THE IMPACT OF GAMIFIED ONLINE LEARNING IN SOCIAL SCIENCES EDUCATION ON STUDENT ENGAGEMENT, MOTIVATION AND ACHIEVEMENT

O IMPACTO DA APRENDIZAGEM ON-LINE GAMIFICADA NO ENSINO DE CIÊNCIAS SOCIAIS SOBRE O ENVOLVIMENTO, A MOTIVAÇÃO E O DESEMPENHO DOS ALUNOS

EL IMPACTO DEL APRENDIZAJE ONLINE GAMIFICADO EN LA ENSEÑANZA DE LAS CIENCIAS SOCIALES SOBRE LA PARTICIPACIÓN, LA MOTIVACIÓN Y EL RENDIMIENTO DE LOS ESTUDIANTES

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ABSTRACT: This study aims to examine the impact of gamified online learning design applied in 4th grade Social Sciences course on academic success, motivational tendencies and high-level cognitive skills. Fifty-five students participated in the study, which used semi-experimental design, and the data were collected through achievement tests, Likert-type scales and structured teacher observations. The obtained findings revealed that gamifying mechanics (score, badge, task) resulted in significant increase in academic success ($t(54) = 9.12$, $p < .001$) and that student motivation rose from 3.10 to 4.30. In addition, the accuracy in problem solving rates increased by 23%, which proved that the method supports cognitive processes and critical thinking abilities. Furthermore, qualitative observations indicated that students developed a more positive attitude toward the course content through interactive competition. The results show that gamification can be a critical pedagogical tool in online social sciences teaching by fostering sustainable engagement and permanent learning outcomes.

KEYWORDS: Gamification. Online learning. Social sciences. Primary education. Cognitive skills.

RESUMO: *Este estudo tem como objetivo examinar o impacto do design de aprendizagem on-line gamificada aplicado na disciplina de Ciências Sociais do 4º ano sobre o sucesso acadêmico, as tendências motivacionais e as habilidades cognitivas de alto nível. Participaram do estudo 55 alunos; o estudo utilizou um desenho semiexperimental, e os dados foram coletados por meio de testes de desempenho, escalas do tipo Likert e observações estruturadas dos professores. Os resultados obtidos revelaram que os mecanismos de gamificação (pontuação, medalhas, tarefas) resultaram em um aumento significativo no sucesso acadêmico ($t(54) = 9,12$, $p < 0,001$) e que a motivação dos alunos aumentou de 3,10 para 4,30. Além disso, a precisão nas taxas de resolução de problemas aumentou em 23%, o que comprovou que o método apoia os processos cognitivos e as habilidades de pensamento crítico. Além disso, observações qualitativas indicaram que os alunos desenvolveram uma atitude mais positiva em relação ao conteúdo do curso por meio da competição interativa. Os resultados mostram que a gamificação pode ser uma ferramenta pedagógica essencial no ensino on-line de ciências sociais, promovendo um envolvimento sustentável e resultados de aprendizagem duradouros.*

PALAVRAS-CHAVE: *Gamificação. Aprendizagem on-line. Ciências sociais. Ensino fundamental. Habilidades cognitivas.*

RESUMEN: *El objetivo de este estudio es examinar el impacto del diseño de aprendizaje en línea gamificado aplicado en la asignatura de Ciencias Sociales de cuarto grado sobre el rendimiento académico, las tendencias motivacionales y las habilidades cognitivas de alto nivel. En el estudio participaron 55 estudiantes; se utilizó un diseño semiexperimental y los datos se recopilaron mediante pruebas de rendimiento, escalas tipo Likert y observaciones estructuradas de los docentes. Los resultados obtenidos revelaron que las mecánicas de gamificación (puntuación, insignias, tareas) dieron lugar a un aumento significativo en el rendimiento académico ($t(54) = 9,12$, $p < 0,001$) y que la motivación de los estudiantes aumentó de 3,10 a 4,30. Además, la precisión en las tasas de resolución de problemas aumentó en un 23 %, lo que demostró que el método favorece los procesos cognitivos y las habilidades de pensamiento crítico. Por otra parte, las observaciones cualitativas indicaron que los estudiantes desarrollaron una actitud más positiva hacia el contenido del curso a través de la competencia interactiva. Los resultados muestran que la gamificación puede ser una herramienta pedagógica fundamental en la enseñanza en línea de las ciencias sociales, al fomentar un compromiso sostenible y resultados de aprendizaje permanentes.*

