

**GAMIFIED STRATEGY TO DEVELOP EMOTIONAL INTELLIGENCE IN  
FIVE- AND SIX-YEAR-OLD CHILDREN  
ESTRATEGIA GAMIFICADA PARA DESARROLLAR LA INTELIGENCIA EMOCIONAL  
EN NIÑAS Y NIÑOS DE 5 Y 6 AÑOS**

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**ABSTRACT**

**Keywords:**

emotional intelligence, gamified strategy, emotional skills.

From an interpretive paradigm, this research aimed to design a gamified strategy to develop emotional intelligence in five- and six-year-old children at Colegio Tibabuyes Universal, a public institution in Bogotá. The strategy integrates an analog game and a digital game, both guided by an explicit pedagogical intention. The study follows an empirical approach and adopts a quasi-experimental design, with an experimental group that implemented the gamified strategy and a control group without intervention. Additionally, a mixed-methods approach was employed, combining quantitative and qualitative techniques. For data collection, the main instruments were a validated questionnaire and the structured observation of emotional behaviors. These tools allowed the identification and analysis of changes in emotional intelligence skills—self-awareness, emotional self-regulation, empathy, and social skills—before and after the implementation of the strategy, thus ensuring methodological triangulation that reinforces the validity and depth of the findings. The results showed statistically significant differences between the groups, suggesting improvements in emotional intelligence following the strategy's implementation. Complementary qualitative analyses revealed greater capacity to verbalize emotions, apply calming techniques, demonstrate empathy, and exhibit prosocial behaviors. It is concluded that a gamified strategy, designed according to the interests, motivations, and developmental needs of children in this age group, effectively fosters the development of emotional intelligence in a safe, playful, and intentional environment.

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**RESUMEN**

**Palabras clave:**

inteligencia emocional, estrategia gamificada, habilidades emocionales.

Desde un paradigma interpretativo, esta investigación ha tenido como propósito diseñar una estrategia gamificada para desarrollar la inteligencia emocional en niñas y niños de 5 a 6 años, en el Colegio Tibabuyes Universal, institución pública de Bogotá. La estrategia integra un juego analógico y un juego digital, orientados con una intencionalidad pedagógica explícita. El estudio se inscribe dentro de un enfoque empírico y un diseño cuasiexperimental, con un grupo experimental, que implementa la estrategia gamificada y un

grupo control, sin intervención. Además, se opta por un enfoque mixto, combinando técnicas cuantitativas y cualitativas. Para la recolección de datos, el instrumento principal es un cuestionario validado y la observación estructurada de conductas emocionales. De esta forma, las herramientas han permitido identificar y analizar los cambios en las habilidades de la inteligencia emocional: autoconocimiento, autorregulación emocional, empatía y habilidades sociales, antes y después de la implementación de la estrategia, asegurando así una triangulación metodológica que refuerza la validez y profundidad de los hallazgos. Los resultados evidenciaron diferencias estadísticamente significativas entre los grupos, lo cual sugiere avances en la inteligencia emocional tras la implementación de la estrategia. De manera complementaria, los análisis cualitativos muestran una mayor capacidad para verbalizar emociones, aplicar técnicas de calma, manifestar empatía y actitudes prosociales. Se concluye que una estrategia gamificada, diseñada en función de los intereses, motivaciones y necesidades evolutivas propias de las niñas y los niños del rango etario del estudio, logra el desarrollo de la inteligencia emocional en un entorno seguro, lúdico e intencionado.

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## Introduction

Scientific advances have shown that the human brain integrates rational and emotional capacities in an interdependent manner. However, it is in times of global crisis—such as wars, natural disasters, and pandemics—that emotional intelligence has taken on an undeniable central role in education. This skill, which is essential for coping with uncertainty, enables people to make decisions that are meaningful for their lives. In Colombia, this need is exacerbated by conditions of vulnerability that particularly affect children and by an educational tradition focused on academic achievement. That is why it is urgent to refocus the pedagogical approach on emotional learning from an early age, in order to recognize and nurture their abilities.

Childhood is a critical stage of human development, during which the neurobiological, cognitive, social, and emotional foundations that shape future behavior are established. It is at this stage that primary emotional imprints are formed, which is why the development of emotional intelligence is essential for well-being and a sense of purpose.

In this vein, this study is based on the observation that, although there is growing recognition of the importance of emotional skills, the teaching strategies available in preschool education are either insufficient or disconnected from the genuine interests of the children. Accordingly, the main objective is to design a gamified strategy that promotes the development of emotional intelligence in 5- and 6-year-old girls and boys at Tibabuyes Universal School, a district school in Bogotá, while addressing their interests and developmental needs.

In response, the strategy proposed here is aimed at the transition grade and is based on play as a foundational activity in early childhood education (Colombian Ministry of National Education, 2010; District Education Secretariat, 2019). Play allows children to explore, express, and transform their emotions in safe and meaningful settings. Therefore, gamification—understood as the incorporation of game elements into educational contexts to harness intrinsic motivation (Tobares, 2023)—constitutes a relevant pedagogical approach for fostering emotional learning, stimulating reflection, and facilitating decision-making.

