The effects of implementing gamified instruction on vocabulary gain and motivation among language learners

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ABSTRACT

This study aimed to examine and compare the impact of gamified and non-gamified instruction on the vocabulary development and motivation of students enrolled in an English language preparatory program at a Turkish university. The perceptions of the participants about learning vocabulary through gamification were further explored in the study. A sample of 32 (16 control group, 16 experimental group) intermediate (B1 level) students participated in the study. Data were collected quantitatively using pre- and post-vocabulary tests and pre- and post-motivation questionnaires as well as qualitatively through semi-structured interviews. The findings revealed that the implementation of gamified instruction positively influenced student motivation. However, no significant difference was found between the two groups in their vocabulary development apart from a slight increase in the experimental group. Finally, the students perceived gamified instruction as an efficient way to learn and practice vocabulary. The gathered findings provide pedagogical implications and suggestions for implementing gamified instruction in language classrooms.

1. Introduction

The process of language development in learning English highlights the importance of vocabulary teaching in language classrooms (Guilherme, 2007). While contextualized or traditional methods are mainly used in vocabulary teaching, motivation is generally underestimated. Scholars have determined many influential factors including the importance of the word in context (Brown, 1993), the variety of contextual hints, the learner’s curiosity, and the vocabulary they already have (Lafer and Hadar, 1997; Nation and Kyongho, 1995).

Considering language education in Turkey, despite eight uninterrupted years of English compulsory education, the students’ proficiency level is quite low (Coskun, 2016). The primary parameters which are effective for the formation of this problem are the inaccurate approaches in the curriculum and the teacher training programs (Çelik and Kasap, 2019). Another influential factor is the motivational problem during the English learning process (Apriliyanti et al., 2018; Ertug ve Canan, 2014). To address this issue, various instructional designs have been introduced to boost motivation in language classrooms; however, these have changed due to the changing expectations of the 21\textsuperscript{st}-century generation. Specifically, these changes have influenced various motivational strategies and approaches which have given a rise to the emergence of gamification for learners who use technology effectively in all areas of life (Prensky, 2001). Gamification is primarily described as the usage of game elements in a non-game context (Deterding, 2012) and can be described from the behavioral perspective (Morford et al., 2014). The main goal of gamification is to change the usage habits or behaviors of the individual (Asigigan and Samur, 2021). Implementing gamification as an instructional tool in classrooms is effective not only to make students part of activities but also to motivate them at the same time (Muntean, 2011). Since gamification is the use of game elements, it is relevant to the usage of game dynamics, mechanics, and components in educational contexts to increase the effectiveness of learning and support the target behaviors of learners (Deterding et al., 2011; Glover, 2013; Kapp, 2012). Therefore, games are commonly used in the classroom (Kapp, 2012).

Although gamification has been gaining importance in education, various studies examined the impact of different game elements on learners addressing outcomes such as engagement, motivation, enjoyment, performance, and achievement (Brewer et al., 2013; Boyinbode, 2018; Goehle, 2013; Kumar and Khurana, 2012; Raymer, 2011; Sanchez et al., 2020; Villagrasa and Duran, 2013). Recent research on...
gamification highlights the benefits of improving the students’ overall language proficiency (Calafato, 2021; Chiu et al., 2012; Thompson and von Gillion, 2020; Yang et al., 2020; York and deHaan, 2018). Because games present the words to be learned by trial and error in a context (Gris and Bengton, 2021; Squire et al., 2005), gamification stands out in vocabulary teaching due to its motivational contributions (Abrams and Walsh, 2014; Lui, 2014; Hasegawa et al., 2015). Although game-based learning and gamification are two closely related fields, they are generally discussed as two separate concepts that meet in different fields. For example, if football and football leagues are examined, football is a game. Football leagues, on the other hand, are a system in which teams win/lose points according to match results and are ranked on a leaderboard. When viewed in this way, while the point and leaderboard are game elements, no game mechanic is belonging to the football league. Therefore, the football league is a design in which football is gamified. In other words, football is a game while football league is a gamified game.

