



Article

## Emotional and behavioral benefits of a standardized program with modern board games

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### Abstract

#### Keywords:

Emotional intelligence  
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Trait emotional intelligence could be enhanced through structured classroom training. Board games have the potential to be beneficial to emotional outcomes too. Hence, we evaluated the effectiveness of a board game-based program to enhance emotional intelligence and promoting student inclusion in the classroom. A non-inferiority clustered randomized controlled trial design was implemented. 65 students from four 5th grade classes (average age 11.04 years) were allocated into an experimental group (we applied a 10-week program consisting of theoretical and practical contents regarding emotional regulation using board game-based learning) or in a active control group (we applied the Sociescuela program that is commonly used in educative settings). Both groups were assessed pre- and post-intervention using the TEI-Que questionnaire (trait emotional intelligence) and the Sociescuela test (sociogram and self-esteem estimation of each student). Both groups demonstrated significant improvements in emotional intelligence from pre- to post-intervention. The pattern of changes in peer nominations and acceptance was also consistent across groups. However, improvements were not stable after one year of follow-up. Additionally, students in the experimental group considered that the program was more enjoyable than the control group. A classroom-based program utilizing modern board games can effectively enhance emotional intelligence at short-term among students.

## 1. Introduction

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Social competence is a crucial aspect of education, as it is linked to the prevention of behavioral problems in the classroom from an early age [1], [2]. For this reason, numerous countries have incorporated prevention programs into their curricula to promote this competence and improve school coexistence, while also researching violence in schools [3]. This violence can range from serious criminal actions to patterns of verbal or physical aggression [4], negatively impacting both the teaching-learning process and interpersonal relationships in the school environment [5], [6], [7].

Defined as the ability to interact effectively with others, social competence is fundamental for children's interpersonal adjustment in school. Although learning this competence is inherent to childhood [8], its development can be affected by individual, family, and contextual factors [9], which underscores the need for a more structured teaching of this competence needed [10].

School coexistence is an essential component of education [11]. It is promoted through the implementation of social competence training programs [12]. These programs are designed to enhance students' social and emotional skills, as well as social attitudes and behaviors [13], [14]. Interventions such as "Too Good for Drugs and Violence" and "The Incredible Years" have demonstrated positive effects on students' knowledge, attitudes, and values. These programs often involve parents in the process of teaching and reinforcing social skills [15], [16].

In addition to social competence, emotional intelligence (EI) plays a vital role in children's development [17]. EI refers to the ability to understand and manage one's own and others' emotions. Correlational studies indicate that children with higher emotional intelligence, in turn, possess better social skills [18]. Furthermore, emotional intelligence programs have been observed to be effective in improving social [19] and emotional skills, as well as student grades [20]. Villena (2023) also notes that skill levels and motivation may differ according to gender.

In the search for tools that impact emotional outcomes, some serious games have been developed, although most of them are videogames [21], [22]. Conversely, board games have not been so widely investigated regarding the implementation of training programs in social competence and emotional intelligence, despite some studies having found significant effects [23]. O'Neill (2023) highlight how board games, especially those that include cooperative play, can foster multi-domain learning and offer promising avenues for future research. ]. O'Neill (2023) highlights how board games, particularly those that include cooperative play, can foster multi-domain learning and offer promising avenues for future research. Nevertheless, there is indirect evidence that suggests the use of modern board games can be an effective strategy. Modern games are designed with far more mechanisms than traditional board games, also considering the narrative and the subjective experience [24], [25], [26].

Studies from the last decade have documented a reduction in behavioral problems associated with Attention Deficit Hyperactivity Disorder after playing modern board games [27], improvements in different cognitive outcomes associated with social competence when using standardized board game programs in the classroom [28], [29], [30], and reductions in hot cognition dysregulations in children [31]. Dell'Angela et al. [32] also found that social competences modulated the experience when playing certain board games with a high socializing component. In general, modern board games not only foster cognitive development but also promote social interaction and the regulation of behavior and emotions in children [27], [33]. It has even been shown that cooperative game dynamics can synchronize prefrontal areas of the brain, which are also related to social decision-making [34]. However, research has not yet been carried out using modern board games where the main dependent variable is social competences or emotional intelligence. Despite this, the existing studies are offered as

indirect evidence that indicates the potential of games to lead to improvement in these aspects [35].

Very specifically, Cès et al. [23] found in a recent systematic review, that most of studies regarding the impact of board games have been developed in older adults, but not in children populations. In fact, the only two studies they found in children were not focused on EI [27] or were not intervention studies [32]. Thus, as far as we know, no previous study has investigated the potential of board games to impact EI with a rigorous procedure such as a randomized controlled trial.

In summary, the development of social competence and emotional intelligence in the school environment is essential for preventing behavioral problems and improving coexistence [18]. The implementation of training programs, including the use of modern board and card games, can be an effective strategy to achieve these objectives and promote student well-being [36].

Most of the previously cited research is focused on commercial games. Thus, they are not designed with serious purposes [25], [36]. However, all the previous research has shown that commercial games can be used in educative and intervention contexts to generate serious consequences. Based on this type of evidence, Sousa [37] proposed that modifying commercial games, adapting mechanisms, etc. to achieve serious goals, should be considered a serious gaming intervention.

