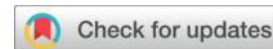




***The Relationship Between Problem-Solving Strategy and Group Dynamics in
Physical Education and Sports Classes: A Field Study of Secondary School
Teachers in Djelfa***

***La relation entre la stratégie de résolution de problèmes et la dynamique de
groupe dans les cours d'éducation physique et sportive: Étude de terrain auprès
des enseignants du secondaire à Djelfa***



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Abstract:

This study aimed to examine the relationship between the problem-solving strategy and group dynamics in physical education and sports classes, from the perspective of a representative sample of secondary school teachers in the Municipality of Djelfa. The study adopted a descriptive-correlational approach and was conducted with a sample of 38 physical education teachers drawn from the secondary schools of Djelfa. A 25-item questionnaire distributed across five dimensions was utilized as the primary data-collection instrument after establishing its validity and internal consistency. The collected data were analyzed using descriptive statistics—frequencies, percentages, arithmetic means, and standard deviations—as well as Cronbach's alpha coefficient to assess internal consistency, and Spearman's rank correlation coefficient to examine the association between the degree of use of the problem-solving strategy and the levels of group dynamics.

The results showed that the dimension of communication, participation, and decision-making recorded the highest arithmetic mean among the group dynamics dimensions. Spearman's correlation coefficient indicated a statistically significant positive relationship between the problem-solving strategy and overall group dynamics ($\rho = 0.618$, $p < 0.01$). In addition, statistically significant positive relationships were identified between the problem-solving strategy and the sub-dimensions of communication and participation, group cohesion, and social interaction, whereas cooperation and teamwork exhibited a moderate positive association. These findings highlight the pedagogical value of active instructional design while emphasizing the necessity of structuring task interdependence to optimize collective learning outcomes.

Keywords: Problem-Solving Strategy; Group Dynamics; Physical and Sports Education; Social Interaction; Cooperation; Communication; Group Cohesion.

Résumé:

Cette étude visait à examiner la relation entre la stratégie de résolution de problèmes et la dynamique de groupe dans les cours d'éducation physique et sportive, du point de vue d'un échantillon représentatif d'enseignants du secondaire dans la commune de Djelfa. L'étude a adopté une approche descriptive-corrélacionnelle et a été menée auprès d'un échantillon de 38 enseignants d'EPS. Un questionnaire composé de 25 items, répartis en cinq dimensions, a été utilisé comme principal instrument de collecte des données après vérification de sa validité et de sa cohérence interne. Les données ont été analysées à l'aide des fréquences, des pourcentages, des moyennes arithmétiques, des écarts-types, du coefficient alpha de Cronbach pour évaluer la cohérence interne, ainsi que du coefficient de corrélation de Spearman pour examiner la relation entre le degré d'utilisation de la stratégie de résolution de problèmes et le degré de dynamique de groupe.

Les résultats ont montré que la dimension relative à la communication, à la participation et à la prise de décision a enregistré la moyenne arithmétique la plus élevée. Le coefficient de corrélation de Spearman a révélé une relation positive statistiquement significative entre la stratégie de résolution de problèmes et la dynamique de groupe globale ($\rho = 0,618$, $p < 0,01$), ainsi que des corrélations positives significatives avec les sous-dimensions de communication, de cohésion et d'interaction sociale. Ces résultats soulignent l'importance de concevoir des situations d'apprentissage motrices fondées sur l'interdépendance positive afin de consolider la coopération et la cohésion de groupe au sein des cours d'EPS.

Mots-clés : Stratégie de résolution de problèmes ; dynamique de groupe ; éducation physique et sportive ; interaction sociale ; coopération ; communication ; cohésion de groupe.

1. Introduction

Physical and sports education classes perform an educational function that extends beyond the acquisition of motor skills, as they place students in situations that require interaction, cooperation, communication, and decision-making. From this perspective, the selection of a teaching strategy has become an integral part of constructing both the educational and social dimensions of the learning situation. The problem-solving strategy is based on presenting a situation for which the solution is not predetermined, thereby allowing learners to participate in identifying alternatives, testing them, and selecting the most appropriate one. When this strategy is employed in group activities, it can provide opportunities for dialogue, role-sharing, and negotiation over possible solutions, and may consequently be associated with certain dimensions of group dynamics.

