Capítulo III

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Gamification and English vocabulary learning

Gamificación y el aprendizaje de vocabulario en inglés

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1. Introduction

Education in Ecuador has highly promoted the learning of the English language in the last decade, offering the necessary importance to support teachers and students in this subject. According to the National Curriculum of Ecuador (2019), one of the aspects that students should learn is vocabulary, which is incredibly important to master appropriately communicating in the English language either in a written or spoken way. In the same way, Brooks, Clenton, and Fraser (2021) explain that having sufficient vocabulary knowledge influences reading and listening comprehension skills. On the contrary, the lack of these will definitely lower the students' performance in English. Therefore, learning English vocabulary must be more than just memorizing words. It should encourage engagement and increase students' participation in class.

Contemplating the aforementioned details, the researcher considered implementing gamification as an innovative strategy for improving English vocabulary learning. According to the Ministry of Education in its National Curriculum (2019) for English as a Foreign Language (EFL), students from ninth grade should have an A2.1 level of proficiency according to the Common European Framework of References (CEFR). Despite this, the participants of this research initially reported problems in using the vocabulary aspects: form, meaning and use. Students had trouble recognizing the grammatical function of the words, relating the form of the words to their meaning, and identifying prefixes and suffixes to build new words. For this reason, this research paper has the main objective of improving English vocabulary learning by using gamification among ninth-grade students of superior basic education at a public institution in Loja, during the 2022–2023 school year.

Regarding the method of this research, quantitative and qualitative methods were employed, which adopted the pre-test, the post-test, and the questionnaire as instruments to collect the data. Similarly, this study followed the design of action research which implies four steps: diagnosing, action planning, acting, and evaluating and reflecting. All of these were useful to answer the following research question: How does the use of gamification improve English vocabulary learning? And to validate

the findings of this research, which corroborated the effectiveness of the application of gamification in improving English vocabulary learning. This study will be beneficial for other researchers; future investigations could explore using different samples to study the progress of students and their perceptions of the use of gamification tools.

Finally, this research study contains the following structure: the abstract where the most important details of the research are described, the introduction which highlights the background of this research, the methodology which specifies the research method and design along with the instruments and participants. Likewise, the results and discussion compare the pre-test and post-test scores as well as the level of gamification acceptance by students. The conclusions establish the main findings of the research.

2.   Literature review

This chapter has the purpose of building a relevant theoretical revision about the independent and dependent variables of this study. Mainly, some significant approaches were found in this process to understand and study gamification to develop English vocabulary. As well as, the gathering of new methodologies, strategies, and activities contribute significantly to reaching the general research objective. Firstly, the independent variable "gamification" is defined, the elements of gamification are named, and the most important and helpful gamification digital tools for teaching English Vocabulary are detailed.

What is gamification?

In accordance with Vega and Hernandez (2017), gamification is defined as the use of game design standards in the teaching-learning process in order to change an ordinary activity into a funny and charming game. Sánchez (2015) argued that this practice, famously known as gamification, is connected to important educational games and stems from the application of incorporating technology into educational activities.

Gamification elements

Gamification elements are recurring characteristics that are used to create games. Points, badges, leaderboards, progress bars/progression charts, performance graphs, quests, levels, avatars, social elements, and awards are all examples of these elements. All of these components have different goals and can be used in any educational setting.

Table 1 provides a detailed description of each component (Figueroa, 2015).

Table 1

Gamification elements

Elements	Definitions
Points	Numeric accumulation based on certain activities.
Badges	Visual representation of achievements for the students' use shown online.
Leaderboards	How the players are ranked based on success
Progress bars/Progression	Shows the status of a player
Performance graph	Shows player performance
Quests	Some of the tasks players have to fulfill in a game
Levels	A section or part of the game
Avatars	Visual representation of a player or alter ego
Social elements	Relationships with other users throughout the game
Rewards/reward system	System to motivate players that accomplish a quest

Retrieved from *Using gamification to enhance second language learning* (p. 89), by J. Figueroa, 2015, Digital Education Review. Copyright 2015 by Jorge Figueroa.

