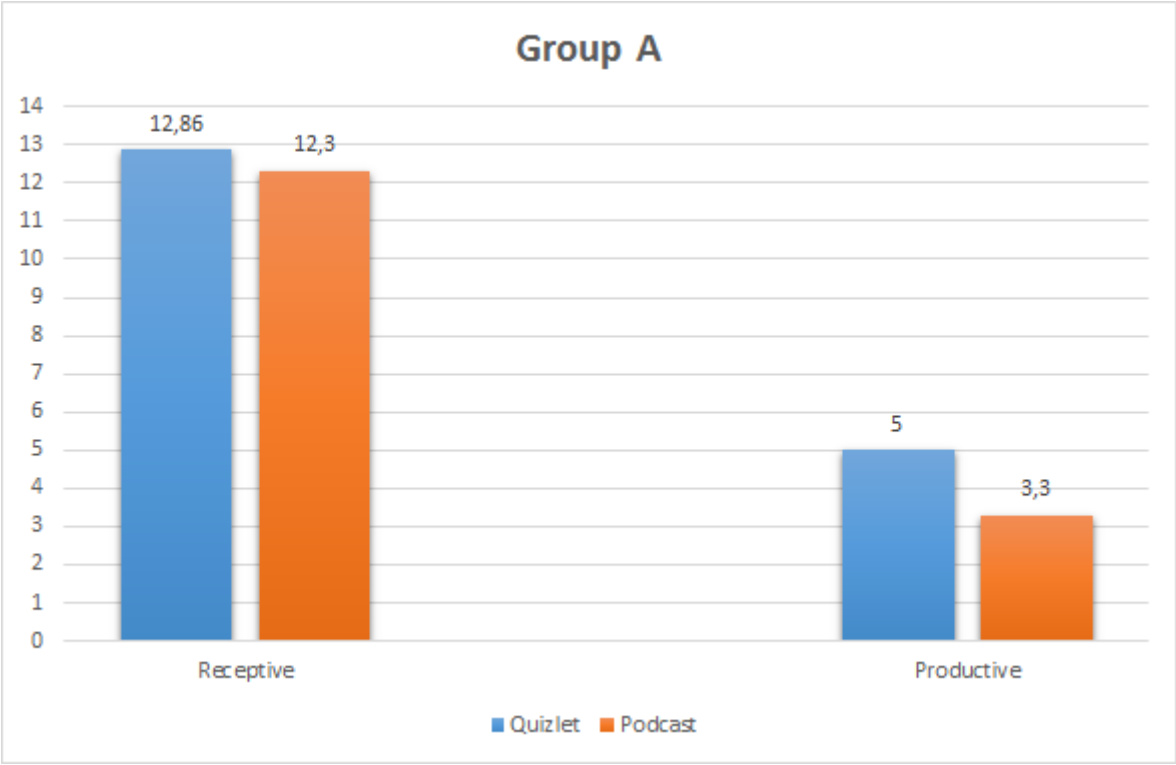


Table 4: Group A post-test results after each treatment

However, the results of Group B (Table 5) show the exact opposite. Students did better in the two post-tests after the podcast treatment, achieving the maximum 14 points in the receptive and 5.4 points in the productive post-test, while after the Quizlet treatment they obtained 13.25 points in the receptive and 4 points in the productive post-test.