PALABRAS CLAVE: *Gamificación. Aprendizaje en línea. Ciencias sociales. Educación primaria. Habilidades cognitivas.*

INTRODUCTION

Digital transformation in education has necessitated the replacement of traditional methods with interactive and student-oriented approaches. In this context, gamification emerges as an innovative strategy which blends game mechanics with pedagogical objectives to ensure active student participation in the process (Köçeri & Arslan, 2025). The literature underlines the positive effects of gamification on motivation and success; however, the limited number of specific studies on primary school Social Sciences course constitutes the main source of motivation of this paper (Şengün, 2021).

Using technology in education allowed for innovative approaches in teaching. Gamification is the application of game mechanics elements such as scores, badges, and task systems to learning environment (Marangoz, 2024). Previous research shows that gamified learning had positive impact on learner motivation, participation and academic success. However, only a few studies have examined the impact of gamification at primary school level and particularly in social sciences courses. Making educational technologies accessible to everyone strengthens economic sustainability and contributes to achieving higher quality learning outcomes.

Using technology in education allowed for innovative approaches in teaching. Gamification is the application of game mechanics elements such as scores, badges, and task systems to learning environment which encourages more active engagement of the students to learning processes (Karahan, 2023; Rokhmat et al., 2025; Christopoulos & Mystakidis, 2023). Studies show that gamification supports participation of students to school environment and has a positive impact on motivation and academic success (Andrlić, 2026; Erkan & Çelik, 2023; Kapp, 2021; Yurdaöz & İletir, 2023).

Studies investigating the impact of gamification in primary education and especially in Social Sciences classes are on the rise recently. For example, it has been reported that gamification applications in social science classes have a positive effect on the motivation, academic achievement and learning retention of students (Kaçar, 2023). In addition, a meta-analysis work has shown that gamification in education has significant impact on learning outcomes in general (Ak & Oruç, 2022).

This research is essential in that it examines the reactions of 4th grade students to gamification practices in online social science classes and the impact of these applications on their academic success, motivation and cognitive skills. The research provides scientific data for teachers on how gamification strategies can be applied to increase student participation and

raise in-class motivation. In addition, it analyses the effects of game-based learning on high-level cognitive skills and offers pedagogical implications in the field of educational programs and teaching.

The purpose of this study is to investigate the impact of gamified social science teaching on the academic success, motivation and cognitive skills of 4th grade elementary school students. In this context, the study analyzed the changes imposed by gamification applications in the class participation, motivation and critical thinking skills of students.

This study seeks answers to the following questions:

1. Do gamified online social science classes increase the academic success of students?
2. Does gamification affect the motivation of students and their attitude towards the course positively?
3. Do gamification practices improve the cognitive and critical thinking skills of students?

LITERATURE REVIEW

In recent years, the integration of digital technologies into education and teaching has changed the outlook of learning settings considerably. Today, technology plays a crucial role in building the social skills, research, and development needed to meet innovation and digitalization demands (Caraig, 2024). This digital transformation and the rise of gamification in education, especially with the popularization of online learning platforms, has led to a reevaluation of traditional and rote-learning approaches. Therefore, increasing the learning motivation of students in digital environments has become an important field of research. In this context, gamification is an innovative and pedagogical strategy which promotes active participation of students in the learning processes.

Gamification is defined as using mechanics, dynamics and aesthetic elements specific to game design in a non-game context (Li & Ma, 2023). Gamification in education and teaching process, on the other hand, consists of scoring systems, ranking charts, progress indicators, badges, and tasks. The aim here is to encourage more active student participation in the learning and teaching process by updating the course content with elements such as scenario-based storytelling or narrative techniques, in line with the course objectives. This approach can serve

to attract the attention of the students and, at the same time, learning experience can be made more meaningful and sustainable.

