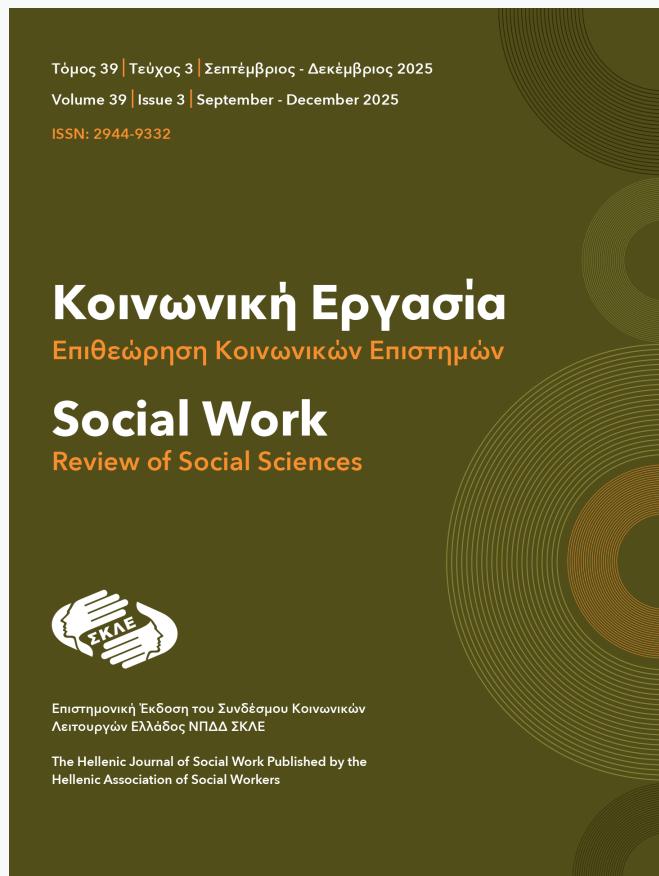


## Κοινωνική Εργασία. Επιθεώρηση Κοινωνικών Επιστημών

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**Ενίσχυση των διαπολιτισμικών αλληλεπιδράσεων στην πρωτοβάθμια εκπαίδευση: Μια οικοσυστημική παρέμβαση Σχολικής Κοινωνικής Εργασίας με μαθητές Ρομά και μη Ρομά**

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# **Enhancing intercultural interactions in primary schools: An ecosystemic School Social Work intervention with Roma and non-Roma students**

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## **ABSTRACT**

This study examines the impact of a multi-level, ecosystemic intervention program designed to enhance intercultural relationships and reduce social distance between Roma and non-Roma students in a Greek primary school classroom. Based on School Social Work (SSW) principles and ecosystemic approach, the intervention program simultaneously engaged students, teachers, and parents through experiential learning, professional development, and family collaboration. Using a quantitative single-case pretest–follow-up design, data were collected through a sociometric test that mapped and analysed students' cooperative relationships before and after the intervention. Pre-intervention results revealed strong ethnic and gender-based clustering, limited inter-ethnic interaction, and particularly weak ties between Roma and non-Roma students. Following the thirty-four hours intervention, the overall mean relationship score increased and strong inter-ethnic ties rose. The analysis of relationships showed, also, stronger connectivity and the development of inter-group ties, indicating greater classroom cohesion. The findings confirm that structured, ecosystemic interventions implemented through SSW can foster intercultural communication, empathy, and collaboration in diverse classrooms in Greece. However, the persistence of group clustering underscores the need for long-term and repeating application of such programs, ideally beginning earlier in primary education, to achieve sustainable intercultural education in schools.

**Key-words:** Intercultural Interactions, School Social Work, Ecosystemic Approach, Roma, Sociometric Test.

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## 1. Introduction

Globally, schools serve as the primary public institutions responsible for preparing and equipping students with the skills, knowledge, values, and principles necessary for their adult lives and for their future roles as citizens within increasingly intercultural societies (Katsama, 2014). By fostering intercultural competence and understanding, education contributes to reducing cultural, social, and ethnic misconceptions that often manifest as racism, poverty, and social exclusion. At the same time, it enhances opportunities for positive intercultural interaction and communication (Banks, 2015; Kapari & Stavrou, 2010; Nikolaou, 2011).

In this context, SSW plays a vital role as a bridge between education, family, and community, promoting students' psychosocial well-being and inclusive participation in school life. Rooted in the principles of human rights, social justice, and respect for diversity, SSW provides a holistic support addressing students' academic, emotional, and social needs. School social workers collaborate with teachers and families through counselling, mediation, and empowerment processes to promote positive school climates and prevent exclusion, particularly among culturally diverse and vulnerable groups (Allen-Meares, 2014; Constable, 2008; Farmakopoulou et al, 2025; Katsama, 2014; Katsama, 2024).

Despite the emphasis of European educational policy on promoting equality and inclusion for all students, available data show that the outcomes for one of the oldest and largest culturally distinct groups in Greece and Europe -the Romani people, or the Roma- continue to fall significantly short of the intended objectives (European Union Agency for Fundamental Rights [FRA], 2021; Council of Europe, 2023). Although numerous initiatives and programs have been implemented over the years, the rates of early school leaving, often before completing the nine-year compulsory education cycle, and the social exclusion of Roma students remain persistently high across many European countries. Overall, the findings of several EU surveys indicate a significant gap between Roma and non-Roma children in terms of school attendance and reveal that Roma children continue to lag behind in terms of educational performance (Council of Europe, 2023; Fox & Vidra, 2012; FRA, 2021; Messing, 2017).