Gamification as a Motivational Resource

Fernández (2015) makes a distinction between two types of motivation that teachers should take into consideration: extrinsic motivation and intrinsic motivation. Extrinsic motivation occurs when a learner wants a reward as payment for their effort, while intrinsic motivation occurs when an individual simply enjoys performing a particular action without receiving any external reward.

In the same way, the research work of Dale (2014) detailed four types of motivational behavior:

- *Express.* People who appreciate self-expression are inspired by the prospect of expanding their talents to express themselves.

- *Compete.* Social gameplay and self-improvement are driven by competition, which means that a student competes with her or himself to improve his/her own progress.

- *Explore.* Information, access, and knowledge motivate those who enjoy exploring; isolated information will be meaningless to them.

- *Collaborate.* Collaboration and group action are intentional ways of socializing. Collaborative people appreciate winning with others and being a part of something bigger than themselves.

Step Process to Gamify Effectively a Topic in Education

In terms of Soman (2013) identifies five steps to gamify concepts in an educative setting:

1. In the first step, the designer has to understand the target audience and the context, considering the time of the learning program, the place where the program will be conducted and the student group size.

2. In the second one, learning objectives will be defined. It is necessary to plan general instructional goals, specific learning goals, and behavioral goals.

3. Step three looks at structuring the experience. This step is a useful tool for educators because it allows them to organize knowledge and define what students must learn and achieve at the conclusion of each stage.

4. Step number four is about identifying resources; among these resources are the tracing mechanism, currency, level, rules, and feedback.

5. Finally, in step five, the designer has to apply the gamification elements, which are classified in Table 1.

Gamification Digital Tools for Teaching English Vocabulary

Kahoot!. Designing a Kahoot! learning the game just takes a few minutes. Teachers can build a Kahoot form using a mix and combine questions with the help of the question bank tool, use a template, or adopt different Kahoots published by other users (Kahoot, 2022).

Educaplay. It is similar to an online tool or platform that gives educators the ability to develop free educational games that have a creative and professional end result. The management of the website is completely free, and there is no requirement to use any specific software (Surachmi and Sison, 2021).

Genially. The Genially Team (2022) presents a concise description of the Genially platform. This is the most flexible tool for the creation of a wide range of outstanding materials. Its mission is to enable anyone, regardless of their level of experience, to produce interactive and visually appealing content. The use of this technology in classrooms facilitates teaching and learning English through the use of interactive learning materials.

What is Vocabulary?

In the Cambridge Dictionary, vocabulary is described as "all the words that exist in a particular language or subject." Additionally, Susanto (2017) argues that "vocabulary is considered as the central in language teaching and is of paramount importance to a language learner. Vocabulary is the basics of learning a foreign language."

The Knowledge Involved in Knowing a Word

As stated by Rosauli and Jafari (2016), vocabulary knowledge encompasses the mastery of the following types of information:

- Meaning: to know the explicit and implicit meaning of a word

- Written form: to know the spelling or dictation of a word

- Spoken form: to know the pronunciation of a word

- Part of speech: to know if the word is a noun, verb, adjective, etc.

- Frequency: to know if the word is old-fashioned, common or rare

- Collocations: to know certain words that accompany another word

- Register: to know if the word is formal or informal; general or technical

- Associations: to know how a word relates to other words

As can be seen in Table 2, there are three distinct aspects or categories that make up one's knowledge of words: knowledge of form, knowledge of meaning, and knowledge of use. Each of these parts is further segmented into three subgroups on their own. Each subgroup is further segmented into productive knowledge (represented by a P) and receptive knowledge (represented by a R). The receptive

knowledge of a word relates to words that are recognized when they are heard or read, whereas productive knowledge refers to words that may be remembered and employed in speech or writing (Syarifuddin, 2016).