It can be seen that gamification has a special importance from the perspective of social studies education. Social science is a field which is created by the combination of several disciplines. Fields such as sociology, history, geography, anthropology, psychology, law, economics and politics mostly include complicated social structures, historical processes, and abstract concepts which can lead to a decrease in the motivation of students in learning settings and their interaction with the course material remaining limited. Gamification, on the other hand, can contribute to overcoming this problem by integrating the elements of interaction, competition, and exploration into learning processes.

Several motivation theories help explain the effectiveness of gamification in education. Self-Determination Theory argues that intrinsic motivation is strengthened when three basic psychological needs are supported: autonomy, competence, and relatedness (Deci & Ryan, 2000). Gamified learning environments may address these needs when students can make choices, receive progressive feedback, and experience collaboration with peers. Flow theory also helps explain why well-designed gamified tasks may sustain engagement: when challenges are clear, feedback is immediate, and task difficulty is balanced with students' skills, learners may experience a state of deep concentration and involvement (Csikszentmihalyi, 1990).

The opportunity of managing their own learning processes in gamified learning environments strengthens the sense of autonomy of students. In compliance with the course content, the ability for students to choose different tasks or to follow alternative learning paths based on their individual learning styles and interests allows them to experience a sense of control over their own learning process. By this means, an environment of cooperation and competition is created between students, and their class participation and learning motivation improves.

At this point, gamification should be assessed not only as an instrument to increase motivation, but also as a design approach that shapes the learning behaviors of students. The literature emphasizes the importance of designing gamification elements consciously and in line with pedagogical purposes. Ranking charts trigger comparison mechanisms among students, whereas task-based structures can strengthen students' sense of competence and ensure that they are more active in the learning process (Deci & Ryan, 2000; Deterding et al., 2011).

Students' level of commitment to the course is a critical factor in terms of learning outcomes in online learning settings. In Social Studies course students usually encounter long texts, conceptual analyses, and multi-dimensional social processes and contents. This, in turn, can make it more challenging for the students to maintain their focus, especially in digital environments.

According to the literature, gamification is observed to make learning materials more interactive and to increase the cognitive, emotional, and behavioral engagement of students. Research conducted by Hanus and Fox (2015), however, also warn that gamified class environments based excessively on rewards may have negative effects on intrinsic motivation. This indicates that the pedagogical design of game elements is as important as their presence in the learning environment.

Similarly, gamification increases the cognitive engagement of students especially in learning complicated topics (Landers & Landers, 2014). According to the researchers, gamified tasks and problem-solving scenarios improve the critical thinking and creativity skills of students and help them relate theoretical knowledge with real-life contexts.

Scenario-based gamification applications used in social studies education allow students to evaluate historical events, political processes, or sociological phenomena from different perspectives. For example, role-making or story-telling based gamification applications used in history classes can help students understand the perspectives of certain historical actors. Such experience-based learning processes can help students develop empathy and analyze complicated social processes more deeply.

A significant portion of the studies that examine the impact of gamification applications on education focus on evaluating the impacts on academic success. Studies in this field reveal that gamification in general ensures that students have more time for learning processes, which, eventually, can create positive effects on learning outcomes.

A comprehensive meta-analysis study shows that gamification applications usually create positive results in different education contexts (Li et al., 2023). However, researchers underline that this effect is mostly a function of the quality of design. It is argued that if gamification is implemented only as a superficial motivation strategy based on reward mechanisms, its long-terms learning effects might remain limited.

Empirical studies on gamified learning indicate that game elements tend to affect learning outcomes indirectly by changing students' learning behaviors, especially time-on-task, participation, and persistence (Hamari et al., 2014; Landers & Landers, 2014). For example,

scoring systems or task mechanisms can encourage students to spend more time on learning activities, and this behavioral change can increase academic success indirectly.

Gamification in Social Studies courses offers a safe learning environment which allows students to explore complicated social concepts in an experience-based manner. These settings allow students to try different strategies and develop alternative ways of thinking without fear of making mistakes. Thus, learning process can be transformed into a process-based development model from a solely results-oriented evaluation focused on exam success.

Although gamification has yielded some positive results in education, there is some criticism in the literature. It is particularly argued that the internal motivation of students can be affected negatively when external awards are excessively used. This situation is explained by a psychological phenomenon known as the "over-justification effect."

