JOURNAL OF CULTURAL ANALYSIS AND SOCIAL CHANGE

Journal of Cultural Analysis and Social Change,
2025, 10(4), 418-428
ISSN: 2589-1316

Sustaining Grammar Learning through Gamification: A Quasi-Experimental Investigation

Mohammed Saleh Al. Ajmi[1], Afraa Ali Al Hosni[2], Sheikha Ali Al-Buraiki[3*], Amur Mohamed Al-Aisri[4], Jabar H. Yousif[5]

[1]*Sohar University, Sohar, Sultanate of Oman; Email: MAjmi3@su.edu.om*
[2]*Sohar University, Sohar, Sultanate of Oman; Email: AASHosni@su.edu.om*
[3]*Sohar University, Sohar, Sultanate of Oman; Email: saburaiki@su.edu.om*
[4]*Sultan Qaboos University, Muscat, Sultanate of Oman; Email: aalaisari@squ.edu.om*
[5]*Sohar University, Sohar, Sultanate of Oman; Email: jyousif@su.edu.om*

*__Corresponding Author:__ saburaiki@su.edu.om

Citation: Al. Ajmi, M. S., Hosni, A. A. A., Al-Buraiki, S. A., Al-Aisri, A. M., & Yousif, J. H. (2025). Sustaining Grammar Learning through Gamification: A Quasi-Experimental Investigation. *Journal of Cultural Analysis and Social Change*, *10*(4), 418–428. https://doi.org/10.64753/jcasc.v10i4.2853

Published: December 4, 2025

ABSTRACT

The present study investigated the impact of an electronic gamification-based program, using the "Class Point" platform, in improving grammatical achievement and retention of learning among grade five students in the Sultanate of Oman. The study adopted a quasi-experimental design and the study sample consisted of 120 male and female students, distributed evenly into experimental and control groups. The experimental group was taught grammatical activities through an interactive gamification program, while the control group was taught using conventional methods of teaching. An achievement test was administered as a pre-test, post-test, and a delayed post-test. Statistical analyses using t-tests, ANCOVA, and Eta-squared effect size revealed statistically significant differences in favor of the experimental group for both genders, indicating large effect sizes ($\eta^2 = 0.55$ for males; $\eta^2 = 0.57$ for females). Results further showed significant improvement in delayed post-test scores, suggesting strong retention of learning. No significant differences were found based on gender suggesting that the gamification-based program created an inclusive learning environment. These findings confirm the effectiveness of gamification in enhancing grammatical learning and sustaining its effect over time. The study recommends incorporating gamification strategies into Arabic language curricula and teacher professional training programs to promote active, technology-enhanced learning.

Keywords: Gamification, Grammar achievement, Retention of learning, Arabic language, Grade 5.

INTRODUCTION

Grammatical activities represent one of the most important branches of the Arabic language, due to their prominent role in refining communication and interaction processes between individuals and groups. Based on the overlap and integration of Arabic language branches, and the potential for negative or positive influence, grammatical activities constitute an influential element in other Arabic language skills, such as speaking, reading, and writing. This requires placing more qualitative and revolutionary efforts towards teaching grammatical activities. Despite the approaches adopted in teaching grammar and facilitating them for students, there are some challenges associated with teaching grammar in the basic education stages in the Sultanate of Oman. A key challenge to teaching Arabic grammar is the difficulty of mastering grammatical concepts, their theoretical basis and practical applications. In addition, students' weak grammatical foundation is an inevitable result of relying on traditional teaching and assessment methods (Al-Sulaiti, 2018). Moreover, addressing the specific needs of the

students requires potent instruction in terms of teaching methods, strategies, activities, means, and interactions of grammatical activities, in order to master achieving the objectives set for studying grammatical activities at the basic education level (Al-Salmi, 2018). The Abu Dhabi Center for the Arabic Language (2025) has proven through an analytical study of models from the curricula of the Emirates, Jordan, Tunisia, Saudi Arabia and Egypt that these curricula need to be advanced and promoted in terms of their teaching methods in order to be in line with the digital development in teaching methods and strategies.

There is little benefit to be gained from continuing to rely on traditional teaching methods since modern teaching methods and strategies have undergone significant pedagogical and technical development, meeting the new needs for skills, competencies, and abilities for teaching emerging 21st century students. Moreover, the current era is also characterized by a strong trend towards employing technology, electronic applications, and artificial intelligence in the teaching and learning processes of all academic subjects. For many people, Arabic language is among the most leading subjects in life in general, because it is the primary language spoken by people in the Arab world. To them, it is the language of religion, thought, contemplation, creativity, poetry, and prose, and it is the language of instruction for other subject matters. Therefore, teaching the Arabic language and its grammatical activities requires an interest in the modern developments witnessed by the educational world in teaching methods, strategies, and advanced techniques. This situation is consistent with what efficiency called by some international organizations and councils (i.e. International Council for the Arabic Language, 2022) which encourages employing active and effective teaching methods that help consolidate the linguistic learning content. King Salman International Academy for the Arabic Language (2024) stressed the need to take measures to enhance the processes of teaching and learning the Arabic language to ensure a high level of achieving learning outcomes. This can be accomplished via following up the development of the Arabic language curricula and raising the level of its teachers in teaching competencies and skills, as well as supervising them.

