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Developing and Applying a Foreign Language Vocabulary Learning and Practicing Game: The effect of VocaWord

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Abstract

The present study reports on the findings related to the effect of playing a vocabulary learning and practicing game in elementary English classes at university level, and the attitudes and beliefs of the subjects about playing games with the purpose of learning the foreign language. The subjects were 70 first year university students from two different departments at the faculty of education. A vocabulary quiz that was prepared in accordance with the curriculum and the course book was applied as pre and post test. The results revealed that the experimental group subjects have doubled the vocabulary improvement rate of the control group subjects. The findings demonstrated that there was a slight difference between the performance of the female and male students in favour of the female subjects. The findings revealed positive thoughts and beliefs related to the game they played during their course, and using games in language classes. We have concluded that there is a need for more language games that might concentrate on the different aspects of learning a foreign language, and that the educational philosophies, methodologies, and techniques as well as the language curriculums should be rearranged and modified to meet the needs and interests of the new age learners.

Technology and education are not distant phenomenon, and gaming in education should be also installed as an additional concept for the sake of enjoyable foreign language education. Knowing a foreign language, and even more than one if possible, is regarded as a very important qualification, since languages are powerful tools to help people communicate, do business, establish connections, follow recent developments and so on. Yet learning a foreign language is not an easy task for many people, particularly when little time, money, and energy can be allocated for this specific purpose. Moreover, the task becomes evens harder when teachers do not possess the same vision, habits, interests, and strategies as their students. Prensky (2001:2) emphasised that the single biggest problem facing education today is that 'digital immigrant' instructors, who speak an out-dated language, are struggling to teach a population – 'digital natives' – that speak a much different language. Yet, interest in using technology artefacts as supportive tools for language learning is growing both from the perspective of the teachers and the students (Liu et al., 2003). The growth of the technology market, the uptake of the Internet and new aids to language education has combined to create an innovative and promising field, namely computer assisted language learning (CALL). CALL is a relatively new field, and illuminates generational divides between teachers and students.

Although foreign/second language (FL/SL) learning and teaching have been quite popular topics within language education environments for a very long time, little

attention has been devoted to 'gaming' or to the use of games in language education. The common trend has been in favour of doing research and writing books on teaching methodology, skills, vocabulary, student and teacher beliefs and perceptions, testing, and so on. However, the emergence of new technological equipment, environments, and software has created a new generation of learners, namely 'digital natives' (Prensky, 2001), also called the 'net gen' (Tapscott, 1998) that is fond of the Internet and digital media. New technology has diversified not only educational sources and materials but also learning habits and strategies.

The new generation of learners have grown to question the necessity of schools, the efficacy of standard books and materials, the sufficiency of teaching methods and approaches, and the content that is taught. People have noticed that they can learn on their own. Moreover, they have realised how much and how well they can learn outside of common environments, in other words, out of schools. The discussion of 'formal' versus 'informal' and 'individual' versus 'social' learning have been hot topics within the educational environments (Wong and Looi, 2010). The 'anyone, any time, anywhere learning' as well as 'lifelong learning' concepts have been emphasised and underlined recently, almost at any platform related to education (Gu et al., 2011; Sharples, 2000; Patten et al., 2006). Many researchers point to the serious incompatibility that exists between the learners and teachers of our time (Thorpe & Edmunds, 2011; Melville, 2009; Oblinger and Oblinger, 2005). Prensky (2003) has indicated that today's teachers, trainers, and educators are not as effective as they need to be, and that digital environments and educational games might help motivate students.

Our personal observation is that many institutions and persons today have noticed the rich and flexible solutions that technology serves, and have taken advantage of these to enhance learning. There are many university programs today that are run online (distance education). There are also plenty of online websites and materials for FL learning. Curriculum developers need to take the conditions of the era as well as the other words, learning should not be a strict duty but a kind of hobby undertaken willingly. A strict adherence to traditional environments and curriculums seems to be doomed, but is unfortunately the case in many schools in many countries at present. Although teachers are aware of multiple intelligences, classes seem to be thought of as identical individuals, and student preferences are not taken into account. One of the most common excuses for this tendency is that it is hard to unite the interests and preferences of each individual in the classroom at the same time, which indeed might be refined by the use of technology and educational games.

Games offer to unify these different interests and needs. In other words, because every person likes playing games, taking advantage of this and letting people learn while enjoying themselves would be a good idea. Web 2.0 tools and mobile devices seem to provide promising potentials for FL learning and for education overall. In what follows we provide an overview of each corner of the 'technology-learning-gaming' triangle, with specific focus on FL learning and education. Throughout this paper 'digital game' (DG) will be used to talk about the games that can be played on any technological platform such as computers, mobile phones etc regardless of the game type or software itself. On the other hand, 'non-digital game' should be understood as any board-, card-, or other type of game that can be played in physical environments but not on virtual, digital, or online environments.