As billions of people around the world support the motivating nature of playing games both in and outside the classroom, it can be inferred that gamified activities are influential to overcome the limitations that gamification might bring to the learning environment (Birsen, 2017). In line with this argument, this study aimed to examine and compare the impact of gamified vs. traditional instruction on vocabulary development and motivation among Turkish learners studying at an English Language Preparatory School at a private university in Istanbul. The study also explored the perceptions of the participants about learning and practicing vocabulary after being exposed to gamified instruction. The following research questions were addressed in this study:

1. Does gamified instruction have any impact on the vocabulary development of English learners compared to non-gamified (traditional) instruction?
2. Does gamified instruction have any impact on the motivation of the participants?
3. What are the students’ perceptions about gamified vocabulary learning?

2. Literature review

2.1. Gamification

One of the major ideas of gamification is taking the advantage of game elements in a non-game context (Deterding et al., 2011; Kapp, 2012; Werbach and Hunter, 2012; Zicherman and Cunningham, 2011). One of the most common definitions of gamification was shared by Zicherman and Cunningham (2011) as the use of game thinking in non-game contexts to attract the interest of users in solving problems. Werbach and Hunter (2012) describe gamification as the implementation of game elements in non-gamified contexts. Considering education, gamification is a process of using some elements of the game to improve the individual’s problem-solving skills, achievement, engagement, and motivation (Kapp, 2012). According to Squire (2003), gamification should not be misused with the idea of using computer games in education. Games are interactive problem-solving activities that progress within the framework of certain rules and struggle to reach a common goal (McGonigal, 2011; Salen and Zimmerman, 2004; Wouters et al., 2013). For this reason, games provide a natural learning environment. The games are also used in the classroom environment to reinforce knowledge, practice, and support skill development. In this context, educators can redesign an existing game to the learning goal or prepare a game suitable for their teaching content (van Eck, 2006).

2.2. Game elements

It is possible to define a game in its simplest form as the combination of game elements and game mechanics. Game mechanics are fun actions that the player can do in the game for achieving a goal. Therefore, it can be said that game mechanics are only part of game design. However, game elements are the other parts that make up the game such as goals, feedback, avatar, point, and rules (Samur, 2016, 2018). Game elements are also used both in-game and in gamification. Notwithstanding, there is no agreed list or framework in the literature yet regarding which factors are game elements. Primarily, there are three elements addressed by gamification research: points, leaderboards, and achievements/badges (Hamari et al., 2014). First, points are used to give informal feedback and quantify the progress. The leaderboard is a list to show the places of players to provide immediate feedback (Werbach and Hunter, 2012). Lastly, badges are the symbols of expected outcomes for individuals (Abramovich et al., 2013). They are used for various purposes such as creating goals, and explanations, describing players with the same experiences, and giving them the status to declare their rights (Antin & Churchill, 2011). According to Lee and Hammer (2011) gamification influences three different areas such as cognitive, emotional, and social areas. From the cognitive perspective, gamification allows students to find their way out using immediate and clear effects. As for the emotional aspect, gamification is expected to cause negative and positive impacts, and feedback speed and intensity are effective ways to create a more positive environment. Finally, the social aspect is relevant to identifying different roles in gamification contexts and finding an identity on in the environment where learners feel safe. However, this situation may cause players to focus on the quantity rather than the quality of their performance to rank in a better place on the leaderboard. Thus, game elements serve different functions and can be used in different contexts.

2.3. Gamification in language teaching

Recent research investigated the impact of gamification on student achievement and motivation in language classrooms (Bal, 2019; Ling, 2018; Rachels and Rockinson-Szapkiw, 2018; Wichadee and Pattanapichet, 2018). In some of these studies, web 2.0 tools (Castillo-Cuesta, 2020; Osirov et al., 2015; Perry, 2015), or game elements integrated into the instructional design (Bal 2019; Ling, 2018) were used for gamification. However, feedback (Castillo-Cuesta, 2020; Perry, 2015), leader board and point (Rachels and Rockinson-Szapkiw, 2018), competition (Wichadee and Pattanapichet, 2018) and interaction (Castillo-Cuesta, 2020) stand out among the game elements used in the research studies examined within the scope of the study. When gamification and traditional education methods were compared, gamification had a positive effect on academic achievement (Rachels and Rockinson-Szapkiw, 2018), the development of language skills (Ling, 2018; Osirov et al., 2015), motivation (Perry, 2015), and interest (Castillo-Cuesta, 2020).

