

Capítulo VI

Gamification on learning English grammar by using technology

Gamificación en el aprendizaje de la gramática del inglés mediante el uso de la tecnología

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1. Introduction

Since, the Ministry of Education in Ecuador (MINEDUC) has implemented the English Language as a school subject in the superior basic education, some new innovative methodologies have emerged through the time, which have improved the teaching and learning process. One aspect of English to be mastered by students is the grammar competence, which is considered as the whole system and structure of the language in general (Berry, 2018). Therefore, learning English grammar is relevant, because it provides students with the means for speaking fluently and writing appropriately. Establishing the importance of the topic, the study of grammar focuses on how speakers put meaning into sentences by putting words together properly. These word combinations come together to form larger structures, which are referred to as phrases, clauses, sentences, and paragraphs (Crystal, 2017).

Taking into consideration the information above, the researcher has found that it is necessary to implement gamification as an innovative alternative for teaching English as a Foreign Language (EFL) grammar. Corresponding to The National Curriculum of Ecuador (2019), it looks for the way that students from 9th year that belong to the Superior Basic Education should attain the A1.2 English level of proficiency (MINEDUC, 2019). However, the participants of this research presented some difficulties to manage the three grammar dimensions: form, meaning and use, appropriately which affect directly to their performance in communication either written or spoken way. That is why, this research paper has as its main objective to verify the effectiveness of using gamified teaching in the improvement of English grammar learning by using technology among ninth year students at a public institution of Loja city during the 2022 – 2023 school year.

Regarding this, the following sub question was proposed to validate the findings of this research: How effective is gamified teaching on the improvement of English grammar learning by applying technology? To accomplish this, the present research adopted a quantitative design method, and as instruments, a pre-test and a post-test were applied whose results corroborated that the use of gamification was

effective to overcome the English grammar issues, all of this information will be useful as a starting point for future researches with different size of samples and with another kind of population.

Finally, this chapter is structured as follows: the title, abstract with summaries of the study, introduction, literature review, methodology, results and discussion, conclusion, and references.

2. Literature review

Gamification

What is gamification?

Werbach and Hunter (2012) define "gamification" as the use of game mechanics and game design principles in settings where games have not been involved. This theory was developed as a result of extensive research into human psychology, growth of social media, and the success of the gaming industry. Every task, project, procedure, or theoretical environment can generally be turned into a game. Furthermore, "Gamification is a relatively new trend that focuses on applying game mechanics to non-game contexts in order to engage audiences and to inject a little fun into ordinary activities besides generating motivational and cognitive benefits" (Sardi et al. 2017, p. 31).

Gamification in education

Researchers used video games' definition as technology and their relationship to cognitive processes to describe the underlying principles of gamification in education. Applying cognitive processes to students of any age involves a variety of requirements and responsibilities; as a result, the goals of gamification should be very clear about the target audience and users in order to develop the right optimization of these techniques, considering the capabilities and abilities that each learner has. Additionally, maintaining a balance in a gamification process is

crucial. If the gamification tool has an impossibly difficult progression, students will become frustrated. On the other hand, gamification without challenges or games that are too easy are abandoned much more quickly because the player is able to quickly realize that there is no interesting factor inside it (Contreras and Eguia, 2016). Finally, gamification in learning and education is needed to help students check their progress, promote collaborative skills, and ensure their learning performance and academic achievement. It will be the result of gamified instructions (Kim et al., 2018).

Gamification elements

Gamification, which uses game design elements to improve students' interest and motivation, is already widely used in learning environments and instructional methodologies. As Wang et al. (2022) note, gamification implementations usually include both stories or narratives and standard gamification elements such as points, challenges, scoring, leaderboards, progress bars, ranks, prizes, and incentives. This present research work employed the following ones:

Points: Alternately referred to as scores, experience points, skill points, and so on. It is a straightforward method for offering extrinsic feedback in response to the actions of users. Points are the most fundamental element included in every type of gamified application (Toda, 2019).