Review of the literature

The most recent literature on education, digital/game-based learning (D/GBL) and mobile learning (ML) has concentrated mostly on the advantages and/or disadvantages of games in education (Franciosi, 2011; Becker, 2007; Nakata, 2008; Neville, 2009; Prensky, 2003; Rankin et al., 2006; Squire et al., 2005; Huizenga et al., 2009; Nash and Williamson Shaffer, 2011; Liao et al., 2011; Funk et al., 1999; Johnson, Vilhjalmsson, and Marsella, 2005); the game designing and application principles (Kiili, 2005; Gros, 2007; Ravenscroft and McAlister, 2006; Gu et al., 2011; Kickmeier-Rust and Albert, 2010; Squire, 2006; Rosas et al., 2003; Moreno-Ger et al., 2008; Lindström et al., 2011; Orkin and Roy, 2007); and the effect of mobile/technology, artificial intelligence and information and communication technologies on learning (Kukulska-Hulme, 2009; Neville et al., 2009; Saljö, 2010; Collins and Halversont, 2010; Bennett and Matont, 2010; Thorpe and Edmundst, 2011; Wong and Looi, 2010; Chu and Tsai, 2009; Hoff et al., 2009; Steels, 2001; Facer and Sandford, 2010; Godwin-Jones, 2005; Richards, 2005); while some other studies investigated the features of good games or the individual and gender differences in gaming and online interaction (Hong et al., 2009; Papastergiou, 2009; Inglis et al., 2011; Van den Beemt et al., 2011). Almost all studies emphasise the unique and experiential learning opportunities that the use of technology and games provide to people. Prensky (2001) emphasised that CGs may create a new learning culture which better suits learners' habits and interests.

Games and technology as tools for motivation

The first thing that is most often stated about games is 'motivation'. There is a two-way motivational relation between games and players. Games are highly motivating means (Franciosi, 2011; Ersöz, 2000; Batson and Feinberg, 2006; Yee, 2006). Games in general and more recently DGs seem to motivate people by creating a challenging, interesting, and demanding atmosphere where people get the chance to interact, to fulfil their needs. Since playing games stands as a basic and natural action of human beings that is carried out intrinsically and willingly, it should be possible to determine that the motivation it creates must be also reinforced by the motivation of individuals towards playing games. That is why games cannot be underestimated as they are excellent tools for education, although they have been neglected by educators (Squire, 2006). Motivation is of great importance for successful learning, but an individual learner's motivation might change over time due to external factors (Ellis, 2001:36). Yet, the situation seems to be a little bit different when it comes to games, because the motivation is internal and bilateral there, and most probably that's why it lasts longer than other types of motivation.

Franciosi (2011) explained that technology and games seem to create an intrinsic motivation (a concept that is examined by the principles of 'Flow Theory'), so people involve themselves in them not because they have to, but because they want to. Kickmeier-Rust and Albert (2010) reminded that a significant number of young people spend many hours a week playing computer games, and suggested that taking advantage of the motivational potential of games for educational purposes might open new horizons. Again, Prensky (2003) declared that the amount of time a youth spends by playing computer games in today's world is estimated at 10,000 hours by the time they are 21. However, others have argued that although VGs might provide motivation for learning, GBL might not necessarily result in positive learning outcomes (Rankin et al., 2006). So, it seems that there is need for more research on how, when, and to what

degree games contribute not only to the motivation of learners but also to their knowledge and education. To sum up, there is a lot of evidence and support in the literature that games are motivational tools, and that they should be taken more seriously by educators; although there is also some doubt whether the motivation that the games provide would necessarily lead to beneficial learning results.

Games and technology for learner-centred education

Games are 'learner-centred' (Neville et al., 2009), which is a feature that is valued and encouraged by most educators. Gaming creates an environment where the learners learn without the interference of the teacher, which provides them with more time for practice, and creates anxiety-free conditions as they are left on their own and not judged. Gros (2007) stated that DGs are user-centred and they can promote challenges, co-operation, engagement, and the improvement of problem solving strategies. Facer et al. (2004) indicated that mobile assisted language learning (MALL) prompts a pedagogical shift from didactic teacher-centred environments to participatory student-centred ones. This should mean that MALL is informal in nature and allows room for individuals to acquire information, as they like and need. Any gaming platform that people can reach online and on the move such as Web 2.0, Second Life, IMVU, or other virtual role-playing environments directly bring the players into the spotlight, so that first-hand experiences and information is exchanged and practiced by individuals. Nevertheless, as Bennett and Matont (2010) discussed, not all young people share the same 'technology-expert' profile, and thus, self-centred environments might create lack of motivation and distrust to individual work, implying that formal education would provide a safer environment for students.

FL learning, technology, and games

The FL learning field has always been interested in using technology such as tape recorders, audio and video materials, overhead projectors, televisions, and computers. However, all of these products of technology have been used in the similar way and for the same purposes: to carry out the teaching action in the way the authorities have shown. But today individuals are not so much hooked to the formal learning procedures and rules, since information has become increasingly widespread, everywhere and at anytime. Technological artefacts are much more flexible than formal platforms. Therefore, although the traditional approach has been to ask for direct information and memorisation, the new generation mostly seeks guidance related to where and how they can find the information they need. Today's digital society appears to prefer virtual worlds to the real or traditional world. Moulder (2004) summarised the situation by presenting the rhetorical question of an elementary school student: "*Why should I read about ancient Rome when I can build it?!*". In order to comprehend the matter, teachers need to be involved in the same virtual environments with their students. It would be very natural to expect that for a teacher who has never played DGs, integrating technology and gaming in his/her classes would be a very hard and meaningless task. And actually, teachers often lack the skills and knowledge to integrate technology effectively into their classrooms (Becker, 2007). So while games for language education do exist, they reflect the shortcomings of existing approaches to technology in the field of FL education.

