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The Effect of Gamified English Language Instruction on the Emotional Intelligence of First Grade Children

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A B S T R A C T

Purpose: This study aimed to investigate the effect of gamified English language instruction on the emotional intelligence of first-grade children.
Methods and Materials: A quasi-experimental design with pretest-posttest and a control group was used. The study population included first-grade students from District 2 of Tehran during the 2024–2025 academic year. Using cluster random sampling, 30 children were selected and randomly assigned to either the experimental group (n = 15) or the control group (n = 15). The data collection tool was the standardized 31-item pictorial Emotional Intelligence Questionnaire for Children (CEIT-R), which was administered before and after the intervention. The experimental group received a 10-session gamified English language instruction program, incorporating educational tools such as songs, storytelling, puzzles, magnetic boards, crafts, and Montessori materials designed to engage learners through play-based methods. The control group received no intervention. Data were analyzed using SPSS-26, employing descriptive statistics, Kolmogorov–Smirnov test for normality, Levene's test for homogeneity of variances, Box's M test for covariance homogeneity, multivariate analysis of covariance (MANCOVA), and between-subjects effects tests.
Findings: The results of MANCOVA showed a significant effect of the intervention on total emotional intelligence and its components, including self-awareness, social awareness, self-management, and relationship management (Pillai's Trace = 0.97, F = 244.97, $p < 0.01$). Between-group comparisons in the posttest revealed significant differences in favor of the experimental group across all components: self-awareness ($F = 189.83$, $p < 0.01$, $\eta^2 = 0.87$), social awareness ($F = 138.43$, $p < 0.01$, $\eta^2 = 0.83$), self-management ($F = 127.05$, $p < 0.01$, $\eta^2 = 0.82$), relationship management ($F = 443.03$, $p < 0.01$, $\eta^2 = 0.94$), and total emotional intelligence ($F = 855.11$, $p < 0.01$, $\eta^2 = 0.97$).
Conclusion: These findings suggest that integrating playful and interactive methods into early language education can be an effective strategy for supporting emotional development in young learners.
Keywords: *gamification, English language instruction, standard emotional intelligence of children*

1. Introduction

In recent decades, emotional intelligence (EI) has emerged as a critical construct in educational psychology, emphasizing the role of emotional self-awareness, regulation, and interpersonal skills in fostering both academic and personal success among children. Emotional intelligence, particularly in early childhood, plays a foundational role in shaping social behaviors, adaptive functioning, and psychological resilience. As proposed by Mayer and Salovey and extended by Goleman, EI encompasses multiple components such as self-awareness, self-management, social awareness, and relationship management, all of which significantly influence a child's ability to navigate complex emotional and social environments. Early interventions to cultivate these competencies are considered essential, especially within formal educational settings. With the growing emphasis on holistic education, innovative pedagogical approaches such as gamification have gained prominence as potentially effective strategies for enhancing both cognitive and emotional development in young learners (Shafiabadi et al., 2009).

Gamification, defined as the integration of game elements and design principles in non-game contexts, has demonstrated substantial potential in boosting student engagement, motivation, and learning outcomes. In particular, the application of gamified methods in language learning has been shown to create immersive, playful environments where students actively construct knowledge while simultaneously developing emotional and social competencies (Ahmadi et al., 2023). As children engage with language content through music, storytelling, puzzles, crafts, and team-based competition, they experience emotional stimulation and opportunities for cooperative behavior, emotional expression, and regulation. These conditions align with the core elements of emotional intelligence, suggesting a natural synergy between gamified instruction and the development of EI-related skills (Abdelwahed, 2020). The structured, playful nature of gamified English instruction can provide a safe and stimulating context for first-grade children to explore and express emotions while learning a second language.