In addition, some researchers state that gamification can lead to excessive competition among students and lead to loss of motivation for especially low-performing students. For this reason, it is essential that gamification design creates a balanced structure between competition and cooperation.

Another limitation is the requirement of designing gamification applications in accordance with pedagogical targets. Using the game elements only as a superficial motivation instrument can reduce the depth of the learning experience. For this reason, the design of gamification must be structured in parallel with teaching targets, learning outcomes and the needs of students.

General overview of the studies in the literature show that gamification has an important potential in terms of increasing the motivation of students, strengthening their participation in learning processes, and supporting their cognitive interaction during online social studies education. However, for gamification to be effective, a design approach that is consistent with pedagogical goals must be adopted.

Especially in disciplines such as social studies, where interpretation, analysis and critical thinking are at the forefront, gamification practices can make the learning experiences of students more meaningful and interactive. For this reason, it is essential that further studies should examine in detail how gamification can be applied in different social science disciplines and their impact on long-term learning outcomes.

METHODOLOGY

The study was conducted with a pre-test/post-test semi-experimental design without control group, with quantitative data supported by qualitative observations. Fifty-five 4th grade students received instruction through an online platform based on scores, badges and tasks. Paired samples t-test was used to analyze the data, and effect sizes were calculated using Cohen's d coefficient.

The sample of the research consisted of fifty-five 4th grade elementary school students, 33 of whom were female and 22 male. In the educational system in which the study was conducted, fourth grade generally corresponds to children aged approximately 9-10 years; the participants in this sample were within this age range. The sample was selected using convenience sampling, and the students participated voluntarily. Within the scope of the study students received instruction in a single classroom and course setting.

The research process continued for 6 weeks in total. The process consisted of the following steps: the academic success level, motivation, and cognitive skills of students were measured before the study. The students participated in online activities supported by score, badge and task-based gamification mechanisms during the social sciences classes. Short quizzes and problem-solving tasks were applied on a weekly basis. At the end of the research, the academic success levels, motivation levels and cognitive skills of the students were measured again.

This study employed data collection tools in accordance with the three basic problem sentences. The academic achievement of students was evaluated out of 100 points, and the success criteria were weekly short quizzes. The achievement test and the quizzes were performed before and after the application and the extent to which students achieved their course objectives and changes in their learning processes were examined. Motivation and attitude of students towards the class was assessed using 5-point Likert type motivation scale and teacher observation form. Likert scale measures the perception and motivation level of students towards the class quantitatively. In addition, teacher observation form was used to qualitatively describe the students' task completion rate, class participation and active engagement in discussions. Problem-solving and critical thinking skills of students were measured through their problem-solving tasks, concept maps and conceptual analysis-based written activities. These instruments were implemented to display the students' abilities for analyzing, synthesizing and implementing knowledge based on pre-test and post-test

comparisons. With these data collection tools, the changes in the academic success, motivation, and cognitive skills of students were examined using both qualitative and quantitative data.

The data of this study were analyzed using SPSS 26. Paired samples t-test was used to compare pre-test and post-test findings. Cohen's d was used to determine the effect size and Cronbach's Alpha was used to determine sample reliability.

Exams and quizzes were used to measure student achievement as a data collection method, thus enabling an analysis of change in achievement. Likert scales and teacher observations were used to determine students' motivation and attitudes. Data on students' cognitive and critical thinking skills were collected through problem-solving tasks.

In this study, students' academic achievement was measured by comparing their exam scores before and after gamification, while their motivation and attitudes towards the course were determined using Likert-type questionnaires and teacher observations. Their cognitive skills were measured through problem-solving and critical thinking tasks.

RESULTS AND DISCUSSION

In this section, findings are presented and interpreted on the impact of gamified online Social Sciences teaching on the academic success, motivation and cognitive skills of 4th grade students.

Academic success

Academic success levels of students have been measured through achievement tests and short quizzes applied before and after gamification.