2.4. Using gamification to promote vocabulary development and motivation

Previous research explored gamification and vocabulary development among language learners (Abrams and Walsh, 2014; Hasegawa et al., 2015; Korkealehto and Siklander, 2018; Medina and Hurtado, 2017). Web pages and web 2.0 tools such as Seppo, Kahoot, Padlet, and Quizlet were effective to enhance student motivation and vocabulary learning by providing them with immediate feedback. Gamification comprises several benefits as well. First, students can feel in control of their learning. Student motivation can be kept high by offering them goals to reach. Finally, gamification gives a sense of growth to students where they can check their improvement using numbers.

To attain the goal of gamification, the right game elements should be used to increase the application and motivate the users (Werbach and Hunter, 2012). Niman (2014) stated that gamification is related to the intrinsic motivation of students because it lets them feel fulfillment and enjoyment while learning. Playing game also supports student autonomy. The reward system is used in the game world including both experiments and failure (Decker and Lawley, 2013; Fleischman and Ariel, 2016) emphasize the importance of gamification in higher education stating
that gamification motivates within high engagement periods and failure. In brief, gamification stands out as an effective method when used for this purpose (Ozkan and Samur, 2017; Bogost, 2014).

On the contrary, it should be noted that the school system is based on elements similar to game elements like badges and grades. However, although the school system includes game elements, it does not provide the same motivation for all students (Lee and Hammer, 2012). Motivation is the interaction between individuals and their actions over time and situations (Werbach and Hunter, 2012). In addition, the motivational sources and their motivational states against situations are different for each individual (Ryan and Deci, 2000). According to the Self-Determination Theory (SDT), two major types of motivation are emphasized: intrinsic and extrinsic. Intrinsic motivation is the ability of individuals to act voluntarily in line with their interest and curiosity to satisfy themselves while extrinsic motivation is the ability of individuals to act by connecting directly with the outcome of the process, such as concrete or verbal rewards, to participate in an activity (Gagné and Deci, 2005). From this point of view, steps can be taken to make individuals’ sources of motivation a part of the process. Supporting feelings of autonomy and commitment will positively affect intrinsic motivation (Deci et al., 2001). Due dates, awards, and verbal congratulations are elements that support extrinsic motivation (Deci et al., 2001; Ryan and Deci, 2000).

For intrinsic and extrinsic motivation in gamification, integrating game elements to motivate learners using extrinsic rewards such as game element levels, points, and badges as well as intrinsic motivation concepts such as achievement, sense of belonging, and autonomy is crucial (Muntean, 2011). Kotob and Ibrahim (2019) emphasized that students' internal and external motivation sources should be considered in gamification design in language education. Kapp (2012) added that gamified activities should be designed step by step referring to the challenges under the right conditions. Similarly, Glover (2013) argued that certain points should be considered when gamification is applied in education. Each individual is motivated by monitoring his development (Ryan and Deci, 2000; Werbach and Hunter, 2012). Therefore, the game elements such as leader board and badges should be used to give feedback to individuals (Caglar and Arkun Kocadere, 2015; Glover, 2013; Nicholson, 2013; Werbach and Hunter, 2012).

3. Methodology

3.1. Research design

One of the main quantitative research designs is a quasi-experimental design which aims to examine the effect of an intervention (the implementation of gamification in this study) on performance (O'Dwyer and Bernauer, 2013). Creswell (2013) explains that in this design the treatment is applied only in the experimental group(s), and the control group undergoes traditional instruction. After the treatment, the researcher compares the performances of the groups to learn about the effect of the treatment.

This study, therefore, employed a convergent mixed methods design where both quantitative and qualitative data were collected and analyzed, then compared to find out if the data confirms or disconfirms each other. In other words, statistical and content analyses were done to triangulate the data. The control group design was adopted to enable comparing differences in motivation and vocabulary gain, and the qualitative phase was added to find out the students’ thoughts about gamified vocabulary instruction (See Figure 1).

Additionally, the present study aimed to gain insight into the effects of a particular instructional approach (gamification) on motivation and vocabulary gain in English language classrooms. To answer the qualitative research question, the researchers collected a substantial amount of data, looked for relevant patterns in the data, and tried to induce results that could explain those patterns. Therefore, an inductive approach was used in this research which moves from the specific to the general. The researchers followed an inductive approach starting with a set of observations and then, moving from those experiences to a more general set of propositions about them.