One of the popular modern teaching methods that allow the integration of modern technology and its advanced techniques in teaching the Arabic language is called "Gamification", which can be defined as integrating the design elements of play within the settings of the educational environment and the school curriculum, while using those elements to effectively achieve the learning outcomes, help increase students' participation in instructional activities and draw their interest in them (Erickson et al., 2018). Electronic gaming can also be defined as purposefully employing digital educational games that are planned, constructed, and implemented in accordance with the nature of the Arabic language curriculum, giving wide options for creating an attractively conducive educational environment and carrying out these educational tasks within a specific period of time (Nimr, 2021). For the purposes of this study, "gamification" of electronic games can be operationally defined as a digital educational content designed by the Arabic language teacher or the students themselves via the "Class Point" program, in which the elements of electronic games are adapted. In this way, the electronic educational content will reinforce students' participation and boosts grade five students' willingness to engage in grammatical activities.

Electronic gamification can be widely used in Arabic language teaching processes to build various educational activities that aim to raise the learners' achievement level, improve their motivation to learn, and actively engage them in learning the Arabic language in general and grammatical aspects in particular. The educational content itself can also be reconstructed in accordance with the characteristics of electronic gamification, allowing for the achievement of active teaching practices (Al-Khatib, 2024). The electronic gaming method is one of the methods that add pleasure to the learning environment and attract students to it through advanced gaming technologies. The Arabic language in its various branches is also considered one of the subjects most suitable for employing this educational technology in teaching it (Jaafar & Yusoff, 2022). In general, gamification demonstrates a number of advantages while teaching the Arabic language in general and grammatical activities in particular. These characteristics and skills include the ability to develop creative and critical thinking, solve problems, consolidate the principles of dialogue and discussion, respect the other party, as well as simplify abstract grammatical material (Abu Al-Ainain, 2024). All of these teaching procedures improve learners' retention compared to traditional teaching methods. Gamification enables learners to apply newly learned content to similar situations in their daily life (Singaravelu et al., 2024). This gives an indication that learning is not limited to the situation in which it occurs only, but rather its impact continues and extends to other situations. The following is a review of empirical studies which merely focused on the employment of educational games in Arabic language instruction.

Masrop et al. (2019) explored the types of educational games used in Arabic language teaching curricula. The study used the descriptive analytical approach, and its results showed that the use of educational games in teaching Arabic is effective; however, it is limited to the lower grades in the primary stage. The study recommended that Arabic language curricula, when designed, take electronic learning to a greater extent.

In the Kingdom of Saudi Arabia, Alzuhair and Alkhuzaim (2022) conducted a study that examined the effectiveness of implementing electronic games in developing reading comprehension skills among junior high school students. The study employed the quasi-experimental approach, and its results showed that there were statistically significant differences in favor of the experimental group in the post-test of the reading comprehension

skills. The study recommended the necessity of incorporating electronic games in teaching reading comprehension skills.

Jaafar and Yusoff (2022) also conducted a study that evaluated the effectiveness of teaching an educational unit using an electronic game in the Arabic language at the primary level in Malaysia. The study employed the quasi-experimental approach, and its results showed that there were statistically significant differences in favor of the experimental group in the post-achievement test. The study also recommended the continuation of experiments towards integrating electronic games into the school curriculum.

Abu Hassan (2022) conducted a study to investigate the effectiveness of an electronic program on developing creative language skills among grade seven female students in schools in Jenin Governorate, in Palestine. The study employed the quasi-experimental approach utilizing a note card, which was applied to 60 students. The findings of the study showed differences attributed to the pilot program in academic achievement in developing creative language skills. Accordingly, the study recommended paying attention to activating learning through electronic games in Arabic language classes.

Similarly, Abu Mizer and Al-Ajlouni (2023) investigated the effect of using gamification in the e-learning environment on the motivation to learn the Arabic language for grade eight students in the capital, Amman. The study employed the quasi-experimental approach, and its results showed the presence of statistically significant differences in favor of the experimental group, while the study reported no statistically significant differences in motivation. The study recommended continuing to employ electronic gaming in teaching the Arabic language.

A study by Al-Saeedat (2024) examined the impact of using gamification applications on the achievement of grade three students' skills in Arabic grammar in Jordan. The study employed the quasi-experimental approach, and its results showed that there were statistically significant differences in favor of the experimental group in the results of the academic achievement test, while the study did not reveal the existence of statistically significant differences between the mean scores of male and female students. The study recommended employing electronic games in teaching the Arabic language.

In Indonesia, Kholifia et al. (2025) conducted a study that investigated the potential of employing electronic games as a teaching strategy to reduce anxiety related to speaking classical Arabic and improving oral language performance. The study employed descriptive approach, using observation and interview as research tools. The findings indicated that students' participation in the educational process activities increased to 85%, and that the process of oral speaking in classical Arabic improved by 25%. The study also recommended adopting the electronic gamified learning methodology as a teaching strategy in the Arabic language classrooms.

In the Sultanate of Oman, Al-Hashemi (2022) examined the effectiveness of an educational platform based on electronic manipulation in accelerating reading among grade four students. The study employed the quasi-experimental approach, and its results showed that there were statistically significant differences in favor of the experimental group in the post-application of the reading acceleration test. The results also showed that there were no statistically significant differences attributed to gender. The study recommended that Arabic language teachers provide a competitive, enjoyable and effective educational environment in teaching the Arabic language.