Therefore, the objective of this study was to evaluate whether emotional intelligence and social problems could be improved through the use of a structured program of modern board games modified with serious purposes. Although past studies regarding playful methodologies showed effects on different emotional outcomes [23], [32], [38], as far as we know, this is the first study focused on trait emotional intelligence. The program used was a short version of the "Play, Enjoy and Grow" program [38]. Based on the indirect evidence regarding the potential of modern board games to foster socio-emotional skills, we established the following expectations for our structured intervention program. Regarding Emotional Intelligence, our primary hypothesis was that children who participated in the modern board game program would not only improve their capacity to understand and manage emotions, but would achieve progress at least comparable to that of the control group, whose beneficial effects were already known in other emotional factors. A similar effect was expected for School Coexistence, meaning we anticipated that the intervention group would show a comparable improvement in the quality of their school life together. Finally, concerning Social Problems (as measured by student rejection), we hypothesized that both the board game intervention group and the control group would demonstrate similar effects in reducing the levels of rejection experienced by students.

## 2. Methods and Material

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### 2.1 Experimental design

The present study was a cluster-type randomized non-inferiority controlled trial (randomization by classes and not by students). We compared a new intervention based on modern board games with a previous validated intervention that is usually used in professional educative settings. The dependent variables were emotional intelligence as well as self-esteem and socialization factors measured by the Sociescuela test. The fundamental independent variable was the type of intervention type (the program structured through board games versus the Sociescuela intervention program). One year after the post-intervention assessment, we re-assessed most of the sample in a follow-up.

## 2.2 Participants

The students participating in the study were 5th-grade students. The mean of age was of 11.04 years. The sample was taken from a single-sex school with line 4, with 33 girls (53.22%) and 29 boys (46.67%) participating in the study. A total of 62 participants were in the study, but only 57 were re-assessed in a follow-up of one year. These were distributed in two experimental groups, as can be seen in Figure 1. The main inclusion criterion was being a student in 5th grade. Exclusion criteria: i) students who did not submit it or improperly completed any of the forms; ii) students who have severe difficulties understanding Spanish to follow instructions properly. No students were excluded by the language criteria.

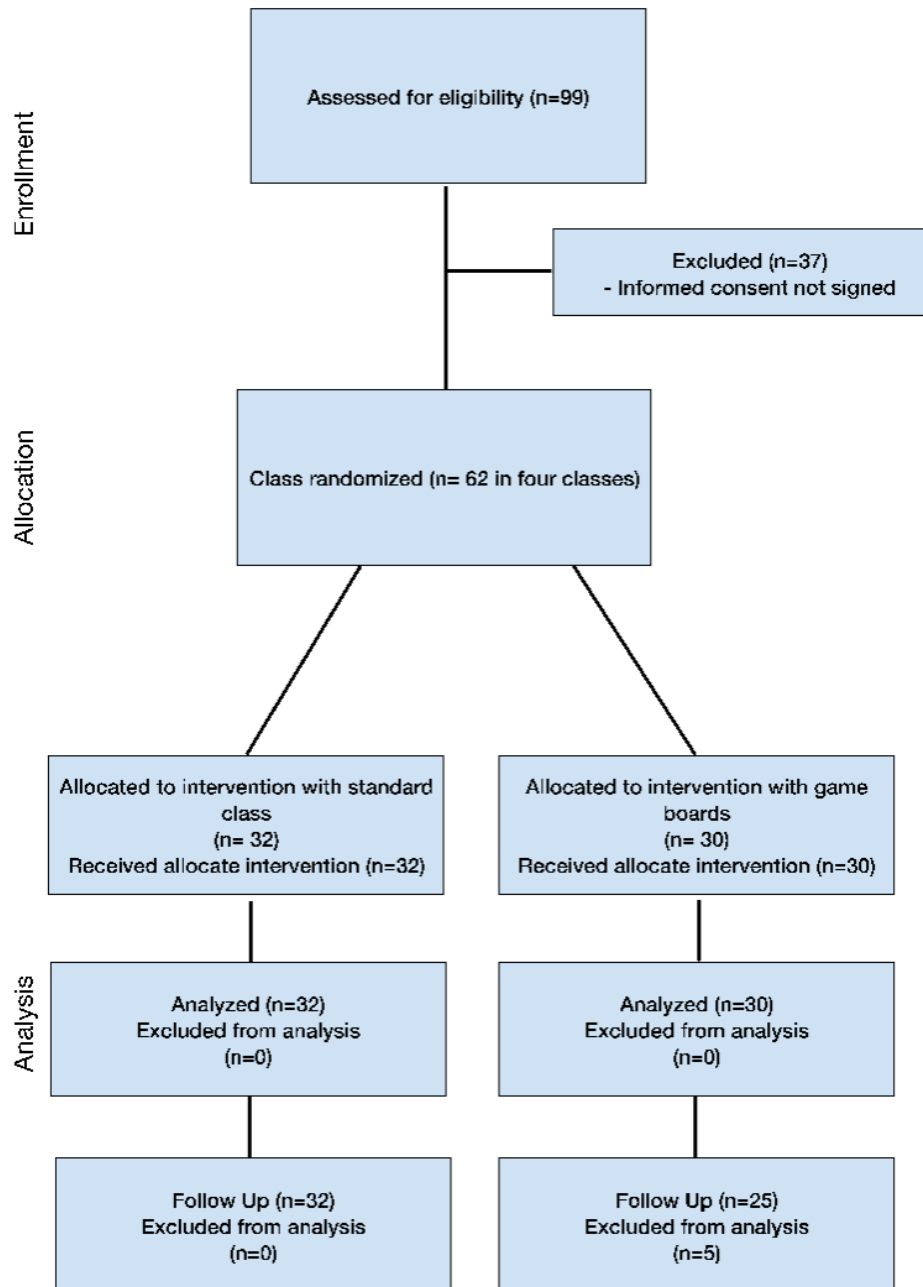
## 2.3 Instruments

The TEIQue and Sociescuela tests were chosen to measure the primary outcomes of this trial.