Several factors contribute to the limited effectiveness of these policies, including the lack of systematic implementation measures, delayed school entry, limited participation of Roma communities in educational policy design, ongoing discrimination and prejudice within schools, low expectations from both families and educators, insufficient school–family communication, and broader socioeconomic inequalities. A further, often overlooked factor is the absence of structured education in intercultural communication and relationship-building within the classroom, both in Greece and internationally. Although the importance of intercultural communication is widely acknowledged at the theoretical level, in practice, students are not consistently provided with opportunities to develop collaboration and conflict-resolution skills with peers from different cultural backgrounds within everyday school life (Banks, 2015; Kavasakalis et al, 2023; Nikolaou, 2011; Nieto, 2009).

This critical gap, frequently, results in the persistence of stereotypes, prejudices, discrimination, and social distance among students, thereby limiting opportunities for holistic inclusion and meaningful participation (Council of Europe, 2025; Matsaggouras, 2006). Fundamentally, there can be no interaction without communication, as *intercultural communication* is the core process through which intercultural interactions are built. Consequently, without effective strategies to enhance these interactions, the school environment fails to move beyond mere co-existence and towards true educational and social inclusion for all students.

The need for action stems from the recognition that school, as the primary social environment after the family, is the place where children learn -or fail- to interact effectively with culturally diverse peers. The development of intercultural skills and the cultivation of positive attitudes are not innate abilities but learning processes that require systematic support through educational practice (Banks, 2015; Barrett, 2018; Nieto et al, 2017). Consequently, the present study introduces a classroom-level intervention program, based on the framework of SSW and ecosystemic approach, designed to strengthen intercultural relationships between Roma and non-Roma students, with the active participation of teachers and parents as key components of the social ecosystem.

## 2. Aim and Research Questions

Building on the issues discussed above, the idea of developing a multilevel intervention program emerged as a necessity for the effective management of multiculturalism within the school environment (Banks, 2015). The intervention was grounded in the ecosystemic framework, which views the school as an interconnected system, where changes in one subsystem (students, teachers, or families) can influence and reinforce changes in others. Consequently, this multi-level approach directly addresses the complexity of social relationships, underscoring that enhancing intercultural interactions requires coordinated action across the entire school ecosystem (Allen-Meares, 2014; Nikolaou, 2011; Vassallo, 2014).

The primary aim of the study was to strengthen positive intercultural interactions and to reduce social distance between Roma and non-Roma students. The intervention engaged the three main subsystems of students' school life: *the students*, through experiential learning activities that promote trust and acceptance; *the teachers*, through professional development focused on inclusive education and effective communication; and *the parents*, through activities promoting meaningful family engagement. The design, which addressed each group through specialized activities, is analysed in the following section on the Intervention Program.

More precisely, based on this aim, the following research questions were developed:

1. What were the relationships in the classroom before the intervention, particularly regarding ethnic and gender-based patterns of interaction?
2. How did the intervention affect the structure of students' relationships, in terms of mean relationship scores, strength of ties, and improvements in ethnic and gender relationships?
3. Did the sociometric analysis reveal changes in students' network positions after the intervention, indicating greater cohesion or centrality?

## 3. Methodology

The present study used a *single-case pretest – follow-up design* with a quantitative approach to data analysis. This design was specifically chosen to examine the impact of the intervention by measuring the change in interpersonal relationships and cooperation patterns among Roma and non-Roma students in a single 6th-grade primary school classroom in a semi-urban area of Achaia, Greece. Single-case research designs are recognized in Social Work education and practice as crucial tools for practitioners to rigorously evaluate their own interventions (Bloom et al, 2009). Focusing exclusively on a custom-made sociometric test and sociogram, this methodology allowed for the initial and final mapping and quantitative

analysis of social interactions within the classroom before and after the implementation of the program.

The study sample consisted of all 22 students in the selected classroom. This age group was considered suitable due to their cognitive and emotional capacity to meaningfully engage in collaborative activities and reflect upon their experiences. The class was characterized by a diverse ethnic and gender composition: there were 7 female students, all of whom were non-Roma. Among the 15 male students, 6 were Roma and 9 were non-Roma. Overall, Roma students comprised 25% of the total class population.

The sociometric tool was designed based on Moreno's principles (1953), combining structured quantitative measures with visual sociograms to represent the intensity and quality of interactions. Data collection occurred in two phases: before and after the school-year-long intervention. Students assessed their cooperative relationships with each one of their classmates using a five-point Likert scale (1 = almost none, 5 = very strong). Cooperation was previously defined as discussing, helping, and working together to achieve a shared goal.

To ensure the reliability and validity of the sociometric tool, a pilot administration was conducted with a comparable student group to confirm clarity of instructions and item comprehension. During the main data collection, the researcher verified participants' understanding of the scale descriptors and questionnaire items, thereby minimizing response bias and enhancing measurement accuracy.

