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STUDENTS' REFLECTIONS ON VOCABULARY LEARNING THROUGH SYNCHRONOUS AND ASYNCHRONOUS GAMES AND ACTIVITIES

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ABSTRACT

Many learners are now quite digitally skilled. However, this does not entail that they know how to learn through digital technologies. Therefore, establishing an interactive virtual learning platform that connects everyone together in a classroom environment and helping learners become familiar with such media might serve a set of purposes in any educational setting. Today, with the advances in web-based learning technologies, a hybrid teaching methodology has become widespread: blended learning. It is a term used to describe the way e-learning is being combined with traditional classroom methods and independent study. Educators design online materials and utilize them in synchronous or asynchronous ways to suit the convenience of learners and instructors and program demands. In this study with a group of intermediate-level English language learners at the School of Foreign Languages of an English-medium state university, the goal was to enhance students' vocabulary learning performance by using synchronous and asynchronous games and activities that will activate and maintain intrinsic motivation in an effort to teach parts of speech and collocations over a period of eight weeks. The data consisted of a survey of students' reflections on their vocabulary learning experiences through digital games and activities. The findings were discussed with respect to the efficiency of incorporating synchronous and asynchronous learning materials.

Keywords: **Synchronous and asynchronous games, intrinsic motivation, vocabulary development, collocations, parts of speech.**

INTRODUCTION

Advancements in wireless communication and mobile technology have contributed to the emergence of novel learning approaches which provide learners with an environment that blends learning resources from both the real- and the digital-world (Hwang, Shi, & Chu,

2011), and these digital platforms are rapidly extending the scope of learning outside the formal learning contexts, allowing immediate and flexible access to a wide range of digital content (Cheon, Lee, Crooks, & Song, 2012). As it has been widely observed, many of today's learners have grown up utilizing various digital tools and wirelessly networked technologies have become ubiquitous in the lives of these learners, the so-called 'digital natives' (Looi et al., 2010), a term first coined by Prensky (2001) referring to the people born in 1980s. They learn differently from their predecessors and have active 'e-lives', accessing and exchanging information instantly through blogging, online shopping, social networking, online gaming, file sharing or chatting. Technology is an inseparable part of their lives and they are quite digitally skilled. However, this does not entail that they know how to learn through digital technologies and that is what educators need to help them with (Pivec, 2007).

Digital Platforms and Digital Skills

This group of learners, digital natives, has attracted the attention of many researchers in the field (e. g. Brown & Czerniewicz, 2010; Helsper & Eynon, 2010; Ng, 2012). It has been shown that if the use of digital tools can be implemented effectively in educational settings, student progress can be achieved through motivating and engaging skill enhancement activities. Educational technology can enable learners to exchange information, share knowledge or experiences with others at the time of the learning process (Hwang et al., 2011). In doing so, mobile device applications also play a significant complementary role to serve teaching-learning purposes anywhere and anytime. With mobile technology, students can receive better support not only in the classroom, but also as they navigate to the context of their learning (Martin & Ertzberger, 2013). Martin and Ertzberger (2013) use the term 'here and now mobile learning' to describe the kind of "learning that occurs when learners have access to information anytime and anywhere via mobile technologies to perform authentic activities in the context of their learning and [that] gives students the opportunity to be in the context of their learning and have access to information that is related to what they are seeing and experiencing at the moment" (p.77). Their three-characteristic framework is illustrated in Figure 1 below:

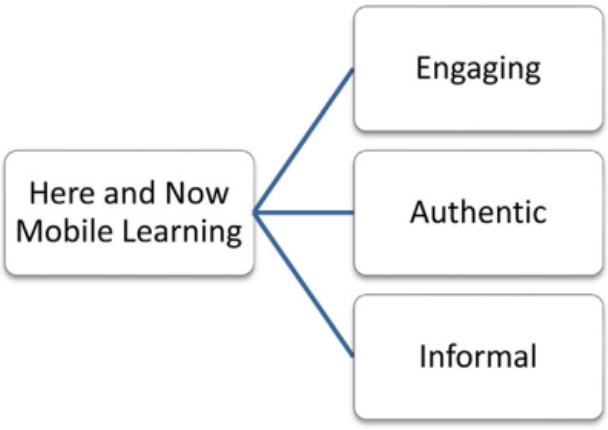

Figure 1. The model for here and now mobile learning (adapted from Martin & Ertzberger, 2013, p.77)

In this figure, through the incorporation of this extended-context idea with the adoption of mobile devices, learning is made engaging, authentic, and informal as it requires learners to get fully involved in the process and make decisions depending on their individual needs and desires. In this respect, even if they are quite digitally skilled and interested in using the mobile devices to learn, educators need to afford timely assistance to help achieve the learning outcomes. For effective e-learning, instructors are required to remain as close as possible to the online environment (Asoodar, Vaezi, & Izanloo, 2016). Therefore, establishing some kind of an interactive virtual learning platform that connects everyone together in a classroom environment and helping learners become

familiar with such media serve a set of purposes in any educational setting: working in collaboration to learn from others and help others learn, having unlimited access to instructional content and easy online access to instructors and classmates, and planning studies with a consideration of individual needs, expectations, and preferences (e.g. pace, timing, or location).