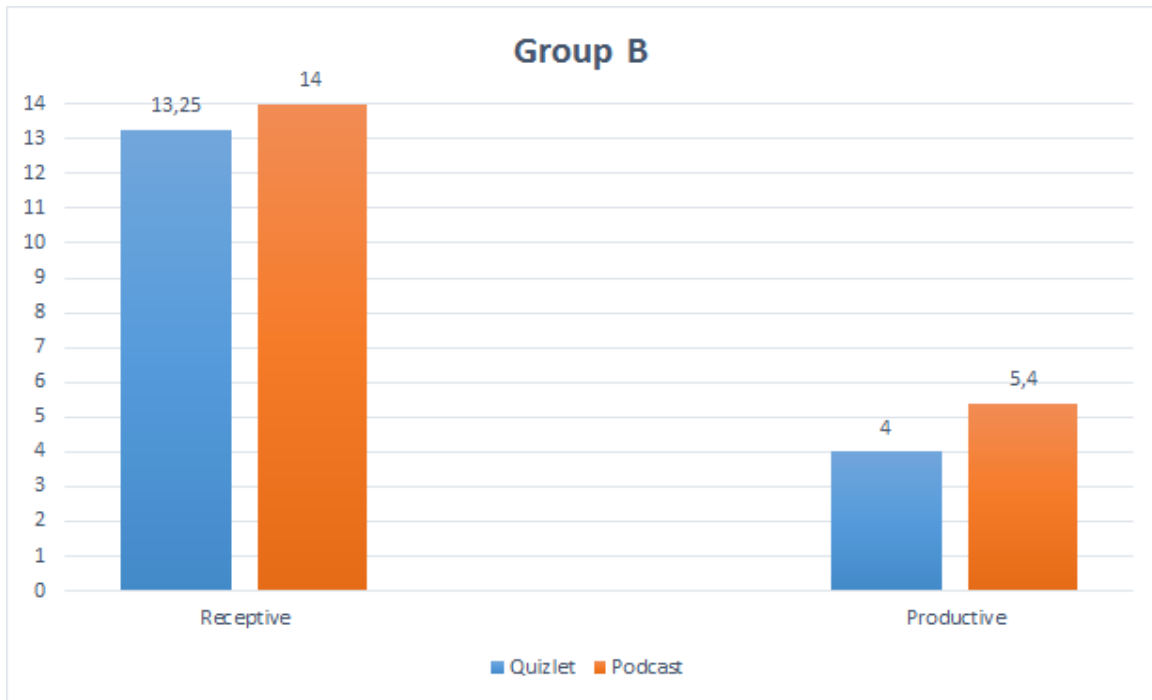


Table 5: Group B post-test results after each treatment

If we compare the receptive post-test results after each treatment, we can see that the difference is not considerable. Group A scored 12.86 in the receptive post-test after the Quizlet treatment and 12.3 after the podcast treatment with a difference of 0.53 points, whereas the difference between the receptive post-test scores of Group B is 0.75. The same can be stated about the productive post-test results. As for Group A, the mean of the productive post-test scores after the Quizlet treatment is 5 points, only 1.7 points higher than after the podcast treatment (3.3), whereas Group B scored 4 points after the Quizlet treatment and 5.4 points after the podcast treatment with a difference of 1.4 points. In other words, there is no relevant difference between the two methods concerning the number of words acquired by the students. No statistically significant difference was found either.