### ***Emotional Intelligence in Childhood***

Children's emotional development has been addressed across the board in education and psychology. Classic authors such as Freinet (1973), Montessori (1909), and Piaget (1980) emphasized the role of emotion in learning, recognizing that emotion and cognition are interrelated processes. According to Vygotsky (2004), emotions are social constructs linked to personality, context, and language.

The contemporary concept of emotional intelligence, as developed by Mayer and Salovey (2004), builds on this history; they proposed a four-branch model: perception, facilitation, understanding, and regulation of emotions. This approach was expanded upon by Goleman (2012), who incorporated neuroscientific evidence related to emotional processing, well-being, learning, and social relationships. Bar-On and Parker (2018) propose a model of assessable competencies, while Bisquerra (2009) outlines a pedagogical approach based on five dimensions: emotional awareness, regulation, autonomy, social competence, and life skills.

These findings have been put into practice by various authors through specific strategies for emotional intervention beginning in childhood. The current academic consensus recognizes that this stage is critical for laying a solid foundation for emotional, relational, and adaptive development (Díez, 2021).

In summary, emotional intelligence—the focus of this study—is defined as the set of abilities that enables individuals to recognize, understand, and regulate emotions; build positive relationships; and make conscious decisions. This study focuses on four skills: self-awareness, emotional self-regulation, empathy, and social skills.

### *Emotions*

Based on the theories of Damasio (1994) and Barrett (2018), emotion is defined as an active construct that depends on cultural, contextual, and learning factors. These are not fixed biological responses, but rather experiences constructed in the brain through interpretive processes. An emotion arises when the brain interprets bodily sensations or emotional states and categorizes them based on past experiences and cultural concepts. In other words, an emotion arises when a specific meaning is assigned to general bodily sensations.

Neurobiological research has shown that emotion and cognition are processes that share neural networks. A child's brain, which is highly plastic, is extremely sensitive to emotional experiences. Immordino-Yang and Damasio (2007) introduce the concept of “emotional thinking” to describe the interaction between emotion, attention, memory, and judgment. Research by Siegel and Bryson (2021) confirms that the quality of the emotional environment directly influences the maturation of structures such as the amygdala and the prefrontal cortex, which are responsible for self-regulation and decision-making. Consequently, emotional education is both a pedagogical and neuroprotective strategy capable of strengthening brain circuits that are essential for social life and well-being.

In this context, calm takes on a profound significance as a physiological and emotional state that allows us to regain our balance after intense arousal. Although it is commonly used in everyday language, this concept often lacks a scientific understanding that would classify it as a fundamental system of the human body. It is appropriate to draw on scientific studies, since the gamified strategy that was designed includes techniques aimed at fostering emotional responses rooted in calmness, supported by Porges’ Polyvagal Theory (2021), which explains how a safe environment and mindful breathing can activate neurophysiological circuits associated with self-regulation.

### ***Emotional Development at Ages 5 and 6***

Children between the ages of 5 and 6 are at a developmental stage in which biological, temperamental, experiential, and sociocultural factors converge.

Temperament plays a crucial role in understanding individual differences in emotional expression and regulation. Cloninger (2003) and Castro and Mustaca (2017) argue that, although temperament has a genetic basis, it can be shaped through interaction with the environment. Chess and Thomas (1996) describe three temperamental profiles—easy, difficult, and slow-to-respond—each with specific implications for emotional regulation.

With regard to emotional awareness, they begin to establish causal relationships between events and emotional states, although these associations may still be influenced by magical thinking, personal desires, or subjective beliefs (Harris & Cheng, 2022).

One of the most important emotional skills at this age is frustration tolerance, which is closely linked to self-regulation. This ability allows one to cope with adverse situations without giving in to emotional outbursts. Current research agrees that fostering these skills early on prevents disruptive behaviors and promotes resilience (Del Prette & Del Prette, 2022; Manciaux, 2023). Neuroscience has shown that frustration activates both reactive and control structures, and that emotional training in simulated

situations—such as those provided by games—helps strengthen the ability to delay gratification, cognitive flexibility, and impulse control (Immordino-Yang & Damasio, 2007; Monjas Casares, 2020; Zinsser et al., 2021).

### ***Gamification***

Gamification has established itself as an innovative teaching methodology that incorporates game elements into educational contexts, and it is widely supported for its motivational, self-regulatory, and collaborative potential (Torres and Romero, 2018). Tobares (2023) argues that an effective strategy must incorporate clear goals, feedback, gradual challenges, and metacognition.

This integration of play and learning makes sense when, as in this study, a gamified strategy is developed that combines an analog game and a digital game. The first promotes physical interaction and mutual regulation (Mardell et al., 2023); the second, through simulations and immediate feedback, stimulates reflection, decision-making, and emotional coping (Pozo-Sánchez et al., 2022).

### ***Research on Emotional Intelligence and Gamification in Preschool***

A review of recent studies in the field of emotional intelligence and gamification reveals a growing consensus on the need to design educational approaches that integrate both aspects starting in early childhood. One of the leading initiatives is CASEL (2020), which offers effective social-emotional learning programs starting in preschool and serves as the foundation for various projects around the world.