The TEIQue [39] is one of the most widely used tests to assess emotional intelligence in the adult population. The TEIQue test we used in the study is an adaptation that was made for this age range in a Spanish sample [40]. It is composed of 36 items that assess aspects of adaptability, affective disposition, emotional expression, perception of emotion, regulation of emotions, low impulsivity, peer relationships, self-esteem, and self-motivation. Students respond to the items on a 7-point Likert scale (1 = strongly disagree; 7 = strongly agree). Previous studies show adequate reliability and validity of the instrument [41].

We also created a sociogram using the Sociescuela application. This online tool allows us to collect variables such as self-esteem, prosocial behavior, classroom preferences, preferred classmate, rejections, identification of students with difficulties, students with behavioral problems, and sociability percentile. The Sociescuela test is administered digitally; students answer a series of questions individually. The tool then assigns values to these selections and generates the results. It correlates the test-taker's responses with those of their peers, allowing for comparison of their choices with those of their classmates and objectively assessing whether or not there is reciprocity in these selections. This test also provides a final result on the degree of acceptance of each student within their class group. The variable was categorical (student rejected despite having good skills = 0; student accepted by their classmates = 1; student usually selected as best friend = 2).

Finally, we also carried out an evaluation of student satisfaction at the end of the intervention. The students answered a questionnaire of 12 quantitative and opinion questions (See Supplementary Material).



**Figure 1.** Flow Chart.

### 2.4 Procedure

The study was conducted following the Declaration of Helsinki, and approved by the Ethical Committee of the University of Lleida (February 17th, 2023). In line with this procedure, at first, authorization was requested from the center and the families for the possibility of participating in the research. Next, we proceeded with the baseline assessment (See Supplementary Material Table 1S for the full research flow). The interventions were randomized externally by the corresponding author. The program for the improvement of coexistence was applied as follows: i) the experimental group had a teacher who explained the

construct to be developed that day, as well as the board games that the participants were going to play; ii) at the end of each session they filled out the closing sheet (See Supplementary Material Table 2S for a description of the sessions). On the other hand, in the control group, another teacher carried out the corresponding session of the Sociescuela program [41] At the end of the intervention, we performed the post-intervention assessment. The evaluators were different from the participants. Once the final evaluation was carried out, the first author included the data in the database. Finally, another author analyzed the data without knowing which participant belonged to each group. Thus, the present study had three masking conditions [42]: assessment, randomization and statistical analyses.

## 2.5 Statistical analysis

The normality of the variables was assessed using the Shapiro-Wilk test. For the variables that demonstrated a normal distribution of the scores, a Student's T was used for independent samples to assess possible differences at baseline. Subsequently, a repeated-measures ANOVA was performed to determine the short-term effects of the intervention. For non-normal variables, a Mann-Whitney U was used for baseline differences, and a Friedman F was used to determine the effect of the intervention. One of the variables (Nominations) was categorical and therefore, a Chi-square was used to determine the effect of the intervention. Finally, the follow-up analysis was performed by a repeated-measures ANOVA comparing post-intervention and follow-up levels of emotional intelligence.

## 3. Results

### 3.1 Baseline differences

The normality test showed that responses to TEIQue before and after the intervention followed the normal distribution ( $W_{pre} = .98, p = .53$ ;  $W_{post} = .97, p = .14$ ). However, the answers to the self-esteem questions of the Sociescuela were not normal ( $W_{pre} = .74, p < .001$ ;  $W_{post} = .70, p < .001$ ). As can be seen in Table 1, we did not find any significant difference between the two experimental groups at baseline.

**Table 1.** Baseline differences in the main outcomes of the study

	Group	N	Mean	SD	t	p	d
Emotional intelligence	Sociescuela	30	71.6	12.3	.243	.808	.062
	Board games	32	70.8	14.1			
			Median	IR	U	p	d
Self-esteem	Sociescuela	30	4.17	1.053	446	.602	.071
	Board games	32	4.22	1.184			

Note. SD = Standard Deviation; IR = Interquartile range; t = Student's t; U = Mann-Whitney U;  $d$  = Cohen's:  $.20 < d < .40$  = small effect size;  $.50 < d < .70$  = medium effect size;  $d > .80$  = large effect size.

### 3.2 Effects of the intervention

As can be seen in Table 2, after applying a repeated-measures ANOVA, both the board games and the Sociescuela groups increased their emotional intelligence scores ( $F(60.1) = 847.59, p < .001$ ), although we did not find any differential effect between the interventions ( $F(60.1) = .25, p < .618$ ).

**Table 2.** Effects of interventions on emotional intelligence.

Intervention group	Pre		Post		Pre-post		Pre-postXGroup	
	Mean	Sd	Mean	Sd	F	d	F	d
Sociescuela	71.6	13.69	151.3	27.38	847.59***	.93	.25	.00
Board games	70.8	12.82	147.8	25.62				

\* $p < 0.05$ . \*\* $p < 0.01$ . \*\*\* $p < 0.001$ .  $d = \text{Cohen's: } .20 < d < .40 = \text{small effect size; } .50 < d < .70 = \text{medium effect size; } d > .80 = \text{large effect size.}$

According to Althunian et al. [43] i Hahn [44], we defined the noninferiority margin. The mean difference between pre and post assessments was 79.7 for the Sociescuela group and 77.0 for the Board Games group. The Standard Error of the difference was 5.38. The Noninferiority Confidence Interval (95%) was -8.07 to 13.05. No previous study neither with the Sociescuela program nor with board games, focused on the TEIQue questionnaire. Thus, we did not have historical evidence. So, we used the clinical criteria to determine the possible noninferiority effect. The validation study of the TEIQue's version we used showed that the mean score was expected to be 149 (Sd = 20.60). To conclude, both the Sociescuela and Board Games programa increased the level of emotional intelligence to average levels, even in the worst scenario with a potential difference of -8.07 between both groups. The noninferiority was achieved.