5.2 Reception and production results

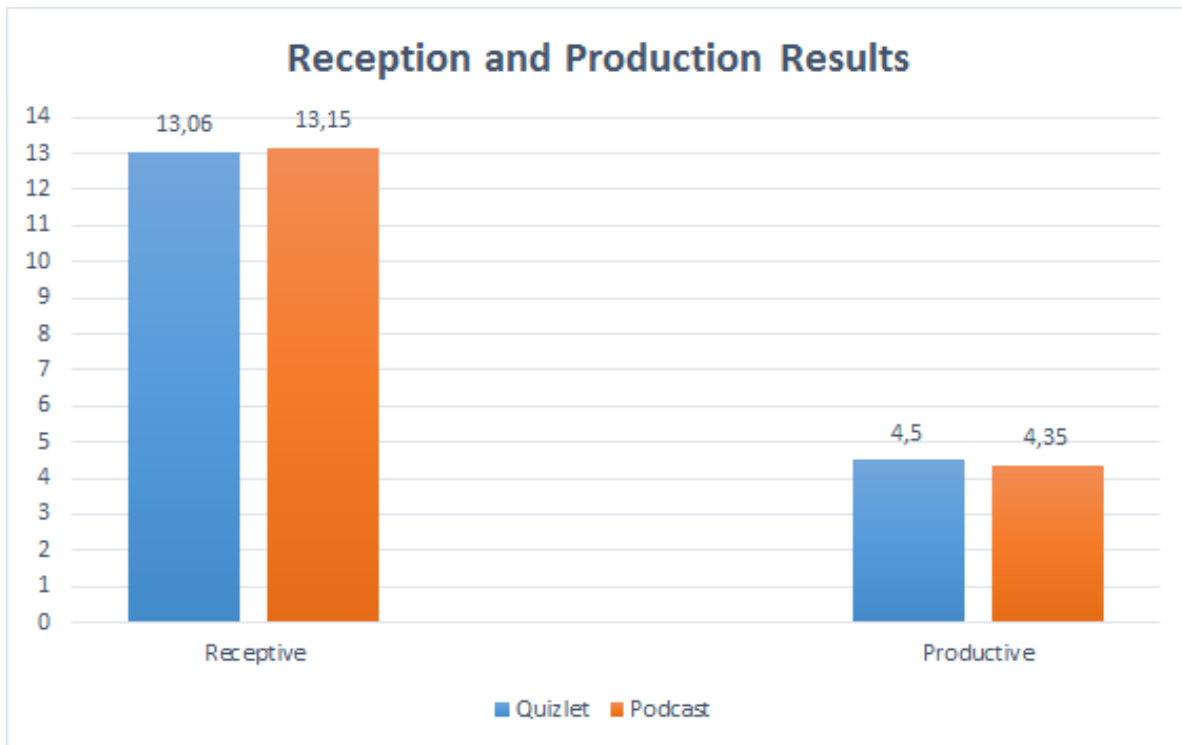


Table 6: Reception and production results

As it was expected, both groups obtained higher scores in the receptive post-tests than in the post-tests measuring productive vocabulary knowledge. The mean of the two groups' receptive post-test scores is 13.06 after the Quizlet treatment, and 13.15 after the podcast treatment. These results are considerably higher than the ones obtained in the productive post-tests, which were 4.5 points after the Quizlet and 4.35 points after the podcast treatment. As for the difference between the two methods regarding receptive vocabulary acquisition, it can be observed that the podcast treatment produced slightly higher scores (13.15) than the Quizlet treatment (13.06). However, this difference of 0.09 points between the mean scores is not important. With regard to the productive vocabulary knowledge, the mean score obtained after the Quizlet treatment is 4.5 points, 0.15 points higher than the mean result of the productive post-tests after the podcast treatment (4.35). In conclusion, students, in general, did better in the receptive post-test after the podcast treatment, and achieved higher scores in the productive post-test after the Quizlet treatment, nevertheless, the difference is quite small.

5.3 Results of the survey

Out of the 22 students whose results were taken into consideration in this research 16 completed the survey in the last session, in which both quantitative and qualitative data were collected. The majority of these students, 69%, said they felt confident about using new technologies. All of them have social networking accounts and go online daily. The amount of time they spend online a day varies between 30 minutes and 15 hours. All of them use internet resources for language learning, mainly TED talks and online dictionaries. Participants were also asked about how they usually learn new words, and the majority commented that by reading, listening to music and watching films or series. 88% showed interest in learning about new online tools that help language acquisition.

As for the quantitative data, students had to mark their opinion on a 4-point scale indicating how useful, convenient and user-friendly they found Quizlet and podcasting, how much these tools helped them to learn new words, how well they think they are able to use the newly acquired vocabulary and how likely they are to use these methods in the future. The following tables (Table 7a and Table 7b) compare students' opinions about the two methods along these features.

	Quizlet	Podcast
Useful	94%	56%
Convenient	94%	63%
User-friendly	94%	50%
Helped to learn new words	69%	50%
Still remember the new vocabulary (Retention)	81%	34%
Able to recall use the new words in speaking	75%	38%
Able to recall and use the new words in writing	100%	69%
Will use it in the future	69%	6%