Altogether, research on FL learning and education through technology and games has gained increasing interest and accelerated during the past decade. Recently conducted studies show that there is a shift towards better understanding the new

generation learners, and meeting their interests and needs. Kukulska-Hulme (2009) have noticed the potential of mobile phones and other portable devices and carried out a study to discuss the use of these means for language learning as well as the nuances between formal and informal learning, and teaching and learning practices. She concluded that mobility can lead to new perspectives and practices, and that there is an affinity between mobile learning and GBL. In the same way, Wong and Looi (2010) conducted two case studies to find out the impact of MALL in learning English prepositions and Chinese idioms. They determined that MALL has the potential to create unique language learning experiences that would attract and satisfy the new generation learners. In another work, Neville et al. (2009) designed a study where they attempted to teach L2 vocabulary, reading, and culture to university students through interactive fiction games, and observed positive contributions towards subjects' learning.

Franciosi (2011) explored the relationship between DGBL and task-based language teaching to determine the design features of the two approaches and to present the similarities and differences that might have significant implications for language education. Similarly, Nakata (2008) compared the effect of learning L2 vocabulary by means of word lists, word cards, and computers. Findings suggested that incorporating technology by working with computers created superior results and received higher praise from the learners when compared to other two types of learning. These pieces of evidence support Neville's (2009) claim that the combination of technology and games would be invaluable for the field of SL acquisition. Again, Rankin et al. (2006) investigated the benefits of a massive multiplayer online role-playing game as a pedagogical learning tool for intermediate and advanced learners of English as a SL, and revealed that the vocabulary of the students who played the game increased by 40%, while the conversational skills and chatting messages increased by 100%.

There are few games developed and proposed for education and more specifically for SL/FL learning and practise. The existing commercial games used for FL education such as *Scrabble* and *Taboo*, or the educational games such as 'Spell it', 'Word puzzles', 'Hangman' and so on have been used for a long time. Nevertheless, there is no investigation and evidence in the literature related to the effect and benefit of these specific games for language learners. We have also observed that educational faculties and the programmes that train FL teachers do not provide students with sufficient knowledge and skills to use games in their classrooms. There are courses in the programs such as 'Language Teaching Materials Adaptation and Development' and 'Teaching Technologies and Material Design', but the content and products of these courses seem to be not very effective for three reasons: the practical applications at schools have not changed over the past decade; the materials developed in the departments seem to be either old fashioned or impractical to carry around to classrooms; and they are hard to adapt to different platforms and settings.

In the present study our initial motivation was to develop a game that could be used in all language classrooms, in any foreign language, and with students of every linguistic proficiency level. We also tried to design the game in such a way that it would be relatively easy to transfer it to online and digital environments. The present study reports the findings related to the application of the printed version of the VocaWord game that was introduced by Uzun (2009). A quantitative approach was adopted for data collection regarding the vocabulary knowledge of the subjects, and qualitative methods were employed to elicit their beliefs and observe their attitudes about using/playing the game in their English classes. The present study aimed at finding answers to the following questions:

1. Is there a positive relation between playing the VocaWord game and the vocabulary knowledge of the subjects? And, if there is a positive effect, to what degree did playing the game improve subjects' repertoire of English words?
2. Are there any gender related issues regarding the game playing process and the success level of the students?
3. What are the attitudes and beliefs of the subjects related to playing games in the English classes?

Method

In the following, the components of our educational game (see Appendix 1) and the implementation procedures will be described and explained. The vocabulary learning and practising game that we present here is the empirical, modified and upgraded version of the work proposed and introduced by Uzun (2009).

VocaWord is the name of our game. VocaWord was designed as a board game that is played quite similarly to one of the world's most famous games, *Monopoly*. The main difference of our game is that it focuses on learning and practising vocabulary in a FL. As there is a significant consensus in the SL/FL literature that knowing the most frequent 2000 words in a language would be a vital possession (Nation, 2001:16; Meara, 1995; Laufer and Nation, 1999; Hancioglu and Eldridge, 2007), originally the game was intended to integrate the most frequent English words so that players would both learn unknown words and practise the words that they already know. However, the content in this version was modified to meet the course content and the curricular goals. It should be indicated that the game suggested here can be used as a supplementary material in SL/FL education immediately after the learners reach a basic beginner level, and also it can be played in any given language by just replacing the letters on the board and the words on the cards accordingly with the alphabet of that language. Lists of the most frequently used words of many languages already exist, but there is a need to prepare the lists of all languages to fully enhance VocaWord.

It should be declared that the current version of the game (i.e. printed VocaWord), which was used in the present study, could be implemented in a virtual environment once it is programmed by any suitable computing language and transformed to an online or digital game to be played on computers and/or mobile phones. This would suit the tendencies and habits of the FL learners in our age of technology.

The components of the game

VocaWord consists of a board, 4 card packs, and the dice. In the following, each of the components will be described and the rules of the game will be explained.