Synchronous or Asynchronous Options within a Novel Approach: Blended Learning

In response to this need to incorporate web-based learning technologies in the field of education, a hybrid teaching methodology has become popular: blended learning. The concept of blended learning has originated from the idea that learning is a continuous process (Singh, 2003). It is a term increasingly used to describe the way e-learning is being combined with traditional classroom methods and independent study, and recognized as one of the major trends in higher education today (Gill, 2009; Park, Yu, & Jo, 2016). In fact, blended learning has been defined in a variety of ways in the field. According to Singh (2003), blended learning encompasses various event-based activities, involving face-to-face classrooms, live e-learning and self-paced learning. It enables students to adjust their path and pace through online technologies as well as being supervised during face-to-face instruction (Ja'ashan, 2015). Classroom settings are enriched with materials provided by media delivery resources (Abidoye, 2015) and seat time in classroom is reduced (Dziuban, Hartman, & Moskal, 2004; Hartman, Dziuban, & Moskal, 2007). Learners engage in interactive and collaborative online activities, and complete subsequent tasks as part of the classroom work, which aim to help them build meaningful connections with their online experiences (Strajer, J.F., 2012; Lukassen et al., 2014; Lane-Kelso, M., 2015).

In this regard, to support the teaching process, facilitate learning, guide learners and enhance the learning experience, blended learning is required to be structured on a basis that goes beyond a mere replication of the traditional classroom instruction. Gill (2009) offers two types of blended activities; static ones which present all the information and require learners to work on them individually, or active ones to be completed individually or in collaboration with others. These activities can be synchronous or asynchronous in nature. That is, online content can be utilized in synchronous (through chat or videoconferencing) or asynchronous (offline via web, email, message boards or forums) ways to suit the convenience of learners and instructors and program demands. Singh (2003)'s suggested set of synchronous and asynchronous content or activities in Table 1 below illustrate the possible options:

Table 1. Learning approaches and choices suggested by Singh (2003)

Learning Approaches	Choices
Synchronous physical formats	Instructor-led Classes & Lectures; Hands-on Labs & Workshops; Field Trips
Synchronous online formats (live e-learning)	Online Meetings; Virtual Classrooms; Web Seminars and Broadcasts; Coaching Instant Messaging; Conference Calls
Self-paced, asynchronous formats	Documents & Web Pages Web/Computer Based Training Modules Assessments /Tests & Surveys Simulations Job Aids & Electronic Performance Support Systems (EPSS) Recorded Live Events Online Learning Communities and Discussion Forums Distributed and Mobile Learning

As demonstrated in Table 1, information technologies, learning technologies in particular, enable learners to learn individually, and create opportunities for more innovative, learn-centered programs relying on a combination of high-quality, interactive learning-ware, asynchronous and synchronous communications, and individualized mentoring (Beyth-Marom, R., Saporta, K. & Caspi, 2005). In asynchronous learning, the process is facilitated by streaming media, social media, emails, and discussion boards among others, and critical thinking is encouraged as the learners have more time to reflect, interact with the content and process the information (Hrastinski, 2008). Asynchronous learning makes it possible for learners to log in and communicate at any time depending on what is most convenient to them. They can make use of the activities in a variety of ways such as online or offline, individually, in pairs, teams or groups. Synchronous learning, in class or online, on the other hand, has a complementary role and supports e-learners in the development of learning communities (Hrastinski, 2008). In sum, both are handy delivery tools to assist learning, especially in contexts where face-to-face instruction is limited or not likely.

Study findings into blending learning promoting the use of educational information technologies indicate that it was regarded more effective in enhancing student learning and achievement from secondary school classes such as geography to college coursework compared to conventional teaching methods (Abidoye, 2015; Cheon, Lee, Crooks, & Song, 2012). With the college students especially, "attitude, subjective norm, and behavioral control positively influenced their intention to adopt mobile learning" (Cheon, Lee, Crooks, & Song, 2012, p.1054). Likewise, in another study investigating the effects of here and now mobile learning on student achievement and attitude in a college-level art class, the iPad/iPod treatments had positive attitudes and received higher student ratings though there was no significant effect of the treatments on student achievement (Martin & Ertzberger, 2013).

With respect to the synchronous vs. asynchronous features of blended learning contexts, it has been revealed that students exhibit preference for one tutorial mode over the other depending on a variety factors that relate to students' study inclinations including "time management," "ease of access" to learning materials, "positive aspects of interaction" and "negative aspects of interaction" (Beyth-Marom, R., Saporta, K. & Caspi, 2005). In more specific terms, the participating students who had stronger views regarding "positive aspects of interaction" valued synchronous tutorials more while on the other hand the students who scored higher on the need for autonomy and ease of access to learning materials favored asynchronous tutorials (Beyth-Marom, R., Saporta, K. & Caspi, 2005). Consequently, although the two modes complement each other in crucial ways, student choices and preferences may also guide the process.

Digital Game-Based Vocabulary Learning

One major challenge for language learners is handling vocabulary (Ghanbaran & Ketabi, 2014; Flores Rojas, 2008; Asgari and Mustapha, 2011). The comprehension, retention and appropriate use of words with a consideration of their lexical and grammatical features requires studying these words in an enriched context where it is possible to observe their various instantiations and have access to a word's semantic map (Oxford and Crookall, 1990). When learners are presented with activities that allow the analysis of samples of real world texts in their natural context, they may develop the kind of lexico-grammatical awareness essential in acquiring vocabulary (O'Keeffe et al, 2007; Zimmerman, 2009; Hunston, 2010). Nevertheless, in most cases, class time devoted to vocabulary practice is quite restricted. Thus, learners are often in need of a supportive environment tailored around their individual needs and expectations as well as motivating and encouraging them to engage in vocabulary learning activities (Jung & Graf, 2008), which might sound quite dull or unattractive if they merely involved memorizing lists or matching items.

In the context of a game, however, vocabulary can be acquired without pressure, and variety in game formats including text, audio, video, animation or interactivity and features promoting challenge, fantasy, curiosity, control, competition or recognition

(Malone & Lepper, 1987) prove effective in gathering learner attention and helping them stay focused (Gorjian, Moosavinia, Ebrahimi Kavari, Asgari, & Hydarei, 2011). Further, games can offer a platform to practice skills in an efficient way as learning is most fruitful when it is active, situated, problem-based, experiential, requiring higher-order thinking and providing immediate feedback (Boyle, Connolly, & Hainey, 2011).