The effects of the intervention on self-esteem were tested using Friedman's F-test. We found no significant differences between pre- and post-hours in either of the two intervention groups ( $F_{\text{Board games}}(1) = .25, p = .617$ ;  $F_{\text{Sociescuela}}(1) = .69, p = .405$ ).

Only 2 students with skillfully rejections (socialization problems; 1 in each experimental group) were identified before the intervention using the Sociescuela test nomination system. After the intervention, both cases went from being habitually rejected to being accepted as equals. In addition, we conducted an analysis of the group's overall trend toward changing nominations. To do this, we subtracted the value of the three categories from the degree of acceptance of the students. Thus, a value of -1 indicates students who have decreased in the degree of acceptance (for example, they went from being habitually selected as best friends to being accepted by peers). As can be seen in Table 3, we did not find significant differences in the pattern of changes in the degree of student acceptance ( $\chi^2(2, N = 62) = .27, p = .874$ ).

**Table 3.** Change in the degree of acceptance of the students after the intervention.

Experimental group		Difference in acceptance rate (Pre-Post)			Total
		-1	0	1	
Board games	Observed	4	22	4	30
	% within row	13.3 %	73.3 %	13.3 %	100.0 %
	% within column	57.1 %	46.8 %	50.0 %	48.4 %
	% of total	6.5 %	35.5 %	6.5 %	48.4 %
Sociescuela	Observed	3	25	4	32
	% within row	9.4 %	78.1 %	12.5 %	100.0 %
	% within column	42.9 %	53.2 %	50.0 %	51.6 %
	% of total	4.8 %	40.3 %	6.5 %	51.6 %
Total	Observed	7	47	8	62
	% within row	11.3 %	75.8 %	12.9 %	100.0 %
	% within column	100.0 %	100.0 %	100.0 %	100.0 %
	% of total	11.3 %	75.8 %	12.9 %	100.0 %

Note. Difference in degree of acceptance (Pre-Post): -1 = students who decreased in the level of acceptance from being selected as best friends to being accepted as equals or from being accepted as equals to being rejected; 0 = students who did not change the level of acceptance; +1 = Students who increased the level of acceptance from being rejected to being accepted as equals or from being accepted as equals to being selected as best friends.

### 3.3 Intervention acceptance

After the two interventions, a survey was administered to find out the opinion of the students. All the variables analyzed were non-normal (*Wrecommend the program* = .75,  $p = .028$  - *WProgram effectiveness* = .90,  $p < .001$ ), so non-parametric statistics were used to compare the groups. As can be seen in Table 4, there were no significant differences in any of the questions. The most remarkable thing is that we found a tendency towards significance in the question about how fun it had been to participate in the program, with the evaluation of the intervention with board games being better than through the Sociescuela ( $U = 236$ ,  $p = .09$ , *Effect size* = .27).

### 3.4 Follow-up

We found a significant decrease in the level of emotional intelligence in the follow-up in both groups ( $F(55.1) = 655.697$ ,  $p < .001$ ,  $d = 0.923$ ). The interaction effect was not significant ( $F(60.1) = .144$ ,  $p = .706$ ) showing no differences between the board games and Sociescuela groups.

**Table 4.** Differences in the assessment of interventions.

	Experimental group	N	Median	IR	U	p	Effect size																																																								
Content	Sociescuela	32	8.0	2.0	300	.369	.142																																																								
	Board games	30	9.0	3.0				Satisfaction with materials	Sociescuela	32	8.0	4.25	287	.358	.147	Board games	30	9.0	4.0	Teacher's assessment	Sociescuela	32	8.5	3.0	324	.482	.109	Board games	30	9.0	2.0	Help to improve emotional intelligence	Sociescuela	32	8.0	3.25	332	.581	.088	Board games	30	8.0	3.75	Would you recommend it?	Sociescuela	32	8.0	2.0	267	.264	.18	Board games	30	9.0	3.0	Fun	Sociescuela	32	7.5	4.0	236	.090	.27
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*Effect size (ES):*  $.20 < ES < .40$  = small effect size;  $.50 < ES < .70$  = medium effect size;  $ES > .80$  = large effect size.

## 4. Discussion

The main objective of this research was to assess whether coexistence and emotional factors can be improved through the use of a structured program of modern board games. In the present research, we developed a structured program to work on emotional intelligence. Previous studies found significant effects of board games in different emotional or behavioral outcomes (27,32,43). However, as far as we know, this is the first study showing any effect in EI. As the present study was a non-inferiority design, the lack of differences between both groups with a significant change in the entire sample could be interpreted as proof of effectiveness. Participating in the board games program seems at least equally effective in promoting emotional intelligence than a standardized program commonly used to do so [5].

Regarding the improvement in self-esteem, it could not be significantly improved compared to the beginning [45]. On the other hand, no references were found from other studies that provided data on this aspect [46]. It is possible that another more sensitive test should be used for the collection of data on this construct, such as the Rosenberg test [47].

As strengths of the intervention, we can observe that the distribution of the program allows it to be developed in 10 sessions. This seems to be an adequate duration and easily integrated into the school timing. Previous studies suggest that the longer games are played in the classroom, the better effects they have, especially on an emotional level [48]. From the teacher's point of view, the fact that the program was designed in the format of worksheets facilitated their autonomy and the process' replication. In this way, the programme can be

integrated into the school's own coexistence plan, developing in tutorial action and being put into practice through cooperative methodologies [48], [49]. Teachers valorated the program positively.

