Using game-based learning platforms to enhance non-English majors' grammatical competence.

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Abstract:
Background: *Despite the fact that game-based learning systems have been around for a long time, their popularity has risen in recent years. In other words, embracing game-based learning platform in education is becoming increasingly popular, particularly with the emergence of millennials, whose lives are heavily impacted by digital technology and who like to study in a fun, dynamic, and engaging setting. Quizizz, a game-based learning platform, has piqued the interest of researchers and educational stakeholders since it has demonstrated positive learning outcomes by incorporating unique game elements such as leader boards, memes, and quiz reports, all of which can help to increase engagement and provide a positive learning experience in a non-stressful setting.*
Materials and Methods: *In this study, there were 30 first-year non-English majors participated in the experimental teaching with the use of Quizizz. Quantitative research was used to conduct the research and the experimental teaching was done for 8 weeks.*
Results: *After the treatment period, the results show that Quizizz had a great effect on first-year non-English majors' grammar competency.*
Conclusion: *The effects of Quizizz on the development of first-year non-majors' grammatical competence as well as students' attitudes regarding using the technology in grammar learning are investigated in this study. Quizizz was shown to be effective based on the data obtained. Specifically, students discovered that using Quizizz made their grammar learning process more fun.*
Key Words: *Grammar; Game-based platforms; Quizizz.*

I. INTRODUCTION

1.1. Rationale

Learning English plays an important role in our lives and provides us with several benefits; therefore, in order to utilize English effectively in our daily lives, we must understand English grammar. Grammar, according to linguistics, is a collection of linguistic components such as words, phrases, sentences, and other language elements that are ordered according to rules and order to make a full and coherent sentence. However, understanding grammar has not always been a priority for many students, even though it is required for mastering the four fundamental English talents of listening, speaking, reading, and writing. Despite the fact that English grammar is exceedingly essential, it is quite complex and monotonous to learn. As a result, it can not always be mastered by all students. To address this issue, Quizizz was used to motivate English grammar competence among first-year non-English majors at Thai Nguyen University of Education.

1.2. Aims and Objectives of the Research
This study aims to evaluate the students' initial grammar use level and the students' attitude when applying that method and to investigate the effectiveness of using Quizizz among first-year non-English majors.

1.3. Research question
a) What is the current situation of grammatical competence among first-year non-English majors?
b) How does the use of Quizizz affect non-English majors' grammatical competence?
c) What are the students' attitudes towards the use of Quizizz in leaning grammar?

1.4. Scope of the research
Due to time constraints, the research only took 30 first-year non-English majors at Thai Nguyen University of Education.

1.5. Significance of the research

The results of this study might be beneficial to tenth graders because they could bring them an opportunity to improve their grammar use. In other words, they might give the students a new method that is more interesting and effective when learning grammar. The results of this study might also be useful to teachers or instructors since they could provide them with a new tool to help them teach English grammar use more effectively. Furthermore, the findings may be significant to future researchers since they might indicate the utility of Quizizz in improving grammar competence among students, emphasizing the necessity of creating appropriate learning materials for students to enhance grammar learning.

II. LITERATURE REVIEW

2.1. Grammar

From the view of Webster's New Collegiate Dictionary (1977), our core term, grammar, has four major and several smaller delineations. The first one is the study of word classes, inflections, and functions and relationships in a sentence or the study of inflection and syntax that should be favored and avoided. The second one is a language's distinctive system of inflections and syntax. The third one is a grammar book or a speech or piece of writing that is graded on its grammatical rules compliance. The last one is an art, science, or technique's principles or norms.

According to James D. Williams, "Grammar deals with the structure and analysis of sentences" is a brief definition of grammar.

Furthermore, grammar is described as "the way words are put together to form accurate sentences" (Ur, 1996, p. 75), and it serves as a guideline for producing language output. As a result, teaching grammar is an important part of any language education program, and grammar itself occupies a central and prominent place in "accumulated entities" (Rutherford, 1987, p. 4), which aid learners in progressing from zero to a particular level of language ability.

2.2. Game-based platforms

Computer games have been shown to encourage pupils (Cózar-Gutiérrez & Sáez-López, 2016; Crookall, 2007; Hao & Lee, 2019, Peterson, 2010), resulting in educational improvement in a variety of areas (Hou & Li, 2013). "The gaming technique was proven to enhance students' learning achievement and motivation." (2017, Hwang et al.)

Some British researchers, on the other hand, have pointed out that there is still a research gap in evidence proving the effectiveness, which has to be investigated (Hainey, Connolly, Stansfield, & Boyle, 2011ab).