Al-Abri (2025) conducted a study in the Sultanate of Oman to evaluate the effectiveness of electronic gamification-based learning on improving the achievement of grade eleven students in rhetoric and the retention of the impact of their learning. The study employed the quasi-experimental approach, and the findings underscored the statistically significant outperformance of the experimental group in the post-test in rhetoric. However, there were no statistically significant differences between the experimental group's scores in the immediate and delayed tests of the Rhetoric Achievement Test. Hence, the study recommended providing Arabic language curricula with activities based on the use of electronic gamification.

A study conducted by Ismath et al. (2022) aimed to measure the effectiveness of using an electronic game in teaching the Arabic language in a university in Malaysia. The study employed the descriptive approach and the finding highlighted that electronic games increase students' motivation to learn and maintain the effect of learning for a longer period from the point of view of students and Arabic language teachers. The study recommended more applications of electronic games in teaching the Arabic language.

The previous studies that were reviewed are all located in the field of the Arabic language, and their sample varied in terms of location, as they included the Sultanate of Oman, Saudi Arabia, Palestine, Jordan, Malaysia, and Indonesia, and they also varied in terms of the time period that extended from 2019-2025. The research approaches of these studies varied, as most of them adopted the quasi-experimental approach, except for three studies that relied on the descriptive approach. The findings of the above reviewed supported the effectiveness of electronic gamification in teaching the Arabic language. The recommendations pointed out the necessity of continuing to use electronic gaming in teaching Arabic language. The reviewed studies inspired the present study in terms of using the theoretical framework, and methodological research approach. However, the present study differs from the other previous studies in that it seeks to measure the effectiveness of an educational program based on electronic gamification for teaching specific grammatical aspects for grade five students and also focuses on measuring the

retention of the learning effect. In previous studies, only two studies focused on measuring the delayed learning effect (Al-Abri, 2025; Ismath et Al, 2022). Another difference relates to the research methodological approach used to design the quasi-experimental research. Specifically, two experimental groups and two control groups were involved in the study. In previous studies, only two studies measured the role of gender on the performance (Al-Hashemi, 2022; Al-Saeedat, 2024).

PROBLEM STATEMENT

Some studies conducted in the Omani educational field have indicated that teaching grammar in cycle two (5-10) in the Sultanate of Oman requires a qualitative shift towards active and interactive teaching methods. This means exploring other alternatives related to more efficient teaching strategies. This can be achieved by adopting several solutions, including the strategies offered by e-learning, which has a wide range of options that make learning grammatical activities meaningful and achieve the planned learning objectives (Alabri et al., 2022; Al-Badri, 2021; Al-Balochi, 2018). Al Busaidi and Al Kaf (2025) also pointed out that teaching Arabic language branches at the basic education level, including grammatical activities, faces several and varied challenges, including lack of engagement in the instructional content itself. Thus, employing e-learning applications and artificial intelligence in teaching grammatical activities is considered a successful alternative to overcome the challenges of traditional teaching methods. Al-Rabi and Al-Mundhiri (2025) explained that some Arabic language teachers in the Sultanate of Oman tend to employ the usual and common strategies in the educational field in the process of teaching Arabic language branches. In their study, they recommended the necessity for Arabic language teachers to enhance their positive tendencies towards employing e-learning and artificial intelligence applications and to be more open to them than they are now.

In order to verify the existence of the research problem, the research team conducted a preliminary study by distributing a questionnaire that contained 10 close-ended questions to 50 Arabic language teachers (25 male and 25 female teachers) in cycle two schools in the Sultanate of Oman. the findings of the preliminary study indicated that:

- 44% Of the sample surveyed had little knowledge about the concept of electronic gaming as an active teaching strategy.
- 59% of them did not apply electronic gaming as an active teaching strategy due to the heavy school curriculum to be covered, the big number of students in the classrooms, the lack of teacher training to activate electronic gaming in the teaching process in the classroom, and the scarcity of electronic gaming programs prepared by curriculum department
- 86% of the sample surveyed need training programs on how to employ electronic games in the process of teaching grammatical activities.

Anecdotally, teaching grammatical activities in basic education schools requires updating teaching strategies to meet the educational and skill needs of the modern digital generation, according to the system of active learning characteristics. Accordingly, the problem of the current study is determined by the following main question:

What is the effectiveness of gamification-based program in the academic achievement of grade five students in the Sultanate of Oman in grammatical activities and the retention of learning?

STUDY HYPOTHESES

The following null hypotheses emerged from the main question of the study:

1.There are no statistically significant differences at the significance level of $\alpha \leq 0.05$ between the mean scores of students in the experimental and control groups in the post test of the grammatical activities test attributed to the use of a gamification-based program.

2.There are no statistically significant differences at the significance level of $\alpha \leq 0.05$ between the mean scores of the experimental group students in the applications of post-test and delayed post- test of the grammatical activities test attributed to a gamification-based program.

3.There are no statistically significant differences at the significance level of $\alpha \leq 0.05$ between the mean scores of the students of the experimental group in the delayed post-test of the grammatical activities test attributed to gender.