To analyse students' relationships before and after the intervention, the Wilcoxon signed-rank test was used to assess statistical differences. This non-parametric paired test is appropriate for small, dependent samples and for Likert-scale data, which are ordinal and may not follow a normal distribution (Field, 2018). A *p*-value below 0.05 was considered statistically significant, indicating that observed changes were likely due to the intervention (Creswell, 2014). To quantify the magnitude and direction of change, the rank-biserial correlation (*r*) was computed as an effect-size measure derived from the signed ranks of the Wilcoxon test (Fritz et al., 2012). The coefficient *r* ranges from -1 to +1, with positive values indicating improvement and negative values indicating decline; conventional benchmarks are *r* ≈ 0.1 (small), *r* ≈ 0.3 (medium), and *r* ≈ 0.5 (large). In addition, the proportion of "strong ties" (relationship strength  $\geq 4$ ) was compared before and after the intervention to illustrate practical changes in robust social connections.

The sociometric data were collected through the sociometric test and analyzed in *Python* 3.9. Data handling and statistical computations were performed using the *NumPy*, *Pandas*, and *SciPy* libraries. The *NetworkX* package was used to construct and visualize undirected sociograms, in which each edge represents the average reported relationship strength between two students. These graphs illustrated students' collaboration networks, allowing the identification of central and marginalized participants and changes in network structure following the intervention (Hagberg et al., 2008).

All procedures adhered to ethical and deontological standards for research with minors. The study received approval from the competent educational authority, and written parental consent was obtained for all student participants. Students were informed about the purpose of the study and their right to withdraw at any point, ensuring voluntary and informed participation.

#### 4. Intervention Program

The intervention program was designed as a comprehensive, multi-level educational initiative aimed at promoting social cohesion and enhancing intercultural interactions in a culturally

diverse classroom setting with Roma and non-Roma students. The program was grounded in three key core theoretical principles: *inclusion* (Booth & Ainscow, 2011), *intercultural communication* (Nikolaou, 2011; Banks, 2015), and *experiential learning* (Kolb, 2015). Drawing from the ecosystemic approach and the principles of SSW, the intervention was structured across three interconnected subsystems (students, teachers, and parents) recognizing that meaningful social change requires the holistic activation and coordination of all key components within the child's educational environment. This multi-level approach addresses the complexity of social relationships, moving beyond mere coexistence to facilitate constructive interaction and cooperation across the entire school ecosystem (Allen-Meares, 2014; Nikolaou, 2011; Vassallo, 2014).

#### **4.1 Student Program**

The “*student part*” of the intervention, titled “*Learning to communicate interculturally: From coexistence to interaction*”, consisted of eight two-hour sessions implemented during the school program in collaboration with the classroom teacher. The main aim was to cultivate mutual understanding, reduce social distance, and strengthen positive interaction between Roma and non-Roma students. The structure of the program followed five successive steps:

1. Recognition of cultural diversity as a natural and valuable social characteristic.
2. Exploration of personal and cultural identity to enhance self-awareness and acceptance.
3. Development of empathy and respect, in order to strengthen the emotional connection and respect for culturally different students.
4. Critical reflection on stereotypes, prejudice, and discrimination to challenge discriminatory thinking patterns.
5. Strengthening intercultural communication skills through a practical interaction toolkit.

Experiential methods such as role-playing, storytelling, simulations, cooperative games, visual creations, and thematic discussions were employed. These encouraged active participation, emotional expression, and positive peer relationships. The student program was intentionally structured to foster a safe and inclusive classroom climate, enabling students to experience diversity not as a source of conflict but as an opportunity for social and emotional growth (Mitropoulou, 2025; Mitropoulou & Nikolaou, 2023).

#### **4.2 Teacher Training Program**

The “*teacher training program*” aimed to reinforce the teachers' pedagogical capacity to manage cultural diversity and support intercultural dialogue in the classroom. It included three four-hour experiential professional development sessions based on reflective practice. According to contemporary research, teacher training is a key factor in developing inclusive educational environments (Arampatzi, 2013; Magos & Simopoulos, 2016; Vassallo, 2014). The training program focused on:

1. Reflecting on personal cultural identity and implicit biases.
2. Identifying and preventing discriminatory behaviours in classroom practice.
3. Developing strategies to manage intercultural conflicts and promote inclusive pedagogic methods.

Teachers engaged in self-reflection activities, case study analysis, experiential activities, and collaborative problem-solving activities. Practical guidelines and tools were introduced for integrating intercultural values into daily classroom routines.

### 4.3 Parental Involvement Program

Recognizing the essential role of families in student development, the “*parental involvement program*” included three two-hour sessions with the parents of both Roma and non-Roma students. Parental involvement has been shown to significantly enhance students’ educational outcomes (Dafermos, 2013; Flecha & Soler, 2013; Sheldon & Epstein, 2010). The sessions focused on:

1. Building trust and familiarizing parents with the goals of the program.
2. Discussing cultural identity, tolerance, and addressing stereotypes.
3. Reflecting on progress and co-designing future actions to sustain cooperation.

Interactive discussion, role-playing, storytelling, collaborative activities, and visual materials were used to foster engagement. The meetings promoted dialogue between Roma and non-Roma families and strengthened parental involvement in school processes.

## 5. Results

### 5.1 Pre-Intervention Results

The sociometric test conducted *before* the implementation of the intervention program, and shown in Tab. 1, revealed strong social distances within the classroom, both at the ethnic and gender level. The five-point Likert results showed that overall relationships in the classroom were rather weak ( $M = 2.82 \pm 1.48$ ), reflecting a fragmented social network.