On the other hand, regarding the improvement of coexistence (decreasing rejections), it is a topic that has been debated for some time [50]. In fact, it is considered a necessary aspect for preventive action against bullying [51]. The main strength of coexistence plans is the adequate approach to the objectives. “Conflict education” as a preventive measure has direct and significant effects in reducing problems. Our results corroborate the evidence of other studies that highlight mediation and a culture of education in conflict as the factor that best predicts a reduction in school coexistence problems [52], [53], [54], [55], therefore, we believe that the game-based program can be compatible as a proposal for improving coexistence.

Though the results were optimistic at the beginning, the high levels of emotional intelligence found at the post-intervention, did not remain persistent one year after. Several explanations could be found. First, the significant short-term increase could be a spurious effect. However, past research also found short-term effects of interventions in this outcome [56],[57]. We also followed Zeidner, Roberts and Matthews [58] guidelines for developing an emotional intelligence intervention program. Because of that, we believe we found true effects. A second explanation is that students didn't participate in any type of emotional intelligence program between the post-intervention and the follow-up. It is likely that persistent improvements in emotional intelligence need lasting intervention programs, such as in Cantero, Bañuls & Viguer [59]. Third, responses to self-reported measures, specially when they ask for traits, can be affected by different response biases, such as social desirability and acquiescence [60]. In future studies, the role of response bias in emotional intelligence interventions need to be addressed. Fourth, past playful interventions have found significant short-term but not enduring effects [61],[62]. It could be likely that interventions with games only have transient effects.

While the short-term results were promising, the interpretation of our findings must consider several crucial limitations related to the methodology and program design.

One of the main limitations stems from the fact that the study was executed with a relatively small and homogeneous sample, restricted to students from a single subsidized educational center. Thus, the generalizability of the conclusions is limited. To assert the external validity of board games as an intervention tool, future studies with broader and more representative samples of the general population are needed.

In addition to the sample limitation, the intervention was limited to a duration of 10 sessions, which raises questions about the permanence of the benefits. Although we observed a significant short-term increase, the effect did not persist one year after the intervention, a pattern that has been found in other playful interventions [56],[63] This lack of long-term persistence suggests that the improvement in EI might require more sustained or continuous reinforcement programs, as indicated by the literature [56]. It is likely that 10 weeks is not sufficient to anchor deep changes in a trait like TEI.

A central limitation is the reliance on self-report measures (such as the TEI-Que questionnaire) to assess TEI. Student responses may be influenced by known biases, such as social desirability (the tendency to respond in a socially acceptable manner) and acquiescence bias [60]. More specifically, the novelty and the intrinsic enjoyment of the board games—something the students themselves rated positively—may have generated a positive response bias in the experimental group. It is possible that students, while enjoying the intervention, may have subjectively overestimated their own emotional abilities in the post-test, without this reflecting a real and profound gain in EI. To control for this potential playful bias, it is essential that future research triangulates the information through multiple informant reports (e.g., teachers or parents), direct behavioral observations, or the use of measures designed to control for social desirability [64]

Finally, the study highlights the need for greater methodological reflection on the use of games in the classroom. Using a different game in each session may have diverted students' cognitive resources toward understanding the new game's rules, rather than toward deep reflection on the emotional objectives of the session [61]. To optimize the effects, it would be advisable for future interventions to allow for repeated sessions with the same game, facilitating familiarization and focus on the emotional content [65].

## 5. Conclusions

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In summary, the findings of this study demonstrate that an intervention program based on modern board games for improving emotional intelligence could be possible. Although with some limitations, we found that our program was at least as effective as a previously validated and frequently used structured program in the professional field. Additionally, promising results were obtained in reducing peer rejection (social problems), suggesting a positive impact on school coexistence.

These results are significant, as they offer a playful and effective intervention alternative. To ensure the transfer and impact of this methodology, the complete program, entitled “Play, Enjoy, and Grow +,” has been published (book), allowing for its replication and scalability by other professionals and institutions. Scalability should be ensured because the book is enough to understand every activity.

It is proposed that the program be implemented during school hours, integrating it into spaces such as tutoring sessions or values classes. It is important to note that each session requires approximately 90 minutes for proper execution.

In future studies, the control group will be a passive one (without performing any psychoeducational program). This methodology will help us to understand whether the present effects are better explained by the intervention of by maturation. We also want to see if the program requires the pedagogical part or if we can find the same improvement results by only playing the games. In addition, we want to control the effect of the teacher's attitudes when applying the program.

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## Conflicts of interest

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The authors declare that there are no conflicts of interest regarding the publication of this study. No author has any financial, personal, or professional relationships that could be construed as influencing the research, analysis, or interpretation of the data presented in this article.