Several studies have highlighted the psychological benefits of integrating game-based learning into early childhood education. Abdelwahed (2020) emphasized that game-based instruction not only enhances cognitive learning but also improves emotional and social skills by fostering student autonomy, joy, and collaboration (Abdelwahed, 2020). Aguyaros and Ruano (2021) also found that the use of educational games supports the development of multiple intelligences, including interpersonal and intrapersonal intelligence, both of which are closely aligned with EI (Aguyaros & Ruano, 2021). Additionally, research by Boonpracha (2023) suggests that creativity-based frameworks like SCAMPER, often incorporated into gamified learning, stimulate emotional fluency and divergent thinking, both central to emotional adaptability and intelligence (Boonpracha, 2023). In light of these findings, it becomes increasingly important to evaluate the practical impacts of gamification on EI within real classroom contexts, particularly among young learners in foundational stages of education.

The connection between emotional intelligence and academic success has been documented across various educational levels. Maleki Avarsin and Seyedkalan (2008) established a direct relationship between emotional intelligence and teaching effectiveness in university faculty, implying that EI is not only a developmental construct but also a determinant of success in learning and instruction (Maleki Avarsin & Seyedkalan, 2008). Although these insights primarily pertain to higher education, they underscore the importance of nurturing EI from an early age to support long-term academic achievement. Within the context of primary education, interventions that combine academic instruction with emotional development are likely to yield holistic benefits, equipping students with the tools needed for sustained academic and social success.

The emergence of gamification in digital and virtual environments has further expanded its applicability and relevance. Ibrahimi Pour and Bagheri (2024) demonstrated that gamification in virtual classrooms significantly enhances both academic performance and motivation among students, indicating the method's utility in hybrid and online learning environments (Ibrahimi Pour & Bagheri, 2024). Similarly, Tsai's (2020) meta-analysis of digital game-based science learning showed consistent positive effects on knowledge acquisition and student engagement, highlighting the adaptability of gamified learning across disciplines and age groups (Tsai, 2020). These findings reinforce the notion that game-based pedagogy, whether digital or analog, can significantly contribute to emotional and cognitive development when implemented with intentional design.

While gamification has been widely studied in terms of its motivational and cognitive outcomes, its potential for

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enhancing emotional intelligence remains underexplored, particularly in non-digital contexts. Portier and Sanchiz (2024) argue that the effectiveness of game-based learning is strongly influenced by factors such as prior knowledge, gaming experience, and the nature of instructional messages, suggesting that the emotional dimension of learning is deeply embedded in how games are introduced and facilitated (Portier & Sanchiz, 2024). Similarly, Jobert and Sanchiz (2025) found that teachers' perceptions of board games in the classroom vary based on the perceived seriousness of the games and teacher characteristics, indicating that the emotional tone and perceived relevance of gamified content affect its reception and impact (Jobert & Sanchiz, 2025). These insights suggest that emotional engagement is not a byproduct but a core element of successful gamified learning interventions.

In addition to motivational and perceptual factors, cultural and contextual variables must also be considered. Baradaran (2022), in a study involving fourth-grade students in Iran, showed that gamification significantly improved learning outcomes in science education, indicating that localized implementation of gamified strategies can align with national curricula and educational goals (Baradaran, 2022). Ahmadi et al. (2023) also found that gamification enhanced students' environmental literacy, further validating its interdisciplinary potential in promoting not just cognitive but also affective learning (Ahmadi et al., 2023). These studies conducted within the Iranian educational context provide a valuable reference point for exploring the effects of gamified instruction on emotional intelligence in young Iranian learners.

The psychological mechanisms underlying gamified learning may also contribute directly to emotional intelligence. According to Steinkeller and Grosse (2022), analog games foster more social behavior among children than digital games, creating face-to-face interactions that are crucial for emotional recognition, empathy development, and cooperative learning (Steinkeller & Grosse, 2022). This observation is particularly relevant to interventions aimed at improving EI, as many core components—such as self-awareness, social awareness, and relationship management—are best cultivated through live social engagement rather than screen-based experiences. The inherently social and interactive structure of gamified English instruction, especially when implemented with group games, collaborative crafts, and competitive tasks, may serve as a fertile ground for emotional growth.