Competition: It is a fundamental idea that is connected to a competition in which one user competes against another user to accomplish a shared objective, such as through the use of scoreboards that are determined by the total number of points, badges, levels, podium, etc (Toda, 2019).

Badges: The successions of badges guide them on a learning path and students receive feedback from inbuilt sequencing so that there are multiple small units of accomplishment. Within these, there are larger units that acknowledge a unit of accomplishment (Botra et al., 2014).

Gamification tools

Wordwall. It is a digital means of creating learning exercises that are free. It is an online application that offers entertaining quiz-based activities with instructional content. For students, this application may be an engaging learning resource, media, and assessment tool (Nenohai et al., 2022).

Educaplay. Educaplay's Canvas virtual platform enabled students to easily design and share interactive educational activities and to develop an active and dynamic learning style, motivating them to learn English (Cuesta, 2020).

BritishCouncil. This digital tool endorses the cultural bonds between different countries through the free spreading of art, education and language learning. These whole number of features makes BritishCouncil the ultimate guide towards unlocking countless external opportunities (BritishCouncil, 2022).

Baamboozle. It is an online educational game similar to quizzes that doesn't require students to create an account. The Baamboozle website has several benefits, including its flexibility of use, its usability, and the fact that it can be used for both online and offline learning, encouraging learners to combine knowledge acquisition with play so that kids don't get bored with schoolwork (Rahayu and Rukmana, 2022).

English grammar

What is grammar?

The set of structural principles that determine how sentences, phrases, and words are formed in a given language is known as grammar. Language is studied and described systematically in linguistics, allowing individuals to understand how words are put together to form sentences. Additionally, the author asserts that following grammar rules might help children develop the habit of thinking clearly and logically. Students

can use a language more precisely after studying grammar. It is challenging to express coherently without using good grammar. Proper language reduces misunderstanding when speakers communicate thoughts and ideas. A person's poor grammar skills can give people the wrong impression of them (Saidvaliyevna, 2018).

The importance of teaching grammar

According to some pertinent scientific studies regarding the value of teaching English grammar, Ismael (2010) cited in Apsari (2018) said that grammar is a set of structural techniques that organizes a language's meaning. Considering structure, it is the essential competence and knowledge required to understand the language as it is created and used. Moreover, it covers how words, clauses, or sentences are arranged and combined. The author also makes it clear that students cannot ignore how structure forces them to construct grammatically correct sentences in order to convey information in their daily speaking and writing. Additionally, it is highlighted that grammar is crucial to communication since it shows how language is used.

Grammar training is an important part of learning a foreign language because learning a language involves a precise understanding of language structures, it is usually helpful for students to see how language works in sentences or paragraphs, and teaching grammar in context will give students the chance to see how grammatical structures work in sentences. Students will learn the nature of the language more effectively if grammar is taught in a context that helps them understand it (Mart, 2013).

Grammar dimensions

While students can practice and utilize forms in communicative activities, the fundamental principles of grammar instruction emphasize all three dimensions of grammar, including form, meaning, and use, and place an emphasis on both input-based comprehension and output-based learning production (Rofid, 2018).

Form. - It denotes the composition of a phrase or a clause. The form indicates either the needed form of a word. For example: She likes to travel is preferred to She likes to travel or a required word order I can't tell you is preferred to I no can't tell you. (Roza, 2018). "Form refers to the visible and audible parts of grammar units: structure, endings, syntax (word order), choice of noun or verb, etc" (Word Learning, 2017) (p. 6).

Meaning. - It refers to the semantic component, understanding the meaning of words, which would need some type of associative learning, therefore, students have to make connections between the form and meaning of a certain target structure (Roza, 2018). According to Word Learning (2017) "there are two aspects of meaning. First, what is the 'essential' meaning of a grammar structure? Second, what does it mean in the context it's being used in?" (p. 6).

Use. - It corresponds to choosing the appropriate grammar form for a given situation, therefore, students have to decide on among two or more forms the one that is most suited for the setting and or according to how they intend to position themselves, such as namely in a cooperative manner, a polite way, or an assertive way (Roza, 2018). That means "the grammar structures we choose to use are determined by the situation we are in and/or what we want to communicate to our listener(s). Use is interconnected with meaning" (Word Learning, 2017, p. 6).