Studies in physical education indicate that teaching approaches incorporating social and cooperative learning may be associated with interaction and the group climate. However, this relationship depends on how the teaching approach is implemented and how tasks are organized. Therefore, examining the relationship between the problem-solving strategy and group dynamics requires separate measurement of teaching practices and group-level outcomes.

In the Algerian context, previous studies have examined the problem-solving strategy in relation to social interaction, while other studies have addressed group dynamics during physical and sports education classes in the city of Djelfa. The present study builds on this line of research, focusing on the relationship between the two variables within a representative sample of secondary school teachers in the Municipality of Djelfa.

1.1. Research Problem

The research problem lies in the fact that adopting the problem-solving strategy during physical and sports education classes does not, in itself, guarantee homogeneous social outcomes.

It may enhance participation and communication, whereas its effects on cooperation or group cohesion may be less evident depending on the nature of the task and the manner in which the group is organized. Hence, there is a need to examine these dimensions quantitatively. Accordingly, the following main research question can be formulated:

What is the nature and strength of the relationship between the problem-solving strategy and group dynamics in physical education and sports classes from the perspective of secondary school teachers in Djelfa?

1.2. Sub-Questions

- What is the degree of implementation of the problem-solving strategy and the observed level of group dynamics from the perspective of secondary school teachers in Djelfa?
- Is there a correlational relationship between the degree of use of the problem-solving strategy and the degree of group dynamics?
- Is there a relationship between the problem-solving strategy and each of the following: social interaction, cooperation, teamwork, communication and participation, group cohesion, and collective belonging?

1.3. Limitations of the Study

This study has several limitations. The relatively small sample of 38 physical education teachers and its geographical restriction to the Municipality of Djelfa may limit the generalizability of the findings. In addition, the results rely on teachers' self-reported perceptions rather than direct measurements of students' behaviors and group dynamics. Finally, the descriptive-correlational design identifies associations but does not allow for causal inferences. Future research should therefore use larger and more diverse samples, direct measures of student interaction, and experimental or longitudinal designs.

1.4. Research Hypotheses

- The problem-solving strategy contributes significantly to the development of group dynamics among secondary school students.
- There is a statistically significant correlational relationship between the degree to which the problem-solving strategy is employed and the degree of group dynamics.
- There is a statistically significant positive relationship between the problem-solving strategy and each of the following dimensions: social interaction, cooperation and teamwork, communication, participation and decision-making, and group cohesion and sense of belonging.

1.5. Objectives and Significance of the Study

The study aims to describe the level of use of the problem-solving strategy, determine the levels of the dimensions of group dynamics, test the correlation between the two variables, and subsequently interpret the findings in light of the nature of physical and sports education classes.

The significance of the study lies in combining the pedagogical dimension related to the teaching strategy with the social dimension concerning relationships within the group. It provides field data that can assist educators and inspectors in structuring physical education classes as fertile environments for socio-motor development.

1.6. Previous Studies

- **Tahir Adnane and Ben Abderrahmane Sidi Ali (2023):** A study entitled "The Role of Some Teaching Styles—Problem-Solving Style—in Achieving Social Interaction during Physical and Sports Education Classes among Middle School Students: A Field Study of Middle School Students in Algiers East." (Tahir, Adnan, 2023, pp. 112–129) This field study was published in the *Journal of Sports System*, Volume 10, Issue 1. The study focused on the relationship between teaching styles and social interaction, particularly the role that the problem-solving style may play in enhancing interaction during physical and sports education classes. One of the main findings of the study was that the problem-solving style contributes directly to achieving positive social interaction among learners.
- **Chamekh Salah Eddine Omar and Aziz Fairouz (2022):** A study entitled "Competency-Based Approach Pedagogy and Its Impact on Group Dynamics during Physical and Sports Education Classes: A Field Study of Selected Secondary Schools in the City of Djelfa." (Chamekh, Salah al-Din Omar, 2022, pp. 184–200), This field study was published in *Mouachir Journal for Exploratory Studies*, Volume 2, Issue 6, pp. 184–200. The study adopted a descriptive approach and relied on instruments designed to assess social interaction and group dynamics, including Moreno's sociometric measure, the sociometric test, and participant observation in work and play situations. The study concluded that physical and sports education conducted within the competency-based approach exerts a positive impact on group dynamics.
- **Al-Shamayleh (2015):** This study aimed to investigate the effect of designing a computerized curriculum for teaching selected gymnastics skills using the problem-solving strategy on the levels of reflective thinking, motor creativity, and skill performance among female students in Bahrain (Al-Shamayleh, 2015, pp. 45–48). The study sample consisted of 51 female students divided into two equivalent groups: experimental and control. The researcher adopted a quasi-experimental design. The findings indicated that the instructional program based on problem-solving had a significant positive effect on learning gymnastics skills and revealed statistically significant differences in reflective thinking, motor creativity, and skill performance in favor of the experimental group.