3.2. Setting and participants

The present study was conducted at an English Preparatory School offered at a private university (foundation, non-profit) in Istanbul, Turkey. The goal of this program is to provide students with language skills and strategies and prepare them for their respective departments. The participants were 32 B1 (intermediate level) students (16 control and 16 experimental groups). They were 13 males and 19 females with an age range between 18 and 20 years old. Apart from the students, a teacher who was also one of the researchers participated in this study. She was 29 years old, with 6 years of teaching experience, and had a BA and MA degree in English Language Teaching. She was teaching the two classes (gamified vs non-gamified) in this study.

3.3. Implementation

A vocabulary pre-test and a pre-motivation questionnaire were first administered to the two groups of participants. As for the qualitative aspect, interviews were carried out with the experimental group to find out their perceptions about students learning vocabulary. Then, gamification was introduced to the experimental group as an instructional tool starting with a sample game during the second week. On the contrary, the control group was exposed to traditional instruction. To exemplify, the students played the taboo game to learn and practice vocabulary. In this context, the words to be told on the word cards were determined as a first.

![Figure 1. Research design of the study.](image-url)
step. For this, the words that students are expected to learn every week are listed. As a second step, the synonyms and antonyms of these words were determined. For each word to be explained in the last step, banned words were selected among the synonyms and antonyms. At the end of this whole process, 210 playing cards were prepared. A sample taboo card is illustrated as follows:

| REMAIN (V) |
|------------|
| Continue   |
| Endure     |
| Discontinue|

Considering the control group, they were exposed to traditional instruction. In other words, the students learned and practiced vocabulary by completing a worksheet. Finally, a post-structured interview was conducted at the end of the implementation to support the quantitative data and find out the effectiveness of vocabulary instruction. The following section summarizes the implementation process of the two groups.

### 3.4. Instruction in the experimental group

This group was exposed to gamified instruction for a total of seven weeks. In this context, the taboo game designed for 50-minute vocabulary teaching was played six times. Before the implementation, teams were determined to play the game and a team leader was chosen for each team. When starting the gameplay, all the rules were shared with the students as a first step. Considering the rules, the main task for the players to do is to explain the word on the card to their teammate in 1 min without using the forbidden words. 1 point is added to the points section of the student, and the team who completes this task. Leaderboards and awards were used for teams to gamify the learning experience. The leaderboard was included only as a game element where teams were determined to play the game and a team leader was chosen for each team. The students had the opportunity to compete both individually and as a team. During the game, the teacher was responsible for introducing the rules, managing the in-game conflicts, and recording the scores. Specifically, the game was played following these steps:

**Step 1.** Each team was entitled to play the game in turn.

**Step 2.** A player from the team tried to explain the words on the cards to his/her teammates in 1 min.

**Step 3.** While the team and the students earned points for each word they knew if they answered incorrectly, the game's turn was passed to another team.

**Step 4.** The status of the teams on the leaderboard was evaluated every three weeks and the award winners were determined.

**Step 5.** At the end of the sixth week, the implementation was completed, and the post-test step started.

On the other hand, the control group, who was responsible to learn and practice the same words as the experimental group, was exposed to non-gamified (traditional) instruction which included handouts/worksheets including matching activities. The answers were checked by the teacher during the lesson orally. In a nutshell, both groups were exposed to the common exercise the students were exposed to in their classroom practices.

### 3.5. Data collection instruments

In this study, data were collected both quantitatively and qualitatively using pre- and post-vocabulary tests, pre- and post-motivation questionnaires, and semi-structured interviews. The pre- and post-tests included 20 vocabulary items that were related to the content covered in English classes. The test was prepared by the Curriculum and Materials Development Department of the University which was an official unit responsible for preparing materials and tests in the preparatory program. The test was made of sentence completion tasks as it was the most common exercise the students were exposed to in their classroom practices. The reason behind this was to make sure that the students were familiar with the vocabulary strategy and that they would focus only on the use of the target vocabulary. As for student motivation, the questionnaire developed by Lin and Cortina (2014) was adapted. The original questionnaire comprised 16 items categorized as interest-value (5 items), utility value (6 items), and expectancy for success (5 items). The test and the questionnaire were administered to the two groups before and after the instructions: gamified vs. non-gamified (traditional).

Considering the qualitative part of the study, semi-structured interviews were conducted with 6 volunteer students from the experimental group. The interview questions attempted to find out the perceptions of students about the role of vocabulary in learning English, identify how students considered the role of vocabulary in language education as well as explore whether gamified instruction was motivating or not during the vocabulary learning and practicing process. It should be noted that this research was approved for ethics by the Ethics Committee of the University and that informed consent forms were obtained from all the participants.