The board

The board contains 32 spaces, 24 of which contain letters of the alphabet, and 8 of which (4 translation card spaces and 4 lexical competence card spaces) direct players to pick the card on the top of the relevant pack. Players go over these spaces and collect letters with which they form words and collect points, or pick cards from the specified card packs and follow the instructions. Instructions and rules for players to follow (when they are not sure what to do during the game) are written on the board as well.

The card packs and the dice

Four card packs were prepared in accordance with the curriculum and the course book. We extracted all the vocabulary (see Appendix 2) from the six units (Units 7-12) of the course book (Oxford Headway Elementary, Third Edition) and wrote them on the '*translation cards*' with their L1 equivalents on the other side (one word on each card). When players land on the translation cards spaces, they have to pick a card from this pack and say the L1 equivalent of the written word. They do not need a teacher around for correction or approval, as the other side of the picked card provides immediate feedback for all the players around the board. The '*lexical competence*' cards contain a certain number of the words from the mentioned units of the course book and simple exercises similar to the ones in the workbook of the students.

   These exercises are 'fill in the blanks', 'matching', 'find the synonym/antonym' etc. The cards are placed on a separate box and the players cannot see the L1 side during the game. The other two card packs are given to students either as a reward (*1 cards*) where players receive some additional letters or a JOKER to form words and receive points later on, or as a punishment (*2 cards*) where players are asked to give back from the letters that they have collected while going over the board or are directed to pick a card from the lexical competence pack. There are 235 *translation* cards, 80 *lexical competence* cards, 56 *1* cards, and 32 *2* cards. Students do not keep any of the cards during the game; they instead return the picked card to the bottom of the pack so that the same words and exercises are circulated and practised during the game. This – practising the words – is the aim of the course book and workbook used.

The rules of the game

The main rules of the game are printed on the underside of the board so that all players can have a look during the game. The game can be played with two or more people, either as individuals or in pairs/groups. The ideal situation would involve four players, each sitting on one side of the square board. Each player rolls the dice and moves their token according to the number thrown on the dice. If the player lands on a *letter* space, they note down the letters and collect them to form words later on. Words are awarded points based on their length. A word of 1-3 letters is worth 3 points, 4-5 letters 5 points, 6 letters 7 points, and a word of 7 or more letters receives 10 points. (Both the number of the letters given on the spaces and the points given to formed words can be changed as needed). If the player lands on a *translation* space, they must take a card from the *translation* pack and provide the correct L1 translation of the word on the card. If they respond correctly, they receive one card from the *cards 1* pack as a reward, but if they do not they must pick a card from *cards 2* and follow the instructions on it. After this, the next player throws the dice and the game goes on in the same way. The winner is the player with the highest score at the end of a predetermined time, for example 30 minutes, or the first to reach a certain score, for example 30 points.

   Prior to applying the game, we piloted it with a group of students and modified the rules and the cards in accordance with the feedback of the learners, so that the game became more motivating, challenging and exciting.

The testing tool

Once the game rules and components were consolidated, we prepared a vocabulary quiz (see Appendix 3) to apply as a pre-test and post-test to the subjects. The vocabulary quiz consisted of four parts. In the first part, there were 13 pictures that had to be matched with the provided words. In the second part, there were 10 sentences with a gap and twelve words (2 surplus words were provided to increase the difficulty) where the students were required to fill in the gaps with the appropriate words. In the third part, there were 11 L2 words and seventeen L1 words (6 surplus words were provided to increase the difficulty) where the students were asked to match the words. In the last part, there were 14 L2 words where the students were asked to write their L1 equivalents. The total number of the items was 48 (8 words from each of the six units of the course book). All the items were prepared in such a way that they would be similar to the exercises in the course book and the workbook of the students. Likewise, all the words that were required in the items were from the list that we derived from Units 7 to 12 of the syllabus. In order to check the usability of the testing tool, we piloted it with the same students that we piloted the game with (N= 8).

Subjects

We selected two first year classes from different departments (the Mathematics Teaching Department and the Department of Psychological Counselling and Guidance) in the Faculty of Education, and randomly assigned them as the control group and the experimental group. The Control group (N= 34) consisted of 14 male and 20 female students, and the Experimental group (N= 36) consisted of 14 male and 22 female students. 9 subgroups (with one board each) were formed for each session of play, which changed weekly to allow different people to play together. The age of the subjects ranged between 18 and 19. Our observation was that although the subjects were similar, there were minor nuances related to both their socioeconomic background and linguistic ability. Nevertheless, since we believe that social sciences cannot fully assure laboratory-alike conditions, and since we actually observe that our classrooms are certainly never homogeneous, we decided to carry out our study within the natural and usual conditions that existed.

Procedure

The application of the pre-test and post-test as well as the interview session, implementation procedures of the game, qualitative observations, and the data analyses will be explained in the following and further in this paper.