Table 2

The knowledge involved in knowing a word

Form	Spoken	R	What does the word sound like?
		P	How is the word pronounced?
	Written	R	What does the word look like?
		P	How is the word written or spelled?
	Word parts	R	What parts are recognizable in the word?
		P	What word parts are needed to express this meaning?
Meaning	Form and Meaning	R	What meaning does this word form signal?
		P	What word form can be used to express this meaning?
	Concepts and referents	R	What is included in the concept?
		P	What items can the concept refer to?
	Associations	R	What other words does this make us think of?
		P	What other words could we use instead of this one?
Use	Grammatical functions	R	In what patterns does the word occur?
		P	In what patterns must we use this word?
	Collocations	R	What words or types of words occur with this one?
		P	What words or types of words must we use with this one?
	Constraints on use (register, frequency ...)	R	Where, when, and how often would we expect to meet this word?
		P	Where, when, and how often can we use this word?

Retrieved from *Using gamification to enhance second language learning* (p. 89), by J. Figueroa, 2015, Digital Education Review. Copyright 2015 by Jorge Figueroa.

2.3. Previous Studies about Gamification and English Vocabulary Learning

The research work of Boyinbode (2018) involves the development of a mobile English vocabulary learning system that incorporates gamification approaches as a source of encouragement for students. In addition, informational technology was implemented, including gamification tactics, text-to-speech features, and effective difficulty level adjustments were used based on the difficulty curve concept. Likewise, Shabaneh and Farrah (2019) carried out mixed research work to explore the efficiency of using gamification in vocabulary learning inside classrooms. The findings of the research revealed the efficiency of utilizing games in the educational process because it helped students to retain unfamiliar vocabulary, associate new information with their surroundings, and develop their language and communication skills. In addition, the results of the interviews, according to Mustiarini's (2020) research work, indicated that participants liked learning vocabulary through guessing picture games because it was enjoyable, increased new vocabulary and their enthusiasm, and active learning. It was not monotonous, and this made it easier to remember words. Based on observations and interviews, there were positive results from students learning through the use of guessing picture games. Finally, it is relevant to cite the research work of Tamtama et al. (2020); the objective of this study was to develop an approach to teaching and learning English, particularly for kindergarten-aged children. This mobile phone-based application contains three categories in the introduction to English: numbers, pictures, and spelling, so the researcher used the concept of gamification and followed a flowchart methodology. A mobile application was developed which allowed students to playfully learn English. Students were assessed through questions in the mobile phone application. The report of table scores and rewards were taken into consideration to detail the findings of this research. From these studies, it was shown that gamification increases children's interest and motivation to learn English.

3. Methodology

Participants

This investigation used a convenience sample of twenty students from the ninth-grade of the Superior Basic Education Level at a public institution in the city of Loja. The criteria for selecting the subjects were as follows: all of the participants were at the A1.2 English proficiency level according to the National Curriculum of Ecuador (2019), and they also have the same age between thirteen to fourteen years old. Within this group, there were twenty students that were divided into twelve boys and eight girls. Moreover, the participants had the same availability at a given time and the willingness to participate in the research study (Etikan et al., 2015).

Method

The present research work was conducted by utilizing the mixed approach method in which quantitative and qualitative data were gathered with the objective to study the effectiveness of the application of gamification to improve English vocabulary. This method provided the researcher with a stronger understanding of the research question. It helped obtain different perspectives and explanations about the quantitative and qualitative results. This granted both opportunities to evaluate the process as well as the outcomes of the entire methodological proposal (Creswell & Creswell, 2018).

Instruments

This current research gave a pre- and a post-test to participants before and after the application of gamification activities to measure their English vocabulary level (quantitative information). Moreover, a questionnaire was employed at the end of the intervention plan to obtain the most relevant students'' opinions and perceptions about the use of gamification to improve their English vocabulary (qualitative information). Also, the researcher filled out one checklist for each lesson to record the most relevant events during each class.

Design

This research study followed the process of the action research design, proposed by Gerald Susman (1983), which included action research as an alternative to solve the research problem: How does the use of gamification improve English vocabulary learning?

Diagnosing

First, the researcher had to request permission from the educational institutional institution the corresponding permission to be able to interact with the students to develop the intervention proposal. After that, difficulties in English vocabulary learning in the target population were recognized. The researcher was able to gather further information on the issue through the application of the pre-test to the target group, which allowed a more precise diagnosis.