**Table 1.**  
*Pre-intervention relationship strengths by group*

Relationship Directions	Mean $\pm$ Std. *	Strong Ties ( $\geq 4$ )	Nr. of Relationships
Non-Roma → Roma	$1.34 \pm 0.77$	3%	96
Roma → Non-Roma	$2.01 \pm 0.10$	0%	96
Roma → Roma	$4.83 \pm 0.38$	100%	30
Non-Roma → Non-Roma	$3.48 \pm 1.37$	60%	240
Inter-ethnic	$1.68 \pm 0.64$	2%	192
Total	$2.82 \pm 1.48$	38%	462
Boys → Boys	$2.94 \pm 1.48$	40%	210
Girls → Girls	$4.19 \pm 1.09$	79%	42
Boys → Girls	$2.30 \pm 0.98$	16%	105
Girls → Boys	$2.54 \pm 1.65$	40%	105
Inter-gender	$2.42 \pm 1.36$	28%	210
Non-Roma Boys → Roma Boys	$1.56 \pm 0.95$	6%	54
Roma Boys → Non-Roma Boys	$2.02 \pm 0.14$	0%	54
Non-Roma Girls → Roma Boys	$1.07 \pm 0.26$	0%	42
Roma Boys → Non-Roma Girls	$2.00 \pm 0.00$	0%	42

\* Note. Mean values and standard deviations relate to a 5-point Likert scale (1 = almost none, 5 = very strong).

In particular, inter-ethnic relationships between Roma and non-Roma students were extremely limited. The average rating of relationships from non-Roma to Roma students was only 1.34, with a standard deviation of  $\pm 0.77$ , while mutual evaluations from Roma to non-Roma were slightly higher but still weak ( $M = 2.01 \pm 0.10$ ). Strong ties (scores  $\geq 4$ ) were almost absent in both directions (3% and 0% respectively), clearly indicating minimal interaction and

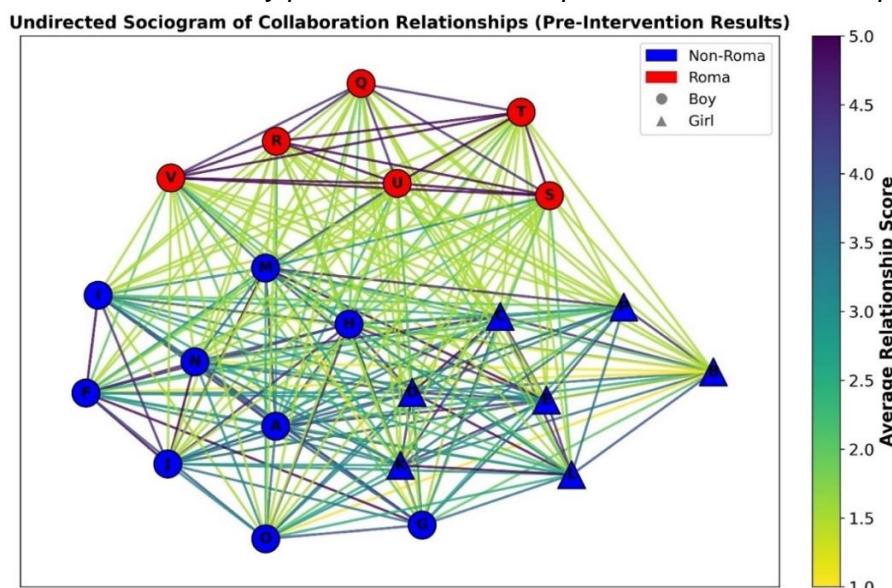
social distance between the two ethnic groups. In contrast, intra-group relationships among Roma students were extremely strong ( $M = 4.83 \pm 0.38$ ), with 100% of them classified as strong, indicating high intra-group cohesion and social grouping. Relationships among non-Roma students were of moderate intensity ( $M = 3.48 \pm 1.37$ ), although the high standard deviation suggests variability in the quality of their connections with their peers.

Gender also emerged as an important factor structuring peer relationships. Girls formed stronger internal networks ( $M = 4.19 \pm 1.09$ , 79% strong ties), while boys reported weaker internal cohesion ( $M = 2.94 \pm 1.48$ ). Inter-gender ties were generally weak ( $M = 2.42 \pm 1.36$ ), reflecting limited cooperation between boys and girls. When ethnicity and gender were examined simultaneously, Roma boys appeared to be the most socially isolated subgroup, especially from non-Roma girls ( $M = 1.07 \pm 0.26$ ).

The undirected sociogram shown in Fig. 1 visually confirmed these findings, depicting a clear ethnic grouping, limited interaction between groups, and peripheral placement of Roma students in the classroom network. The use of the undirected sociogram highlights the strengths and weaknesses of the classroom's social network, as well as the groups of students exhibiting greater cohesion or isolation. Overall, the pre-intervention sociometric mapping revealed strong intra-group engagement but weak interactions between the groups, justifying the need for an intervention focused on improving intercultural relationships, collaboration, and communication.

**Figure 1.**

*Pre-Intervention undirected sociogram of cooperative relationships depicting the average relationship score between every pair of students, irrespective of the relationship's direction*



## 5.2 Post-Intervention Results

Three months after the completion of the classroom intervention program, the analysis of the sociometric data revealed substantial improvements in the structure and quality of peer relationships. Overall, the mean score of all recorded relationships, as shown in Tab. 2, increased from 2.82 to 3.13 (+0.31), a statistically significant change ( $p = 2.0 \times 10^{-8}$ ) with a moderate to large effect size ( $r = +0.44$ ). The percentage of strong ties (ratings  $\geq 4$ ) also rose from 38% to 44%, indicating an overall strengthening of cooperative interactions among students.