Table 1.
Pre- and post-test academic achievement scores

Measurement	Pre-Test Mean (SD)	Post-Test Mean (SD)	Increase (%)
Achievement Test (100 pts)	68.00 (8.45)	82.00 (7.90)	20.6%
Weekly Quiz Average	70.00 (7.50)	84.00 (6.90)	20%

Note. The Author.

When Table 1 is examined, it can be seen that the pre-gamification achievement test mean score of students is M = 68.00 (SD = 8.45) whereas the post-application score is M = 82.00 (SD = 7.90). Similar increase was observed in weekly quiz mean scores with the scores increasing from 70 to 84.

Paired samples t-test showed that this difference is statistically significant: t(54) = 9,12, p < .001, effect size Cohen's d = 1,23. These findings reveal that gamified teaching design significantly increases the academic success of students.

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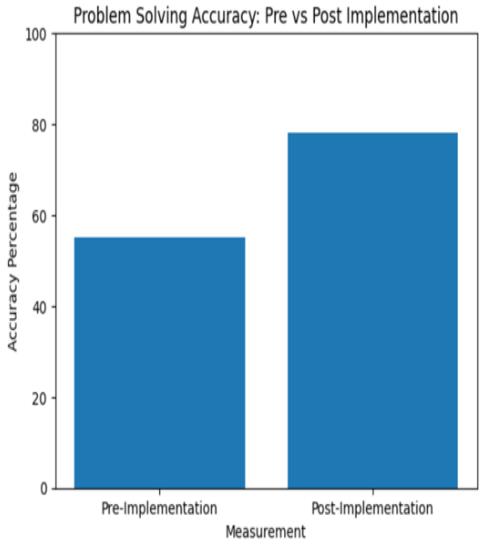
Figure 1.
Academic achievement: pre-test vs post-test



Note. The Author.

The figure presents a comparison of pre- and post-gamification academic success scores of students. Post-test mean scores increased statistically significantly compared to pre-test mean scores.

It shows the comparison of pre- and post-gamification academic success scores of students. The obtained results indicate that gamification increases academic success by making the learning process more structured, motivating and repeatable. Evaluated from the perspective of education programs and teaching, it can be claimed that planning the score, badge and task systems integrated in teaching design in line with learning outcomes is effective in improving achievement levels.

Motivation and attitude findings

Motivation of the students and their attitude towards the class were measured using 5-point Likert-type questionnaire and teacher observation form.

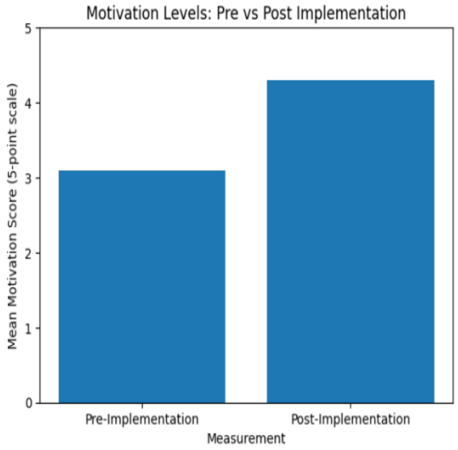
Table 2.
Motivation and attitude scores

Measurement	Pre-Implementation Mean (SD)	Post-Implementation Mean (SD)	Increase
Motivation Scale (5-point)	3.10 (0.52)	4.3	+1.2
Active Participation Rate	60 (12.3)	85 (10.5)	+25%

Note. The Author.

Cronbach's Alpha for the reliability of the scale was calculated as 0.88. According to the paired samples t-test, the difference in motivation scores was found to be significant: t(54) = 11.45, p < .001, effect size Cohen's d = 1.54. Pre- and post-implementation comparison of the motivation scores of the students shows that gamification increases the interest and participation of students for the class.

Figure 2.
Motivation levels: pre vs post implementation



Note. The Author.

Figure 2 shows that pre-implementation and post-implementation comparisons of the motivation scores of students is presented. The findings show that motivation levels increased at a statistically significant rate after the implementation (t (54) = 11,45, p < .001; Cohen's d = 1,54). This result displays that the interest and participation of students towards class have increased.

These results show that gamification has a powerful effect as a motivational tool especially at elementary school level. Evaluated based on student-centered teaching understanding, game mechanics have made learning environment more interactive and supportive, which, in turn, ensured that students develop a positive attitude towards learning in program implementation process.