The importance of teaching grammar with technology

The use of technology in the teaching and learning process of English grammar has always been crucial. The ability to encourage students' learning is an essential part of a teacher's job. The word "integration" is often used when discussing how technology is used in education. Because technology is being included in every aspect of our lives, it is important to seriously consider the idea of incorporating it into the curriculum and to look for ways to use it in the classroom to facilitate learning. In other words, as educators prepare learning experiences and move through the teaching and learning process, technology becomes an essential component of the learning experience and a substantial challenge for them (Ahmadi, 2018).

Newer technologies, in contrast to traditional L2 grammar learning and teaching, are not limited by the traditional dichotomy of implicit and explicit teaching approaches. It also emphasizes learner-computer and person-to-person communication by enabling students to experiment with authentic language and promoting independent knowledge and learner autonomy. The participation of teachers is essential because they may start, stimulate, monitor, and direct offline as well as online activities that are beneficial for L2 grammar instruction and learning. The way that grammar is taught in the L2 classroom has changed as a consequence of the increasing use of technology; as a result, teachers must be able to use technology-based methods and resources with the aim of assisting their students' needs (Chapelle and Sauro, 2017).

3. Methodology

This research study used quantitative data, which involves the creation of a measurable and observable research question. The quantitative data was collected through the application of a pre-test at the beginning and a post-test at the end of the intervention plan to determine students' English grammar levels before and after the implementation of the research proposal. This enables the researcher to verify the effectiveness of gamified teaching to learn the grammar of English as a Foreign Language (EFL).

Therefore, ninth-year students were chosen to be the participants of this study. The criteria for selecting the subjects were as follows: this group shared the same level of English A1.2 corresponding to the National Curriculum of Ecuador (2019), they have the same geographical proximity and the same age; they are thirteen and fourteen years old. Within this group, there are twelve girls and sixteen boys making a grand total of twenty-eight students. Finally, the researcher protected the privacy of students by giving a code for each one (Creswell, 2012). The researcher followed the procedure of practical action research to give a solution to the teaching-learning process of EFL grammar by using gamification. This model has been suitable for the researcher's purposes because this study has been sequenced in the following stages: diagnosing, action planning, acting and evaluating, and reflecting, which were suggested by Gerald Susman (1983).

Firstly, the researcher identifies issues with the target research group in the EFL grammar learning during this practicum. The researcher applied the pre-test to know their English grammar level. This analysis of these results made it possible to describe and outline a general research problem that was addressed to answer the following question: How can gamified teaching improve EFL grammar learning through technology? Secondly, the teacher reviewed extensive literature about the independent and dependent variable with the aim to find the most useful theories, approaches, strategies, techniques, and activities to create the methodological proposal. Eventually, an action plan was created to give a solution to the previously mentioned general research question.

The lesson plans were constructed in relation to Robert Gagne's (1992) Nine Events of Instruction in order to plan appropriate English lessons to address the gamified teaching and the EFL grammar learning. In addition, during the intervention some gamification tools, such as: Wordwall, Educaplay, BritishCouncil, and Baamboozle. At this point, inside step number three, the intervention plan was put into action as a strategy that was continuously observed, assessed, and altered to establish its efficacy. The researcher gathered data during the application of the proposal by utilizing field notes (one for each lesson), which captured crucial information. Finally, in step number four, the researcher applied the post-test to verify if participants had improved their EFL grammar learning. After reviewing the quantitative data gathered throughout and after the course of the intervention, the results were analysed. The overall results were presented along with the conclusions. The results should be reported because a variety of educators, who are always looking for methods to improve their teaching of English as a Foreign Language may find them useful.

4. Results

The results of this research study after applying the instruments for collecting data are detailed in the upcoming part. The pretest and posttest were used to verify the effectiveness of gamified teaching in the improvement of English grammar learning among ninth-year students at a public institution in Loja City during the 2022–2023 school year; the findings are presented through tables and a comparison analysis.