Table 7a: Quantitative results of the survey

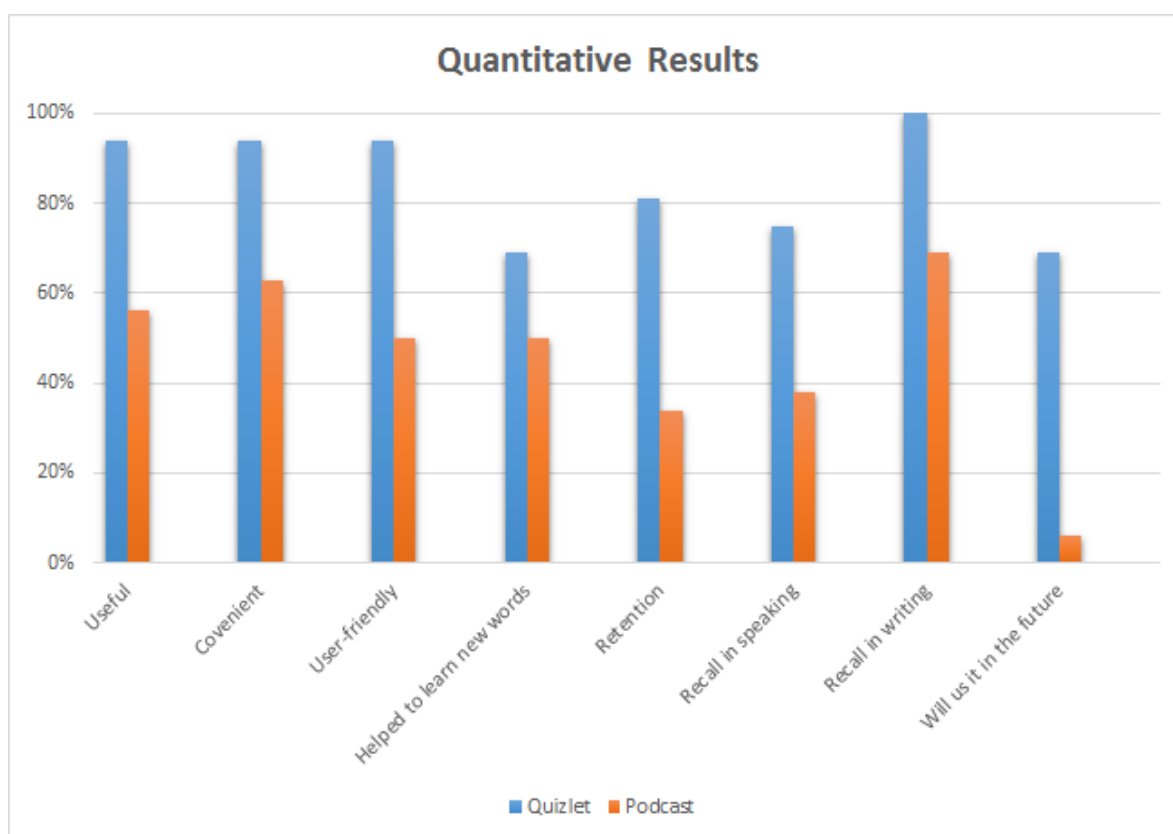


Table 7b: Quantitative results of the survey

The overall results of the quantitative data show that students favoured Quizlet over podcasting in all the aspects. Nearly 100% of the respondents believed that Quizlet was a useful and convenient tool to acquire new vocabulary and found it user-friendly, whereas only a bit more than half of the students thought the same about podcasting. 69% of the surveyed claimed that using Quizlet had helped them to learn new words, and 81% felt that it had also facilitated retention, while, in the case of podcasting, the number of positive responses was lower. Only 50% thought podcasting could help them to acquire new vocabulary and the number of those who believed they had successfully retained the words learnt by this method was only 34%. 75% of the participants reported they were able to recall the words they had learnt with Quizlet and produce them orally, while all the respondents agreed that they could reproduce them in written texts. On the other hand, only 38% of the students had the impression they were able to use the vocabulary learnt through podcasting in oral interaction, and 69% believed they could use them in writing. Finally, 69% of the surveyed expressed their intention to use Quizlet for vocabulary acquisition in the future, while a very low number of students, only 6% would do the same with podcasting.

As for the qualitative data, students' responses to the open questions were quite homogeneous. When asked whether they preferred Quizlet or podcasting for vocabulary acquisition, only one of the respondents said she would choose podcasting, while the rest clearly opted for Quizlet, and there was one student who found both methods very useful. Respondents agreed that Quizlet is much easier and comfortable to use than podcasting, and they also liked the fact that it is accessible anywhere and anytime through the mobile app. Some participants also commented that it was "more visual" and "interactive", and the games provided a fun way to memorize the words through repetition. Students also felt that they learn more easily by reading, "seeing" and writing the words than by "using their voice".

In response to the question regarding their feelings about recording themselves, most of those surveyed reported that they felt "strange", "embarrassed" and "ridiculous", however, some students thought it was a useful technique to practice pronunciation and could help to become aware of one's own mistakes. Nevertheless, for the above reasons, only one student shared his podcasts with his classmates. Most of them said they "did not want to be exposed in that way", they felt too "shy" about it, and one participant expressed their concern regarding the amount of time it takes to "prepare, record and upload everything." On the other hand, more participants were willing to share their Quizlet study sets with the others. One third of the students agreed that it is "useful to compare" the flashcard sets and by sharing them with each other, it will be "easier to get a broader variety of the topics covered".

On the whole, both quantitative and qualitative data obtained from the survey seem to reflect participants' preference to use Quizlet over podcasting for vocabulary acquisition, and their impression that with the Quizlet method their learning was more successful and productive.

6. Discussion

In the following section, the three research questions formulated earlier in this paper will be discussed based on the previous analysis of the quantitative and qualitative data obtained from the pre- and post-tests and the final questionnaire.