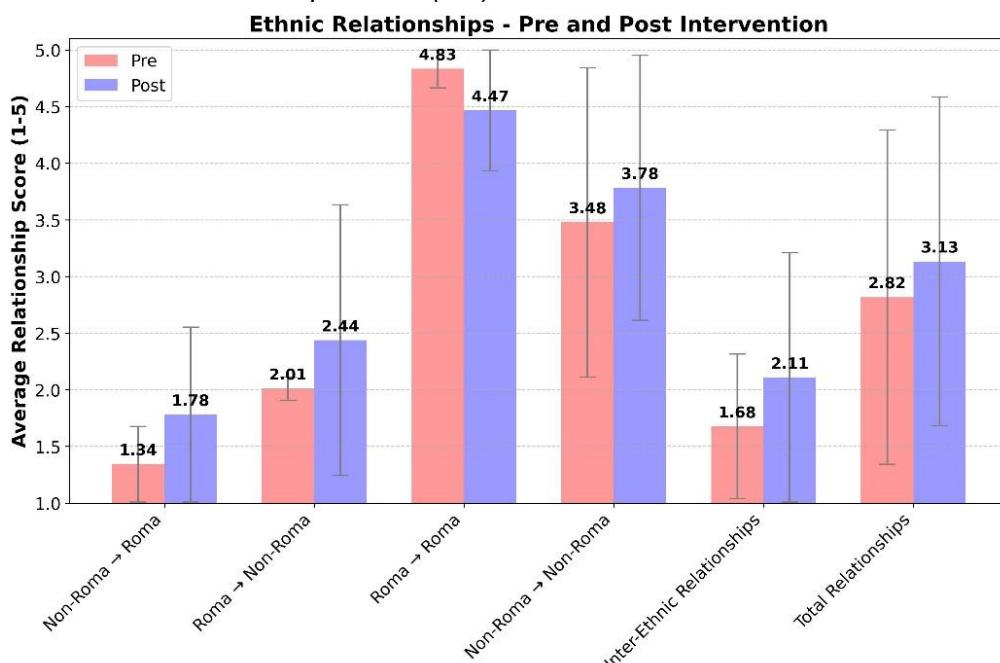
**Table 2.***Ethnic relationship results after the intervention.*

Relationship Directions	Mean $\pm$ Std. *	Strong Ties ( $\geq 4$ )	Mean Change	p-value **	Rank-biserial (r)	Nr. of Relations
Non-Roma $\rightarrow$ Roma	1.78 $\pm$ 1.06	8%	+0.44	<b><math>7.0 \times 10^{-6}</math></b>	+0.82	96
Roma $\rightarrow$ Non-Roma	2.44 $\pm$ 1.19	20%	+0.43	<b><math>4.6 \times 10^{-4}</math></b>	+0.65	96
Roma $\rightarrow$ Roma	4.47 $\pm$ 0.94	83%	-0.37	$2.4 \times 10^{-2}$	-0.78	30
Non-Roma $\rightarrow$ Non-Roma	3.78 $\pm$ 1.17	64%	+0.30	<b><math>1.6 \times 10^{-4}</math></b>	+0.38	240
Inter-ethnic	2.11 $\pm$ 1.17	14%	+0.43	<b><math>1.2 \times 10^{-7}</math></b>	+0.69	192
Total	3.13 $\pm$ 1.45	44%	+0.31	<b><math>2.0 \times 10^{-8}</math></b>	+0.44	462

\* Note. Mean values and standard deviations relate to a 5-point Likert scale (1 = almost none, 5 = very strong).

\*\* Note. Boldface values indicate statistically significant differences ( $p < .05$ ). p values refer to Wilcoxon signed-rank tests.

At the ethnic-group level, Fig. 2 and Tab. 2 show that inter-ethnic relationships between Roma and non-Roma students demonstrated clear positive development. The mean score for relationships directed from non-Roma to Roma increased from 1.34 to 1.78 ( $p = 7.0 \times 10^{-6}$ ,  $r = +0.82$ ), while Roma students' ratings towards non-Roma rose from 2.01 to 2.44 ( $p = 4.6 \times 10^{-4}$ ,  $r = +0.65$ ). The vertical error bars indicate the standard deviation of the relationship scores, reflecting the variability within each group. Importantly, the proportion of strong inter-ethnic ties increased notably –especially from Roma to non-Roma students (0%  $\rightarrow$  20%). Inter-ethnic cohesion therefore improved significantly, although ethnic clustering was not completely eliminated. Intra-group ties among Roma remained strong but showed a slight decline (4.83  $\rightarrow$  4.47), suggesting increased openness to external peer connections.

**Figure 2.***Average inter-ethnic relationship scores (1-5) before and after the intervention*

\* Note. The vertical error bars indicate the standard deviation of the relationship scores, reflecting the variability within each group.