4.1. Pretest results

Table 1

Pretest scores of the 9th "A" year students of Basic General Education in the use of English grammar.

Score Intervals	Form		Meaning		Use	
	F	%	F	%	F	%
(0 - 1)	24	85,7	2	7,1	28	100
(1,01 - 2)	4	14,3	8	28,6	0	0
(2,01 - 3)	0	0,0	16	57,1	0	0
(3,01 - 4)	0	0,0	2	7,1	0	0
Total of students	28	100	28	100	28	100
Means	0.59		2.45		0.5	
Total mean	3.09/10					

Note. F = Frequency, % = Percentage

The pretest was applied to the ninth "A" year students from Basic General Education, with the objective to be aware of the level of the English grammar skills of participants. As can be seen from Table 1, the total mean score obtained was 3.09/10 by participants, which was very far from reaching the average level expected. This evidenced that students had difficulties in recognizing the form, meaning and use of some particular grammar structures.

According to the dimension of *form* with a mean of 0.59/4 (14.75%), 85.7% of students achieved scores between 0 – 0.5, and 14.3% of them obtained scores between 1.01 – 2, which are considered low scores. This demonstrated that students presented problems identifying the structure of a phrase or a clause sentence, which required word order and didn't let them build accurate sentences for the right communication.

In a similar way, regarding the dimension of *meaning* with the mean of 2.45/4 (30.75%), the 7.1% of students reached scores between 0-1, the 28.6% between 1.01 – 2, 57.1% between 2.01 – 3 and the 7.1% between 3.01 – 4. That concluded that students showed difficulties choosing the correct English tense to communicate in present tense or in present continuous. The students did not understand the reason or intention of a specific grammatical structure which is indispensable to reach a meaningful meaning.

Finally, the mean of 0.05/2 (2.5%) was obtained in the component of use, the 100% of participants achieved scores between 0 - 1, which demonstrated that students found it complicated to choose the appropriate grammar form for a determined context or setting either spoken, written, formal or informal.

4.2. Posttest results

Table 2

Posttest scores of the 9th "A" year students of Basic General Education in the use of English grammar.

Score Intervals 0-4	Form		Meaning		Use	
	F	%	F	%	F	%
(0 - 1)	3	10,7	0	0	5	17,9
(1,01 - 2)	4	14,3	2	7	3	10,7
(2,01 - 3)	13	46,4	6	21,4	12	43
(3,01 - 4)	8	28,6	20	71	8	28,6
Total of students	28	100	28	100	28	100
Means	2.77		3.52		1.36	
Total mean	7.64/10					

Note. F = Frequency, % = Percentage

A significant positive result for the posttest is shown in table 2, which demonstrates that students overcome their English grammar difficulties in the three grammar dimensions, form, meaning and use. The total mean score was 7.64/10, which demonstrated that students achieved the required learning according to the grading scale of the Ministerio de Educación del Ecuador.

Regarding the dimension of *form*, students got a score mean of (2.77/4) 69.25%, which demonstrated that even though the most appropriate gamification tools were used to practice the dimension of form, the 10.7% of participants with scores between 0 – 1 and the 14.3% with scores between 1.01 – 2 showed few mistakes by developing the grammar activities such as word order and correction of mistakes in sentences. However, the 46.4% of students with scores between 2.01 – 3 and the 28.6% with scores between 3.01 – 4 are able to employ the appropriate function of the word order, to choose the correct verb tense and to apply the most suitable grammatical rules.

According to the dimension of *meaning*, the participants obtained a score mean of (3.52/4) 88%, which showed meaningful progress. Currently, after students practiced grammar with the gamification activities such as quizzes, competition teams, unscramble words, sentence completion and others, the 21.4% of students with scores between (2.01 – 3) and the 71% of them with scores between (3.01-4) are able to match half part of sentences to create a complete whole meaning according to the English grammar tenses. On the other hand, only 7% of participants achieved scores between 1.01 – 2, which means this small group of students needs more English vocabulary training to overcome the difficulties in the dimension of meaning.