Studies, such as the one by Mata (2021), confirm that early emotional education has a positive impact on personality structure and neurological development. Meanwhile, Alcaide and Salas (2022) emphasize the need to design teaching and assessment tools appropriate for preschool-aged children when implementing the EMOTI program.

Regarding gamification, Dichev and Dicheva (2017) conducted a critical review that highlights a research gap in early childhood education, as most studies focus on other educational levels. However, there are notable examples such as the educational escape room developed by Sanz and Alonso (2020), which combines historical concepts to foster collaborative work in early childhood education, and the program by Gianella and Gutiérrez (2020), which uses structured games to develop emotional skills.

This overview highlights the potential for conducting more in-depth research using rigorous methodological designs that address contextual realities in accordance with local legislation.

Currently, Colombia's regulatory framework under Law 2383 of 2024 recognizes the promotion of emotional education starting in preschool. Although implementation is still underway, this serves as direct regulatory support for the implementation of educational strategies based on educational technology, such as the one presented here.

## **Method**

This study adopts a mixed-methods approach with a quasi-experimental design, integrating quantitative and qualitative techniques to comprehensively analyze the impact of a gamified strategy on the development of emotional intelligence in 5- and 6-year-old girls and boys. It is based on the need to address complex educational

phenomena from a holistic perspective, recognizing the complementary nature of statistical data and interpretive narratives (Lugo and Ramírez, 2020).

From an interpretive perspective, this study seeks to understand the emotional transformations experienced in real educational contexts by interpreting the meanings that children attribute to their emotions, as well as the observable changes resulting from a structured pedagogical intervention. Within this framework, reality is conceived as a social construct mediated by individual and contextual experience (Ayala, 2021).

The sample is selected using non-probabilistic convenience sampling and consists of two groups from the educational institution: an experimental group, which participates in the gamified strategy, and a control group, which receives no intervention. This decision is based on institutional organizational considerations, ensuring the feasibility of the study without compromising methodological rigor.

The hypothesis formulated in this study includes elements of causality, in that it predicts that the gamified strategy designed will have a direct impact on the development of emotional intelligence among the children in the study population. Similarly, the hypothesis is directional because it predicts the direction of the effect by stating that this strategy promotes positive progress in emotional skills. This results in a noticeable improvement in the dependent variable—the development of emotional intelligence—as a result of the intervention involving the independent variable—the gamified strategy.

Specifically, the hypothesis posits that a gamified strategy, designed based on the interests, motivations, and developmental needs of 5- and 6-year-old preschoolers, fosters the development of emotional intelligence in line with the characteristics expected for this age group.

In line with the research objectives, the methodological design is structured into four sequential phases:

*Diagnostic phase:* This phase involves the design and administration of a questionnaire tailored to the age group, focusing on the emotional intelligence skills selected for the study and validated through expert judgment to ensure consistency with the study; its internal consistency is assessed through item-by-item statistical analysis and the calculation of Cronbach's alpha.

*Design phase of the gamified strategy:* Based on the diagnostic findings, a gamified strategy is designed that consists of an analog game and a digital game, incorporating narrative elements, challenges, rewards, and feedback, with the goal of enhancing emotional intelligence skills.

*Implementation phase:* During scheduled sessions, the experimental group participates in the gamified strategy, and behaviors are observed in real-world educational settings.

*Validation phase:* The questionnaire is administered again to both groups to compare pre- and post-implementation results using statistical tests; in addition, the responses are analyzed qualitatively.

Descriptive and inferential statistics were used to analyze quantitative data using SPSS 27 software, employing Student's t-test and the Mann-Whitney U test to identify significant differences between groups. Qualitative data are processed using thematic coding in NVivo software, with initial support from AI-assisted systematization (ChatGPT-GPT-4.5), ensuring that interpretation is carried out exclusively by the researcher. Thus, as Albert (2007) suggests, the purpose is to identify emerging patterns and emotional transformations expressed verbally and behaviorally. In addition, the mixed-methods approach allows for triangulation, which adds depth and validity to the findings.

## Results

The results are presented for each phase of the research:

### *Diagnostic Phase*

This phase addresses the study's specific objectives to assess emotional intelligence skills in 5- and 6-year-old girls and boys, with the aim of identifying strengths and needs that will guide the design of the gamified strategy and characterizing emotional intelligence skills. Thus, based on the findings of CASEL (2020) and Díez (2021), a questionnaire appropriate for this age group is developed. Validation of the questionnaire showed adequate internal consistency (Cronbach's  $\alpha > 0.80$ ), and it was reviewed by experts to verify its relevance, with adjustments made based on their recommendations.

As shown in Table 1, the statistics prior to the gamified strategy indicate that the Mann-Whitney U and Wilcoxon W values are similar. The Z-value reflects the distance, in standard deviations, between the average range of the groups and the expected average range if there were no difference. The (two-tailed) asymptotic significance is not significant ( $p > 0.05$ ) for any of the skills. These ranges do not suggest marked differences between the control and experimental groups in the measurements taken prior to the implementation of the gamified strategy.