As mentioned in the literature review, previous research on vocabulary acquisition has differentiated between receptive and productive acquisition and knowledge (Laufer, 1997; Nation, 2001), therefore, to fully answer the first research question regarding which technique

would help students to acquire more new vocabulary, we are going to compare the results of the receptive and productive post-tests separately.

As the data obtained during the collection process indicates, there is no important difference between the two methods regarding the amount of new vocabulary acquired by the students. In the pre-tests measuring receptive vocabulary acquisition, Group A obtained 12.86 points after the Quizlet treatment and 12.3 points after the podcast treatment, while students in Group B scored 13.25 points after creating a Quizlet study set and 14 points after creating a podcast, the difference being 0.53 points for Group A and 0.75 points for Group B. As for productive vocabulary acquisition, Group A achieved 5 points after the Quizlet treatment and 3.3 points after the podcast treatment in the productive post-test, whereas Group B obtained 4 points following the Quizlet treatment and 5.4 points after producing a podcast. The difference is 1.7 points for Group A and 1.4 points for Group B. Consistent with the literature review, these results demonstrate that both methods are effective techniques for vocabulary acquisition since the gains were considerable for both groups in the receptive post-tests compared to the pre-test results (see Tables 8 and 9 below).

	Quizlet receptive	Quizlet productive	Podcast receptive	Podcast productive
Group A	11.72	3.86	9.13	0.13
Group B	8.85	-0.4	10.4	1.8

Table 8: Gains with each method

	Work receptive	Work productive	Science receptive	Science productive
Group A	11.72	3.86	9.13	0.13
Group B	10.4	1.8	8.85	-0.4

Table 9: Gains with each vocabulary set

Regarding the post-test results, Group B actually achieved lower scores (4) in the productive post-test after the Quizlet treatment than in the preceding pre-test (4.4), whereas in the rest of the cases the gains were quite small, 3.6 for Group A after the Quizlet, 0.13 for Group A after the podcast and 1.8 for Group B after the podcast treatment. This finding may be

explained by Oxford's and Crookall's (1990) theory stated in the literature review, which argues that to be able to acquire a word productively, students have to go through different stages of acquisition. First they have to learn the meaning of a given word, thus creating a schemata of that vocabulary item in their memory. Only after that can this word be used in production, and, following repetitive use, it might become part of the learner's productive knowledge. Given the short time the participants of this study had between the treatment and the productive post-test, they probably did not have enough occasions to use the new vocabulary in oral or written production, hence the transition of these vocabulary items from receptive to productive vocabulary knowledge could not occur.

It is also worth mentioning that both groups achieved higher scores on both the receptive and productive post-tests with the work vocabulary set, which seems to suggest that the vocabulary chosen for the two rounds affected acquisition more than the techniques.

Regarding the second research question which enquired about whether there would be any differences between the two techniques in terms of receptive and productive vocabulary knowledge, we can assume from the results described in the previous section that although there were important differences between students' receptive and productive vocabulary knowledge after the post-tests, none of the methods seemed to benefit more either receptive or productive vocabulary acquisition. The gains were large in receptive vocabulary knowledge after the Quizlet treatment, which is in agreement with Milliner's (2013) findings, which also demonstrated the positive effect of student-created Quizlet study sets on receptive vocabulary knowledge, and confirms the effectiveness of using Quizlet for vocabulary acquisition pointed out by Dreyer (2014) and Dizon (2016).

Similarly, participants obtained major gains on the receptive post-tests with the podcast method, too. These results are in agreement with those reported by Gholami and Mohammadi (2015), who found that students who created audio files learnt significantly more words than those who just listened to podcasts.

As for the production results, students' performance was poorer in the productive post-tests after each method, in comparison with the reception results. This finding seems to be consistent with other research which demonstrated that L2 learners tend to have better receptive skills and usually take longer to widen their productive vocabulary knowledge (Laufer, 1998; Nation, 2001; Oxford & Crookall, 1990). It is somewhat surprising, though, that the mean score of the receptive post-tests was higher after the podcast treatment, while that of the productive post-tests was better after the Quizlet treatment. Although the differences in the mean scores were not large, 0.09 points between the receptive and 0.15 points between the productive post-