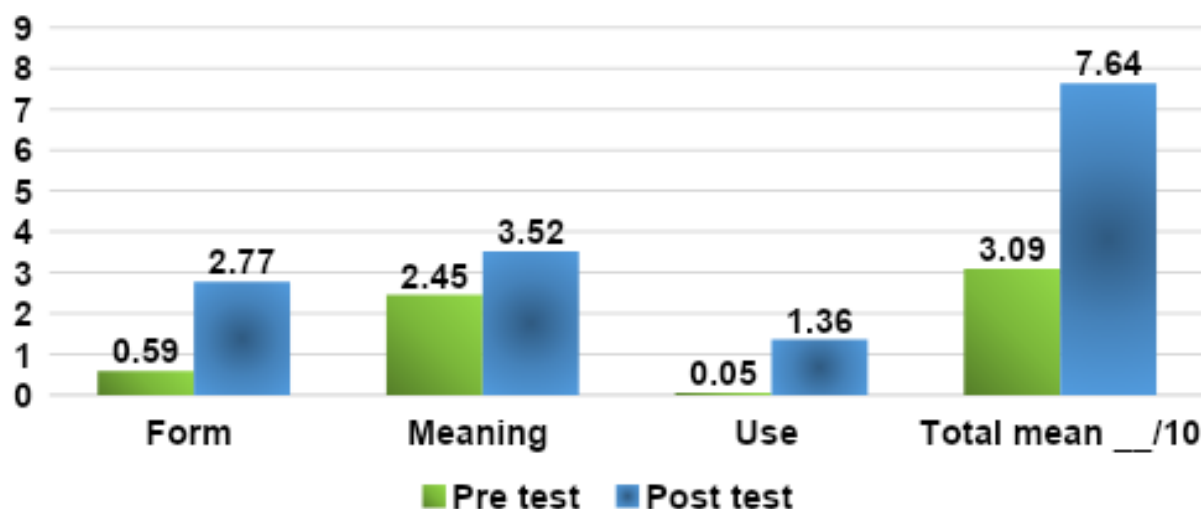
Likewise, another meaningful progress in the majority of students after using games was evidenced in the dimension of use with a mean of (1.35/2) 67.5%. The 43% of them obtained scores in the range of 2.01 to 3, similar to the 28.6% of students who showed the highest scores between 3.01 to 4, this determined that students could employ accurate grammar structures in context. They knew when and why a particular grammar structure should be used either spoken or written and in formal or informal situations. However, a minority of participants got lower scores,

the 17.9% were in the range of (0 – 1) and the 10.7% got scores between (1.01 – 2). This small group of students still presented problems using a specific grammar structure according to a real setting.

4.3. Comparison of the Pretest and Posttest results

Figure 1

Comparison of the Pretest and Posttest means of the 9th "A" year students of Basic General Education in the use of English grammar.



The information presented in Figure 1, shows a comparison between the scores obtained from the pre-test and post-test. The general pre-test mean was 3.07/10, while the post-test was 7.64/10 these results provide important insights into the enhancement of English grammar by using gamified teaching. It seems possible that these results are due to the efficacy of the application of the methodological proposal based on gamification. These results evidence a strong improvement in the three grammar dimensions: form, meaning and use.

The mean achieved for the dimension of *form* in the pretest was 0.59/4 (14.75%) in contrast to the posttest 2.77/4 (69.25%), being the most significant improvement that students reached after applying gamification strategies by using technology during each English lesson. Therefore, currently, students are able to correctly use the word order to form correct grammar structures, verb tenses and spelling grammatical rules.

Similarly, the mean for the dimension of *meaning* was 2.45/4 (61.25%) in the pretest and 3.52/4 (88%) in the posttest, this proves that students understand clearly what meaning a particular grammar structure conveys when it is in a written text and or in a spoken form.