Moreover, integrating emotional intelligence into language education aligns with broader theories of multiple intelligences. Ahrami et al. (2012) linked multiple intelligences—especially interpersonal and intrapersonal types—with traditional IQ measures in children, suggesting that educational methods targeting multiple modalities can significantly enrich emotional and intellectual development (Ahrami et al., 2012). Game-based English instruction offers a multimodal learning environment that stimulates linguistic, spatial, kinesthetic, and interpersonal intelligences simultaneously, potentially resulting in more balanced development across cognitive and emotional domains. Palha and Matic (2023) also underscore the importance of teacher predispositions toward game-based pedagogy, arguing that educators' openness to such methods plays a pivotal role in their successful implementation and outcomes (Palha & Matic, 2023).

Finally, the educational implications of enhancing emotional intelligence through gamified instruction are both immediate and long-term. Nakoa (2019) reviewed the use of board games in health education and emphasized their potential in promoting behavioral change through emotional engagement and reflection (Nakoa, 2019). If gamified English language instruction can produce similar emotional benefits in early childhood education, such interventions could contribute not only to improved academic performance but also to the social-emotional wellbeing of learners—an increasingly prioritized outcome in global education policies.

In summary, the theoretical and empirical literature underscores the value of gamified learning as a multidimensional tool capable of enhancing not only academic achievement but also emotional intelligence in young learners. Despite the growing interest in gamification, few studies have systematically investigated its impact on emotional intelligence within the context of English language instruction in early primary education. The present study addresses this gap by examining the effectiveness of a ten-session gamified English language program on emotional intelligence among first-grade students in Tehran.

2. Methods and Materials

2.1. Study Design and Participants

This study utilized a quasi-experimental pretest-posttest design with a control group. First-grade children in District 2 of Tehran were selected through random cluster sampling. Subsequently, 15 children were randomly assigned to the

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experimental group and 15 to the control group, and the pretest was administered. The measurement instrument was the standard 31-item pictorial Emotional Intelligence Questionnaire for Children, whose reliability and validity have been confirmed in Iran. Following this, the experimental group received 10 sessions of instruction using the gamified teaching intervention (independent variable), while the control group did not participate in these sessions. At the end of the intervention, the standard pictorial Emotional Intelligence Questionnaire for Children was administered again as a posttest to both the experimental and control groups.

The inclusion criteria for the study were being of first-grade age, having physical and psychological health, passing a mental health screening, and not having any learning disabilities or intellectual impairments. The exclusion criteria included missing even one session, lack of parental cooperation, and absence of parental or administrative consent.

After obtaining approval from the Ministry of Education officials and the school principal, and securing informed consent from parents and teachers, the intervention was implemented. The gamified English language instruction program was carried out in the experimental group across ten 2-hour sessions, specifically designed for first-grade students (MirAsab Razi, Fakouri Hajiyar, & Colleagues, 2021).

2.2. Measures

2.2.1. Emotional Intelligence

The term "emotional intelligence" was first introduced by Mayer and Salovey in 1990 as a type of social intelligence. Salovey and Mayer (1990) defined emotional intelligence as the ability to recognize the meaning of emotions and emotional connections, which enables individuals to solve problems. In 1993, they identified three core components of emotional intelligence: attention to emotions, emotional expression, and emotion regulation. Over the years, Salovey, Mayer, and their colleagues have further developed their theories through a series of studies, culminating in the ability model of emotional intelligence. This model offers a structured framework for measuring and more precisely defining emotional intelligence components. In the ability model, emotional intelligence is divided into four main branches. These include perception, evaluation, and expression of emotion; emotional facilitation of thinking; understanding and analyzing emotional information and employing emotional knowledge; and emotion regulation and management. Each of these branches contains multiple, more specific subcomponents. This construct has been studied and investigated across numerous detailed and diverse domains (Shafiabadi, Soudani, & Ehyakonnandeh, 2009). The initial version of the Emotional Intelligence Questionnaire for Children (CEIT-R) – pictorial version – was developed by Qaider in 2015. Qaider designed the test based on Goleman's theory of emotional intelligence. The pictorial version of the emotional intelligence test for children demonstrates adequate reliability and validity. According to Qaider's (2015) research, the Cronbach's alpha coefficient for the test was reported as 0.83, indicating acceptable internal consistency. Construct validity analyses revealed that four main factors adequately represent the structure of the test, and none of the 31 items needed to be removed. Furthermore, factor analysis demonstrated that these four factors explained 14.48% of the test variance, indicating that the test possesses sufficient strength to assess the dimensions of emotional intelligence in children. This instrument was developed in accordance with Goleman's emotional intelligence theory and utilizes colorful images to enhance suitability for children. The test measures four components of emotional intelligence and also provides an overall emotional intelligence score (Eyni et al., 2021; Hassan et al., 2021).