SIGNIFICANCE OF STUDY

The theoretical significance of this study is that it is in line with the National Education Strategy in the Sultanate of Oman 2040, as well as with the philosophy of education in the Sultanate of Oman, whose objectives include elevating the teaching process to the level of active learning theory and meaningful learning. In addition, this study will provide an introduction, a theoretical framework, and a comparison with previous studies regarding the topic of electronic gamification and how to employ it in teaching grammatical activities. The pedagogical significance of this study is that it may contribute to developing the teaching of grammatical activities for grade five students proposing an integrated training program based on "Gamification", in addition to providing a guide that Arabic language teachers can benefit from while practicing teaching with electronic games. The results of this study may also help Arabic language curriculum developers design modules in Arabic language curricula based on electronic play that can be applied in teaching grammatical activities.

STUDY TERMINOLOGY

Gamification can be defined as modern teaching contexts that employ electronic gamification in the teaching process, with the aim of increasing students' motivation to learn (Management Association, Information Resources, 2021). It can also be defined as the use of electronic technology for educational games by the teacher and learner; with the aim of stimulating the learning process in classroom teaching, which helps to develop deep learning skills (Naji and Aql, 2023). Whereas Luis and Gil (2025) defined it as the use of electronic games and their use in the teaching process in educational activities and teaching aids while maintaining the elements of enjoyment. For the purpose of the current study, electronic games can be operationally defined as digital educational content that can be designed by the Arabic language teacher or the students themselves via the "Class Point" program, in which the elements of electronic games are adapted, in order to foster students' engagement and interaction. The effectiveness of employing gamification in teaching grammar can be measured by the instruments utilized in this study.

Class Point is computer software, which is one of the modern technologies that teachers and learners can rely on to transform educational content into interactive lessons that actively engage learners. Class Point is characterized by the ease of dealing with presentations, transforming their content into interesting learning material, and it is compatible with many modern electronic devices. To address the needs of the different teaching contexts, Class Point offers diverse options such as sound, color, accumulation, and live interaction, reinforcement points and feedback (Al-Rawi, 2022).

RESEARCH METHODOLOGY

The study adopted the quasi-experimental approach: an experimental group, a control group for male students, and the same for female students. The quasi-experimental approach in the humanities is one of the approaches that leads to more valid and reliable results (Al-Buraiki et al., 2025; Beraha, 2025).

Study Population and Sample

The study population consisted of all grades five students in the North Al Batinah Educational Governorate in the Sultanate of Oman, numbering 15,186 male and female students (Ministry of Education, 2025). The study sample consisted of 120 male and female students from two different schools arranged as an experimental and a control group for male students, and an experimental and a control group for female students where each group included 30 students. To establish the equivalence between the experimental and control groups prior to the intervention, a pre-test was administered to all participants across both groups. Table 1 displays these results.

Table 1. Independent Samples t-Test Results Comparing Pretest Grammar Scores of Experimental and Control Groups.

Gender	Group	No.	Mean	SD	T. value	P. value
Male students	Experimental	30	6.92	2.29	0.13	0.90
	Control	30	6.54	2.18		
Female students	Experimental	30	7.31	2.01	0.12	0.90
	Control	30	7.22	2.12		

Table 1 showed that the two T Test values are not statistically significant for either male or female students, and this result enhances the equivalence between the two study groups.

Study Instruments

In order to examine the effectiveness of applying the electronic games on the academic achievement of grade five students in the Sultanate of Oman in grammatical activities and the retention of learning, a detailed guide has been prepared, consisting of 100 pages, which includes a definition of electronic games, their advantages and disadvantages, and how to apply them in teaching grammar lessons. It also incorporates examples of electronic games attached to some grammar lessons for grade five students in the first semester of 2024-2025 (i.e. inflection and structure, nominal sentence, subject, object, and prepositions). The guide was presented to some Arabic language supervisors, senior teachers, and some curriculum specialists at the General Directorate of Curriculum Development, and based on their observations, the guide was finalized.

An achievement test was also prepared with a sample answer for some of the prescribed grammar activity lessons (inflections and structures, nominal sentence, subject, object, and prepositions). The test consisted of 20 multiple-choice questions. To obtain the content validity of the test, it was reviewed by a panel that comprised of Arabic language supervisors, senior teachers and some curriculum specialists from the General Directorate of Curriculum Development. The final version of the test was developed based on their expert feedback and recommendations. To assess the reliability of the test, it was administered to a sample of 30 male students and 30 female students who were not part of the main study sample. The reliability coefficient, Cronbach Alpha, was found to be 0.86, indicating a high level of internal consistency. The average time required to complete the test was 36 minutes, determined by calculating the mean duration taken by the first five students to complete the test and the last five students to finish it. Table 2 shows the specifications of the achievement test of the grammatical activities.

Table 2. Cognitive level measured by the grammatical activities test.

Content	**Cognitive Level Measured by Grammar Activities Test**						**Total**	**Relative Weight**
	Remember	Understand	Apply	Analyze	Synthesize	Evaluate		
Inflection and structure	1	0	2	1	0	0	4	20%
Nominal Sentence	0	1	2	0	1	0	4	20%
Subject	1	0	2	0	1	0	4	20%
Object	0	1	2	0	0	1	4	20%
Prepositions	0	1	2	1	0	0	4	20%
Total	2	3	10	2	2	1	20	
Relative Weight	10%	15%	50%	10%	10%	5%	100%	

Additionally, the difficulty index and the discrimination index were calculated. The difficulty index determines the relative difficulty or ease of the test items, while the discrimination index measures the ability of the test items to differentiate between students with strong knowledge of the subject matter and those with weaker knowledge. These indices were computed by administering the test to 30 male students in addition to 30 female students who were not part of the study sample. Table 3 shows the results of the difficulty and discrimination coefficients.