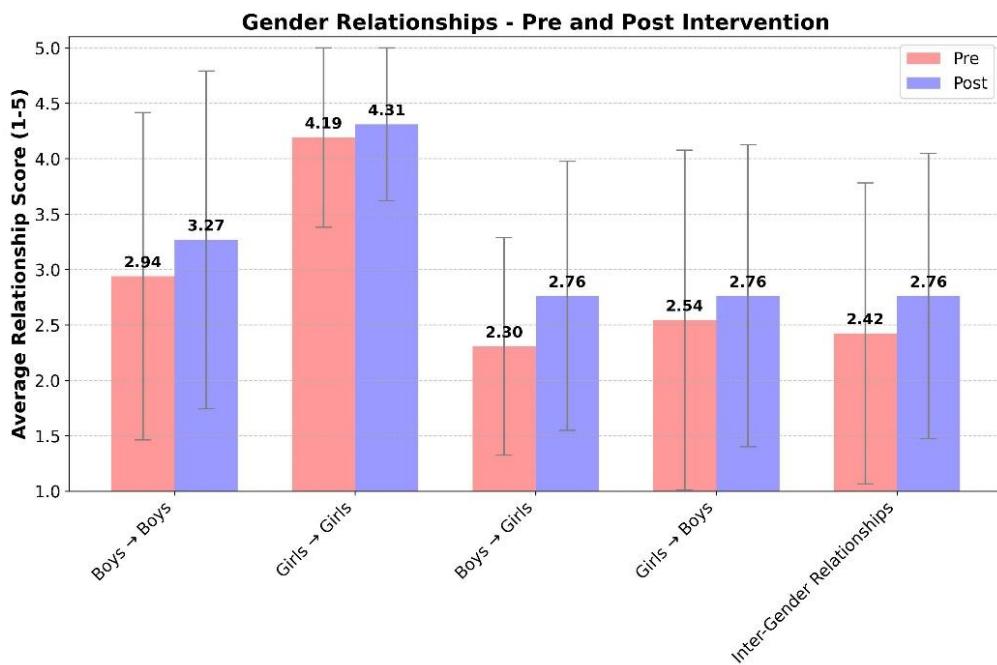
Regarding gender, the results shown in Fig. 3, and Tab. 3, both intra-gender and inter-gender relationships improved. Boys strengthened their internal connections ( $2.94 \rightarrow 3.27$ ,  $p = 1.5 \times 10^{-4}$ ), while interactions from boys to girls also improved ( $2.30 \rightarrow 2.76$ ,  $p = 3.1 \times 10^{-4}$ ). Inter-gender relationships overall increased by  $+0.34$  ( $p = 3.6 \times 10^{-5}$ ). Relationships among girls remained consistently high (4.31), reflecting an already cohesive subgroup.

**Table 3.***Gender relationship results after the intervention.*

Relationship Directions	Mean $\pm$ Std. *	Strong Ties ( $\geq 4$ )	Mean Change	p-value**	Rank-biserial (r)	Nr. of Relationshi ps
Boys → Boys	$3.27 \pm 1.52$	50%	+0.33	<b><math>1.5 \times 10^{-4}</math></b>	+0.45	96
Girls → Girls	$4.31 \pm 1.09$	83%	+0.12	$3.7 \times 10^{-1}$	+0.27	96
Boys → Girls	$2.76 \pm 1.21$	30%	+0.46	<b><math>3.1 \times 10^{-4}</math></b>	+0.57	30
Girls → Boys	$2.76 \pm 1.36$	32%	+0.22	<b><math>2.8 \times 10^{-2}</math></b>	+0.32	240
Inter-gender	$2.76 \pm 1.29$	31%	+0.34	<b><math>3.6 \times 10^{-5}</math></b>	+0.45	192

\* Note. Mean values and standard deviations relate to a 5-point Likert scale (1 = almost none, 5 = very strong).

\*\* Note. Boldface values indicate statistically significant differences ( $p < .05$ ). p values refer to Wilcoxon signed-rank tests.

**Figure 3.***Average intra-gender and inter-gender relationship scores (1-5) pre and post intervention*

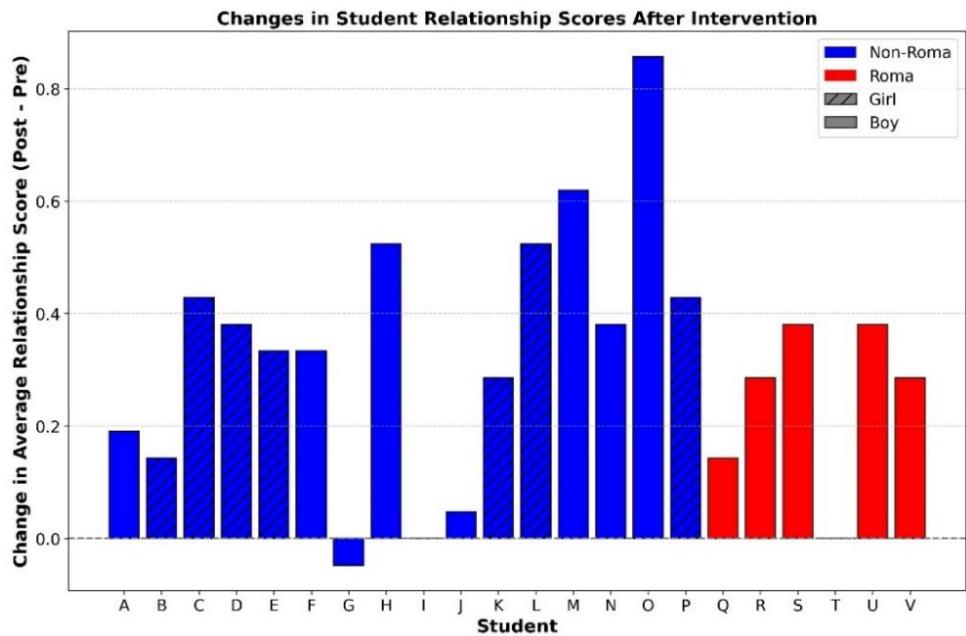
\* Note. The vertical error bars indicate the standard deviation of the relationship scores, reflecting the variability within each group.