Digital game based learning, a novel approach in the area of higher education and lifelong learning and advocating active learning through technological devices and the Internet, is a promising option to address some of the problems prevalent in the traditional approaches to vocabulary learning. They help course designers and teachers not only present but also revise topics, integrate language skills and strategies, tailor course content in a flexible way based on a range of criteria from student needs to physical constraints, and most importantly maintain student attention, which is quite a critical aspect of classroom management. As they are closely associated with a range of perceptual, cognitive, behavioral, affective and motivational impacts and outcomes (Connolly, Boyle, MacArthur, Hainey, & Boyle, 2012; Erhel & Jamet, 2013), online games for educational purposes, whether synchronous or asynchronous, can support and facilitate the learning process (Pivec, Dziabenko, & Schinnerl, 2004). More specifically, in a study reviewing the literature on computer games and serious games regarding their potential positive impacts on users with respect to learning, skill enhancement and engagement, it was revealed that playing computer games is associated with a range of learning outcomes and impacts such as knowledge acquisition and engagement (Connolly, Boyle, MacArthur, Hainey, & Boyle, 2012). Multimedia games were also regarded as tools that increase motivation and encourage a deeper processing of vocabulary (Ghanbaran & Ketabi, 2014; Turgut & Irgin, 2009: cited in Ghanbaran & Ketabi, 2014), thus resulting in the reinforcement of learning (Baltra, 1990; Carrier, 1991; deHaan, 2005; Hubbard, 1991; Li & Topolewski, 2002; Bell, 2005: cited in Ghanbaran & Ketabi, 2014), a shift in student attitudes towards language learning (Ja'ashan, 2015; Yip & Kwan, 2006: cited in Ghanbaran & Ketabi, 2014;), and a 20% increase in student achievement (Marzano & Brown, 2007: cited in Ghanbaran & Ketabi, 2014).

Despite this positive representation of the educational information technologies in the related literature, there are also limitations to its use especially with low achievers with respect to vocabulary retention and recall (Gorjian, et al., 2011). In their comparison of two groups of language learners, high vs. low achievers, adopting an asynchronous computer-assisted language learning approach, Gorjian et al. demonstrated that low achievers' ability to recall vocabulary declined significantly over time lapses of more than two weeks. This finding relates to the important issue of memory formation and recall in learning as memory is not a single entity or fixed location, rather a process which cannot be separated from retrieval and requires the involvement and functioning of multiple brain locations and systems (Bayındır, 2003); thus, there are critical strategies that help memories stick to mind and learning to become permanent such as intend, file, and rehearse (Howard, 2000: cited in Bayındır, 2003), which requires strong intrinsic motivation on the part of the learner, who is a low achiever in this case.

These findings, despite reflecting a widespread use of educational technologies and games in teaching in general and in language teaching in more specific terms, point to a gap in the related literature indicating a lack of concern for the specific elements of gamification, such as encouraging intrinsic motivation, that should guide the game development process (Faiella & Ricciardi, 2015). Thus, in this study on a group of English language learners at the School of Foreign Languages of an English-medium state university, we addressed this gap regarding the specific features of games, and the primary goal was to enhance students' vocabulary learning performance by using synchronous and asynchronous games and activities that will activate and maintain intrinsic motivation in an effort to teach collocations and parts of speech. Synchronous in class or online games were employed to achieve deeper conceptual coverage and peer interaction while asynchronous activities were mainly devoted to personalized,

independent study; recycling and revision to ensure student ownership/agency and mastery-based learning. We predicted that the students would generally have positive views and feelings about the incorporation of digital game-based vocabulary development activities as part of their English language learning program. Accordingly, the research question investigated in the current study was: What are students' reflections on their vocabulary learning experiences through synchronous and asynchronous games and activities?

METHOD

Context of the Study and Participants

The study was carried out in the School of Foreign Languages at an English-medium state university over a period of eight weeks. In the regular English preparatory program, students are enrolled in different levels based on their initial language scores and they follow the syllabi appropriate for their levels. At the end of each academic year, the proficiency exam is administered and if students cannot attain the required pass score, they are required to study at the English preparatory program again. In their second year, these students are offered a blended learning program providing them with online resources to practice the receptive skills and 8-hour tutorials each week on the productive skills. This format and content builds on the idea that it is essential to provide some flexibility in schedules to address students' individual needs and to ensure detailed, face-to-face feedback on their performance. This is due to the fact that this group often represents a specific profile consisting of unmotivated and underachieving students who are likely to fail across most levels and eventually drop out. Thus, the learning process needs to be planned with a consideration of how each can develop his route to linguistic and academic success. In response to this need, the current study on vocabulary enhancement was designed and implemented as part of the overall curriculum and instruction activities. 45 second year intermediate-level preparatory school students, 24 male and 21 female with an age-range of 18-20, participated in this study.

Procedure

A group of students participated in this study over a period of eight weeks. They viewed and played a set of interactive and collaborative online games instructing and testing them on collocations and parts of speech. They were provided with the theoretical background as well as some practical examples and hands-on experience. Web tools and content used included Kahoot, Quizlet, Nearpod, Powtoon, and YouTube. Subsequently, students completed further tasks as part of the classroom work, which aimed to help them build meaningful connections with their synchronous and/or asynchronous online experiences. At the end of the eight-week implementation period, they were asked to complete a self-report questionnaire on their digital game-based vocabulary learning experiences.