**Table 1**

*Statistics prior to the gamified strategy*

	PRE SELF-AWARENESS	PRE SELF-REGULATION	PRE EMPATHY	PRE-SOCIAL SKILLS
<b>Mann-Whitney U test</b>	300,000	277,500	247,00	293,000
<b>W for Wilcoxon</b>	625,000	602,500	572,00	618,000
<b>Z</b>	-,288	-,798	-1,397	-,443
<b>Asymptotic sign (bilateral)</b>	,773	,425	,162	,658

Qualitative data analysis revealed that, in terms of self-awareness, although they recognize basic emotions, they have difficulty expressing them clearly and linking them to their causes; they know what emotion they are feeling, but they lack greater emotional expression.

In terms of emotional self-regulation, the child shows a marked dependence on an adult figure to manage emotions such as anger, sadness, or frustration. Impulsive reactions, such as inconsolable crying, tantrums, or withdrawal, are common in situations involving loss, conflict, or waiting. A lack of calming techniques and limited recognition of the need to use self-regulation strategies have been identified.

When it comes to empathy, they show two distinct tendencies: on the one hand, girls and boys express simple empathetic actions, such as helping or comforting, but they are unable to validate the emotion. Furthermore, their empathetic responses are more frequent when mediated by an adult, which suggests that their empathy is not very spontaneous.

In terms of social skills, there is little initiative to form new relationships or to cope with rejection without adult intervention. There is a significant difficulty in resolving conflicts and settling disagreements peacefully, which creates tensions in the school community.

The characterization, summarized here, serves as the central input for designing the gamified strategy, allowing it to be aligned with the identified emotional needs and strengths.

### ***Phase 2. Design of a Gamified Strategy to Develop Emotional Intelligence in 5- and 6-Year-Old Girls and Boys***

In line with the main objective, the purpose of this phase is to design a gamified strategy for developing emotional intelligence, based on the findings of the diagnostic phase.

The gamified strategy combines an analog game, *Emotiburones*, and a digital game, *Atrapa Osos*. Both were designed based on the qualitative results of the diagnostic phase, integrating four emotional intelligence skills: self-awareness, self-regulation, empathy, and social skills.

*Emotiburones* is a board game for five players, featuring a game board with a symbolic marine theme and a path leading to the treasure of the golden coin as a reward. Using a die and game pieces, players make their way through the course with the challenge of identifying the sharks' emotions, verbalizing the likely cause, and—with the help of calm cards—calming them down so they can move forward.

Sharks are central characters because they are captivating to children and allow them to project onto them emotions that are difficult to manage. In this sense, the shark serves as an emotional metaphor that externalizes intense emotional states, allowing students to talk about “what the shark feels” without feeling directly exposed; it enables a compelling narrative that sparks curiosity and sustained attention—essential elements in teaching. It presents a challenge by requiring calmness; players do not compete against each other to defeat the shark, but rather to help it calm down, which reinforces the prosocial aspect of the game.

*Catch the Bears* is an interactive PowerPoint game that simulates a claw machine catching bears. When the player succeeds, a text appears describing a situation involving an emotional response or how to deal with it; the player must choose a response or ask for help in doing so. When the bear isn't caught, a calming technique is used. The game allows players to experience frustrating situations in a safe environment, making it easier to identify and use emotional regulation strategies; it offers symbolic rewards for correct answers, represented by the chosen bear; and it encourages perseverance and thoughtful decision-making.

Teddy bears are symbols with emotional connotations, and the dynamics of the claw machine playfully and safely recreate a situation involving waiting, chance, and possible failure, thereby generating authentic experiences of controlled frustration.

Both games underwent pilot testing with age groups similar to those in the sample. One of the adjustments made to *\*Emotiburones\** was to omit the reward of many coins, as they were distracting, leaving only the gold coin in the treasure chest; subsequently, expert judgment validation was conducted using an instrument based on Sevillano's (2002) media evaluation model.

The evaluation yielded a positive assessment, highlighting the clarity of the pedagogical purpose, the richness of the emotional scenarios, the alignment with children's interests, and the appropriate use of gamification elements. Improvements were proposed, such as including techniques for dealing with sadness—like drawing your sadness, talking to someone, or asking for a hug—in order to validate it. Adjustments made prior to implementation.

As Table 2 shows, each component of the game directly addresses the needs identified during the diagnostic phase. For example, difficulties in expressing negative

emotions led to the creation of “calm cards” in Emotiburones; impulsive reactions were addressed through controlled scenarios in Atrapa Osos that trigger self-control techniques.