As shown in Fig. 4, individual student data reveal a pervasive positive trend: almost all students (21 out of 22) showed an increase in their mean *received* relationship score after the intervention, indicating a notable overall strengthening of the classroom social network. These scores represent the average strength of relationships received by each student. The

difference in scores before and after the intervention highlights the change in how students are perceived by their peers. Notably, five out of six Roma students (red bars) exhibited positive gains, which supports the conclusion that the intervention effectively reduced social isolation and improved the social status of this less-included subgroup.

**Figure 4.**

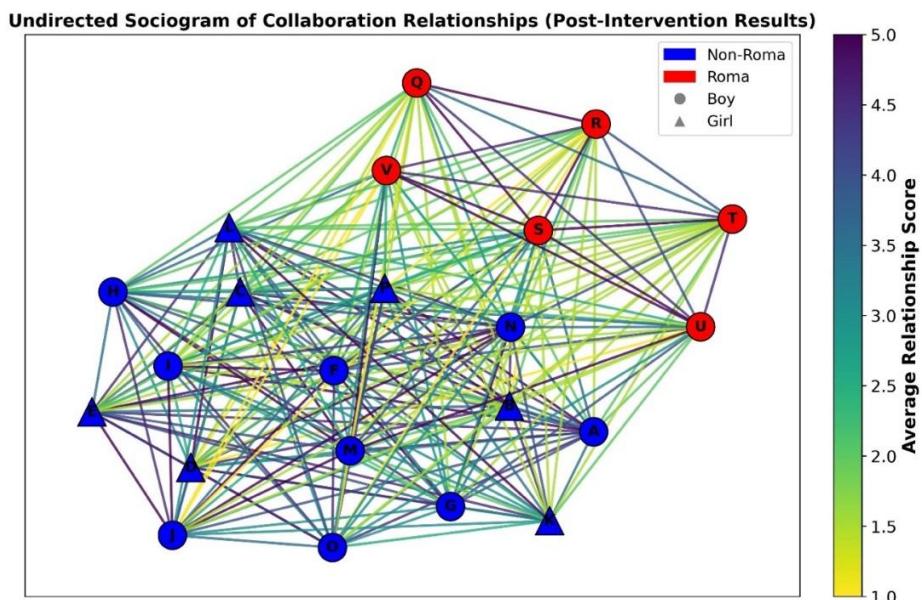
*Change in average peer relationship scores (post – pre) for each student*



Finally, the post-intervention sociogram (Fig. 5) confirmed a denser and more integrated classroom network compared to Fig. 1, corresponding to pre-intervention, with reduced social isolation and more students acting as bridges between the groups. These results provide additional strong evidence that the intervention enhanced social cohesion and promoted more inclusive peer relations in the classroom.

**Figure 5.**

*Post-intervention undirected sociogram of cooperative relationships*



## 6. Discussion

Although the intervention program included components addressed to teachers and parents, the present study systematically evaluated only the student-focused part of the intervention. Due to time constraints and the design of the research, no quantitative data were collected on the outcomes of the teacher training sessions or the parental involvement program. Nevertheless, observational field notes suggested positive engagement from both groups, indicating potential areas for future systematic evaluation.

The findings of this work highlight the critical role of SSW within educational ecosystems. Specifically, school social workers, operating from an interdisciplinary orientation and applying systemic and strength-based approaches, can facilitate communication and cooperation among culturally diverse students, teachers, and families (Allen-Meares, 2014; Constable, 2016; Farmakopoulou, 2025). The holistic interventions of SSW in preventive and intervention initiatives are crucial for sustaining the positive outcomes of classroom interventions, such as the one implemented in the present study.

More precisely, the results of this study demonstrate that the implementation of an ecosystemic and multicultural intervention led to measurable improvements in peer relationships between Roma and non-Roma students. The post-intervention sociometric results revealed an increase in the overall mean score of all recorded relationships from 2.82 to 3.13 and a significant rise in strong inter-ethnic ties (ratings  $\geq 4$ ), especially from Roma to Non-Roma students (from 0% to 20%) within the classroom network. Relationship ratings from non-Roma to Roma students increased from 1.34 to 1.78, while those from Roma to non-Roma rose from 2.02 to 2.44. These findings align with previous research suggesting that structured interactions combined with experiential learning can promote inter-group contacts and reduce prejudice in school environments (Banks, 2015; Gay, 2018).

Although strong intra-group bonds among Roma students remained strong ( $M=4.47$ ), the post-intervention sociometric network (Figs. 1 and 6) showed stronger overall connectivity and the emergence of intergroup bridges, which is a crucial factor for enhancing the social well-being and social inclusion of all students (Reysen et al, 2016). The gradual shift of Roma students from peripheral to more central social positions within the classroom network suggests an increased sense of belonging and reduced social marginalization. This change is particularly significant given that Roma students frequently experience exclusion and stereotyping in mainstream school settings (FRA, 2021).