Materials

In order to provide students with vocabulary training for the purposes of this study, course-specific games and activities that included both introductory theoretical content and practical examples and exercises were developed and used. The games were of two types: (1) presenting the concepts (with bonus points); (2) training and testing them through exercises (with actual points). They were played in team or single-player modes in synchronous ways in class as well as asynchronously outside the class, and contained elements of music, video, images or quotes evolving around popular themes. They were designed around the most fitting elements of Malone and Lepper's (1987) framework of intrinsic motivation for the purposes of the current study: challenge (involving a proper amount of difficulty with multiple goals, immediate feedback and some amount of randomness), competition (returning information on their relative performance in comparison to that of other players), curiosity (stimulating multiple senses for prolonged engagement), recognition (praising accomplishments), and control (providing choices and showing their consequences); as well as the additional elements of cooperation (allowing team-building and information exchange), pleasure and relaxation. Web tools and

content used included Kahoot, Quizlet, Nearpod, Powtoon, and YouTube, and the games developed were revised and edited by a certified online training expert, one of the research team members, prior to use. The games and activities focused on the following spread over eight weeks:

Week 1: Introduction to Collocations

(see https://create.kahoot.it/#quiz/3f3cdd90-dd25-45e6-9d88-e0335a9802dd for a sample introductory Kahoot game)

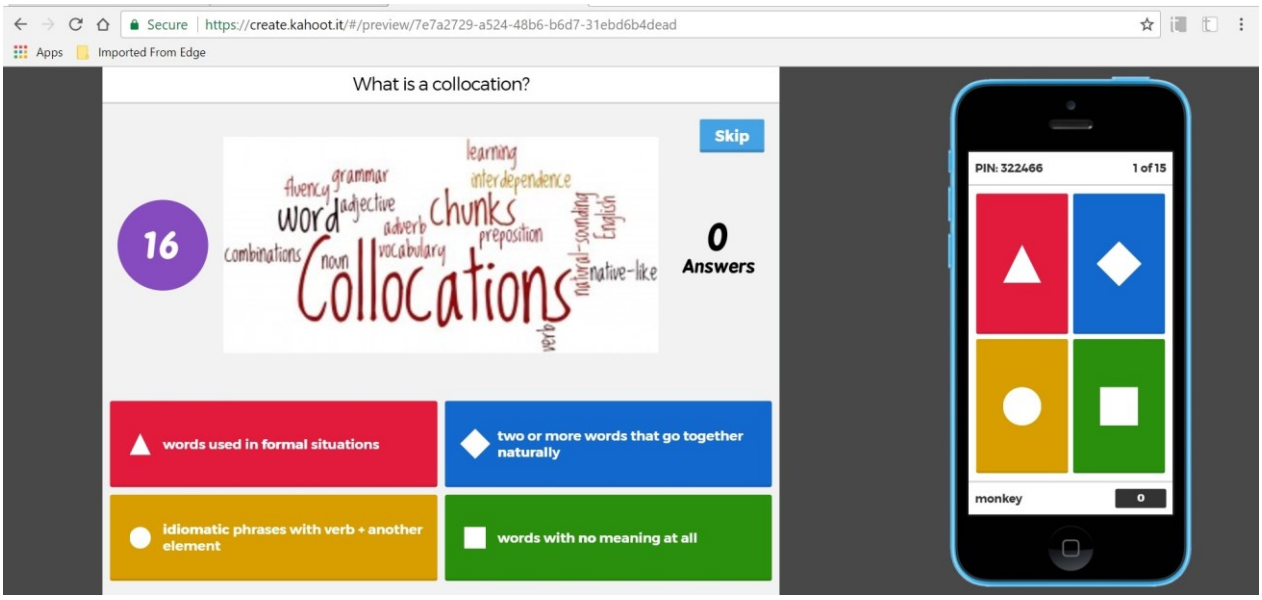

Figure 2. Sample Kahoot game screen introducing the topic of collocations

Weeks 2-4: Further Exercises on Collocations

(see https://create.kahoot.it/#jumble/7b945f20-b573-4d6a-8b67-1e963fb5e55e for a sample practice Kahoot game on Turkish movies)