The Application of the testing tool

The testing tool was applied as a pre-test a week before the implementation period of the game, during the usual hours of the classes, while the post-test was applied a week after the game implementation. Students were allowed as much time as they needed to complete the vocabulary quiz both during the pre-test and post-test. Both sessions took no longer than 40 minutes. Additionally, we interviewed the students to elicit their opinions about the game and how they felt during the application sessions that were held in the classes. We asked the following question after the post-test: *What do you think about the gaming sessions that were held during the classes and how did you feel?*
The Implementation of the game

Prior to applying the game with learners in the classroom setting, we asked a group of volunteer students (N= 8) to help us in the piloting of the game. These students were not from the same class and department of the subjects that were in the control or experimental groups. We explained the game to the eight students (randomly assigned two groups of four persons) and asked them to start playing the game. The students played the game for about an hour, for two days. Their opinions and feedback were obtained and evaluated both during the piloting and after the gaming sessions, and the necessary modifications were carried out. With the experimental group we did the same thing, which was explaining the rules of the game and demonstrating how the game would be played.

The game was played during the last hour of the weekly 3-hour class for a period of 6 weeks. The nine sub-groups in the experimental group played the game each week, and it was recorded that each player made at least 50 turns each week. Each student was able to form some words with the collected letters, and each student had to pick from the translation cards or lexical competence cards at least 20 times each week. The researchers carried out both the application of the testing tool and the gaming sessions were monitored and recorded by the instructor of the course, and the interviews.

Analyses of the Testing and Interview

For the analyses of the pre-test and post-test results, we gave 1 point to each correctly done item, and the total evaluation was done out of 48 (the highest possible score). We calculated the scores for each student from both tests, and also compared the results according to the genders. For the purposes of triangulation, we planned an interview session with the students in the experimental group (5-7 minutes with each student) to better understand their opinions about the game and the game playing procedure. The interviews were tape-recorded and transcribed, read several times by the researchers, and content and coding analyses were carried out. Students' views were grouped and the significant utterances, focused on the game itself and its playing procedures, were underlined during the analyses. In the results and discussion part, the same, very similar, or repeated thoughts were given only once represented in one student's words.

Results and Discussion

According to the quantitative results derived from the examination of the pre-test, no significant differences existed between the subjects in the control group (mean score 28.32) and the experimental group (mean score 27.61). As a result of the treatment based on the game played, there was noticeable progress related to the vocabulary knowledge of the subjects, with superiority of those in the experimental group (see Table 1).

Student	Gender	Control Group		effect	Experimental Group		effect
		Pre-test	Post-test		Pre-test	Post-test	
Student 1	M	31	34	+3	25	35	+10
Student 2	M	29	34	+5	21	36	+15
Student 3	M	29	35	+6	30	37	+7

Student 4	M	7	19	+12	34	45	+11
Student 5	M	34	36	+2	27	38	+11
Student 6	M	17	19	+2	34	38	+4
Student 7	M	18	24	+6	38	41	+3
Student 8	M	10	20	+10	32	39	+7
Student 9	M	38	44	+6	23	33	+10
Student 10	M	33	39	+6	23	35	+12
Student 11	M	33	41	+8	38	47	+9
Student 12	M	29	34	+5	32	36	+4
Student 13	M	22	29	+7	14	28	+14
Student 14	M	32	36	+4	37	45	+8
Student 15	F	36	39	+3	32	43	+11
Student 16	F	25	30	+5	32	38	+6
Student 17	F	33	36	+3	35	39	+4
Student 18	F	39	42	+3	25	32	+7
Student 19	F	35	40	+5	25	35	+10
Student 20	F	29	37	+8	23	32	+9
Student 21	F	35	37	+2	29	40	+11
Student 22	F	21	25	+4	11	20	+9
Student 23	F	36	40	+4	36	45	+9
Student 24	F	26	34	+8	25	37	+12
Student 25	F	34	38	+4	31	40	+9
Student 26	F	31	34	+3	36	46	+19
Student 27	F	24	29	+5	27	46	+19
Student 28	F	37	42	+5	24	41	+17
Student 29	F	14	21	+7	24	40	+16
Student 30	F	35	40	+5	27	41	+14
Student 31	F	34	37	+3	19	34	+15
Student 32	F	34	36	+2	21	38	+17
Student 33	F	25	31	+6	31	38	+7
Student 34	F	18	22	+4	21	33	+12
Student 35	F	-	-	-	34	43	+9
Student 36	F	-	-	-	18	35	+17
Total Mean		28,32	33,35	**+5,02**	27,61	38,02	**+10,66**

Table 1. The pre-test and post-test scores of the subjects

The results presented in Table 1 demonstrate that the experimental group (+10.66) subjects doubled the total vocabulary knowledge improvement of the control group (+5.02), which suggested that playing VocaWord in the classes contributed positively to the L2 vocabulary acquisition of the students. This finding answered our first research question: *Is there a positive relation between playing the VocaWord game and the vocabulary knowledge of the subjects? And, if there is a positive effect, to what degree did playing the game improve the subjects' repertoire of English words?*

In relation to our second research question: *Are there any gender related issues regarding the game playing process and the success level of the students?* We partially found the answer here by calculating the vocabulary acquisition means for both genders in the experimental group (see Table 2), and partially in the interview analysis procedure. It was determined that there was not a huge gap between the vocabulary acquisition means of the female (11.77) and male (8.92) subjects, a result suggesting that both genders benefited from the game similarly. Yet, we observed that there was a superiority of approximately +3

words in favour of the female students. According to this observation, it might be possible to comment that VocaWord benefited the female subjects more. The interview analyses revealed a similar positive attitude from both genders towards the application of the game sessions in classroom.