tests following the different treatments, this finding does not seem to support previous studies which have suggested that by producing and contextualizing, that is, by practising the use of the L2 word in a communicative context, students acquire procedural knowledge, and are better able to process the language (Swain, 1995) and to include less common lexis in their productive knowledge (Laufer, 1998). Following this logic, students should have performed better in the productive post-tests after the podcast treatment. A possible explanation for this phenomenon could be found in those studies that investigated the effects of visual elements on vocabulary acquisition, such as Hashemi and Pourgharib (2013), which have indicated that using visual materials in vocabulary teaching enabled learners to retain and recall the words more easily. Creating a Quizlet study set and using it means learning mainly with the aid of visual elements accompanied by some audio, whereas making an audio file does not necessarily involve any visual material. A further explanation may be that, as Oxford and Crookall (1990) suggested, production practice in itself does not ensure vocabulary acquisition, only if the word already exists in the learner's memory. Apparently, both methods helped students to retain the new words in their passive vocabulary knowledge, but they would probably have needed more production practice to transfer them into their active knowledge. This idea is also supported by Laufer (1998), who claimed that the repeated use of the target vocabulary facilitates its transition from the passive to the active knowledge.

Regarding the third research question which questioned which of these methods learners prefer for the acquisition of new vocabulary, both the quantitative and qualitative results of the final survey indicated that students found the Quizlet method much more effective and attractive than podcasting, which was discarded by them as a technique they would use for vocabulary acquisition in the future. This finding was quite unexpected as all previous research examined in the literature review pointed out that students had a positive attitude towards podcasting (Gholami & Mohammadi, 2015; Philips, 2017). Although the results of the post-tests did not indicate any relevant difference between the two methods, students perceived Quizlet as a much more helpful and useful tool for vocabulary learning than podcasting. The participant's impressions about Quizlet in this study are in line with previous research. 69% of the students who answered the survey agreed that Quizlet helped them to learn new vocabulary, which supports Chien's (2015) findings, who also reported that students consider online vocabulary websites, especially Quizlet, a helpful method for vocabulary acquisition. Participants in his study also felt that Quizlet improved their written and oral language skills, which is reflected in the findings of this paper. 75% of the students in this study believed they were able to use the new vocabulary in speaking, while 100% stated they could recall and

reproduce the new words in writing even though the results of the post-tests did not support their perception of a better vocabulary acquisition with Quizlet.

On the other hand, only half of the students considered podcasting a useful technique for vocabulary acquisition, 38% felt that they could use the words learnt by this method in oral interaction, while 69% believed they were able to use them in writing. These positive response rates are lower than the ones reported by Philips (2015). In her study, 87.4% of the participants found podcasting an effective method to practice and use new vocabulary in context, and 84.4% asserted that it had improved their language skills.

It is also interesting to note that while 69% of the students in the present study expressed their intention to continue using Quizlet for vocabulary acquisition in the future, in the case of podcasting the number of positive responses to this question was only 6%. This outcome is contrary to that of Gholami and Mohammadi (2015), who observed positive attitudes in students towards the use of podcasts as a pedagogical tool. Students' negative attitude could be attributed to several factors. In the survey one concern expressed regarding podcasting was that it required too much time to prepare, record and upload a podcast file on the internet. This view was also echoed by the participants in Philip's (2015) study, where 65.8% of the students considered the production of a podcast time-consuming. Another reported problem was that students in our survey felt "strange", "embarrassed" and even "ridiculous" when listening to their own voice on a recording. This was also reported by Philips (2015), who found that a considerable number of students (87.3%) did not like the sound of their recorded voices.

On the other hand, Quizlet was reported to be easy to use, accessible, more "visual", "fun" and "interactive". This finding broadly supports the results of other studies in this area (Anjaniputra & Salsabila, 2018; Stroud, 2014) and might explain why participants in our study favoured Quizlet over podcasting despite the fact that retention rates did not show any considerable difference between the two methods. Students, on the whole, had the impression that more learning was taking place when they used Quizlet. This result might be due to the fact that Quizlet does not only allow students to create and modify their vocabulary sets, but also offers various options for self-study and, contrary to podcasts, provides feedback on their performance. Students can choose the place and time to use it and do not depend on external factors, such as the acoustic conditions that are to be taken into consideration when recording or listening to a podcast. It does not make them feel "exposed" nor embarrassed as podcast might do when they choose to listen to it or share it with other students. It is reportedly much easier to work with and provides visual material for learning while podcast is only audio.