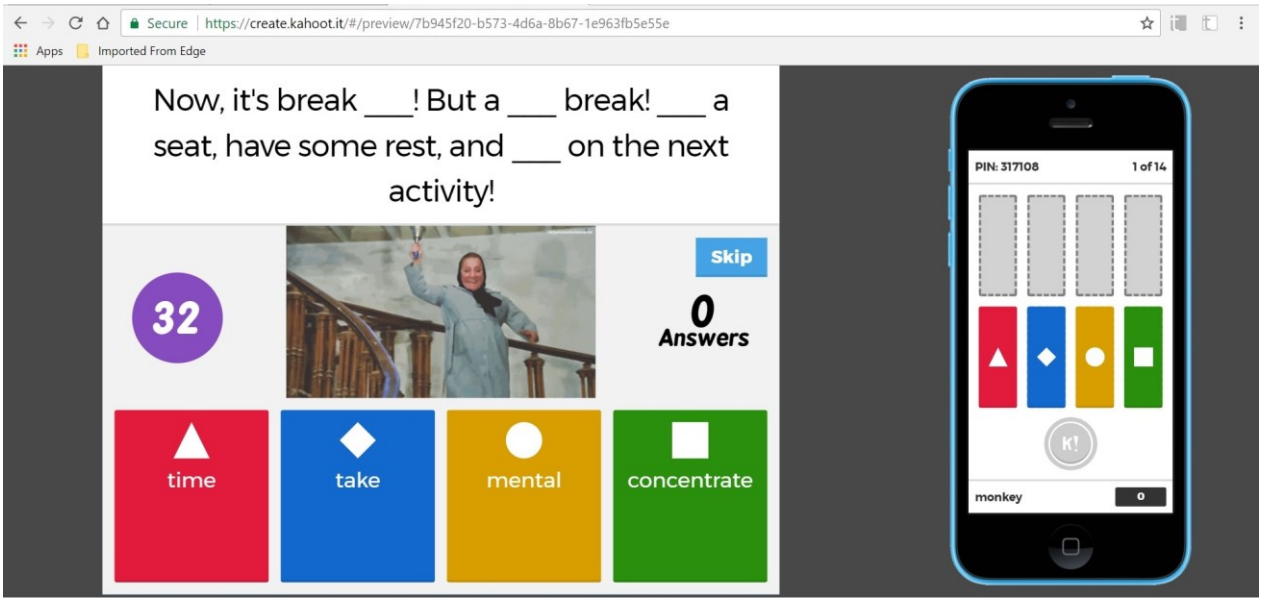

Figure 3. Sample kahoot game screen for collocation practice

Week 5: Introduction to Parts of Speech
(see https://share.nearpod.com/vsph/wnr5qZaAkB for a sample introductory Nearpod game)

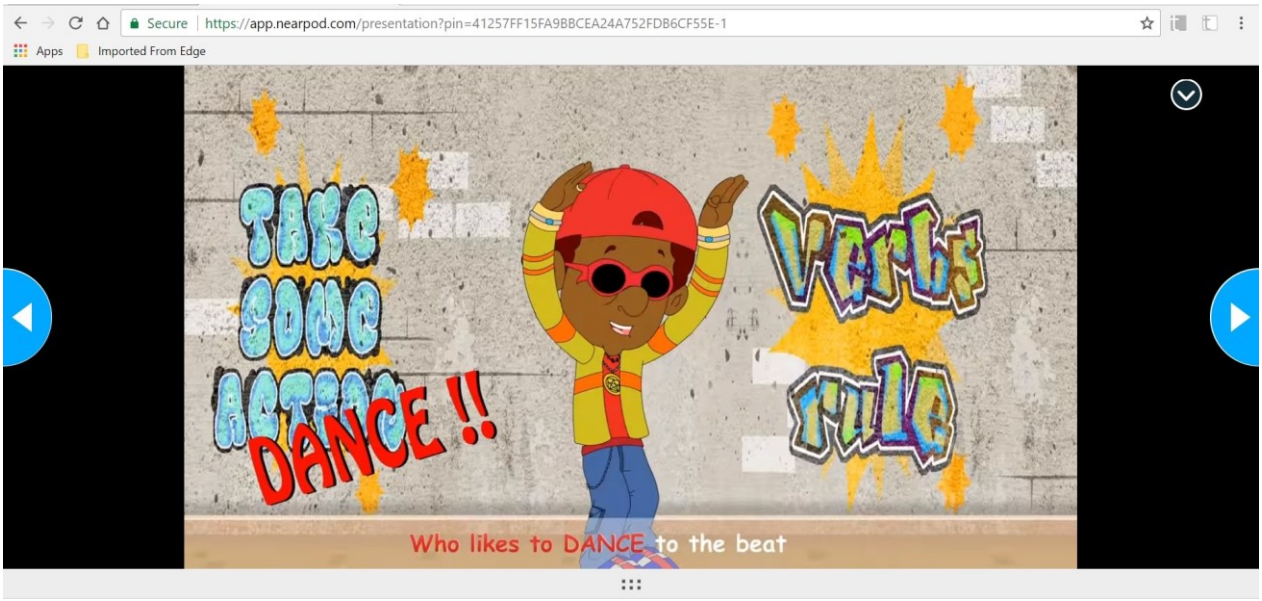

Figure 4. Sample Nearpod parts of speech game screen where a Powtoon video from YouTube is embedded

Week 6: Further Exercises on Parts of Speech
Week 7: Revision of Parts of Speech
(see https://create.kahoot.it/#jumble/04e616fd-aafb-4d2d-9e84-35bd61da1245 for a sample revision Kahoot game)

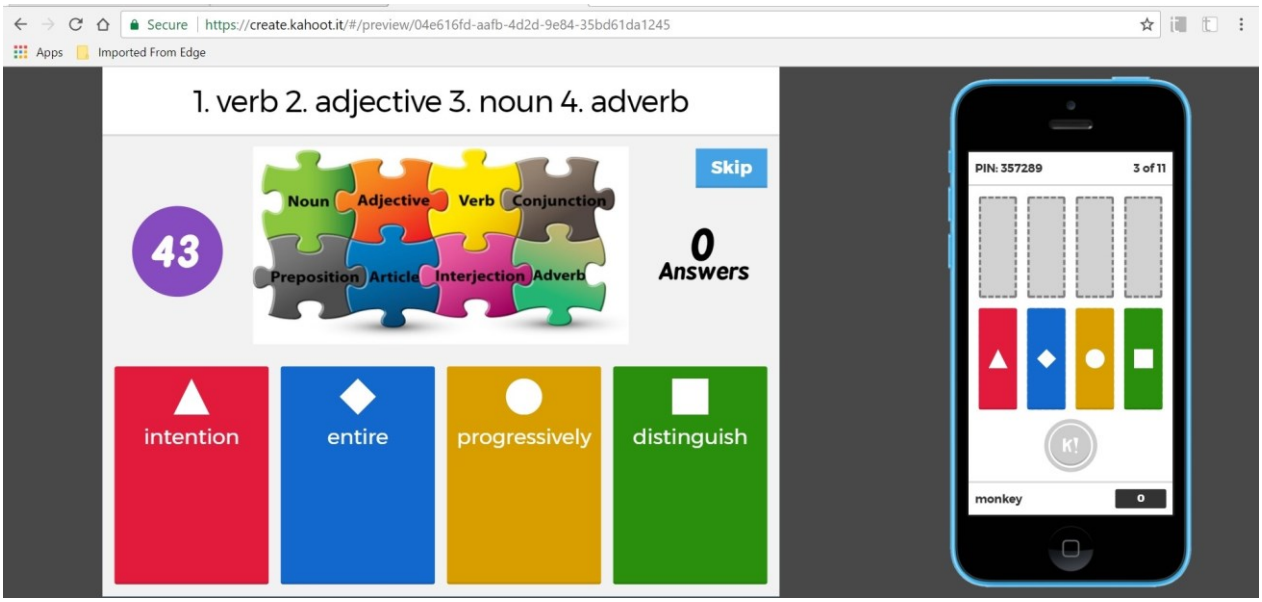

Figure 5. Sample Kahoot game for revising parts of speech

Week 8: Introduction to Common Prefixes
(see https://quizlet.com/6347155/20-most-common-prefixes-flash-cards/ for a sample introductory Quizlet game on prefixes)