2.3. Intervention

The session design for the experimental group was based on three main principles. It was aligned with the interests of first-grade children. It was grounded in the theoretical foundations of standard first-grade activity sheets. The number and structure of sessions were derived from and consistent with findings from quantitative, qualitative, and phenomenological studies, as well as the research design itself.

The intervention protocol consisted of ten structured sessions designed to teach English letters and words through gamified and interactive activities tailored to first-grade children. In the first session, English letters and numbers were introduced using songs and music. The second session employed storytelling and dramatic play to teach letters and vocabulary. The third session involved combining letters and words using colorful puzzle toys in group competitions with rewards. In the fourth session, reading, writing, and word formation were practiced through magnetic puzzles and team contests. The fifth session focused on reading and

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word construction using collages and crafts in small groups, followed by prize distribution. In the sixth session, children practiced writing and word formation using colorful worksheets and drawing activities in group settings. The seventh session utilized multipurpose Montessori tools to reinforce letter and word building in teams. The eighth session incorporated pastel-colored alphabet bead buckets for word construction in group play. The ninth session featured group games with a bell-equipped wooden Tetris set to practice vocabulary. Finally, the tenth session engaged children in forming compound words using magnetic blocks and a logarithmic maze board in team competitions with prizes, reinforcing all learned concepts through collaborative and gamified learning.

2.4. Data Analysis

Data analysis was conducted using SPSS-26 software. Descriptive statistics, including means and standard deviations, were calculated to summarize the pretest and posttest scores of emotional intelligence and its components in both the experimental and control groups. To examine the normality of data distribution, the Kolmogorov–Smirnov test was applied, and Levene's test was used to assess the homogeneity of variances. The assumption of equality of covariance matrices was tested using Box's M test. To determine the effectiveness of the gamified English language instruction, multivariate analysis of covariance (MANCOVA) was performed, comparing posttest scores of the experimental and control groups while controlling for pretest scores. Additionally, between-subjects effects were examined to identify specific differences across the emotional intelligence components, and effect sizes were calculated to determine the magnitude of the observed effects.

3. Findings and Results

As shown in Table 1, the mean and standard deviation in the posttest of the experimental group indicate a substantial and increasing difference in the statistical mean after the implementation of the independent variable. In contrast, the posttest results of the control group, which did not receive the independent variable, show no observable change.

Table 1

Descriptive Findings of Pretest and Posttest in Control and Experimental Groups

Variable	Group	Pretest Mean	Pretest SD	Posttest Mean	Posttest SD
Self-Awareness	Experimental	6.86	0.99	9.73	0.45
	Control	7.06	0.59	7.06	0.59
Social Awareness	Experimental	4.6	0.5	6.8	0.41
	Control	4.06	0.79	4.06	0.79
Self-Management	Experimental	4	0.92	5.8	0.41
	Control	3.6	0.63	3.6	0.63
Relationship Management	Experimental	3.8	0.56	7.73	0.46
	Control	3.8	0.56	3.8	0.56
Total Emotional Intelligence	Experimental	19.26	1.16	30.06	1.33
	Control	18.53	0.74	18.53	0.74