Female	Gender	Male	Gender
+11	Student 1	+10	Student 1
+6	Student 2	+15	Student 2
+4	Student 3	+7	Student 3
+7	Student 4	+11	Student 4
+10	Student 5	+11	Student 5
+9	Student 6	+4	Student 6
+11	Student 7	+3	Student 7
+9	Student 8	+7	Student 8
+9	Student 9	+10	Student 9
+12	Student 10	+12	Student 10
+9	Student 11	+9	Student 11
+19	Student 12	+4	Student 12
+19	Student 13	+14	Student 13
+17	Student 14	+8	Student 14
+16	Student 15		
+14	Student 16		
+15	Student 17		
+17	Student 18		
+7	Student 19		
+12	Student 20		
+19	Student 21		
+17	Student 22		
+11.72	**Mean Effect**	**+8.92**	**Mean `effect**

Table 2. Mean effect results for genders in relation to vocabulary acquisition

The qualitative observations revealed that the students in the experimental group were more motivated during the classes. The interview sessions showed that the students in the experimental group were friendlier towards the instructor, and more comfortable and relaxed during the formal examinations. During the interviews, the subjects in the experimental group indicated that the English course has become much more exciting, refreshing, and comfortable after the implementation of the gaming sessions. They also articulated that playing with their classmates improved their social relationship and self-confidence, will for collaboration and group work. The students mentioned that they learned new words from one another, and even words that were not in their course book or workbook. Some sample responses of the students related to the question "What do you think about the game playing sessions that were held during the classes and how did you feel?" are presented in Table 3 below. The same or very similar responses of each student were not repeated in the table.

Student 1	I liked the game. It created a competitive environment.
Student 2	I felt enjoyed. The mechanical content of the course has been reduced.
Student 3	We were extra motivated as we knew that we would play the game.
Student 4	I liked forming groups with my friends and learning from each other.
Student 5	We felt privileged in this course compared to the other courses.
Student 6	I really enjoyed my English classes.

Student 7	It contributed to my preparation for the examinations.
Student 8	I became eager and encouraged to use the words in real life.
Student 9	It would be great if I could play the game at home too.
Student 10	*We would like to play this game online or on mobile phones.*
Student 11	Everything was wonderful.
Student 12	I attended the classes with pleasure.
Student 13	I had the chance to make closer friendship with my classmates.
Student 14	We socialised while enjoying ourselves and learning English words.
Student 15	I had very good time during the classes.
Student 16	I wish I could buy this game to play it at home with my family.
Student 17	I was the winner in most of the sessions, so I enjoyed myself.
Student 18	I feel that my vocabulary knowledge has improved.
Student 19	*We would like to play the game more often and for longer time.*
Student 20	VocaWord is definitely a promising and helpful game for FL learning.
Student 21	Other classes that didn't play a game during the courses were jealous.
Student 22	*It would be great to play the game on my computer.*
Student 23	*I would like to try it with the Russian language.*
Student 24	The game was easy to play.
Student 25	The rules of the game were simple and the content was meaningful.
Student 26	We had an alternative to practice our word knowledge.
Student 27	*It would be better if different exercises and challenges were provided.*
Student 28	*I could feel more comfortable if I played with my closest friends.*
Student 29	It was nice to see how much vocabulary I knew.
Student 30	The game looks very professional and well designed.
Student 31	*Is it possible to make a similar game for grammar and other skills?*
Student 32	My spelling has improved.
Student 33	*We could play better and more popular games.*
Student 34	*We could play at the beginning of the lessons rather than in the end.*
Student 35	Nobody complaint about playing game instead of doing formal exercises.
Student 36	*Some of the people in the class have richer repertoire of vocabulary.*

Table 3. Responses of the students to the question *What do you think about the gaming sessions that were held during the classes and how did you feel?*

The opinions of the experimental group subjects demonstrate that there was a general satisfaction and contentment in relation with the application of game playing in classroom despite some minor concerns about the content of the game, classmate issues, and the procedure of the application. The italic sentences imply some of the critical reaction or thoughts of the students.

Qualitative observations

In the present study, the product-oriented quantitative data is provided through the pre and post vocabulary tests that aimed to reveal the effects of the VocaWord game on the subjects' repertoire of English words. The interview sessions following the post-test were a component of the qualitative dimension of the study to better understand the students' opinions about the game and the game playing procedure. To further support that dimension and ensure more triangulation; four randomly selected groups in four different weeks, who were videotaped for another study, were observed to shed light on

the process itself and inform the quantitative products data. Another motivation was to cross-validate what the subjects had reported in the interview sessions.

It is a fact that it is not possible to observe everything (Patton, 1987) in participant observation while videotaping allows repeated viewing. However, as the analysis of the observations had to have some particular focal points in this study, "sensitizing concepts" (Patton, 1987: 82) were determined to ease the task and have some observational foci for when viewing and analysing the records. While determining those sensitising concepts, the characteristics that the relevant literature attributes to beneficial pedagogical games and the aims that the researchers had set while developing the game were considered.

Below is the list of the observational foci, which were specifically attended to during the views of the records and used for interpretation in the analyses.