Furthermore, Figure 4 illustrates that nearly all students (21 of 22) showed positive gains in their average relationship scores after the intervention, with Roma students demonstrating particularly strong improvements that indicate enhanced social inclusion. The intervention also positively affected gender-based interactions, notably strengthening internal cohesion among boys (from 2.94 to 3.27) and improving inter-gender ties (+31%).

However, despite the improvement in inter-ethnic interactions, the persistence of group clustering indicates that intercultural transformation is gradual and requires sustained effort. Short-term interventions, while beneficial, may not fully overcome deeply rooted social boundaries. Sustained practices promoting intercultural dialogue and empathy within the school microsystem are therefore essential for long-term social inclusion.

## 7. Conclusion and Recommendations for Future Research

This study based on a pretest–follow-up design, provided evidence that SSW interventions, with an ecosystem approach, can effectively enhance intercultural interactions between Roma and non-Roma students by promoting intercultural communication and collaborative learning. The sociometric analysis confirmed a reduction in social isolation, and an increase in intergroup connections between Roma and non-Roma students within the classroom network.

Despite its encouraging outcomes, the study has certain limitations. It was implemented in a single school with a small sample size, limiting the generalizability of the findings. Furthermore, the absence of Roma girls from the participant group represents a significant limitation, as it prevents a gender-balanced understanding of social inclusion processes within Roma communities. Additionally, the study evaluated only the student component of the multi-level intervention, as no measurable data were collected for the teacher and parent components, limiting conclusions regarding the full implementation of the ecosystemic model.

Future research should expand the intervention to more schools and diverse geographical areas in order to test its applicability and effectiveness across different educational and cultural contexts. It is also recommended that similar programs begin earlier in primary education (e.g., Grades 2 or 3), allowing more time for the development of interaction relationships. Increasing the duration and number of sessions may strengthen the impact, as participants expressed a desire for longer engagement.

In conclusion, this study highlights the importance of holistic, systemic approaches that address intercultural relationships at multiple levels of the school community. With further refinement and broader application, such programs have the potential to contribute to the social inclusion of vulnerable students and promote equitable education environments.

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# Ενίσχυση των διαπολιτισμικών αλληλεπιδράσεων στην πρωτοβάθμια εκπαίδευση: μια οικοσυστημική παρέμβαση σχολικής κοινωνικής εργασίας με μαθητές/τριες Ρομά και μη

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## ΠΕΡΙΛΗΨΗ

Η παρούσα μελέτη εξετάζει τον αντίκτυπο ενός πολυεπίπεδου, οικοσυστημικού προγράμματος παρέμβασης, σχεδιασμένου για την ενίσχυση των διαπολιτισμικών σχέσεων και τη μείωση της κοινωνικής απόστασης μεταξύ μαθητών/τριών Ρομά και μη σε μια τάξη δημοτικού σχολείου στην Ελλάδα. Με βάση τις αρχές της Σχολικής Κοινωνικής Εργασίας (ΣΚΕ) και την οικοσυστημική προσέγγιση, το πρόγραμμα παρέμβασης απευθύνθηκε ταυτόχρονα σε μαθητές/τριες, εκπαιδευτικούς και γονείς. Χρησιμοποιώντας pre-test και follow-up μετρήσεις σε μία τάξη, συλλέχθηκαν δεδομένα μέσω ενός κοινωνιομετρικού τεστ, το οποίο κατέγραψε και ανέλυσε τις συνεργατικές σχέσεις των μαθητών/τριών πριν και μετά την παρέμβαση. Τα αποτελέσματα της μέτρησης στην αρχική φάση, πριν την έναρξη του προγράμματος, αποκάλυψαν έντονη ομαδοποίηση βάσει εθνότητας και φύλου και ιδιαίτερα αδύναμους δεσμούς μεταξύ μαθητών/τριών Ρομά και μη. Μετά την παρέμβαση των τριάντα τεσσάρων ωρών, ο συνολικός μέσος βαθμός σχέσεων αυξήθηκε και οι δια-εθνοτικοί δεσμοί ενισχύθηκαν. Η ανάλυση των σχέσεων έδειξε, επίσης, ισχυρότερη συνδεσιμότητα και ανάπτυξη δεσμών μεταξύ των ομάδων με βάση το φύλο, γεγονός που υποδηλώνει μεγαλύτερη συνοχή στην τάξη. Τα ευρήματα επιβεβαιώνουν ότι οι οικοσυστημικές παρεμβάσεις που εφαρμόζονται μέσω της ΣΚΕ μπορούν να πρωθήσουν τη διαπολιτισμική επικοινωνία, την ενσυναίσθηση και τη συνεργασία σε πολυπολιτισμικές τάξεις. Ωστόσο, η διατήρηση της ομαδοποίησης ως προς το φύλο και την εθνότητα υπογραμμίζει την ανάγκη για μακροπρόθεσμη και επαναλαμβανόμενη εφαρμογή τέτοιων προγραμμάτων, ιδανικά ξεκινώντας νωρίτερα στην πρωτοβάθμια εκπαίδευση, προκειμένου να διασφαλίζονται διαπολιτισμικά περιβάλλοντα ισότιμης εκπαίδευσης.

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