Table 3. Values of difficulty and discrimination coefficients for the achievement test in grammatical activities Table.

Q. No.	**Difficulty index**	**Discrimination index**	**Q. No.**	**Difficulty index**	**Discrimination index**
1	0.60	0.40	11	0.68	0.38
2	0.70	0.45	12	0.57	0.58
3	0.66	0.61	13	0.71	0.45
4	0.55	0.50	14	0.70	0.39
5	0.64	0.38	15	0.70	0.62
6	0.35	0.56	16	0.70	0.60
7	0.68	0.59	17	0.65	0.59
8	0.71	0.72	18	0.66	0.39
9	0.65	0.49	19	0.69	0.70
10	0.43	0.65	20	0.71	0.71

Table 3 shows that the difficulty index values ranged between 0.35 – 0.71, while the discrimination index values ranged between 0.38 – 0.72, which are very good values and meet the conditions required in the achievement test. Tan (2022) indicates that the difficulty index ranges between 0 - 1. The test item that scores a zero is very difficult, while the one that scores 1 is very easy. The ideal difficulty values fall around 0.50, while the discrimination index ranges between -1 - +1. Positive values indicate that the test item was answered correctly by the outstanding students while the negative values indicate that the test item is not distinctive, as low-performing students answered it more correctly than good students, and usually in the discrimination index, values are considered ideal if they fall between 0.30 – 0.70.

FINDINGS AND DISCUSSION

This section presents the key findings derived from the analysis of the collected data. The results are organized according to the research questions and hypotheses outlined earlier.

Hypothesis 1: There are no statistically significant differences at the significance level of $\alpha \leq 0.05$ between the mean scores of students in the experimental and control groups in the post-test of the grammatical activities attributed to the use of a gamification-based program.

A - The differences between the mean scores of students in the experimental and control groups in the post test of the grammatical activities test are attributed to the use of a gamification-based program, and Table 4 shows the results.

Table 4. Independent samples t-test results comparing post-test grammar scores of male students in experimental and control groups.

Gender	Implementation	Group	Mean	SD	T-value	P-value
Male students	Post test	Experimental	13.55	2.60	5.50-	0.001
		Control	9.65	2.91		

Table 4 indicates that the mean score of male students in the experimental group in the post test was 13.55, which is higher than the mean score of students in the control group, which was 9.65. This difference is statistically significant at the significance level of $\alpha \leq 0.05$, in favor of the experimental group; therefore, the null hypothesis is rejected, and the alternative hypothesis is accepted. To determine the degree of effect of the independent variable on the dependent variable, the value of the effect size was calculated using the ETA square, which reached 0.55. This effect size indicates that 55% of the differences between male students in the experimental and control groups are due to the effect of grammatical activities based on electronic games. This result is considered large according to the classification of Kiess (1989), while the remaining percentage of 0.45 is due to other factors that are not quantified.

B - The differences between the mean scores of female students in the experimental and control groups in the post test of the grammatical activities are attributed to the use of the electronic program, and Table 5 shows the results.

Table 5. Independent Samples t-Test Results Comparing the Mean Posttest Scores of Female Students in the Experimental and Control Groups.

Gender	Implementation	Group	Mean	SD	T-value	P-value
Female students	Post test	Experimental	15.21	2.69	5.57-	0.001
		Control	11.44	2.95		

Table 5 indicated that the mean score of the female students in the experimental group in the post-test was 15.21, which is higher than the mean score of the female students in the control group, which was 11.44. This difference is statistically significant at the significance level of $\alpha \leq 0.05$, in favor of the experimental group; therefore, the null hypothesis is rejected, and the alternative hypothesis is accepted. To determine the degree of effect of the independent variable on the dependent variable, the value of the effect size was calculated using the ETA square, as its value reached 0.57. This size in the effect indicates that 57% of the differences between the female students in the experimental and control groups are due to the effect of grammatical activities of the e-game, and this result is considered large according to the classification of Kies, 1989, while the remaining percentage of 0.43 is due to other uncontrolled factors.

The results illustrated in Tables 4 and 5 indicate that the experiment of using Class Point was very effective to improve students' achievement in grammar among grade five students. This effectiveness can be attributed to the features of the e-game, such as auditory effects, color-coded cues, immediate student engagement, and instant feedback provided when responses are incorrect or incomplete. Additionally, the program fostered strong motivation for learning. In other words, the competitive nature of gamified classroom environments—where some students win and others lose—encourages adaptable interaction among all learners, thereby promoting improved thinking processes, problem-solving skills, decision-making, collaboration, and focused attention (Bansal et al., 2025).

Generally, the current generations' familiarity with digital learning tools likely created enthusiastic engagement with the program, leading to these positive outcomes. Susanto et al. (2025) emphasized that electronic gamification transforms learning into an enjoyable and challenging experience, increasing students' motivation and eagerness to participate. The findings of the present study align with previous research, including studies by Abu Hassan (2022), Abu Meizer and Al-Ajlouni (2023), Al-Saeedat (2024), Al-Abri (2025), and Al-Hashimi (2022), as well as international studies such as Alzuhair and Alkhuzaim (2022), Kholifia et al. (2025), Jaafar and Yusoff (2022), Ismath

et al. (2022), and Masrop et al. (2019). All of these studies reported the effectiveness of their experimental programs and research tools in the context of electronic gamification.