7. Conclusion and pedagogical implications

In the following section, some pedagogical recommendations will be made based on the aforementioned findings and the experience with the students during data collection. Due to the fact that recent times have brought about a technological revolution in every aspect of our lives, it is highly recommended to incorporate new technologies in language teaching, including adult education, thus enabling students to use a wider variety of tools that aid language acquisition while promoting autonomous learning. This study set out to investigate the effects of using Quizlet and podcasting on learning vocabulary and found that both tools enhance receptive vocabulary knowledge. As the results discussed above did not indicate any considerable difference between the two methods regarding their effectiveness, the decisive factor that should be taken into consideration when choosing a method is students' attitude towards the two techniques. It is a well-known fact that students' motivation plays an important role in learning, and participants in this study demonstrated a clear preference towards studying vocabulary with Quizlet.

The School of Languages is mainly attended by adult students who lead a busy life and need an easily accessible and user-friendly tool that allows them to practice new vocabulary no matter where they are and how little spare time they have. Participants in this study seemed to favour a learning tool that is interactive, contains visual elements and offers various options for self-study. Quizlet also appears to foster cooperation among learners, since many of them expressed their intention to collaborate with other students in the creation of different study sets with the vocabulary covered throughout the course.

Our participants in general did not like the idea of creating an audio file that contains their own voice and upload it on the internet or share it with other students. They seemed to feel apprehensive about their mistakes and accent, and also found the whole process of creating a podcast file time-consuming and inconvenient. Hence, based on these results, this paper intends to encourage EFL teachers working in adult education to use Quizlet with their students in class or recommend it to them as a useful and engaging tool for vocabulary acquisition and individual practice outside the classroom setting.

8. Limitations and implications for future research

Nonetheless, this study is not exempt from limitations which are to be taken into consideration as they could affect the generalisability of the results. First of all, the number of students who did all the pre- and post-tests and underwent both treatments was very low. As this research was carried out in a centre of non-compulsory education, the number of students attending the classes was subject to considerable fluctuation. The data collection procedure stretched over the course of three weeks, and it was very difficult if not impossible to ensure that the same students attended each class in which a part of the research was carried out. This hindered the collection of quality data and complicated its comparison. Furthermore, due to the lack of time, delayed post-tests were not conducted, so long-term retention of the target vocabulary was not checked.

Considering the above mentioned limitations, further research could be done with a greater number of participants ensuring their participation in the entire procedure. It would also be compelling to carry out a similar study among secondary school students to see if their attitude towards new technologies, especially podcasting, is similar to that of adults. Furthermore, including delayed post-tests in this research could provide valuable information on how the two methods affect long-term vocabulary retention.

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10. Acknowledgements

I would like to finish this paper by expressing my sincere gratitude to everyone who helped in the completion of this work.

First, I would like to thank the School of Languages of Pamplona, where I conducted this research, and where I received a warm reception and lots of support from the staff.

Secondly, I would like show my appreciation to the students who participated in the data collection process. Without their help, patience and cooperation this study would not have been possible.

Thirdly, I wish to express my heartfelt gratitude to my tutor and supervisor in the School of Languages, Sonia Morillas Caridad, who, apart from being a wonderful person and the best tutor I could wish for, was always by my side, ready to help, and allowed me to use some of her valuable class time to conduct this research. Her attitude, teachings and guidance made my teaching practice an invaluable experience, and greatly contributed to the completion of this paper.

Last but not least, I would like thank the supervisor of this research, Camino Bueno Alastuey for all the support and guidance she has provided me throughout this process. If it were not for her thorough corrections and valuable advice, this paper would not have been the same.

Appendixes

Appendix 1: Pre-test (work vocabulary)

Translate into Spanish or define the following words and expressions:

1. to be on the dole:
2. to be snowed under:
3. to be stuck in a rut:
4. to carve a niche for yourself:
5. a dead-end job:
6. donkeywork:
7. to get the axe:
8. to give or hand in your notice:
9. golden handshake:
10. to knuckle down:
11. to lay somebody off:
12. to learn the ropes:
13. to move up the ladder:
14. one of the perks of a job:

Appendix 2: Pre-test (science vocabulary)

Translate into Spanish or define the following words and expressions:

1. breakthrough:
2. computer buff:
3. computer-illiterate:
4. cutting-edge:
5. digital immigrant:
6. digital native:
7. to excel at something:
8. gadget:
9. grey surfer:
10. to outperform:
11. pathbreaking:
12. to pour money down the drain:
13. to shrink their rank:
14. state-of-art:

Appendix 3: Post-test for receptive vocabulary knowledge (work vocabulary)

Match the following words and expressions with their definition.