At last, students demonstrated a moderate level of grammatical competence because they had few problems using English grammar appropriately according to real context, in formal or informal situations. It is proved by comparing the means in the dimension of use, which differ from 0.05/2 (2.5%) in the pretest to 1.35/2 (67%) in the posttest.

5. Discussion

Gamified teaching is a useful technological tool to encompass the study of English grammar dimensions: form, meaning and use. According to Word Learning (2017); and Roza (2018), the dimension of form refers to the parts of grammar units such as structure, syntax and choice of nouns or verbs, the dimension of meaning implies making a connection between the form and meaning of the English tenses, and the dimension of use involves choosing the appropriate grammar form for a given situation either formal or informal, written or spoken.

In relation to the research question of this study, the effectiveness of gamified teaching in English grammar was reflected in the comparison of the pre-test mean (3.09/10) with the post-test mean (7.64/10) with a difference of 4.55 points of progress. In addition, results demonstrated that the use of technology for English grammar learning improves classroom dynamics, encourages student autonomy, and enhances the overall learning experience for students, thus, gamification strategies contribute

meaningfully to addressing students' issues. It is corroborated with the research work of Phuong (2020), which evidenced in the results that the majority of students appreciated the concept of learning using this technological approach because it appeared innovative for them. Moreover, the present findings agree with the research work of Mila and Mahbub (2022), the researchers concluded that gamification greatly assisted grammar learning due to the fact that most students demonstrated positive attitudes towards the use of it.

In reviewing the literature, gamification has been described as a helpful instructional strategy that can turn difficult grammatical concepts into enjoyable tasks (Asifayanti et al., 2021). Prior studies have noted the importance of the use of Educaplay, which is perceived by learners as a motivating factor that allows users to easily design and share interactive educational activities (Cuesta, 2020). Similarly, Baamboozle is identified as a flexible tool to be utilized for offline and online learning to encourage learner engagement (Rahayu and Rukmana, 2022). All of these gamification strategies helped students to overcome their English grammar difficulties meaningfully. Currently, participants can use English grammar structures correctly, can use the verb tenses to form sentences following the proper word order and can understand the reason or intention of a specific grammatical structure according to a given situation. In conclusion, the interactive design of the games keeps students motivated to work better in class.

Most probably, this study will bring useful contributions to the educational community, to students and teachers about the most clear and concrete way of how the study of grammar should be carried out. Even though, according to Ardi and Rianita (2022), it is recommendable for further research to include a greater number of participants for better reliability of the results and employ mixed methods to show in a more comprehensive way the influence of gamification on students' engagement. Similarly, it is important to adapt different alternatives of gamification strategies to be applied at different levels of education. It will be helpful for encouraging meaningful competition and collaboration among students. Finally, it is recommended for

teachers to implement gamification teaching in their daily teaching practices with the aim to foment motivational classrooms and positive attitudes in students face to grammar learning. As well as, it is important to address the complete study of the three grammar dimensions for better students understanding: form, meaning and use.

6. Conclusions

Students overcome their difficulties in the dimension of form with the help of gamified teaching. As a positive result, students can differentiate the grammar structure of the simple present tense and present continuous tense. They are familiarized with the correct word order, as well as, with the appropriate spelling and grammar rules.

Students beat their limitations in the dimension of meaning by using gamification tools, which allowed them to make the right connection between the sentence form with the grammar structure of the English tenses to convey a clear and coherent meaning.

The employment of gamified strategies helped students significantly to face the problems presented in the dimension of use. Therefore, students could understand what a specific grammar structure means in a given real context. They were able to choose the most suitable grammar structure to use in a formal or informal language in either written or spoken context.

The use of technology contributed positively to both teacher and students. This facilitated the teacher's daily teaching practices because it was a means to create and design interactive gamification activities, which allowed students to study by using the English grammar structures, rules, uses and tenses in a funny way.

The finding of this study explained that the most favorite gamified strategies for students were Educaplay and Wordwall. Since they ensure motivational and active learning, they make students feel more confident working in groups rather than alone to develop the grammar activities, thus they motivate students' positive participation in competitions.

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