Action Planning

Secondly, a significant literature review was developed where some scientific articles were the base to initiate this study. It was the medium to collect strategies, techniques, experiences, and useful information to formulate the methodological proposal. Subsequently, an action plan was established following the design based on the model Soman et al. (2013) model, which proposed five steps to effectively gamify a topic in education. This proposal was developed based on the gamification tools: Kahoot, Genially, and Educaplay, which were essential to motivate students to learn English vocabulary.

Acting

Third, at this step, the intervention plan was implemented through the application of certain gamification strategies that aided in the solution of the English vocabulary learning issues. During the proposal application process, the researcher collected

data utilizing a checklist for each lesson that permitted the recording of essential information about the classes. Later, it was utilized to correlate or compare the data and present the study's findings. Using English instruction, the intervention plan lasted ten weeks, and the teaching approach was implemented through face-to-face sessions at an educational institution in the city of Loja with ninth-grade students.

Evaluating and reflecting

The last step refers to the administration of the post-test to evaluate the students' vocabulary levels along with the questionnaire, which was useful to identify students' perceptions of gamification. When the results were obtained, the researchers established if gamification had a positive impact on English vocabulary learning and reflected on it through static analysis (comparison of means).

4. Results

The results section explain the students´ progress in improving English vocabulary learning after and before the intervention plan. Therefore, the researcher applied a pre-test in order to diagnose the issues that limit the students´ improvement, followed by a post-test that was settled with the objective to know the effectiveness of gamification in class to improve English vocabulary. Finally, the questionnaire was applied with the aim to apply the most suitable tools of gamification to improve English vocabulary learning among ninth-grade students of Superior Basic Education at a public institution of Loja, during the 2022–2023 school year.

4.1. Pre-test and post-test results comparison

The comparison between the pre-test and post-test scores are described in Table 3, which validated the effectiveness of the application of gamification in improving English vocabulary learning among students of Superior Basic Education at a public institution in Loja, during the 2022–2023 school year.

Table 3

Comparison of the Pre-test and Post-test means of the ninth-grade students of Basic General Education in the use of English vocabulary.

Indicators	Pre-test	Post-test
Form (4/4)	2.32	3.90
Meaning (2/2)	1.38	1.94
Use (4/4)	1.22	2.09
Total means	**4.92**	**7.93**

As can be seen from Table 3, there is a comparison between the pre-test and post-test scores, which evaluated the students' vocabulary levels before and after applying the intervention plan using gamification tools. The results obtained support a positive improvement in the three-vocabulary aspects: form, meaning, and use. The means of the "Form aspect" increased from (2.32/4) in the pre-test to (3.9/4) in the post-test. This important progress evidenced that students could now easily write words with the correct spelling, pronounce words, and use prefixes and suffixes. Likewise, students demonstrated high performance in the "meaning aspect." They developed the ability to get the concepts of words by reading or using visual representation, labeling, and matching activities. The score changed from (1.38/2) in the pre-test to (1.94/2) in the post-test. Finally, the progress reached in the "Use aspect" of vocabulary is a little low; the mean in the pre-test was (1.22/4) and in the post-test was (2.09/4), which means that students have not developed sufficient knowledge to differentiate parts of speech such as adjectives, nouns, and verbs. Therefore, they are unaware of their grammatical functions. To conclude, it is important to highlight the total score means, in the pre-test of 4.92/10. Fortunately, in the post-test, students overcame the majority of their English vocabulary issues by obtaining a mean of 7.93/10.

4.2. Questionnaire results

The instrument of the questionnaire was applied when the intervention plan was finished. The main aim was to apply the most suitable tools of gamification to improve English vocabulary learning among ninth-grade students of Superior Basic Education at a public institution in Loja, during the 2022–2023 school year. The results are presented in the following figures.

Table 4

Ninth-grade students' perceptions of the use of gamification to overcome English vocabulary issues and to encourage positive competition.