- whether it caused any procedural difficulties and/or hesitations while being played
- whether it is played with sustained motivation
- whether it was entertaining for both girls and boys
- whether it seemed to serve to further socialisation among the students

The recorded four sessions were viewed in two sittings on two different days rewinding and fast-forwarding the videos whenever needed. During the sittings, an academic that specialised in educational sciences accompanied the four researchers. In consideration of the observational foci mentioned above; the recordings were viewed, notes taken, discussed and interpreted until the conclusions were drawn by consensus among the five researchers.

First of all, it was determined with almost no doubt that the playing of the game did not cause any procedural difficulties for the students. We believe that this is because the game has a lot in common with some well-known board games like Monopoly and information about the rules and the instructions to follow (when players are not sure what to do during the game) are written on the board.

Regarding student motivation: it was observed that no obvious lack of motivation or boredom, which is likely to be caused by a one-dimensional, mechanic and monotonous way of learning, arose. Some students seemed more enthusiastic, but the others never failed or were late to do what they were supposed to do in the course of the game because of not being motivated enough by the game and thinking about something else. None of them were observed to be trying to evade his or her turn without doing the best to come up with the elicited action. Corresponding with this, the game did not seem to function differently with boys and girls in terms of being entertaining and motivating. The agreement was that it kept all its players alert and motivated till the end in a fun atmosphere.

Lastly, whether the game served to further socialisation among the students was the point where the consensus was the least clear among the researchers. More from the students' lives is needed to make a definitive judgment on it. However, the comfortable atmosphere in which almost all the students frequently swapped good-natured banter was deemed to be promising for the game.

Quantitative statistical analyses

Table 4. Are there any significant differences between the groups considering the pre-test results?

Group	N	$\overline{X}$	S	df	t	p
Control-Pre-test	34	28,32	8,23	68	0,396	0.693
Experimental-Pre-test	36	27,61	6,77			

The descriptive statistics showed that the students in the control group seemed to perform very similarly in the pre-test (M:28,32; SD:8,23) compared to the students in the experimental group (M: 27,61; SD: 6,77). An independent samples T test indicated that the difference between the students' test results in both groups in the pre-test was not statistically significant t(68)= -0,396 , p> 0.05. Therefore, it can be claimed that there were not any significant differences in the students' vocabulary knowledge levels in the pre-test.

Table 5. Are there any significant differences between the groups considering the post-test results?

Group	N	$\overline{X}$	S	df	t	p
Control-Post-test	34	33,35	7,16	68	-3,07	0.03
Experimental-Post-test	36	38,02	5,49			

The analysis of descriptive statistics showed that the students in the control group seemed to perform less successfully in the post-test (M:33,35; SD:7,16) than their counterparts in the experimental group (M: 38,02; SD: 5,49). An independent samples T test was carried out to see whether the differences between the students' test results in both groups in the post-test. The results reveal that the difference between the group scores t(68)= -3,07, p< 0.05 was statistically significant with a medium effect size d=0.73. Therefore, it can be claimed that the students in the experimental group scored statistically higher scores in the post-test in comparison to the students in the control group.

Table 6. Are there any significant differences between the pre-test and post-test results in the control group?

Test	N	$\overline{X}$	S	df	t	p
Pre-test	34	28,32	8,23	33	-12,59	0.00
Post-test	34	33,35	7,16			

The descriptive statistics showed that the students in the control group performed lower success levels in the pre-test (M:28,32; SD:8,23) compared to their scores in the post-test (M: 33,35; SD: 7,16). A paired samples T test indicated that the difference between the students' test results in both tests differed at a statistically significant level t(33)= -12,59, p> 0.01 with a very large effect size d=2,32.

Table 7. Are there any significant differences between the pre-test and post-test results in the experimental group?

Test	**N**	**X̄**	**S**	**df**	**t**	**p**
Pre-test	36	27,61	6,77	35	-15,42	0.00
Post-test	36	38,02	5,49			

The descriptive statistics showed that the students in the experimental group performed less successfully in the pre-test (M:27,61; SD:6,77) compared to their scores in the post-test (M:38,02; SD:5,49). A paired samples T test indicated that the difference between the students' test results in both tests differed at a statistically significant level t(35)= -15,423, p> 0.01 with a very large effect size d=2,57.

Table 8. Are there any significant differences between the pre-test results of male and female participants in the control group?

Pre-test	**N**	**X̄**	**S**	**df**	**t**	**p**
Male	14	25,85	9,49	32	-1,489	0.146
Female	20	30,05	6,95			

The analyses showed that the female students in the control group scored slightly higher in the pre-test (M:30,05; SD:6,95) compared to the male students in the same control group (M: 25,85; SD: 9,49). An independent samples T test indicated that the difference between the students' test results in both groups in the pre-test was not statistically significant t(32)= -1,489 , p> 0.05. Therefore, it can be claimed that there were not any significant differences in the students' gender with regards to their vocabulary knowledge levels in the pre-test.

Conclusion

To sum up, we provided an overview related to technology/computers, digital/video/computer/online/mobile games, learning/education, and specifically SL/FL acquisition and discussed the present situation of education. We developed a FL vocabulary game, tested it with real students in real classroom settings, and proposed an example for further material development studies hoping that new and more improved language learning games will be created and distributed. Our observation was that language classes can benefit signifigantly from even traditional games, thus digital tools would certainly bring additional power once opportunities become easier to employ and launch. We also hope that language teaching/learning research suggests new methods and techniques for teachers to better serve the emerging type of learners in the future.