Hypothesis two: There are no statistically significant differences at the significance level of $\alpha \leq 0.05$ between the mean scores of the experimental group students in the post and delayed tests of the grammatical activities attributed to the use of gamification-based program. To answer this question, the delayed test was administered to the experimental group five weeks after the date of post-test, with the aim of testing the null hypothesis. To test the validity of the hypothesis, a paired-samples T-test was employed to determine the statistical significance of the differences between the mean scores of the two test administrations. Tables 6 and 7 present the results.

Table 6. Paired Samples t-Test Results Comparing Male Students' Posttest and Delayed-Test Scores in Grammar Activities.

Gender	Implementation	Mean	SD	T value	P value	Direction
Male students	Post test	14.53	2.69	1.84 -	0.042	Positive
	Delayed post test	16.02	2.60			

Table (6) showed that there were statistically significant differences at the significance level of $\alpha \leq 0.05$ between the mean scores of the students of the experimental group in the post- and delayed tests, as the mean score of the post-test was 14.53, while the mean score of the delayed test was 16.02, while the significance level was 0.042. This level is statistically significant at the significance level of $\alpha \leq 0.05$, and thus the null hypothesis is rejected, and the alternative hypothesis is accepted.

Table 7. Paired Samples t-Test Results Comparing Female Students' Posttest and Delayed-Test Scores in Grammar Activities.

Gender	Implementation	Mean	SD	T value	P value	Direction
Female students	Post test	15.21	2.60	1.84 -	0.041	Positive
	Delayed post test	17.86	2.48			

Table 7 showed that there were statistically significant differences at the significance level of $\alpha \leq 0.05$ between the mean scores of the students of the experimental group in the post- and delayed applications in the grammatical activities achievement test, as the mean score of the post-test was 15.21, while the mean score of the delayed test was 17.86, while the significance level was 0.041, and this level is statistically significant at the significance level of $\alpha \leq 0.05$, and thus the null hypothesis is rejected and the alternative hypothesis is accepted.

The results presented in Tables 6 and 7 indicate that the educational program prepared according to the characteristics and features of electronic gaming has an impact on the retention of the learning effect. The students in the experimental group were more likely to engage in meaningful learning, leading to enhanced understanding. As a result, the learning effect was retained over time in relation to the grammatical activities studied. These findings suggest that the instructional process within the experimental program was efficiently conducted, as evidenced by the learners' ability to recall, comprehend, and apply previously acquired knowledge over time. Similarly, Mary (2025) emphasizes that one of the key characteristics of learning in the 21st century is its continuity, particularly in terms of the lasting impact of the acquired knowledge. The researcher argues that the curriculum including the teaching methods should undergo fundamental transformations in both instructional design and learning processes to support and sustain this outcome.

The present study differs from all previous studies, whether Arabic studies (i.e. Abu Hassan, 2022; Abu Mizer and Al-Ajlouni, 2023; Al-Saeedat, 2024; Al-Abri, 2025; Al-Hashemi, 2022) or international studies (i.e. Alzuhair and Alkhuzaim, 2022; Kholifia et al, 2025; Jaafar and Yusoff, 2022; Ismath et al, 2022; Masrop et al. 2019) in its focus on measuring the retention of learning over time. Unlike earlier studies, which did not address this variable, the present research highlights this aspect as a distinctive contribution.

Hypothesis Three: There are no statistically significant differences at the significance level of $\alpha \leq 0.05$ between the mean scores of the students of the experimental group in the post-test attributed to gender. To answer this question, means and standard deviations of the students' scores in the post-test of grammar were calculated and Table 8 presents the results.

Table 8. Means and standard deviations of the students' scores in the post-test in relation to gender.

Gender	No.	Mean	SD
Male	30	12.16	2.98
Female	30	13.90	2.65

Table 8 shows that the means were in favor of female students, and in order to verify whether there were apparent differences in the mean scores attributable to gender. Analysis of Covariance (ANCOVA) was used, and Table 9 shows those results.

Table 9. ANCOVA results examining gender-based differences in students' post-test grammar scores.

Source of variance	Sum of squares	Degree of freedom (df)	Mean squares	F-value	Significance (p)	Eta square (η^2)
The test	142.179	1	142.179	30.440	.000	.414
Gender	13.223	1	13.223	3.074	.087	.067
Error variance	198.487	43	4.648			
	8672.000	46				

Table 9 shows that there are no statistically significant differences at the significance level of $\alpha \leq 0.05$ between the students' mean scores attributed to gender. It also appears from Table 9 that the effect size (Eta square) is very small. This indicates that gender does not have a noticeable impact on the students' achievement performance in grammatical activities when studying using electronic games. This may be because electronic gamification has provided an exciting, effective and interactive learning environment that has made the learning process more attractive to both male and female students. The educational characteristics of students at this stage also tend to accept challenges, new experiences, and new e-learning methodologies coupled with a growing interest in learning through electronic gamification. In this regard, Llic et al. (2022) argue that one of the defining educational characteristics of students in the 21st century is their wholehearted engagement with new forms of e-learning where students deeply interact with these digital learning environments, in contrast to traditional education, which often fails to stimulate learners' motivation for meaningful learning. Furthermore, the equal distribution of educational opportunities—reflected in the similarity of classroom environments, instructional content, enrichment and remedial activities, educational tools, utilization of electronic devices, learning protocols, motivation systems, feedback mechanisms, and the training workshops provided to teachers in both experimental groups—may have contributed to the absence of statistically significant differences between genders in the post and delayed achievement test. The current study is in line with the findings of Al-Saeedat (2024) and Al-Hashemi (2022), both reported no statistically significant differences attributed to gender. However, the present study diverges from other previous research, both conducted in Arabic and international contexts, in that those studies did not examine the impact of gender as a variable, which marks a distinctive contribution of this research.