Statements	SA		A		D		SD		T	
	F	%	F	%	F	%	F	%	F	%
Sense of English instruction,	16	80	4	20	0	0	0	0	20	100
Sense of Competition	15	75	5	25	0	0	0	0	20	100

Note. F = Frequency, SA = Strongly agree, A = Agree, D = Disagree, SD = Strongly disagree, T = Total, % = Percentage

The findings in Table 4 evidence that a significant majority of students (80%) strongly agree that the application of gamification tools in English class helped them to overcome the issues presented in vocabulary learning. In the same way, 20% of them agreed with the same fact mentioned above. Moreover, this result is corroborated by the information obtained from the checklist, where the researcher took note when Kahoot! Was employed. It helped students to better understand the meaning and use of vocabulary because it created group game competitions between them. Similarly, there is a clear trend of agreement regarding the use of gamification to encourage positive competition among the class. In other words, a huge number of participants (75%) strongly agree with the aforementioned statement. This means that students were influenced by a positive sense of competition, where their social skills

and self-improvement were developed in a dynamic way during the employment of gamification tools like: Kahoot!, Genially, and Educaplay. Finally, These findings are supported by the data collected in the checklist. The researcher could appreciate that students made more effort when they had to complete a competitive game in groups or pairs rather than when they had to do activities alone.

Table 5

Ninth-grade students' perceptions on if gamification is a motivating factor to learn English vocabulary and encourage active participation in class

| Statements	HE		SE		VE		NE		T	
	F	%	F	%	F	%	F	%	F	%
I felt motivated to learn English vocabulary by using gamification tools.	17	80	4	20	0	0	0	0	20	100
he gamification tools encouraged my participation by using gamification activities.	18	75	5	25	0	0	0	0	20	100

Note. HE = Highly effective, SE = Slightly effective, VE = Very effective, NE = Not effective at all, T = Total, F= Frequency, % = Percentage.

As it can be seen, Table 5 demonstrates that 85% of students felt highly motivated during the application of gamification tools to learn English vocabulary, similarly, another small part of them (10%) said that according to their learning experience with gamification, activities made them feel very motivated as well. According to the remarks collected from the checklist, the researcher was aware that when the contents were presented on Genially, students were interested in the topic

especially when the teacher used interactive images to show vocabulary, as well as, the Educaplay games like scrabble letter and matching columns were the favorite activities for students to practice spelling. In summary, gamification tools contributed significantly to the students´ improvement of vocabulary skills in a motivational manner. In the same way, 90% of participants considered that the use of gamification activities was highly effective to encourage active participation in class at the moment to learn English vocabulary, and the other small part (10%) said it was slightly effective. This demonstrated, students were involved in an entertaining and active learning environment, which allowed them to experiment with innovative ways to perform their English vocabulary learning. In relation to the checklist data, it is corroborated that students enjoyed being part of games, they liked to compete in pairs and in groups, they showed a dynamic way to interact with others and lastly, they demonstrated collaboration skills in the workgroups, therefore it is concluded that the application of gamification activities like Kahoot, Genially, and Educaplay was effective to learn English vocabulary.