**Table 2**  
*Elements of a Gamified Strategy for Developing Emotional Skills*

Emotional Intelligence	Development indicator	Emotiburones Game	Catch the Bears Game
Self-Awareness	Recognition, validation, and expression of emotions such as anger, sadness, fear, and joy.	-Identify the different emotions that sharks experience and suggest the reason for each emotion. -Describe how they felt and what you experienced at the end of the game.	Identify the emotions in the situations presented. Reflect on the emotions you experienced at the end of the game.
Self-Awareness	Understanding the causes of emotions such as anger, sadness, fear, and joy.	Explain why you think the shark is experiencing the emotion depicted, and in your final reflection, describe the reason behind your feelings.	Throughout the game, it explains what frustration and how it manifests itself both conceptually and experientially.
Self-regulation	Controlling impulsive reactions to anger, fear, sadness, and frustration through relaxation techniques.	-Experiencing frustration when they don't get the color of token or the turn they want, when they have to go back a turn, or when they don't win the game. -Practice relaxation techniques for constructively managing anger, fear, sadness, and frustration	Experience frustration when the bear falls and practice calming techniques for constructively managing anger and frustration. To enable responses to situations involving anger, fear, sadness, and/or frustration
Self-regulation	Controlling impulsive reactions in the face of the joy of winning.	-Experience victory by controlling impulsive reactions of joy, without underestimating your peers.	Experience victory by controlling impulsive reactions of joy without underestimating your peers
Self-regulation	I respect the turn-taking process and practice active waiting.	-Take turns throwing; follow the rules of the game.	-Switch to the turn-based game.
Self-regulation	The practice of active patience.	-Wait for your turn to roll the dice and move your piece. -Getting frozen and not being able to reach the treasure right away, but only after obtaining the exact number.	-Wait your turn. -Freeze them using a timer. -Knowing the answer when it's someone else's turn and waiting until it's your turn.
Empathy	Recognition and validation of peers' emotional responses.	-Take action to calm the sharks by demonstrating empathy through symbolic gestures. -Express and understand their feelings when they see their partner win.	-Listen to how others felt and choose the appropriate response in order to understand them.
Empathy	To help others cope with negative emotions such as anger, sadness, and fear through empathetic verbal and nonverbal responses.	-Help children cope with emotions such as anger, sadness, and fear. -Offer words of comfort when they fall behind or when they don't win the gold coin.	-Being able to ask others for help when it's their turn. Help those in need.

**Table 2**  
*Elements of a Gamified Strategy for Developing Emotional Skills*

Emotional Intelligence	Development indicator	Emotiburones Game	Catch the Bears Game
<b>Empathy</b>	Understand and acknowledge partner's joy.	and your -Expressing their feelings when they see a victory.	-At the end of the game, express your feelings about seeing the team win.
<b>Social Skills</b>	Taking the initiative.	-Find partners to form the team for the game. -Choose the "calm" card and act it out.	-Address situations involving social initiative in the game.
<b>Social Skills</b>	Peaceful Resolution	Conflict -If a player fails to follow any of the rules or if their behavior affects others, they lose their turn—that is, they do not take a turn until the next round—and it is up to the team to decide when a player is committing a foul.	-Choose a conflict resolution strategy for the situations presented in the game.

### **Phase 3. Implementation of the Gamified Strategy**

This phase serves to implement the gamified strategy with the experimental group (see Figure 1), ensuring a real classroom context under controlled and pedagogically relevant conditions. The program runs for four weeks with 25 girls and boys in kindergarten, during school hours and under the guidance of the homeroom teacher, who is the author of this research. The behaviors observed during implementation are incorporated into the descriptions in the data analysis.

While playing the game *Emotiburones*, the teacher introduced basic emotions through open-ended questions and explanations that related to the children's own experiences. The presentation of the game board, the materials, and the game's storyline created an atmosphere of enthusiasm and active participation. Throughout the sessions, the dynamics of taking turns, choosing tokens, and using calming techniques enabled the children to interact, resolve conflicts, and follow the rules of the game with increasing independence. The activity concluded with a reflection session in which the participants shared what they had learned about identifying, expressing, and regulating their emotions.

The digital game *Catch the Bears* is implemented with the experimental group one week after *Emotiburones*. The teacher begins by projecting the first image of the game in a PowerPoint presentation and explains the concept of frustration using age-appropriate symbolic language. He explains the instructions, and one by one, they enthusiastically operate the virtual claw from the computer. The game of catching teddy bears—combined with everyday situations and the practice of self-regulation techniques—fosters high levels of concentration and a willingness to follow the rules, while allowing children to express their emotions in response to success or failure in catching the bear. The session concludes with a group discussion in which participants share their experiences and insights regarding frustration and ways to cope with it.

**Figure 1**

*Implementation of the gamified strategy: Emotiburones Game and Catch the Bears Game*



**Phase 4. Validation of the Gamified Strategy**

The validation aims to demonstrate the learning acquired through data analysis by comparing the results obtained by the experimental group and the control group following the implementation of the gamified strategy. To this end, the questionnaire is administered again through individual interviews.

When comparing the results of the experimental group with those of the control group, as shown in Table 3, it is evident that the Z-scores are highly negative, suggesting a significant difference in the mean rank scores. The (two-tailed) asymptotic significance is 0.000 for all areas, indicating that the differences between the groups after implementation are highly statistically significant.