CONCLUSION AND RECOMMENDATIONS

The present study examined the effectiveness of using class point platform, which is an example of employing electronic gamified learning, in improving students' grammatical achievement and retention among young learners of Arabic language. Adopting a quasi-experimental design, the results demonstrate that electronic gamification, when systematically integrated into grammar teaching, significantly improves student achievement and supports the long-term retention of grammatical concepts. Both male and female students in the experimental group outperformed their peers in the control group, highlighting the motivational and cognitive benefits of gamification-based instruction. The absence of gender-based differences further indicates that this approach is equitable and inclusive, providing engaging learning opportunities for all students. These results align with national and international calls for leveraging technology and active learning methodologies in language education, particularly within the framework of Oman's Education Strategy 2040. Therefore, the study underscores the need for curriculum developers, policymakers, and Arabic language teachers to adopt gamification as a core component of instructional design, supported by professional development programs and school infrastructure. By doing so, the teaching of grammatical activities can move beyond rote learning, fostering deeper understanding, creativity, and sustained learner engagement.

To enhance Arabic language instruction in primary education, the study recommends establishing specialized centers to support teachers in designing and implementing electronically gamified learning programs. It also advocates for the integration of digital learning modules into modern Arabic language curricula. Furthermore, targeted training programs and workshops should be provided to Arabic language teachers to equip them with the skills necessary to develop and apply gamified instructional strategies. The General Directorate of Curriculum Development has also issued guidelines aimed at improving teachers' use of online learning tools in classroom settings. Future research may focus on evaluating the content of Arabic language curricula in basic education in light of the pedagogical requirements of electronic gamification. Additionally, studies are needed to explore the attitudes and perceptions of Arabic language teachers toward the integration of digital learning tools in classroom instruction.

REFERENCES

Abu Al-Ainain, R. I. (2024). The impact of using gamification applications on the achievement of sixth grade students in the Kingdom of Saudi Arabia in Arabic grammar. *International Journal of Educational and Psychological Studies*, *13*(4), 776-786. https://doi.org/10.31559/EPS2024.13.4.8

Abu Dhabi Arabic Language Center. (2025). *Arabic language curricula in the Arab world, present experiences and future prospects*. House of Culture and Tourism in Abu Dhabi.

Abu Hassan, M. I. (2022). *The effectiveness of a gamification-based program in developing creative language skills among seventh-grade female students in schools in Jenin Governorate* [Master's thesis, Arab American University (AAUP)]. Arab American University warehouse. http://repository.aaup.edu/jspui/handle/123456789/2387

Abu Mizer, M., & Al-Ajlouni, K. (2023). The impact of using gamification in the e-learning environment on the motivation to learn the Arabic language for eighth grade students in the capital, Amman. *Journal of Educational Science Studies*, *50*(3), 256-266. https://doi.org/10.35516/edu.v50i3.3086

Al-Abri, F. S. (2025). *The effectiveness of activities based on electronic manipulation in the achievement of eleventh grade students in rhetoric and the survival of the impact of their learning* [unpublished master's thesis]. Sultan Qaboos University. Sultanate of Oman.

Alabri, S., Mirza, C., Bellalem, F., & Forouzani, M. (2022). Teachers' Beliefs about Grammar Teaching within a Context of Omani Secondary Schools. *Arab World English Journal, 13*(2), 401-411. https://dx.doi.org/10.24093/awej/vol13no2.27

Al-Badri, M. F. (2021). *The effectiveness of gamification-based programming in acquiring grammatical rules among sixth-grade primary school students in the Sultanate of Oman* [unpublished master's thesis]. Sultan Qaboos University. Sultanate of Oman.

Al-Balochi, Z. M. (2018). *Challenges facing Arabic language teachers' application of programmed instruction in grammar activities in post-basic schools in North Al Batinah Governorate* [unpublished master's thesis]. Sohar University. Sultanate of Oman.

Al-Buraiki, S. A., Al-Siyabi, S. S., & Alghafri, A. S. (2025). Examining the factors behind experimental group superiority in quasi-experimental research: A mixed-methods analysis of MA theses. *International Journal of Learning, Teaching and Educational Research*, *24*(9), 1–19. https://doi.org/10.26803/ijlter.24.9.1

Al Busaidi, A. S., & Al Kaf, F. M. (2025, February 24-26). The degree of employment of Arabic language teachers for artificial intelligence applications in teaching the Arabic language at the basic education level from the point of view of Arabic language supervisors in the Sultanate of Oman [research paper]. The Ninth International Conference of the College of Education: Psychology in Ordinary and Exceptional Circumstances: Contemporary and Future Visions, Sultanate of Oman. Muscat.