Cognitive skills and critical thinking findings

Cognitive skills of the students were evaluated through problem-solving tasks, conceptual maps, and analysis-based written activities.

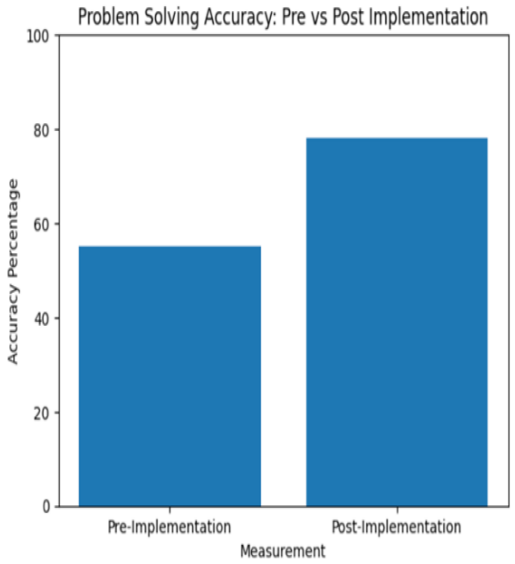
Table 3.
Problem solving and critical thinking scores

Measurement	Pre-Implementation (SD)	Post-Implementation (SD)	Increase (%)
Problem Solving Accuracy	55 (9.10)	78 (8.20)	23%
Conceptual Analysis Score (100 pts)	62 (8.50)	80 (7.60)	29%

Note. The Author.

When Table 3 is examined, it can be seen that problem-solving accuracy rates increased from 55% to 78% and conceptual analysis scores went up from 62 to 80. Paired samples t-test has shown that these differences are statistically significant: $t(54) = 10{,}37$, $p < .001$, Cohen's $d = 1{,}40$.

Figure 3.
Problem solving accuracy: pre vs post implementation



Note. The Author.

Figure 3 shows illustrate that pre- and post-gamification problem-solving accuracy rates of students are given in comparison. Statistically significant increase was observed in the aftermath of the implementation.

These findings show that gamified teaching strategies contribute to the development of high-level cognitive skills of the students. The task-based structure reinforced the students' processes of applying, analyzing and relating knowledge. Evaluated from the perspective of education programs, gamified teaching design produced results that are compatible with higher-order cognitive objectives, such as analysis, synthesis, and evaluation (Bloom et al., 1956).

Research findings reveal that gamified online social sciences teaching has a significant and powerful impact on academic success, motivation and cognitive skills. The increase in academic success levels proves that gamified teaching design strengthens the students' level of reaching their learning targets. The improvement in motivation and active engagement verifies that game mechanics make learning environment more interactive and supportive. The improvement in cognitive skills, on the other hand, reinforced the analysis, synthesis and problem-solving skills of students, which is in line with Bloom's high-level cognitive skills. As a result, gamification can be evaluated as an effective pedagogical strategy in the context of education programs and teaching.

One of the most striking results of the study is the acceleration in academic success. The application score increased from 68.00 to 82.00 after the implementation ($d = 1.23$). This shows that by making the learning process more fragmented and achievable gamification reduces anxiety and increases focus among students.

The changes in the motivation, class participation and cognitive skills of the students were supported by teacher observation forms. As a result of these observations significant increase was observed in the class participation rates of students. Prior to implementation approximately 60% of the students participated in the classes whereas this rate increased to 85% following the gamified activities. This increase displays that the interest and participation willingness of students for class activities is strengthened.

Participation of students in active discussions also increased significantly. In the pre-application group discussions, only half of the students shared their opinions, whereas in the post-application phase, 78% of the students participated in the discussions and evaluated the comments made by their peers. This result shows that game mechanics encourage students to express their opinions and participate in cooperative discussions.

Task completion rates showed a similar increase. In the pre-implementation phase, problem-solving and conceptual analysis task completion rates of students were 55% whereas it increased to 82% after the implementation. Students not only completed the tasks assigned to

them; they also offered alternative solutions and performed their tasks more effectively by performing cooperation within their group.