Figure 2

Gamification tool preferences to overcome English vocabulary issues.
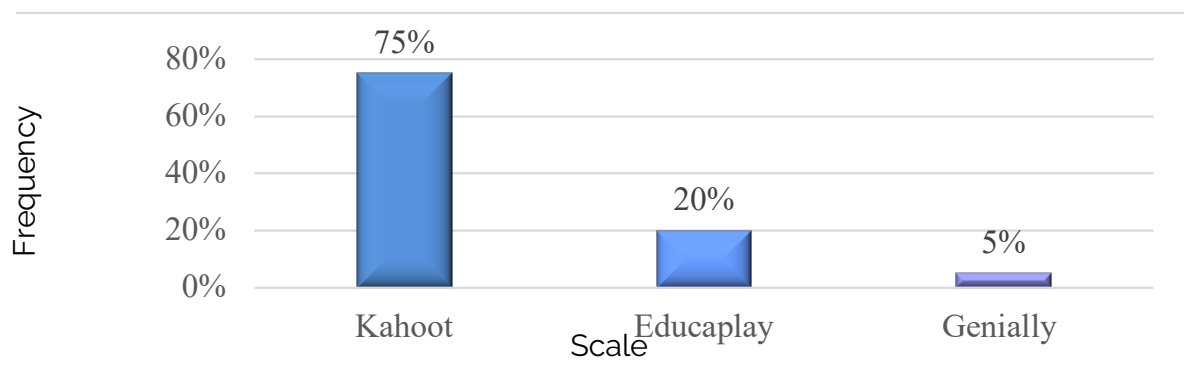
As it is visibly set out in Figure 1, the majority of participants, 75%, mentioned that they preferred to work with Kahoot!, 20% of them preferred Educaplay and some others (5%) of students liked Genially better. The obtained positive results are verified and confirmed through the observations written down in the checklist. This explained that the activities were completed using Kahoot, which was one of the most valuable strategies for developing English vocabulary in a challenging manner, especially in the aspect of meaning. Similarly, Educaplay meaningfully contributed to practicing spelling and helping students to check vocabulary in a written or spoken way. To conclude, the three gamification tools used by the researcher during the intervention plan helped the students' English vocabulary learning more effectively. Therefore, the most suitable gamification tools for improving English vocabulary learning were: Kahoot!, followed by Genially, and lastly Educaplay.

5. Discussion

Gamification is a useful strategy to implement the study of English vocabulary. The interactive dynamics of each of the games allowed the students to be motivated to continue learning new words. In the case of this research study, three gamification tools were selected to structure the intervention proposal: Genially, Educaplay, and Kahoot!. Each one of them was employed to review the form, the meaning, and the use of English vocabulary words. Consequently, positive results were identified at the end of the instruction period. Students overcame their difficulties in spelling vocabulary, forming new words by using suffixes and prefixes, differentiating the grammatical function of words such as nouns, adjectives, and verbs, and using words in a natural context. The effectiveness of gamified teaching in English vocabulary was reflected in the pre-test mean (4.92/10) and post-test mean (7.93/10) with a difference of 3.01 points of progress. Similarly, students experienced an enjoyable learning environment by using gamification tools.

It is a fact that gamification is an effective way to learn, retain, and comprehend new English vocabulary. In addition, gamification in the classroom is beneficial for both teachers and students since it fosters an entertaining learning atmosphere

and gives teachers new, interesting, and inspiring ways to engage their students. Therefore, it would be important for future researchers to look for different gamification tools to be applied at various educational levels to help achieve better outcomes. Thus, teachers would have access to a wide range of tools, and it is probable that successful results would be obtained.

Finally, it is recommended that teachers should start by identifying students' challenges in learning vocabulary; this is the first step to planning a methodological proposal based on their weaknesses and interests in learning through gamification tools. It will provide students with amusing activities that inspire positive attitudes, competition, and collaboration to complete vocabulary activities. Genially can be used to present the content, Educaplay can be used to practice the spelling, form, and meaning of words, and Kahoot! can be used to evaluate the lesson. Finally, the use of gamification elements should be employed to reward the students' performance.

6. Conclusions

This study identified the English vocabulary issues that ninth-grade students had in the form, meaning, and use of words. Students presented problems in spelling, adding suffixes and prefixes to form new terms, linking the forms of words to their meaning, and recognizing the grammatical functions of words in a natural context.

Moreover, this research found that the use of Educaplay, Kahoot, and Genially as gamification tools significantly supported the learning and improvement of English vocabulary and decreased the students' limitations. Therefore, through these motivational and interactive technological tools, students were able to correctly use the three vocabulary aspects: form, meaning, and use. Finally, the present investigation affirmed that gamification successfully improved English vocabulary learning. Thus, students demonstrated a higher level of communication. Gamification provided students with valuable learning experiences. It increased their motivation for learning new words, encouraged positive competition and active participation, and mainly, helped students to overcome their vocabulary issues.

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