## References

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- [1] M. P. Gutiérrez and J. A. M. Lozano, “La formación de ciudadanos: Conceptualización y desarrollo de la competencia social y cívica,” *Educacion XXI*, vol. 18, no. 1, 2015, doi: 10.5944/educXXI.18.1.12332.
- [2] G. A. Corredor, A. Justicia-Arráez, M. C. P. Martínez, and F. J. Justicia, “Aprender a Convivir. Un programa para la mejora de la competencia social del alumnado de Educación Infantil y Primaria,” *Electronic Journal of Research in Education Psychology*, vol. 11, no. 31, pp. 883–904, Nov. 2017, doi: 10.14204/ejrep.31.13105.
- [3] A. Mena, C. Moret-Tatay, C. E. Xavier, and I. I. D. L. Argimon, “Programas de intervención para la prevención de la violencia escolar: Una revisión sistemática y metanálisis,” *Edupsykhé. Revista de Psicología y Educación*, vol. 19, no. 1, 2021, doi: 10.57087/edupsykhé.v19i1.4380.
- [4] M. Barner, “Be a Socially Responsible Corporation,” *Harvard Business Review*, vol. 85, no. 7/8, 2007.
- [5] J. M. Babarro, “Evaluación y detección del acoso escolar a través del análisis del contexto grupal,” *Psicothema*, vol. 26, no. 3, 2014, doi: 10.7334/psicothema2014.85.
- [6] S. Buelga, M. J. Cava, and G. Musitu, “Cyberbullying: Victimización entre adolescentes a través del teléfono móvil y de internet,” *Psicothema*, vol. 22, no. 4, 2010.
- [7] E. E. P. Aguilar and M. R. Gámez, “LA RESPONSABILIDAD Y EL RESPETO COMO VALORES ESENCIALES EN EL DESARROLLO EMOCIONAL Para citar este artículo puede utilizar el siguiente formato,” *Atlante*, 2021.
- [8] M. F. Durand, M. S. Martínez, L. G. G. Galvagno, and A. Elgier, “El desarrollo de la comunicación preverbal y verbal temprana. La importancia del juego,” *Revista Iberoamericana de Psicología*, vol. 13, no. 1, 2020, doi: 10.33881/2027-1786.rip.13103.
- [9] S. C. Whiston and B. K. Keller, “The Influences of the Family of Origin on Career Development: A Review and Analysis,” *The Counseling Psychologist*, vol. 32, no. 4, 2004. doi: 10.1177/0011000004265660.
- [10] C. Salvaterra, A. Bencivenni, M. Fogagnolo, T. Gheldof, and I. Vagionakis, “ENCODE4OpenU and the Preparation and Delivery of an International Collaborative MOOC: A Preliminary Analysis of its Pedagogical and Technical Implementation,” *Education Sciences*, vol. 13, no. 1, 2023, doi: 10.3390/educsci13010043.
- [11] L. Stevahn, “Integrating Conflict Resolution Training Into the Curriculum,” *Theory into Practice*, vol. 43, no. 1, 2004, doi: 10.1207/s15430421tip4301\_7.
- [12] A. C. Flórez-Madroño and M. F. P.- Chapid, “Habilidades sociales para la vida: empatía, relaciones interpersonales y comunicación asertiva en adolescentes escolarizados,” *Revista Investigium IRE Ciencias Sociales y Humanas*, vol. 12, no. 2, 2021, doi: 10.15658/10.15658/investigiumire.221202.02.
- [13] J. A. Durlak, R. P. Weissberg, A. B. Dymnicki, R. D. Taylor, and K. B. Schellinger, “The Impact of Enhancing Students’ Social and Emotional Learning: A Meta-Analysis of School-Based Universal

- Interventions,” *Child Development*, vol. 82, no. 1, pp. 405–432, Jan. 2011, doi: 10.1111/J.1467-8624.2010.01564.X.
- [14] S. R. Sempere *et al.*, “Programa SOE: Programa universal de desarrollo socioemocional para combatir el rechazo en aulas de educación primaria,” in *Psicología y educación: presente y futuro*, 2016.
- [15] C. Education, “Too Good for Drugs[TM]. What Works Clearinghouse Intervention Report.,” *What Works Clearinghouse*, 2006.
- [16] G. Overbeek *et al.*, “Longer-Term Outcomes of the Incredible Years Parenting Intervention,” *Prevention Science*, vol. 22, no. 4, 2021, doi: 10.1007/s11121-020-01176-6.
- [17] B. M. Newman and P. R. Newman, *Theories of Adolescent Development*. 2020. doi: 10.1016/C2017-0-03324-4.
- [18] R. Trigueros *et al.*, “Relationship between emotional intelligence, social skills and peer harassment. A study with high school students,” *International Journal of Environmental Research and Public Health*, vol. 17, no. 12, 2020, doi: 10.3390/ijerph17124208.
- [19] M. A. Z. Berbena, M. D. los D. V. Sierra, and M. D. C. V. Vivero, “Inteligencia emocional y habilidades sociales en adolescentes con alta aceptación social,” *Electronic Journal of Research in Education Psychology*, vol. 6, no. 15, 2017, doi: 10.25115/ejrep.v6i15.1291.
- [20] M. Mejía-Flores, K. Sánchez-Manobanda, M. G.-D. la Torre, and R. Velastegui-Hernández, “La educación afectiva para el desarrollo de la inteligencia emocional,” *593 Digital Publisher CEIT*, vol. 9, no. 1–1, 2024, doi: 10.33386/593dp.2024.1-1.2267.
- [21] H. M. Lau, J. H. Smit, T. M. Fleming, and H. Riper, “Serious Games for Mental Health: Are They Accessible, Feasible, and Effective? A Systematic Review and Meta-analysis,” *Front. Psychiatry*, vol. 7, Jan. 2017, doi: 10.3389/fpsy.2016.00209.
- [22] Y. K. Heng, J. S. Y. Liew, M. F. I. L. Abdullah, Y. Tang, and N. Prestopnik, “ReWIND: A CBT-Based Serious Game to Improve Cognitive Emotion Regulation and Anxiety Disorder,” *International Journal of Serious Games*, vol. 10, no. 3, pp. 43–65, Sep. 2023, doi: 10.17083/ijsg.v10i3.603.
- [23] P. Cès, M. Duflos, E. Tricard, S. Jhean-Larose, and C. Giraudeau, “Playing Board Games to Increase Emotional Competencies in School-Age Children and Older People: A Systematic Review,” *Leisure Sciences*, 2024, doi: 10.1080/01490400.2024.2373415.
- [24] A. C. Villanueva, “The board game designer: An approach,” *Catalan Journal of Communication and Cultural Studies*, vol. 10, no. 2, 2019, doi: 10.1386/CJCS.10.2.271\_1.
- [25] S. Woods, “Stewart Woods (2012) - Eurogames The Design, Culture and Play of Modern European Board Games PDF | PDF | Video Games | Hobbies.” 2012. [Online]. Available: <https://es.scribd.com/document/401713736/Stewart-Woods-2012-Eurogames-The-Design-Culture-and-Play-of-Modern-European-Board-Games-pdf>
- [26] M. Sousa and E. Bernardo, “Back in the game modern board games,” *Communications in Computer and Information Science*, vol. 1164 CCIS, pp. 72–85, 2019, doi: 10.1007/978-3-030-37983-4\_6.
- [27] V. Estrada-Plana, M. Esquerda, R. Mangues, J. March-Llanes, and J. Moya-Higueras, “A Pilot Study of the Efficacy of a Cognitive Training Based on Board Games in Children with Attention-Deficit/Hyperactivity Disorder: A Randomized Controlled Trial,” *Games for Health Journal*, vol. 8, no. 4, 2019, doi: 10.1089/g4h.2018.0051.
- [28] N. Vita-Barrull *et al.*, “Board game-based intervention to improve executive functions and academic skills in rural schools: A randomized controlled trial,” *Trends in Neuroscience and Education*, vol. 33, 2023, doi: 10.1016/j.tine.2023.100216.
- [29] N. Vita-Barrull *et al.*, “Do you play in class? Board games to promote cognitive and educational development in primary school: A cluster randomized controlled trial,” *Learning and Instruction*, vol. 93, p. 101946, 2024, doi: 10.1016/j.learninstruc.2024.101946.
- [30] J. Moya-Higueras *et al.*, “Just Play Cognitive Modern Board and Card Games, It’s Going to Be Good for Your Executive Functions: A Randomized Controlled Trial with Children at Risk of Social Exclusion,” *Children*, vol. 10, no. 9, Sep. 2023, doi: 10.3390/children10091492.
- [31] N. Vita-Barrull, N. Guzmán, V. Estrada-Plana, J. March-Llanes, M. Mayoral, and J. Moya-Higueras, “Impact on Executive Dysfunctions of Gamification and Nongamification in Playing Board Games in Children at Risk of Social Exclusion,” *Games for Health Journal*, vol. 11, no. 1, 2022, doi: 10.1089/g4h.2021.0034.