**Table 3**  
*Statistics Before and After the Gamified Strategy*

	PRE SELF- AWARENESS	PRE SELF- REGULATION	PRE EMPA THY	PRE-SOCIAL SKILLS
<b>Mann-Whitney U test</b>	300,000	277,500	247,000	293,000
<b>W for Wilcoxon</b>	625,000	602,500	572,000	618,000
<b>Z</b>	-,288	-,798	-1,397	-,443
<b>Asymptotic sign (bilateral)</b>	,773	,425	,162	,658
	POST SELF- AWARENESS	POST SELF- REGULATION	POST EMPA THY	POST SOCIAL SKILLS
<b>Mann-Whitney U test</b>	125,000	81,500	110,500	12,500
<b>W for Wilcoxon</b>	450,000	406,500	435,500	337,500
<b>Z</b>	-4,583	-4,953	-4,633	-6,298
<b>Asymptotic sign (bilateral)</b>	,000	,000	,000	,000
<i>Mann-Whitney Test</i>				
	GROUP	N	Average range	Sum of Ranks
<b>SELF-AWARENESS</b>	Control	25	25.00	625.00
	Experimental	25	26.00	650.00
	Total	50		
<b>PRE-SELF-REGULATION</b>	Control	25	26.90	672.50
	Experimental	25	24.10	602.50
	Total	50		
<b>PRE-EMPATHY</b>	Control	25	28.12	703.00
	Experimental	25	22.88	572.00
	Total	50		
<b>PRE-SOCIAL SKILLS</b>	Control	25	26.28	657.00
	Experimental	25	24.72	618.00
	Total	50		
<b>POST-SELF-AWARENESS</b>	Control	25	18.00	450.00
	Experimental	25	33.00	825.00
	Total	50		
<b>POST-SELF-REGULATION</b>	Control	25	16.26	406.50
	Experimental	25	34.74	868.50
	Total	50		
<b>POST-EMPATHY</b>	Control	25	17.42	435.50
	Experimental	25	33.58	839.50
	Total	50		
<b>POST: SOCIAL SKILLS</b>	Control	25	13.50	337.50
	Experimental	25	37.50	937.50
	Total	50		

The Mann-Whitney test confirmed the initial homogeneity among groups and the significant differences following the implementation of the gamified strategy, suggesting that the strategy is effective in developing emotional intelligence. For each skill, you can compare the increase in the average score in the experimental group for that skill:

Emotional self-awareness: It had a positive impact, with a significant increase in the average score of the experimental group from 26 to 33.

Emotional self-regulation: The data suggest that the strategy also improves emotional management and self-control skills in the experimental group, with an increase in the average range from 24.10 to 34.74.

Empathy: The difference in average scores reflects progress in the ability to understand and connect with the emotions of others: 22.88 to 33.58

**Social skills:** The most notable improvement has been observed in these skills, with an average range of 24.72 to 37.50; this may indicate that the gamified strategy promotes effective interaction and relationship building.

The qualitative and comparative analysis revealed significant changes in the emotional expression of the experimental group, whose members began to express their emotions with greater clarity, specificity, and confidence. There is a shift from general expressions such as “I don’t feel well” toward more elaborate statements such as “I feel sad when I’m not invited” or “I feel angry when people don’t listen to me,” which indicates greater emotional awareness and recognition of the cause. These expressions reflect progress in self-awareness and an expansion of the linguistic repertoire associated with emotions. These findings confirm the positive effect of the strategy on the development of self-awareness

Similarly, autonomous self-regulation emerges in the form of phrases such as “I take a deep breath and speak” or “I think I can do better,” which reflect an internalization of coping strategies fostered by the calming techniques used in the games; instead of reacting with aggression or impulsive crying, they now use deep breathing, visualization of safe spaces, and actively seeking emotional support. A shift can be observed in how fear is managed, moving from avoidance responses—such as hiding under a blanket or freezing—to conscious strategies such as rationally acknowledging the fear or verbalizing empowering thoughts: “I take a breath and tell myself I’m brave.” There has been remarkable progress in learning patience and waiting, taking turns, and understanding the collective nature of the game. This evidence supports the conclusion that emotional self-regulation processes manifest themselves in observable behaviors: verbal expression of emotions, impulse control, positive coping with fear, and independent resolution of frustrations.

There has also been a notable increase in emotional awareness and empathy among peers, as reflected in their ability to recognize and validate negative emotions, with expressions such as “I understand that you feel bad” or “It’s okay to be sad.” Active helping responses are identified through specific behaviors aimed at supporting, comforting, or improving someone’s emotional state, such as “I explained the math problem to Salomé” or “I helped Johan when he was crying.” These manifestations reflect a significant development in the capacity for empathetic response, integrating the verbal recognition of others’ emotions and the use of prosocial strategies such as shared play, affectionate physical contact, and verbal support, which suggests an internalization of complex emotional principles fostered through play.

Social skills include assertive and collaborative behaviors. There is an increase in social initiative, shifting from passively waiting to be included in games to actively inviting others to participate, which reflects greater confidence in social interaction. When faced with rejection, they adopt less reactive and more self-regulated responses, choosing instead to ask questions assertively or integrate into new groups. When it comes to conflict resolution, there has been a shift from avoidance toward the use of dialogue and negotiation, such as “we do what one person wants, and then the other.” These changes reflect a shift from reactive attitudes to proactive practices, in which respect for turn-taking, inclusion, and reaching agreements are valued.

## **Discussion and Conclusions**

The findings show that the gamified strategy had a significant impact on the development of emotional intelligence skills among the girls and boys in the experimental

group. This effect was confirmed both by inferential statistical analysis (the Mann-Whitney U test, with two-tailed significance levels  $< 0.001$  across all dimensions evaluated) and by qualitative analyses, which revealed notable changes in narratives and emotional behaviors.