Observations show that there is an apparent improvement in the critical thinking behaviors of the students. They established cause-and-effect relationships in group discussions, presented their ideas in an organized way in conceptual maps, and offered rational alternative solutions in problem-solving tasks, which verify that gamification application strengthened their cognitive processes and supported their top-level thinking abilities.

Observations have revealed positive results in terms of motivation and attitude towards the course. Students were willing to complete the tasks; they remained active in the learning process by tracking their game scores and developed a more positive attitude in general towards the class environment. These qualitative findings support the students' development in motivation and cognitive skills in a manner consistent with quantitative findings.

Findings obtained from the study show that gamified teaching design significantly increases academic success and student commitment in 4th grade Social Studies course. The 20.6% increase between pre-test (M = 68.00) and post-test (M = 82.00) scores in particular and the stable increase in weekly quiz scores indicate that gamification elements structure the learning process. These findings are consistent with the meta-analytic evidence on the positive outcomes produced by gamification in educational contexts (Li et al., 2023). The high effect size in our study (d = 1.23) indicates m gamification may operate not only as a motivation tool, but also as an instructional strategy with relevant effects on cognitive performance.

The increase in weekly quiz means scores and achievement tests implies that the scoring and task models used in the system improved students' time management and focusing skills. This phenomenon supports the theory of gamiefied learning, according to which game elements can affect academic success by increasing time-on-task and directing learners' behavior toward instructional activities (Landers & Landers, 2014). It was observed that especially the "badge" and "score" system used in our study made the feeling of achievement more visible to students, which makes learning process more "repeatable". This finding is consistent with studies indicating that gamification and digital badging in online learning environments can increase individual responsibility and cognitive engagement (Buckley & Doyle, 2016; Pederson, 2025).

When motivation and attitude data are evaluated together, it can be argued that gamification in a densely theoretical field such as social studies served to break down students' prejudices against the course. According to the literature, game mechanics which support the feeling of autonomy and competence nurtured the internal motivations of 4th grade students in

our research (Gautier, 2025). In conclusion, when gamification elements are integrated with the correct pedagogical setup, students not only see their grades increase, but they also develop a more positive attitude towards learning (Almufarreh, 2026).

FINAL CONSIDERATIONS

This study examined the impact of gamified online Social Sciences teaching on the academic success, engagement, and cognitive skills of 4th grade students, generally aged 9-10. The achievement test and weekly quiz scores of students increased significantly in the post-implementation phase, which indicates that game mechanics can structure the learning process and reinforce learner success. Class participation and motivation scores also increased significantly. Students attended class activities more willingly, focused on completing their tasks, and actively engaged in learning processes by following game mechanics. The increase in performance in problem-solving and conceptual analysis tasks suggests improvement in higher-order cognitive skills, including cause-and-effect reasoning, organization of ideas, and development of alternative solutions. Qualitative observations confirmed improvements in motivation, attitude, and cognitive engagement, in a manner consistent with quantitative data.

Gamified online social sciences teaching can therefore be evaluated as an effective pedagogical strategy when it makes the learning process more interactive, motivating and cognitively enriched. This study offers evidence that gamified online learning environments in Social Sciences classes are not only an element of entertainment, but structured instructional strategies that may increase achievement and cognitive engagement when aligned with curricular objectives, age characteristics, and the specific demands of the subject area.

In line with the research findings, usage of game mechanics based on scores, badges and task-based mechanics in instructional design can increase the active participation of students in the learning process. It is recommended to support the cognitive and critical thinking skills of students through conceptual analysis tasks, group discussions, and problem-solving activities. Observations and feedback from teachers can contribute to the identifying of areas where students need additional support. In addition, effective usage of online platforms can also make the learning process more motivating and interactive. It should also be noted that the study is limited to a small convenience sample of 55 students from a single location, it used one-group design without a control group, and the intervention lasted only six weeks. These characteristics limit the generalizability of the findings and do not allow causal claims as strong as those that could be obtained from randomized or controlled designs. Future studies should include larger

and more diverse samples, compare experimental and control groups, examine different age groups and school systems, and investigate long-term effects of gamification across different social sciences topics and curricular contexts.

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