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Appendices

Appendix 1: VocaWord
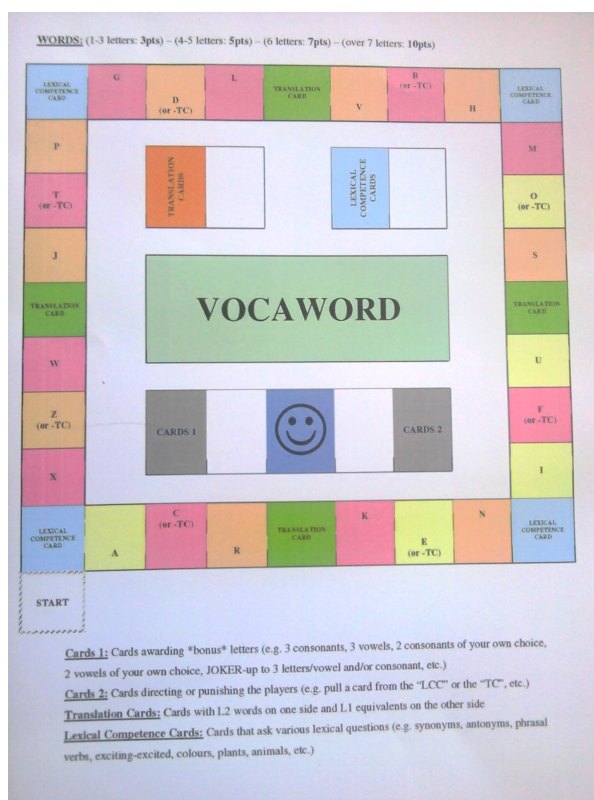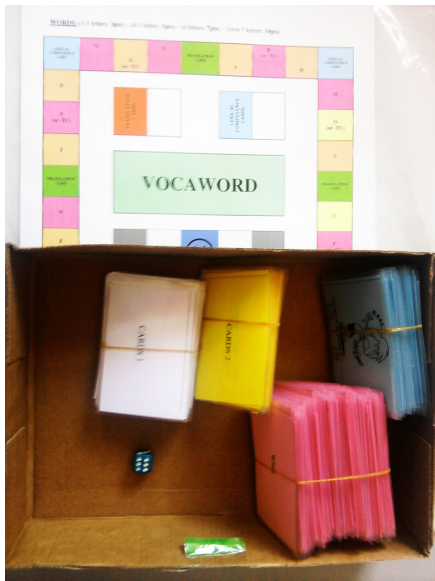
Appendix 2: Headway Elementary Units 7-12

The words were randomly selected from among the vocabulary that was explicitly presented in the words boxes in each unit.

Unit 7
Earn, Act, Decide, Want, Leave, Sing, Win, Die, Flight, Satellite, Disappear, Survive, Crash, Excellent, Dangerous, Secret, Become- a pilot, Drive- a car, Break- a record, Ride- a bike

Unit 8
Fly, Make, Watch, Wear, Walk, Autumn, Island, Wrong, Daughter, Wear- special clothes, Watch- fireworks, Make- a cake

Unit 9
Pasta, Tea, Milk, Beer, Cheese, Fish, Apple, Strawberry, Carrot, Pea, Meat, Ice-cream, Chilli, Onion, Egg, Bacon

Unit 10
Fast, Expensive, Dirty, Noisy, Exciting, Busy, Cheap, Slow, Clean, Quiet, Old, Safe, Boring, Tall, Small, Young, Intelligent, Wood, Church, Farm, Bridge, Port, Factory, Pub, Field, Lake, Village, Hill, Mountain, Cottage, Building, River

Unit 11
Hat, Coat, Jumper, Shirt, Dress, Skirt, Suit, Trousers, Shoes, Plant, Tie, Briefcase, Sunglasses, Joy, Deny, Cherish, Solitary, Sunrise

Appendix 3: Sample vocabulary quiz

Name-Surname :   School Number: Department:

A) Please match the Picture numbers with the words provided below them.

1   2   3   4   5

6   7   8   9   10

11   12   13

Carrot: ………….   Watch fireworks: ………….   Trousers: ………….
Jump over a wall: ………….   Tie: ………….   Rainy: ………….
Cloudy: ………….   Factory: ………….   Onion: ………….
Walk: ………….   Strawberry: ………….   Cheese: ………….
Ride a bike: ………….

B) Please fill in the gaps with the appropriate words. (Some of the words are provided extra)

Secret - Lake - Fish - Win - Tea - Shirt - Make
Drive - Meat -   Daughter - Breathe - Leave

1- She doesn't eat………..……… She is a vegetarian.
2- I don't like cigarette smoke, I want to …………. oxygen.
3- We can swim in the ……………..
4- What do you want to drink ? I want to drink some ………. , please.
5- My father can ………….….. a car in İstanbul's traffic.
6- ZeynepAvşar is HülyaAvşar's ..………………
7- Hamsi is a very nice ……………… for Turkish People.
8- My mother can ………………... a nice cake.
9- I want to buy a medium white ……..... from Kiğılı or Abbate.
10- Brazil , France and Germany usually ……….…….. the FIFA World Cup.