When comparing these results with previous research, a significant methodological advance in the field can be observed. It employs a mixed-methods quasi-experimental design, which allows for causal inferences with greater internal validity. This robust approach reinforces the link between the structured use of gamification and children's emotional intelligence, particularly when it is combined with elements such as narrative, feedback, challenges, and symbolic rewards, as proposed by Torres and Romero (2018) and Tobares (2023).

In qualitative terms, there was evidence of a shift from reactive attitudes to proactive responses in social situations. The children learned to identify their emotions, use self-regulation techniques, and engage in prosocial behaviors. These changes are consistent with the approaches outlined by Mayer and Salovey (2004) and with CASEL's (2020) framework for social-emotional learning, which states that emotional intelligence is a set of skills that can be developed from an early age.

The consistency of the scores achieved by the experimental group—with means and medians of 1.0 and a standard deviation of zero for emotional skills—suggests a highly positive and uniform effect of the gamified strategy. Although this finding is promising, it should be interpreted with caution, given the specific conditions of the context and the characteristics of the sample. Furthermore, specific improvements were identified in emotional verbalization, in the causal recognition of basic emotions, and in the expansion of emotional vocabulary, in line with Barrett's (2018) proposal regarding the cultural construction of emotions.

The development of self-awareness, empathy, self-regulation, and social skills in this age group supports the arguments of Bar-On (2018), who maintains that these competencies are not only teachable but also fundamental to overall well-being and social harmony.

In summary, the results obtained strengthen the empirical evidence regarding the use of gamification as an effective teaching tool for emotional education in early childhood. The integration of theory, instructional design, and rigorous evaluation makes this experience a significant contribution to the fields of neuroeducation and emotional psychopedagogy.

Based on a comprehensive analysis of the results, it can be concluded that the gamified strategy implemented had a positive and statistically significant impact on the development of emotional intelligence among 5- and 6-year-old girls and boys at Tibabuyes Universal School in Bogotá. The emotional skills of self-awareness, self-regulation, empathy, and social skills showed notable improvements in the experimental group, both quantitatively and qualitatively.

This study confirms that the use of analog and digital games, designed pedagogically using gamification principles, fosters active and meaningful emotional learning environments. The results show that, through symbolic scenarios, immediate feedback, and cooperative dynamics, it is possible to foster self-regulation, empathy, coping with rejection, and conflict resolution from an early age.

It also validates the feasibility of incorporating gamified approaches into the early childhood education curriculum as intentional pedagogical tools. This research contributes to this field by providing a structured, validated, and contextualized strategy that can be replicated and adapted in similar educational settings.

Finally, the report emphasizes the need to strengthen teacher training in emotional intelligence and gamification, as well as to integrate these competencies into public policies and school curricula, in accordance with the provisions of Law 2383 of 2024. Investing in emotional education from an early age not only improves children's well-being today but also serves as a cornerstone for a more equitable, empathetic, and resilient society.

## References

- Albert, M. (2007). *La investigación educativa: claves teóricas*. Mc Graw-Hill.
- Alcaide, M. and Salas, N. (2022). *Convivencia escolar y competencias socioemocionales en alumnado de educación infantil*. *Electronic Journal of Research in Educational Psychology*, 20(3), 591-612. <https://doi.org/10.25115/ejrep.v20i58.5929>
- Alegre, A. (2018). *Cómo desarrollar la inteligencia emocional de los niños*. Ediciones Pirámide. Grupo Anaya.
- Ayala, M. (2021). *Paradigma interpretativo*. Lifeder. <https://www.lifeder.com/paradigma-interpretativo-investigacion/>
- Bar-On, R., and Parker, J. (2018). *Inventario de Inteligencia Emocional*. TEA ediciones.
- Barrett, L.F. (2018). *La vida secreta del cerebro: cómo se construyen las emociones*. Paidós.
- Bisquerra, R. (2009). *Psicopedagogía de las Emociones*. Editorial Síntesis.
- CASEL. (2020). *Social and Emotional Learning Core Competencies*. Retrieved from Collaborative for Academic, Social, and Emotional Learning: <http://www.casel.org/social-and-emotional-learning/core-competencies>
- Castro, L. and Mustaca, A. (2017). *Temperamento en niños de 3 a 7 años con y sin tratamiento psicológico*. *ConCiencia EPG*, 2(1). <https://revistaconcienciaepg.edu.pe/ojs/index.php/55551/article/view/27/32>
- Chess, S., and Thomas, A. (1996). *Temperamento: teoría y práctica*. Brunner/Mazel.
- Cloninger, S. (2003). *Teorías de la personalidad*. Pearson Educación de México, S.A.
- Damasio, A.R. (1994). *El error de Descartes. La emoción, la razón y el cerebro humano*. Editor digital: Titivillus.
- Dichev, C. & Dicheva, D. (2017). *Gamifying education: What is known, what is believed and what remains uncertain: A critical review*. *International Journal of Educational Technology in Higher Education*, 14. <https://doi.org/10.1186/s41239-017-0042-5>
- Díez, D. (2021). *Educación en inteligencia emocional*. Editorial LIBSA.
- Del Prette, Z. and Del Prette, A. (2022). *Aprimorando minhas habilidades e competências sociais*. Edufscar
- Freinet, C. (1973). *La formación de la infancia y la juventud*. Laia. Biblioteca de la Escuela Moderna.
- Goleman, D. (2012). *El cerebro y la inteligencia emocional*. Nuevos descubrimientos. Penguin House Grupo Editorial.
- Gianella, C. and Gutiérrez, Z. (2020). *La efectividad de la implementación de estrategias gamificadas como parte de la innovación educativa para desarrollar la inteligencia emocional en niños de 5 años de colegios públicos*. [Doctoral dissertation, Universidad Católica de San Pablo]. <https://hdl.handle.net/20.500.12590/16591>
- Harris, P. L. & Cheng, L. (2022). *Evidence for similar conceptual progress across diverse cultures in children's understanding of emotion*. *International Journal of Behavioral Development*, 46(3), 238–250. <https://doi.org/10.1177/01650254221077329>
- Immordino-Yang, M. H. & Damasio, A. R. (2007). *We feel, therefore we learn: The relevance of affective and social neuroscience to education*. *Mind, Brain and Education*, 1(1), 3–10. <https://doi.org/10.1111/j.1751-228X.2007.00004.x>
- Ley 2383 del 2024. *Por medio de la cual se promueve la educación socioemocional de los niños, niñas y adolescentes en las instituciones educativas de preescolar, primaria, básica y media en Colombia*. D.O. No. 52.822.
- Lugo, J. and Ramírez, M. S. (2020). *Revisión sistemática de métodos mixtos en el marco de la innovación educativa*. *Comunicar*, 28(65), Artículo 111349. <https://doi.org/10.3916/C65-2020-01>
- Manciaux, M. (2023). *La resiliencia: resistir y rehacerse*. Gedisa.