Subsequently, the students completed further tasks as part of the classroom work, which aimed to help them build meaningful connections with their synchronous and/or asynchronous experiences.

Data Collection Procedure and Analysis

Prior to the study, all the ethical procedures of the study were completed and the study was approved by the Ethics Committee of Ankara Yıldırım Beyazıt University The participants contributed to the study with their informed-consent. Data regarding students' views on their digital game-based vocabulary learning experiences were collected through a self-report questionnaire. The questionnaire was developed by the researchers following the framework of intrinsic motivation by Malone and Lepper (1987) and the additional elements considered while designing the games used in this study. Prior to use, the items were revised and edited by an expert in the field of computer education and instructional technology and an expert in the field of educational psychology, and piloted with a group of 15 students who did not participate in the original study but were familiar with educational games. The motivational elements considered while developing the items were challenge, competition, curiosity, recognition, and control as well as the additional elements of cooperation, interest, pleasure, fun and relaxation. It contained 11 items like, "I like the feeling of curiosity created in games." There were also general evaluative items such as "I believe games are a waste of time," or "I find vocabulary learning through games beneficial and meaningful" (see Table 2 below for the questionnaire items). Each item/statement required a Yes or No reply and an open-ended explanation section from the participant. The questionnaire was administered at the end of the eight-week implementation period and the students were asked to complete it in 15 minutes during their classes.

To answer the research question on students' reflections on their vocabulary learning experiences through synchronous and asynchronous games and activities, the quantitative data gathered through the Yes/No replies to the self-report questionnaire statements were subjected to frequency analysis while the qualitative data gathered through the open-ended explanation section were compiled and subjected to content analysis. The content analysis on the qualitative data (Creswell, 2012) was carried out as follows: (1) organize the data, (2) explore and code the data, (3) construct descriptions and themes, (4) identify the qualitative findings, (5) interpret the findings, and (6) validate the accuracy of the findings. During the data analysis, the answers were read individually and grouped based on the points students considered. At the same time, the researchers analyzed and generated questions in order to determine common themes. All four researchers compared and discussed the content analysis to categorize the data based on the similarities and differences in views and finalize the themes. The explanations were aligned with these findings. The findings were presented without comment to demonstrate the actual data, and then the results were interpreted.

Since the analysis consisted (1) frequency analysis which involved counting the number of yes and no items, (2) content analysis of explanations which involved the compilation and categorization of recurring themes; inter-rater reliability was ensured by blind review of the data by each researcher independently, and the constructed themes were finalized via a group discussion at the end.

RESULTS

The frequency analysis of the students' Yes/No replies in response to the self-report questionnaire items/statements reflecting their views and feelings on their game-based synchronous and asynchronous vocabulary learning experiences and the results of the content analysis of their respective explanations are reported in Table 2 below. Of the 45 students who participated in the study, most had positive ideas and feelings about the

games though some also reported their limitations, which need to be taken into consideration for later applications.

Table 2. Frequencies of students' Yes/No replies and sample reasons derived through content analysis

Items	'Yes' Frequency	Sample Reasons (Yes BECAUSE)	'No' Frequency	Sample Reasons (No BECAUSE)
I like learning vocabulary through games.	43	Fun, competitive, motivating, beneficial practice for exams; easier recall	2	Dislike; forget easily
I find vocabulary learning through games beneficial and meaningful.	43	Free associations, effort, active visual memory; making you stay focused	2	No permanent learning
I like it when games contain songs (e.g. Fluency MC rap songs).	34	Rhythm helps concentration and recall; like tongue-twisters	11	Find it unnecessary or childish; cannot follow the lyrics;
I like it when games contain interesting, cultural themes (e.g. Turkish movies).	40	Adds color; nostalgic feelings and cultural elements help to relate to	5	Not remember the story or script
I like playing games in class.	43	Interaction; a sense of community; exchange of ideas for success	2	No place for games in class
I like playing games on my own outside the school.	36	Still a fun activity in free time or when bored	9	Boring; no competition
I like the competition in games.	40	Ambition and competition; think fast	5	Dislike losing or dislike competition
I like the feeling of curiosity created in games.	41	Unpredictability and excitement; questions	4	No curiosity
I like the team spirit created in games.	40	Close interaction; get help or even blame others in cases of failure; no embarrassment	5	Dislike team work; not everybody in a team is successful
I believe games teach me new skills.	36	Learn and use new vocabulary; think in new ways; build confidence; practice speaking	9	You cannot learn new skills or remember the new words
I believe games are a waste of time.	4	Dislike games in general; wanting to play them less frequently	41	Better than other course content; no obligation

In more specific terms, based on the frequency analysis, it was revealed that out of 45 students, 40 or more students liked learning vocabulary through games, playing them in class synchronously in particular; found it beneficial and meaningful; liked interesting, cultural themes; liked the competition, curiosity and team spirit created in games; and believed that games were not a waste of time. Similarly, 34 to 36 students liked games when they contained songs, liked to play them on their own asynchronously outside the school, and believed that games taught them new skills.