To examine the effect of gamified English language instruction on total emotional intelligence and its components—self-awareness, social awareness, self-management, and relationship management—a multivariate analysis of covariance (MANCOVA) was employed. The results of this test and the evaluation of its assumptions are presented below. The significance level of Box's M test was 0.53. This value indicates the homogeneity of covariance matrices, confirming the null hypothesis is rejected and the assumption of covariance homogeneity is supported. Based on the results of the Kolmogorov–Smirnov test to assess the normality of the pretest and posttest score distributions, the significance level of the calculated statistics confirmed the assumption of normality for all variables. The results of Levene's test were not significant for any variable, thus the null hypothesis of variance homogeneity is confirmed.

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Table 2

Multivariate Analysis of Covariance Results for Comparing Dependent Variables in Pretest and Posttest Stages

Effect	Tests	Value	F	df Effect	df Error	Significance Level
Group	Pillai's Trace	0.97	244.97	4	25	0.00
	Wilks' Lambda	0.025	244.97	4	25	0.00
	Hotelling's Trace	39.19	244.97	4	25	0.00
	Roy's Largest Root	39.19	244.97	4	25	0.00

As presented in Table 2, the significance level of all four multivariate test statistics—Pillai's Trace, Wilks' Lambda, Hotelling's Trace, and Roy's Largest Root—is 0.00, which is smaller than 0.01 ($p < 0.01$). Therefore, the null hypothesis is rejected, indicating a statistically significant difference between the pretest and posttest scores in visual-spatial development and total visual-spatial development. Based on this, it can be concluded that gamified learning activities have been effective in influencing the variables of visual-spatial development and total visual-spatial development scores.

To investigate the differences between pretest and posttest stages for each variable, the between-subjects effects test was applied, with the results presented below.

Table 3

Between-Subjects Effects Test for Comparing Scales in Experimental and Control Groups in the Posttest

Variable	Source	Sum of Squares	df	Mean Square	F	Significance	Effect Size
Self-Awareness	Between Groups	53.33	1	53.33	189.83	0.00	0.87
	Error	7.86	28	0.28			
Social Awareness	Between Groups	56.03	1	56.03	138.43	0.00	0.83
	Error	11.33	28	0.4			
Self-Management	Between Groups	36.3	1	36.3	127.05	0.00	0.82
	Error	8	28	0.28			
Relationship Management	Between Groups	116.03	1	116.03	443.03	0.00	0.94
	Error	7.33	28	0.26			
Total Emotional Intelligence	Between Groups	997.63	1	997.63	855.11	0.00	0.97
	Error	66.32	28	1.16			

Table 3 shows the results of the between-subjects effects test for comparing the scales of self-awareness, social awareness, self-management, relationship management, and total emotional intelligence in the posttest stage between the experimental and control groups. Based on the reported values in the table, the F values for all variables are significant at the 0.01 alpha level ($p < 0.01$). Therefore, the null hypothesis is rejected and the research hypothesis is confirmed. Considering the higher posttest mean scores in the experimental group compared to the control group, it is concluded that gamified English language instruction had a significant impact on total emotional intelligence and its components, resulting in increases across self-awareness, social awareness, self-management, and relationship management. The effect sizes—0.87 for self-awareness, 0.83 for social awareness, 0.82 for self-management, 0.94 for relationship management, and 0.97 for total emotional intelligence—indicate the magnitude of these increases in the experimental group following the implementation of the gamified English language instruction, confirming its effectiveness in enhancing emotional intelligence and its dimensions.