### 3.6. Data analysis

In this study, both quantitative and qualitative data were gathered and analyzed respectively. To decide on the quantitative tests, the normality of score distribution was examined using the Kolmogorov-Smirnov test. The results indicated that the data showed a non-normal distribution ($z = 0.87; p = 0.04$), so nonparametric tests were to be used. The data were collected using a pre- and post-test and a pre- and post-questionnaire analyzed through SPSS (Statistical Package for the Social Sciences) version 28. Descriptive statistics and the Mann-Whitney U test were reported to investigate if there was a significant difference between these two groups’ motivation level and vocabulary development before and after the implementation of gamified game-based and traditional vocabulary teaching.

To complement the quantitative data, semi-structured interviews were used before and after the implementation of gamification. The gathered data were analyzed using content analysis (Miles and Huberman, 1994). First, labels were constructed by the research questions via open coding. Then, categories were organized under labels as themes related to the aspects of vocabulary learning and gamified vocabulary. To achieve inter-rater reliability, coding and categorization of the themes were carried out by two experts in the field of English Language Teaching (ELT) and the interrater reliability was found to be .90, which signified a close agreement on the main themes (Creswell, 2012).

### 3.7. Trustworthiness

Trustworthiness plays an important role regardless of the type of research as qualitative and quantitative research. Guba and Lincoln (1994) identified four effective criteria to be addressed in research: credibility, transferability, dependability, and confirmability related to internal validity, external validity, reliability, and objectivity, respectively. First,
credibility is one of the crucial factors to attain trustworthiness in research. To ensure credibility, triangulation, and analysis of recent research were conducted in this study. The qualitative data from the semi-structured interviews were analyzed to enrich the quantitative data collected from pre- and post-tests and vocabulary learning motivation. The findings of previous research were also examined to ensure the plausibility of the research. Transferability which is the degree to which the study is applicable in other contexts was another criterion addressed in the study (Merriam, 1998). To ensure transferability, a thick description of the setting and participants was provided in detail. Dependability is achieved when the study provides enough details for it to be replicated in a similar context via the same methods, an aim we hope to have achieved by providing a full account of the study steps, procedures, and analyses. Lastly, to establish confirmability, triangulation was used with two types of quantitative and qualitative data collection tools.

4. Findings

4.1. Quantitative findings

To examine the equivalence between the experimental and control groups, first, the Kolmogorov-Smirnov test was conducted to examine whether the data showed a normal distribution. The results reported that the pre-test scores of both groups were normally distributed (p > .05). As shown in Table 1, an independent t-test was run and the results reported no statistically significant difference between the pre-test scores of the experimental (M = 63.44, SD = 4.75) and control (M = 56.56, SD = 4.29) groups. Furthermore, based on the Kolmogorov-Smirnov test, the vocabulary scores of the groups after the implementation were normally distributed (p > .05). Therefore, a dependent sample t-test was conducted to compare the pre- and post-test vocabulary scores of the two groups. Although there was an increase in post-test in the experimental group, there was no significant difference between the groups (p > .05) (See Table 2).

Finally, to compare the vocabulary gain scores, the normality assumption was checked which reported showed normal distribution (p > .05). For this reason, independent samples t-test was run. As shown in Table 1, the mean increasing point of the experimental group was 15.00 and control (M = 17.24, SD = 4.31) groups. In other words, the use of gamification did not create a statistically significant difference in the gain scores (p > .05).

Additionally, the motivation scores of the two groups were compared before the implementation process. The data of the Kolmogorov-Smirnov test revealed that the pre-test scores of both samples were normally distributed (p > .05). According to the independent sample t-test results, there was no statistically significant difference between the pre-test scores of the experimental (M = 29.43, SD = 4.75) and control (M = 28.18, SD = 4.54) groups (p > .05) (See Table 4). Furthermore, based on the statistical analyses, it was found that the motivation scores of the groups after the application were normally distributed as well (p > .05). The results reported a statistical difference between the motivation scores before and after the application for both the experimental and control groups (p < .05) (See Table 5).

Finally, the implementation of gamification created a statistically significant difference in increasing scores (p < .05). The mean increasing point of the experimental group was 4.87 (SD = 2.01), and the mean increasing point of the control group was 1.85 (SD = 1.85) (See Table 6).