1. to be on the dole

a) a job with no promotional opportunities

2. to be snowed under

b) an extra benefit you get from a job - something that you get legally from your work in addition to your wages, such as goods, meals, or a car

3. to be stuck in a rut

c) a usually large payment made to people when they leave their job, either when their employer has asked them to leave or when they are leaving at the end of their working life, as a reward for very long or good service

5. a dead-end job

d) living or working in a situation that never changes so that you feel bored

6. donkeywork

e) getting higher and higher positions

7. to get the axe

f) the hard, boring part of a job

8. to give or hand in your notice

g) to be unemployed and receive money from the government

9. golden handshake

h) to have too much work to do

10. to knuckle down

i) to learn how to do a certain job or activity

11. to lay somebody off

j) to lose your job

12. to learn the ropes

k) to make a special/suitable position for yourself by doing something better than the others

13. to move up the ladder

l) to tell your employer that you intend to leave your job after a particular period of time

14. one of the perks of a job

m) to start to work very hard

n) to stop employing someone, usually because there is no work for them to do

Appendix 4: Post-test for productive vocabulary knowledge (work vocabulary)

Writing Corner

Write a text about how these quotes reflect young people's and average employees' situation in your country. Use the expressions studied in this unit.

“Motivating employees to work at their full potential is the main premise of a successful business.”

“People may take a job for more money, but they often leave it for more recognition.”

“A lot of fellows nowadays have a BA, MD or PhD. Unfortunately, they don't have a JOB.”

Appendix 5: Post-test for receptive vocabulary knowledge (science vocabulary)

Match the following words and expressions with their definition.

1. breakthrough

a) an expert computer user

2. computer buff

b) an important new discovery

3. computer-illiterate

c) an older person who possibly grew up without computers but has embraced the new technology and now happily surfs the internet.

4. cutting-edge

d) a person who was born or brought up during the age of digital technology and who is familiar with computers and the internet from an early age.

5. digital immigrant

e) a small piece of equipment or electronic device

6. digital native

f) anybody who grew up prior to the digital age

7. to excel at something

g) somebody who doesn't know how to use a computer

8. gadget

h) the newest, most modern stage in the development of sth

9. grey/silver surfer

i) to do better than others

10. to outperform

j) to do something very well, or much better than most people

11. pathbreaking

k) very original, groundbreaking, pioneering, innovative

12. to pour money down the drain

l) to reduce their importance

13. to shrink their rank

m) to waste money

14. state-of-the-art

n) using the most modern and recently developed methods, materials, or knowledge

Appendix 6: Post-test for productive vocabulary knowledge

Writing Corner

Write a text about how these quotes reflect the role of science and technology in our lives. Use the expressions related to science and technology.

“Science and technology revolutionize our lives but memory and tradition frame our response.”

“I do not fear computers. I fear the lack of them.”

“Automation is great for profits but it’s a real potential trouble area for society.”

Appendix 7: Questionnaire

Questionnaire

Gender: Male / Female

Age:

Hours/day spent online:

Social networking accounts:

What internet resources do you use for language learning?

How do you usually learn new words?

How confident are you with new technologies? Circle the number that best describes you.

1 (not confident at all) 2 3 4 5 (extremely confident)

Please put an X in the square that most reflects your opinion about each statement.

	Strongly disagree	Disagree	Agree	Strongly agree
I am interested in <u>new learning technologies</u> .				
Quizlet is a <u>useful</u> tool to learn new vocabulary.				
Quizlet is a <u>convenient</u> tool to learn new vocabulary.				
Quizlet helped me to learn new words.				

I still remember the words I learnt with Quizlet.				
I am able to use the words I learnt with Quizlet in speaking.				
I am able to use the words I learnt with Quizlet in writing.				
Quizlet is very user-friendly.				
I will keep using Quizlet in the future to learn new vocabulary.				
	Strongly disagree	Disagree	Agree	Strongly agree
Podcasting is a <u>useful</u> technique to learn new vocabulary.				
Podcasting is a <u>convenient</u> technique to learn new vocabulary.				
Podcasting helped me to learn new words.				
I still remember the words I learnt by podcasting.				
I am able to use the words I learnt by podcasting in speaking.				
I am able to use the words I learnt by podcasting in writing.				
I find it easy to record myself/to use the podcast hosting website.				
I will use podcasting to learn new words in the future.				

Did you share your Quizlet study set with other students? Why/Why not?

How did you feel about recording yourself and listening to your own voice?

Did you share your podcast with other students? Why/Why not?

Which of the two methods (Quizlet/podcasting) do you prefer to learn new words? Why?