- Mardell, B., Ryan, J., Krechevsky, M., Baker, M., Schulz, T. S., and Liu-Constant, Y. (2023). *Una pedagogía del juego: Apoyar el aprendizaje lúdico en las aulas y los colegios*. Cambridge, MA: Proyecto Zero.
- Mata, E. (2021). *La inteligencia emocional en la educación infantil. Análisis y mejora de la autoconciencia para la formación*. [Doctoral dissertation, Autonomous University of Madrid]. <http://hdl.handle.net/10486/696180>
- Mayer, J. & Salovey, P. (2004). *Emotional Intelligence: Key Readings on the Mayer and Salovey Model*. DUDE publishing.
- Ministerio de Educación Nacional de Colombia. (2010). *Documento # 13: Aprender y jugar, instrumento diagnóstico de competencias básicas en transición*. MINEDUCACIÓN-Colombia.
- Monjas Casares, M. (2020). *La competencia emocional en la educación infantil*. Narcea.
- Montessori, M. (1909). *El método de la pedagogía científica. Aplicado a la educación de la infancia*. Edición de Carmen Salchidrian. Biblioteca Nueva.
- Piaget, J., and Inhelder, B. (1980). *Psicología del niño*. Ediciones Morata.
- Pozo, S., Lampropoulos, G. & López-Belmonte, J. (2022). *Comparing gamification models in higher education using face-to-face and virtual escape rooms*. *Journal of New Approaches in Educational Research*, 11 (2), 307–322. <https://doi.org/10.7821/naer.2022.7.1025>
- Porges, S. (2021). *La anatomía de la calma*. Psychology Today. <https://www.psychologytoday.com/intl/articles/202109/sigh-relief>
- Sanz, N. and Alonso, A. (2020). *La Escape Room educativa como propuesta de gamificación para el aprendizaje de la Historia en Educación Infantil*. *Didácticas Específicas*, (22), 7–25. <https://doi.org/10.15366/didacticas2020.22.001>
- Secretaría de Educación del Distrito. (2019). *Lineamiento pedagógico y curricular para la educación inicial en el Distrito*. Alcaldía Mayor de Bogotá.
- Sevillano, M.L. (2002). *Evaluación del potencial educativo de los contenidos mediáticos e hipermedia: Creando cultura evaluadora*. [https://www.ugr.es/~sevimeco/revistaeticanet/Numero0/Articulos/Evaluacion del potencial.pdf](https://www.ugr.es/~sevimeco/revistaeticanet/Numero0/Articulos/Evaluacion%20del%20potencial.pdf)
- Siegel, D. and Bryson, T. (2021). *El cerebro del niño explicado a los padres*. Alba Editorial.
- Tobares, M. (2023). *Gamificación: El futuro de la educación*. Editorial Maia Tobares
- Torres, A., and Romero, L. (2018). *Aprender jugando. La gamificación en el aula*. Educar para los nuevos medios.
- Vigotsky, L. (2004). *Teoría de las Emociones. Estudio histórico psicológico*. Editorial Akal.
- Zinsser, K., Bailey, C., Curby, T., Denham, S., & Bassett, H. (2021). *Supporting preschool teachers' social-emotional instruction: A pilot study of the preschool PATHS program*. *Early Education and Development*, 32(1), 74–89. <https://doi.org/10.1080/10409289.2020.1737480>