The content analysis of the students' explanations for their Yes/No replies in response to the self-report questionnaire items reflecting their views and feelings on their game-based synchronous and asynchronous vocabulary learning experiences revealed themes similar to the motivational elements addressed while developing the questionnaire items. The motivational elements considered were based on the framework of intrinsic motivation by Malone and Lepper (1987) and included challenge, competition, curiosity, recognition, and control as well as the additional elements of cooperation, interest, pleasure, fun and relaxation.

In response to the first questionnaire item, "I like learning vocabulary through games," 43 students said yes owing to the elements of fun, competition, motivation, interest, advantages for exam preparation and writing practice as well as easier and better (visual) learning and recall, while only two students replied no due to reasons such as not liking games or still forgetting easily. Similarly, in response to item 2, "I find vocabulary learning through games beneficial and meaningful," 43 students replied yes based on the view that games including interesting-fun elements and requiring competition and effort help with free call and associations, and active visual memory formation, all of which contribute to better and easier recall, further speaking practice, and staying alert and focused, while only two students who replied no said games do not result in permanent learning.

With respect to the third, fourth, seventh, eighth, and ninth items in the questionnaire which investigated students' reactions to specific game elements such as, containing songs/music, interesting-cultural themes (e.g. Turkish movies), competition, curiosity, and team spirit, respectively, 40-41 students replied positively, with the exception of item 3 with 34 students. They stated the rhythm and the songs like tongue-twisters made learning fun, and concentration, memorization and recall easier as well as helping to stay focused. They found familiar themes which grab their attention and add color with nostalgic elements motivating and interesting. In this way, by activating a common background and special moments that have links to the subconscious, they thought games made it easier for them to personalize and relate to, and helped with learning and recall. They also believed that as everyone wanted to win, this desire to win resulted in competition and ambition in the games, which made them to think and learn fast to achieve success. Team work, they thought, was also an advantageous aspect of these games as there was active and close interaction among team members and competition between the teams; and there was always someone to share ideas with, to get help from or even to blame in cases of failure. They never felt embarrassed as it was not a personal failure, if they failed; on the contrary, some felt special, even like a leader. Finally, they liked and learned a lot from the elements of unpredictability and excitement by questioning various things as to what would come next, what would be the topic, and who would win.

On the other hand, although only around one ninth of the participants responded negatively to these items (except for item 3 in which it was two fifth), their reasons were noteworthy for the future applications of this research. Some students said they did not like songs or movies, or they found such games unnecessary or childish, while some could not follow the lyrics or the storyline due to their limited vocabulary and/or background. Again, some students stated that they did not like team work or competition as they did not like losing or they could not tolerate unsuccessful members on a team. Finally, four students did not find anything curious in the games played.

In response to the fifth and sixth items in the questionnaire which investigated students' reactions to specific game elements as to playing them in class synchronously versus playing them asynchronously outside the school, they showed a preference toward playing it in class, 43 vs 36 students respectively. They liked the interaction and sense of community created in class as well as the competition and exchange of ideas. They thought funny moments led to better recall and recycling. Only two students thought there was no place for games in class; and nine students considered playing games asynchronously boring or as waste of time.

In response to the last two general evaluative items in the questionnaire, item 10, "I believe games teach me new skills," and item 11, "I believe games are a waste of time," the majority of the students stated that they learned new vocabulary and used them appropriately with the help of games. They added that learning was fun and they were made to think fast in new ways, by which they could build confidence and practice speaking further. They also thought games were better than other course content because of the lack of obligations and rules. The minority, who showed negative reactions, believed they did not learn new words or did not like games in general because they did not remember anything; therefore, they wanted to play them less frequently.

As the summary table above (Table 2) and the detailed content analysis results indicate, the students reported positive views about digital game-based vocabulary learning. With respect to the overall theme of this study as to the distinction between synchronous and asynchronous learning, it was revealed through the frequency analysis of item 5 referring to synchronous learning (43 students voted yes) and item 6 referring to asynchronous learning (36 students voted yes) that playing the games in-class allowed better interaction, competition and exchange of ideas which resulted in the creation of a sense of community as well as more effective memory formation and recall, and that playing games asynchronously outside the class on their own was still considered a fun activity in their free time when they were bored.

DISCUSSION AND CONCLUSION

In this study on a group of intermediate-level English language learners at the School of Foreign Languages of an English-medium state university, we aimed to improve students' vocabulary learning performance by using synchronous and asynchronous games and activities that will activate and maintain intrinsic motivation in an effort to train them on collocations and parts of speech. Synchronous in class or online games were employed to achieve deeper conceptual coverage and peer interaction while asynchronous activities were mainly devoted to personalized, independent study; recycling and revision to ensure student ownership/agency and mastery-based learning. Upon the completion of this vocabulary training program spread over eight weeks, we collected data on the participating students' views and feelings about the incorporation of digital game-based vocabulary development activities as part of their English language learning program. Accordingly, we investigated their reflections on their vocabulary learning experiences through synchronous and asynchronous games and activities using an 11-item self-report questionnaire that required a Yes/No response from the students accompanied by an open-ended section in which they were asked to provide a reason for their choice. However, due to the limited duration of this intervention and considering the amount of rehearsal and frequency of encounters required for any piece of information to be transferred from short-term to long-term memory (Bayındır, 2003; Gorjian, et al., 2011) especially with low achievers as in our case, only around 10% of an increase was observed in students' average vocabulary performance on the vocabulary tests administered two times over the eight week period, and thus, such data was not considered in this study.