Al-Hashemi, A. M. (2022). The effectiveness of a gamified educational platform in accelerating reading among fourth-grade primary school students in the Sultanate of Oman. *Risalat Al Khaleej Al Arabi Magazine*, *44*(171), 97-115.

Al-Khatib, D. H. (2024). *Modern educational curricula*. Dar Al Hamed for Publishing and Distribution.

Al-Rabi, S. N., & Al-Mundhiri, R. S. (2025, February 24-26). Trends of Arabic language teachers in post-basic education towards artificial intelligence technologies [research paper]. The Ninth International Conference of the College of Education: Psychology in Ordinary and Exceptional Circumstances: Contemporary and Future Visions, Sultanate of Oman. Muscat.

Al-Rawi, A. (2022). Computer dictionary. Shelves.

Al-Saeedat, I. S. (2024). *The impact of using gaming applications on acquiring third-grade students' skills in Arabic grammar* [unpublished master's thesis]. Arab Open University. Amman.

Al-Salmi, F. S. (2018). The effectiveness of a proposed text-based program in developing grammatical thinking skills and reducing grammatical anxiety among students of the Arabic Language Department at Taif University. *Umm Al-Qura University Journal of Educational and Psychological Sciences*, *9*(1), 59-109. https://search.emarefa.net/detail/BIM-930724

Al-Sulaiti, D. S. (2018). Difficulties in teaching and learning grammar rules at the primary level in Qatar. *Journal of the Faculty of Education, Al-Azhar University*, *180* (Vol. 2), 387-428. https://doi.org/10.21608/jsrep.2018.39352

Alzuhair, N., & Alkhuzaim. (2002). The Effectiveness of a Gamified Electronic Application in Developing Reading Comprehension Abilities among First-Grade Intermediate Students in Saudi Arabia. *Education Research International*. https://doi.org/10.1155/edri/9817080

Bansal, R., Malik, G., & Singh, d. (2025). *Addressing Practical Problems Through the Metaverse and Game-Inspired Mechanics*. IGI Global.

Beraha, A. (2025). *Scientific Thought and Research Methodology*. Vernon Art and Science Incorporated.

Erickson, A., Lundell, J., Michela, E., & Pfleger, I. (2018). *Gamification in Kimmons, The Students' Guide to Learning Design and Research*. EdTech Books.

International Council for the Arabic Language. (2022). *Arabic Language Guidance Law*. Document.

Ismath, N., Jalil, S., & Rahman, t. (2022). The effectiveness of gamification in learning Arabic. *Attarbawiy Malaysian Online Journal of Education, 6*(2), 28-36. DOI: 10.53840/attarbawiy.v6i2.96

Jaafar, M., & Yusoff, N. (2022). Experimental Study of The Effectiveness of Gamification Module for Arabic Language in Primary School. *International Journal of Academic Research in Business and Social Sciences. 12*(6), 2102 – 2117.

Kholifia, N., Basith, A., Nasrulloh. M., & Fadly. A. (2025). Enhancing Arabic Speaking Skills: The Potential of Gamification in Reducing Language Anxiety. *Arabiyatuna: Jurnal Bahasa Arab, 9* (1), 290-306. https://doi.org/10.29240/jba.v9i1.12217

Kiess, H. (1989). *Statistical concepts for behavioral sciences*. Allyn and Bacon Nabavi.

King Salman International Academy for the Arabic Language. (2024). *Promoting the universality of the Arabic language*. Document.

Llic, M., Mikic. V., Kopanja. L., & Vesin. B. (2022, October 11-12). *Gamification Effectiveness in e-Learning Systems* Research paper. *12th International conference on Applied Internet and Information Technologies*, zrenjanin, Serbia .

Luis, A., & Gil, A. (2025). *The Gamification of Language Learning*. Editorial Verbum .

Management Association, Information Resources. (2021). *Research Anthology on Developments in Gamification and Game-based Learning*. IGI Global. https://doi.org/10.4018/978-1-6684-3710-0

Mary, S. (2025). *Learn Faster, Retain More, Achieve More: How to Master Any Skill with Smart Learning*. Recorded Books.

Masrop, N., Ishak, H., Zainuddin, G., Ramlan, R., & Sahrir,M. (2019). Digital Games Based Language Learning for Arabic Literacy Remedial. *Creative Education. 10*(12), https://doi.org/DOI: 10.4236/ce.2019.1012245

Ministry of Education. (2025). *Yearbook of Educational Statistics (55)*. Ministry of Education printing presses.

Naji, I. M., & Aqal, M. S. (2023). The effectiveness of a gamified learning environment in developing deep learning skills among female student teachers at Al-Aqsa University. *Journal of Educational Science Studies*, *50*(2), 155-173.

Nimr, A. M. (2021). *Gamification strategy and its role in acquiring scientific concepts*. Al-Yazouri Scientific Publishing and Distribution House.

Singaravelu, G., Kaliraj, P., & Devi. T. (2024). *Transformative Digital Technology for Disruptive Teaching and Learning*. CRC Press.

Susanto, H., Leu, F. Y., Bakry, S. H., & Haghi, A. K. (Eds.). (2025). *Digital Education: Security, Readiness, and Technology Enhancement*. CRC Press.

Tan, w. (2022). *Research Methods: A Practical Guide for Students and Researchers*. (2nd ed.) World Scientific.