4. Discussion and Conclusion

The aim of this study was to investigate the effectiveness of gamified English language instruction on the emotional

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intelligence of first-grade students. The results indicated a statistically significant increase in total emotional intelligence scores among students in the experimental group who received the intervention, compared to their peers in the control group. Specifically, significant improvements were observed across all four core components of emotional intelligence: self-awareness, social awareness, self-management, and relationship management. The MANCOVA results confirmed that these improvements were not due to chance, and the between-subjects effects analysis further demonstrated that the effect sizes were substantial across all components, with the highest impact seen in total emotional intelligence ($\eta^2 = 0.97$), followed by relationship management ($\eta^2 = 0.94$), self-awareness ($\eta^2 = 0.87$), social awareness ($\eta^2 = 0.83$), and self-management ($\eta^2 = 0.82$). These findings suggest that gamified instruction is a highly effective pedagogical approach for enhancing emotional competencies in early childhood education.

The alignment of these findings with prior literature is evident in several domains. First, the results are consistent with the theoretical perspective that gamification creates emotionally engaging and socially rich learning environments that facilitate emotional development. According to Abdelwahed (2020), game-based learning approaches significantly improve emotional and social skills by immersing students in playful, interactive contexts that promote collaboration and joy in learning (Abdelwahed, 2020). In the current study, the use of storytelling, puzzles, collaborative crafts, and competitive games contributed to such an environment, likely enabling children to practice emotional recognition, empathy, and interpersonal coordination within a structured setting.

The effectiveness of gamified instruction in improving specific components of emotional intelligence also echoes the findings of Ahmadi et al. (2023), who observed that gamification could foster emotional engagement and self-regulation through interactive and reflective learning experiences (Ahmadi et al., 2023). This is particularly relevant to the present study's findings regarding self-management and social awareness, which require both internal emotional control and an understanding of others' perspectives. Similarly, Baradaran (2022) found that gamification enhanced not only learning outcomes in science education among fourth-grade students but also their classroom engagement and emotional responsiveness, lending further support to the emotional benefits of this approach (Baradaran, 2022).

The significant improvement in self-awareness and relationship management may also be linked to the social-interactive features of gamified learning. As Steinkeller and Grosse (2022) point out, analog and physical games tend to promote more face-to-face interaction than digital games, offering valuable opportunities for children to develop empathy and communication skills in real-time (Steinkeller & Grosse, 2022). In the present study, the use of team-based competitions, role-play through storytelling, and collaborative puzzle-solving created ample occasions for such interaction, potentially explaining the observed enhancements in relationship management and self-awareness.

The present results also align with the broader educational theory of multiple intelligences, particularly the interpersonal and intrapersonal domains, which closely relate to emotional intelligence. Aguyaros and Ruano (2021) emphasized that children exposed to learning environments that stimulate diverse intelligences—including emotional and social competencies—demonstrate better holistic development and adaptability (Aguyaros & Ruano, 2021). The multimodal nature of the intervention in this study, which engaged students linguistically, kinesthetically, and visually, likely played a role in enhancing emotional understanding and control. Ahrami et al. (2012) further confirmed the link between multiple intelligences and traditional cognitive indicators in young learners, suggesting that early stimulation across domains can improve both academic and emotional outcomes (Ahrami et al., 2012).

Another contributing factor to the success of the intervention may be the integration of motivational elements inherent in gamification. Ibrahimi Pour and Bagheri (2024) reported that gamified virtual classrooms enhanced students' motivation and academic performance by providing clear goals, instant feedback, and rewarding experiences (Ibrahimi Pour & Bagheri, 2024). In the present study, similar motivational elements were embedded in the face-to-face context—such as awarding prizes for team success, introducing colorful learning tools, and encouraging cooperative goal achievement—which likely fostered emotional investment in the learning process and contributed to the observed improvements.

Moreover, the current study supports Tsai's (2020) meta-analytic findings that digital game-based learning, when properly designed, can significantly improve learning outcomes through emotional and cognitive engagement (Tsai, 2020). Although the present intervention was largely analog, it replicated many of the motivational design

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features of digital gamification, such as challenge, immersion, collaboration, and reward, reinforcing the broader applicability of gamification principles beyond digital platforms. This also resonates with Li and Huang's (2016) observation that game-based learning adoption is often driven by teachers who recognize its capacity to balance innovation and educational rigor (Li & Huang, 2016).