- [32] L. Dell'Angela, A. Zaharia, A. Lobel, O. V. Begara, D. Sander, and A. C. Samson, "Board Games on Emotional Competences for School-Age Children," *Games for Health Journal*, vol. 9, no. 3, 2020, doi: 10.1089/g4h.2019.0050.
- [33] I. Marín, "¿Jugamos? como el aprendizaje lúdico puede transformar la educación," *PAIDÓS Educación*, 2018.
- [34] N. Liu, C. Mok, E. E. Witt, A. H. Pradhan, J. E. Chen, and A. L. Reiss, "Nirs-based hyperscanning reveals inter-brain neural synchronization during cooperative jenga game with face-to-face communication," *Frontiers in Human Neuroscience*, vol. 10, no. MAR2016, 2016, doi: 10.3389/fnhum.2016.00082.
- [35] C. MacCann, Y. Jiang, L. E. R. Brown, K. S. Double, M. Bucich, and A. Minbashian, "Emotional Intelligence Predicts Academic Performance: A Meta-Analysis," *Psychological Bulletin*, 2019, doi: 10.1037/bul0000219.
- [36] J. Ceballos, Z. Cano, T. Valverde-Esteve, F. T. González-Fernández, and P. J. Ruiz-Montero, "Efectos de un programa de Aprendizaje-Servicio sobre Ejercicio Físico concurrente con personas adultas-mayores: Pilates y juegos de socialización Effects of a Concurrent Physical Activity Service-Learning program with older adults: Pilates and socialization games," *Retos*, vol. 45, pp. 704–713.
- [37] M. Sousa and E. Bernardo, "Back in the game modern board games," *Communications in Computer and Information Science*, vol. 1164 CCIS, pp. 72–85, 2019, doi: 10.1007/978-3-030-37983-4\_6.
- [38] N. Guzmán, S. Carlos, and J. R. Jiménez, "JUEGA, DISFRUTA Y CRECE+ Programa de desarrollo de habilidades socioemocionales y personales a través del juego," Sociedad del Aprendizaje, Cáceres, 2025.
- [39] K. V. Petrides, "Trait Emotional Intelligence Theory," *Industrial and Organizational Psychology*, vol. 3, no. 2, 2010, doi: 10.1111/j.1754-9434.2010.01213.x.
- [40] M. Ferrando *et al.*, "Trait Emotional Intelligence and Academic Performance: Controlling for the Effects of IQ, Personality, and Self-Concept," *Journal of Psychoeducational Assessment*, vol. 29, no. 2, 2011, doi: 10.1177/0734282910374707.
- [41] C. Arango *et al.*, "A web-enabled, school-based intervention for bullying prevention (LINKlusive): a cluster randomised trial," *eClinicalMedicine*, vol. 68, 2024, doi: 10.1016/j.eclinm.2024.102427.
- [42] K. F. Schulz, D. G. Altman, and D. Moher, "CONSORT 2010 Statement: updated guidelines for reporting parallel group randomised trials," *BMJ*, vol. 340, p. c332, Mar. 2010, doi: 10.1136/bmj.c332.
- [43] T. A. Althunian, A. de Boer, R. H. H. Groenwold, and O. H. Klungel, "Defining the noninferiority margin and analysing noninferiority: An overview," *British Journal of Clinical Pharmacology*, vol. 83, no. 8, pp. 1636–1642, 2017, doi: 10.1111/bcp.13280.
- [44] S. Hahn, "Understanding noninferiority trials," *Korean Journal of Pediatrics*, vol. 55, no. 11. 2012. doi: 10.3345/kjp.2012.55.11.403.
- [45] B. Volkaert, L. Wante, T. Loeys, E. Boelens, and C. Braet, "The Evaluation of Boost Camp: A Universal School-Based Prevention Program Targeting Adolescent Emotion Regulation Skills," *School Mental Health*, vol. 14, no. 2, pp. 440–453, Jun. 2022, doi: 10.1007/s12310-021-09478-y.
- [46] E. Cantone *et al.*, "Interventions on Bullying and Cyberbullying in Schools: A Systematic Review," 2015, doi: 10.2174/1745017901511010058.
- [47] M. Rosenberg, *Society and the adolescent self-image*. 2015. doi: 10.2307/2575639.
- [48] J. C. T. Seijo and J. C. Aguado, *Modelo integrado de mejora de la convivencia: estrategias de mediación y tratamiento de conflictos.*, vol. 227. 2006.
- [49] R. Ortega-Ruiz, R. D. Rey, and J. A. Casas, "La Convivencia Escolar: clave en la predicción del Bullying School Coexistence: key to predicting bullying," *Revista Iberoamericanade Evaluación Educativa.*, 2013.
- [50] B. Burton, "Peer teaching as a strategy for conflict management and student re-engagement in schools," *Australian Educational Researcher*, vol. 39, no. 1, 2012, doi: 10.1007/s13384-011-0046-4.
- [51] D. W. Johnson and R. T. Johnson, "Conflict resolution and peer mediation programs in elementary and secondary schools: A review of the research," *Review of Educational Research*, vol. 66, no. 4. 1996. doi: 10.3102/00346543066004459.