The results of the self-report questionnaire showed that they had positive views about the games in most respects though they also stated some of their limitations that need to

be considered as ideas for improvement. With respect to game formats and features, they seemed to enjoy and benefit significantly from the elements such as music/songs (audio, video, or animation), cultural themes, interaction and competition, curiosity, cooperation, recognition and control, all of which were shown to be effective in gathering learner attention and helping them stay focused in the previous research as well (Malone & Lepper, 1987; Gorjian, et al., 2011). Further, they regarded games as a beneficial and useful platform to efficiently practice skills such as speaking, writing, word learning, and strategies including exam-preparation, visual memory formation, word memorization, background activation, and provocative thinking (in new ways) since learning is most fruitful when it is active, situated, problem-based, experiential, requiring higher-order thinking and providing immediate feedback (Boyle, Connolly, & Hainey, 2011). Students, in our context, got the opportunity to practice all such higher-order skills in a relaxed atmosphere with their peers under the supervision of their instructor with the immediate feedback available on digital game platforms.

Finally, as to the game delivery options which varied between synchronously in class and asynchronously outside the class, students preferred learning vocabulary in class with their classmates due to reasons such as the interaction and sense of community created in class as well as the competition and exchange of ideas. They thought funny moments led to better recall and recycling. This finding is again aligned with the results of previous studies as to the significance of synchronous games in deeper conceptual coverage and peer interaction (Beyth-Marom, R., Saporta, K. & Caspi, 2005; Hrastinski, 2008), though student preferences and choice reflecting their study inclinations still play an important role guiding the entire process.

Some students, however, disliked playing digital games for vocabulary learning and practice for several reasons. One reason was that they easily forgot the new words practiced or there was no permanent learning. These students were advised to replay the games occasionally with/without minor changes on the content, and the same was suggested as further recycling or revision options during in-class sessions by the instructors. Another reason why some students did not want to play these games was they found them unnecessary or childish or did not find anything curious in them or did not like the content. In such cases, the students were advised to prepare their own digital vocabulary games under the guidance of their instructors and the instructors were advised to revise their game content based on more frequent student feedback. In some cases, when games include explicit, rather than implicit, teaching, students become more motivated believing that they will contribute more to their exam-preparation. This might be useful in cases especially when students might believe games make subjects to be learned trivial or do not take them seriously (Apostol et.al, 2013: cited in Faiella & Ricciardi, 2015)

Still another reason why some students were not interested in playing digital word games was that they thought there was no place for games in class and playing games asynchronously was boring or waste of time. In such cases, the instructors were advised to illustrate the real-life uses of games and offer bonus points (in their portfolio or classwork) for extra practice. Although most are not aware, in various contexts, not only with family and friends but also in the workplace, people play games of many sorts. Parents design digital games to be played among the family and relatives on special occasions like birthdays or anniversaries, or even before that many family gatherings used to be occasions for playing a variety of games from the very traditional board or card games to the more recent strategy games or quiz shows. Or alternatively, in workplaces, people are trained on team-building or problem-solving through games, either digital or conventional. Thus, it is worthwhile to draw student attention to these aspects of real-life games and how classroom needs to reflect the real-life. When it comes to playing games asynchronously on their own, some students, extrinsically motivated ones in particular, could be encouraged when they were offered some bonus points that would count toward their overall course work and scoring although this strategy would not be very appealing for the students who are rather intrinsically motivated (Faiella & Ricciardi, 2015).

One last reason was that some did not like games in general and wanted to play them less frequently or they did not like failure. In that case, the instructors were advised to limit their game use in class and spare some of them for asynchronous use. They were also advised to introduce variety not only in terms of content or format but also with respect to the game platforms they employ. Introducing variety or novelty is important in avoiding habituation, a decrease in response to some input due to its repeated presentation. Even if they enjoy and benefit from it, students might become accustomed to and pay less attention to games; as the interest fades so does the engagement (Koivisto & Hamari, 2014). Besides, with respect to the failure concern, the students were encouraged to reframe failure as an essential aspect of learning; that is, mistakes would provide them with new opportunities to try different options and gradually gain recognition for their accomplishments (Faiella & Ricciardi, 2015).

As proposed in the related gamification literature, in this study, we addressed a gap in research, and isolated and examined intrinsic motivation-related game features and their effectiveness from the perspective of the participating students in a small-scale, localized intervention in a School of Foreign Languages. We developed and used course-specific synchronous and asynchronous digital games and activities for both introductory theoretical content and practical examples and exercises, and student learning was reported to have improved due to various game aspects such as challenge, competition, curiosity, recognition, control, cooperation, pleasure, fun and relaxation.

As it has been shown in the current study, if wise, intentional, and suitable decisions are made as to game features, a learning environment that achieves active engagement and motivation can be attained and students can be provided with positive cognitive, emotional, and social outcomes as highlighted by Faiella and Ricciardi (2015). Thus, game designers need to achieve "a gamified environment with clear goals, challenging tasks, and authentic stories in which team spirit is fostered through game mechanics, discussions, and debates" with a consideration of student needs as to enjoyment and novelty (Faiella & Ricciardi, 2015). Gamification of learning serves such purposes only when games are intrinsically motivating as students go through a variety of decision making steps; fun as students can see the effect of their efforts; authentic as students are made to experiment with real-life skills without a fear of failure; allow self-reliance since students get immediate feedback to improve their responses; experiential since students exchange ideas and build connections (Perrotra et al., 2013: cited in Faiella & Ricciardi, 2015). Building on the current study, future research can investigate the effects of gamification on student performance and scores or the conditions which allow better student performance as well as ways to improve game content.

Finally, this study was conducted at a single institution in one country but its findings are relevant to a wider audience receiving a variety of language courses and training to become proficient language users. In addition, the results of the current study could guide all the parties involved in the decision-making processes of any teaching-learning setting including students, instructors, curriculum developers and course designers as well as the professionals and administrators in such institutions.

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