The findings also connect to those of Palha and Matic (2023), who explored in-service teachers' predisposition toward game-based pedagogy. Their study showed that teachers who adopt gamification often observe improvements in both student engagement and emotional dynamics in the classroom (Palha & Matic, 2023). This suggests that the success of such interventions may also depend on the teacher's facilitation skills and openness to incorporating non-traditional instructional methods. In the present study, the effective delivery of the ten-session gamified program by trained facilitators may have significantly influenced the positive outcomes.

Furthermore, research by Nakoa (2019) on the use of board games in health education supports the premise that emotional development can be intentionally fostered through well-designed game-based interventions (Nakoa, 2019). Games that require cooperation, turn-taking, emotional response, and conflict resolution mirror many of the daily emotional challenges children face. Integrating such elements into language instruction allows for natural practice and reinforcement of emotional intelligence components.

Portier and Sanchiz (2024) emphasized that instructional messages, prior experience, and flow states play key roles in determining the efficacy of game-based learning (Portier & Sanchiz, 2024). In this study, efforts were made to introduce the sessions in an age-appropriate and engaging manner, reinforcing students' readiness to participate and emotionally invest in the learning process. Jobert and Sanchiz (2025) similarly found that the effectiveness of games in educational settings is shaped by how serious or playful they are perceived to be and by the characteristics of the teachers implementing them (Jobert & Sanchiz, 2025). The balance of playfulness and pedagogical purpose in the present intervention may have contributed to its ability to foster both learning and emotional growth.

Taken together, the findings of this study reinforce the existing body of research that positions gamified instruction as a powerful tool for enhancing emotional intelligence in children. By engaging learners in playful, collaborative, and emotionally rich environments, gamification fosters essential emotional and social competencies that support both academic and personal development. The use of diverse instructional tools—ranging from musical activities and dramatic storytelling to tactile puzzles and Montessori methods—created a multi-sensory, inclusive space conducive to emotional learning. These findings not only validate previous studies but also extend them by providing empirical support for the use of gamified English instruction as a targeted intervention for emotional development in early childhood education.

Despite the promising findings, several limitations must be acknowledged. First, the sample size was relatively small (N=30), which may affect the generalizability of the results. Future studies with larger and more diverse populations across different regions would provide a more comprehensive understanding of the intervention's effectiveness. Second, the duration of the intervention was limited to ten sessions, and long-term retention of emotional intelligence gains was not assessed. It remains unclear whether the improvements observed are sustainable over time without continued reinforcement. Additionally, the study relied exclusively on self-report and observational data through the CEIT-R instrument, which, although reliable, may be subject to bias. Including qualitative data or behavioral assessments could provide a richer and more nuanced view of emotional development.

Future studies should consider implementing longitudinal designs to explore the lasting effects of gamified language instruction on emotional intelligence over time. It would also be beneficial to compare different types of gamified interventions—such as digital versus analog games—and their differential impacts on EI components. Research might further investigate the role of teacher characteristics, classroom climate, and family involvement as potential moderators of gamification outcomes. Additionally, future work could explore how gamification affects other non-cognitive skills such as resilience, empathy, and moral reasoning in early childhood learners.

Educators should consider integrating gamified methods into the standard curriculum, especially in language instruction, to enhance both emotional and academic growth. Practical implementation should involve training teachers to design and facilitate engaging, age-appropriate games that align with learning objectives. Schools should provide the necessary resources, including materials and time, to support playful learning environments. Emphasis should be placed on cooperative and interactive activities that allow children

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to practice emotional skills in a structured and supportive setting. Finally, educational policymakers should recognize the value of emotional intelligence as a core outcome of early education and promote pedagogies that address both cognitive and emotional development.

Authors' Contributions

All authors significantly contributed to this study.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

In this study, to observe ethical considerations, participants were informed about the goals and importance of the research before the start of the interview and participated in the research with informed consent.

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