- [52] G. McCluskey, G. Lloyd, J. Kane, S. Riddell, J. Stead, and E. Weedon, "Can restorative practices in schools make a difference?," *Educational Review*, vol. 60, no. 4, 2008, doi: 10.1080/00131910802393456.
- [53] J. P. Maxwell, "Mediation in the schools: Self-regulation, self-esteem, and self-discipline," *Mediation Quarterly*, vol. 7, no. 2, 1989, doi: 10.1002/crq.3900070206.
- [54] D. Nelis, J. Quoidbach, M. Mikolajczak, and M. Hansenne, "Increasing emotional intelligence: (How) is it possible?," *Personality and Individual Differences*, vol. 47, no. 1, 2009, doi: 10.1016/j.paid.2009.01.046.
- [55] G. Filella, E. Cabello, N. Pérez-Escoda, and A. Ros-Morente, "Evaluation of the Emotional Education program 'Happy 8-12' for the assertive resolution of conflicts among peers," *Electronic Journal of Research in Educational Psychology*, vol. 14(3), no. 40, 2016, doi: 10.25115/EJREP.40.15164.
- [56] C. Carissoli and D. Villani, "Can Videogames Be Used to Promote Emotional Intelligence in Teenagers? Results from EmotivaMente, a School Program," *Games for Health Journal*, vol. 8, no. 6, 2019, doi: 10.1089/g4h.2018.0148.
- [57] B. Muñoz-Oliver, P. Gil-Madrona, and J. L. Gómez-Ramos, "The Development of Emotional Programmes in Education Settings during the Last Decade," *Children*, vol. 9, no. 4, p. 456, Apr. 2022, doi: 10.3390/children9040456.
- [58] M. Zeidner, G. Matthews, and R. D. Roberts, "Emotional intelligence in the workplace: A critical review," *Applied Psychology*, vol. 53, no. 3, pp. 371–399, Jul. 2004, doi: 10.1111/J.1464-0597.2004.00176.X.
- [59] M. J. Cantero, R. Bañuls, and P. Viguer, "Effectiveness of an emotional intelligence intervention and its impact on academic performance in spanish pre-adolescent elementary students: Results from the edi program," *International Journal of Environmental Research and Public Health*, vol. 17, no. 20, 2020, doi: 10.3390/ijerph17207621.
- [60] D. Navarro-González, U. Lorenzo-Seva, and A. Vigil-Colet, "Efectos de los sesgos de respuesta en la estructura factorial de los autoinformes de personalidad," *Psicothema*, vol. 28, no. 4, 2016, doi: 10.7334/psicothema2016.113.
- [61] G. Walsh, "Why Playful Teaching and Learning?," in *Playful Teaching and Learning*, vol. 4, 2017.
- [62] S. G. Six, K. A. Byrne, T. P. Tibbett, and I. Pericot-Valverde, "Examining the effectiveness of gamification in mental health apps for depression: Systematic review and meta-analysis," *JMIR Mental Health*, vol. 8, no. 11, 2021. doi: 10.2196/32199.
- [63] G. Filella, E. Cabello, N. Pérez-Escoda, and A. Ros-Morente, "Evaluation of the Emotional Education program 'Happy 8-12' for the assertive resolution of conflicts among peers," *Electronic Journal of Research in Educational Psychology*, vol. 14(3), no. 40, 2016, doi: 10.25115/EJREP.40.15164.
- [64] M. Ferrando et al., "Trait Emotional Intelligence and Academic Performance: Controlling for the Effects of IQ, Personality, and Self-Concept," *Journal of Psychoeducational Assessment*, vol. 29, no. 2, 2011, doi: 10.1177/0734282910374707.
- [65] "Promoting Social and Emotional Learning With Games - Robyn Hromek, Sue Roffey, 2009." Accessed: Mar. 27, 2026. [Online]. Available: <https://journals.sagepub.com/doi/10.1177/1046878109333793>