4.2. Qualitative findings

As previously stated, semi-structured interviews were carried out with the gamified group to explore their perceptions about learning and practicing vocabulary before and after the implementation. The participants were first asked about the importance of vocabulary in English learning. The following excerpts express their viewpoints:

[...]. If I don't know the necessary words, no matter how easy the activity is, it becomes impossible to do it. Therefore, vocabulary is very important while learning a language and it is important for our education as well. (S1, Interview data)

[...]. When there are too many unknown words in a text, it gets harder to understand them. That's why vocabulary is important for our overall education. (S3, Interview data)

Additionally, the respondents stated that vocabulary is the key to success. They focused on the connection between vocabulary and language skills during the English language learning process as shown below:

[...]. Vocabulary is the heart of learning English because without it, students cannot understand or use the language. (S2, Interview data)

[...]. Learning English becomes faster if you put vocabulary into first place. Everything you will learn in a language includes vocabulary. (S6, Interview data)

For the perceptions of students about gamified vocabulary and motivation, the responses were motivating. When the participants were asked why they felt more motivated, the reasons they provided were related to the competitive atmosphere, having fun, and being interesting. However, the fear of failure and the difficulty of certain words were expressed by the less motivated students. These comments were supported in the following excerpts:

[...]. I was more motivated because it felt like a competition and working in teams made me study vocabulary more. (S1, Interview data)

[...]. It was different from our usual lessons. It was very interesting, competitive, and also fun. (S2, Interview data)

[...]. I sometimes got excited because it was teamwork and it was going to affect my/our success, too. Some words were difficult, but we managed it and I felt more interested and motivated (S4, Interview data)

5. Discussion

The present study aimed to investigate and compare the effects of gamified vs non-gamified (traditional) instruction on vocabulary development and motivation among English preparatory students. The obtained
In brief, while various studies have introduced gamification as a key method (Glover, 2013; Lee and Hammer, 2011), others have shown that gamification does not make a statistical difference in learning or motivation compared to traditional methods (Akpolat and Slany, 2014; Bal, 2019; Castillo-Cuesta, 2020; Landers, 2014; Ling, 2018; Wichadee and Pattanapichet, 2018). Therefore, for gamification to make a difference in the motivation and success of the learners there is a need for a well-planned instructional design. Besides, gamification is a system in which the person who performs a task or gives the correct answer is rewarded (Kwon and Ozpolat, 2021). Therefore, it can be said that gamification brings with it a system that rewards only the student who knows. In other words, the student can learn by trial and error without being afraid of giving wrong answers (Gris and Bengton, 2021). For this reason, not only the knowledge but also the unknowing student is appreciated. Considering this situation, in this study, an instructional design was based on the strengths of gamification and game-based learning which were brought together in the English classroom. Therefore, it can be said that gamified instruction can be implemented to promote learning and increase motivation in language classrooms.

5.1. Limitations

In this study, there are some limitations to be addressed in further research. Firstly, the study was conducted only at one proficiency level. Adding different proficiency groups could yield broader and more comparative findings. Secondly, the sample size in this study was small. The results could vary if the study was conducted with a larger sample. The last limitation could be related to the limited size of the vocabulary. Extending the number of target words would lead to different results. Therefore, this study should be considered suggestive rather than definitive.

5.2. Pedagogical implications and conclusion

As discussed previously, the number of studies on gamified vocabulary teaching, including particular game elements is scarce. This study aimed to fill this gap by providing numeric and verbal data. Therefore, the findings provide pedagogical implications for using gamified vocabulary instruction in language classrooms. First, activities such as role-playing, storytelling, and simulation are influential to increase student motivation and should be implemented more often in EFL classrooms. Instead of using games only as a teaching tool, game elements can be implemented to make the activity more fun and appealing. For example, badges and game cards can be used to give feedback to students during courses. Thus, students can monitor their progress during the learning process. The interest and curiosity of the students in the course can also be kept alive by using such game elements actively in classroom practices. Lastly, the importance of vocabulary learning should be highlighted when games are included with their elements. The games should promote learning apart from only being fun. Overall, this study highlighted the implementation of gamified instruction to boost motivation and vocabulary learning in language classrooms. We hope this study contributes to the current literature on gamification and vocabulary teaching and learning, and ultimately helps teachers and students to boost their gaming repertoire.

Declarations

Author contribution statement

Karim Sadeghi, PhD; Ece Sağlık; Enisa Mede, PhD; Yavuz Samur, PhD; Zeynep Comert: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

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