2.3. Quizizz

Quizizz is a game-based learning platform that introduces multiplayer activities to classrooms and makes in-class exercises more dynamic and enjoyable. According to Hamel (2016), Quizizz allows all students to practice together as they use computers, smartphones or tablets. Quizizz creates excitement for players by providing a game show-style review game that puts the entire experience in the hands of learners. Students can use Quizizz to complete in-class tasks on their mobile devices. Unlike other educational applications, Quizizz incorporates gaming elements such as avatars, themes, memes, and music to make learning fun. Quizizz also encourages pupils to study by allowing them to compete with one another. Students take the quiz in class at the same time and track their progress on the leaderboard.

III. RESEARCH METHOD

This study was carried out by using quantitative method. In other words, tests and questionnaires were used in doing this study. There were 30 students who participated in this study, and all of them are first-year non-English majors at Thai Nguyen University of Education. In the study, 30 first-year non-majors were asked to complete the pre-questionnaire to investigate students' attitudes towards the important of grammar in language acquisition. A pre-test was also given on the first week of the research to generally check the students' grammar learning habits and initial levels. From week two to week seven, students did 12 practice tests on Quizizz. At the last week, students had a posttest taken in 30 minutes with 30 multiple choices questions to record their grammar competences and a post questionnaire was also delivered to them in order to collect their attitudes towards the use of Quizizz in practising their grammar. Finally, the researcher gathered data and conducted analysis in order to present results and conclusions.

IV. FINDINGS AND DISCUSSION

The following are the results of the study, which were gathered through two types: pre-questionnaire and post-questionnaires; pre-test and post-test.

4.1. Pre-questionnaire and post-questionnaire results
4.1.1. The results of pre-questionnaire

The pre-questionnaire results show that most students who participated in the study believe that grammar is an important factor in language acquisition. However, the lack of interest and attention make students get some difficulties in learning grammar. Besides, some other difficulties in grammar acquisitions of students were also identified that they get troubles in remembering and using grammar rules and structures; applying English grammar rules and the functions of a given structure to a given context (linguistic, textual or situational); understanding complex grammar rules and structures.

4.1.2. The results of post-questionnaire

The post-questionnaire results reveal that after using Quizizz in learning grammar, students had a significant change in their attitudes towards grammar acquisition. In more details, there was a considerable increase in their level of interest and attention in grammar learning. Furthermore, the students' opinions about the effectiveness of Quizizz in improving their grammar competence were also given. Most of them considered that the ranking function (leaderboard) in Quizizz motivates them to study grammar and using Quizizz helps them concentrate in learning grammar. In addition, it is easier for students to remember grammar rules and structures with the use of Quizizz; using Quizizz reduces students' anxiety when learning grammar, and students can remember grammar rules and structures for a long time. Students can also practice the grammar exercises whenever they want in an interesting way and be more interested in doing exercise about grammar. Besides, students have no worry about the fee to use Quizizz in their learning.

4.2. Pre-test and post-test results
4.2.1. The results of pre-test

Students' code	Number of correct sentences	Students' code	Number of correct sentences
A_1	12	A_{16}	10
A_2	17	A_{17}	7
A_3	10	A_{18}	9
A_4	7	A_{19}	4
A_5	12	A_{20}	12
A_6	4	A_{21}	3
A_7	8	A_{22}	9
A_8	5	A_{23}	11
A_9	13	A_{24}	14
A_{10}	10	A_{25}	7
A_{11}	6	A_{26}	4
A_{12}	8	A_{27}	13
A_{13}	5	A_{28}	10
A_{14}	14	A_{29}	7
A_{15}	18	A_{30}	5
Average: 9			

Table 1: The results of Pre-test

According to the table, before utilizing Quizizz to learn grammar, the students' grammar level was beneath 5 in general, as evidenced by the average of 9 correct answers. To be more specific, just two students had above-average scores on the pre-test, while the others all received below-average results.

4.2.2. The results of post-test

Students' code	Number of correct sentences	Students' code	Number of correct sentences
A_1	25	A_{16}	27
A_2	27	A_{17}	25
A_3	22	A_{18}	22
A_4	25	A_{19}	26
A_5	26	A_{20}	26
A_6	24	A_{21}	25
A_7	22	A_{22}	23
A_8	23	A_{23}	23
A_9	27	A_{24}	25
A_{10}	27	A_{25}	27
A_{11}	26	A_{26}	22
A_{12}	25	A_{27}	27

A$_{13}$	22	A$_{28}$	25
A$_{14}$	26	A$_{29}$	26
A$_{15}$	24	A$_{30}$	24
Average: 25			

Table 2: The results of Post-test

The table above shows that after utilizing Quizizz to learn grammar, the students' grammar level was above 5 in general, as evidenced by the average of 25 correct answers. To be more specific, all students score above 8.

4.2.3. Comparison of the pre and post-test results

Changes in accuracy

There were some differences in the accuracy of students' answers after they use Quizizz to learn grammar. These differences are relatively significant, as shown in the following table.

Table 3. Changes in the average number of correct sentences

Period	Average number of correct sentences
Before	9
After	25
Deviation	16

The figures in the table above illustrate that the average number of correct sentences by students have a significant change. In pre-test, students had 9 corrects sentences on average while in post-test, the average number of corrects sentences made by students was 25.

It can be seen that treatment had a positive impact on the students' grammar competence. The average proportion of the correct sentences increased. In other words, there were a significant improvement of students' grammar learning. Therefore, the use of Quizizz had a positive effect on students' score.
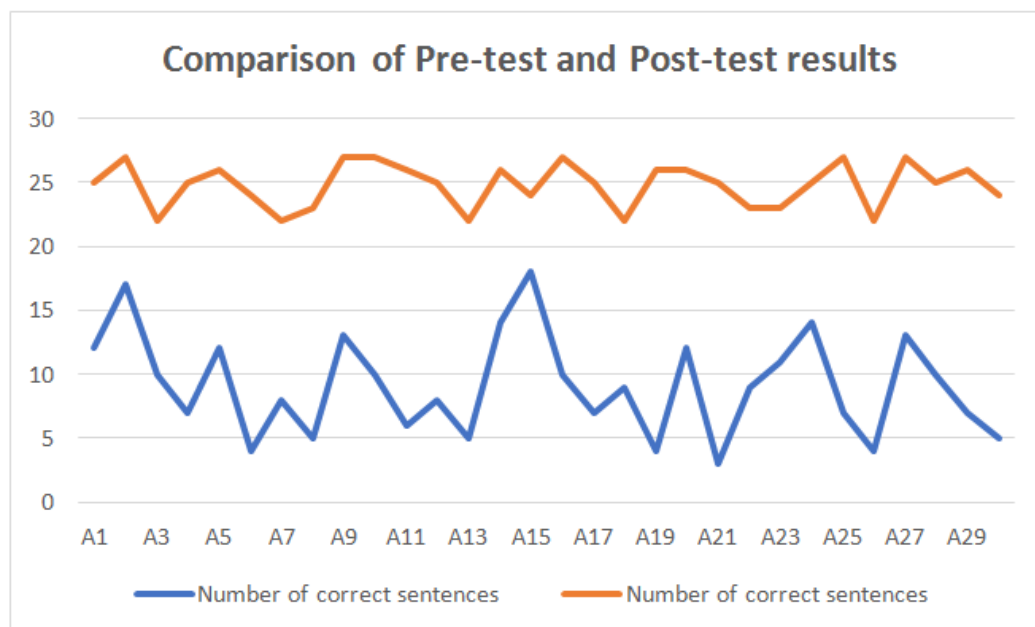
Figure 3. Comparison of Pre-test and Post-test results

It is obvious that the results of pre-test were lower than these of post-test. This means that the significant number of students show considerable improvement in their grammar competence after using Quizizz in their grammar learning.

4.2.4. Findings from weekly practice
The table below reveals the average number of correct sentences made by students in the practice of each week during the treatment.

Weekly average			
week	first attempt	second attempt	Deviation
1	11	13	2
2	12	14	2
3	16	19	3
4	18	22	4
5	21	25	4
6	22	27	5
Average	**17**	**20**	**3**

Table 4: Information from weekly practice

The figures in the table above shows students' average number of correct sentences in the first and second attempt each week. From the data, it can be seen that students made gradual improvement thanks to weekly use of Quizizz. In addition, the number of correct sentences increased by 3 on average. It cannot be denied that using Quizizz helps students enhance their grammar competence.

V. CONCLUSION AND RECOMMENDATIONS

The results of the study showed that Quizizz had a great effect on the development of the first-year non-majors' grammatical competence as well as students' attitudes regarding using the technology in grammar learning. Quizizz was shown to be effective based on the data obtained. Specifically, students discovered that using Quizizz made grammar learning more fun after the research time.

Based on the findings of the study, the following recommendations are suggested:

First and foremost, if the number of participants is increased, the usefulness of Quizizz in developing grammatical skill may be better demonstrated. As a result, future research might use Quizizz with more students to get more data.

Another direction that future researcher should follow is to conduct research to find out what kinds of effects that Quizizz have in helping students develop other language aspects such as vocabulary and pronunciation.

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