While previous literature examined the problem-solving style primarily in relation to individual motor outcomes or general social interaction, it overlooked its specific correlational links with the multifaceted constructs of group dynamics in secondary education. This study addresses this empirical gap in Djelfa's secondary schools using a validated psychometric instrument ($N = 38$, $\alpha = 0.842$) to assess teachers' perspectives, identifying which dimensions of group dynamics emerge spontaneously and which require intentional didactic structuring.

2. Main Body

2.1. Operational Definitions of the Study Variables

- **Teaching Strategy:** A teaching strategy is a broad action plan that describes the procedures undertaken by the teacher and the learner to achieve the intended learning outcomes, rooted in established learning theories. (Abu Shariya, 2008, p. 34) Operationally, the problem-solving strategy in this study refers to the extent to which physical and sports education teachers employ instructional situations that confront students with a motor dilemma requiring them to seek alternatives, experiment, and select the appropriate solution through reflection, discussion, and decision-making.
- **Teaching Style:** Teaching style refers to the manner in which a teacher effectively implements a teaching method in a way that distinguishes their practice from that of other teachers who may use the same method, reflecting the teacher's personality and pedagogical traits. (Shahed, 2021, p. 78).
- **Group Dynamics:** Group dynamics refers to the active interactions and dialogues that take place among learners within groups, contributing to the development of personal and social skills during instructional situations (Al-Rubaie, 2012, p. 102). Operationally, group dynamics in this study refers to the patterns of interaction, communication, cooperation, participation, and cohesion manifested among students during physical and sports education classes, as perceived and evaluated by the teachers.
- **Social Interaction:** Social interaction is a process of continuous exchange and communication between the teacher and learners or among learners themselves, aimed at reaching mutual understanding and achieving educational objectives within a social context. (Sa'adah, 2008, p. 65) Operationally, it refers to the degree of reciprocal behavioral exchange, responsiveness, and communicative engagement exhibited by students during class activities.
- **Cooperation and Teamwork:** Cooperation and teamwork involve organizing learners into small groups with diverse abilities so that they work collaboratively, with each individual assuming responsibility for their own learning and supporting peer learning to attain a common objective (Jaber, 1999, p. 142). Operationally, it refers to the division of labor, mutual assistance, role sharing, and collective pursuit of common motor tasks.

- **Physical and Sports Education Class:** The PES class is the basic organized instructional unit of the curriculum through which educational, motor, cognitive, and social goals are pursued within a structured temporal and spatial setting. (Al-Shafi'i, 2000, p. 55) Operationally, it constitutes the curricular environment in which the problem-solving strategy is implemented and manifestations of group dynamics are observed.
- **Group Cohesion and Sense of Belonging:** Operationally, group cohesion and sense of belonging refer to the degree of mutual attraction, solidarity, shared commitment toward common group goals, and the psychological attachment that students demonstrate toward their peer groups during physical education activities.

2.2. Research Methodology

- **Research Method:** The study adopted the descriptive-analytical approach with a correlational dimension. It was used to evaluate the implementation level of the problem-solving strategy, describe the dimensions of group dynamics, and determine the statistical association between the variables.
- **Geographical Scope:** The investigation was conducted across public secondary schools located in the Municipality of Djelfa.
- **Temporal Scope:** The field procedures commenced with instrument preparation and pilot testing in October 2025 and concluded with final data collection in March 2026.
- **Human Scope:** The study was administered to secondary school teachers of physical and sports education practicing across secondary institutions in the Municipality of Djelfa.
- **Research Population and Sample:** The original population comprised 45 physical and sports education teachers serving in public secondary schools in the Municipality of Djelfa. The survey was comprehensively distributed, yielding a completed and statistically usable sample of **38 teachers** (representing an 84.4% response rate across the target community).
- **Research Instrument:** A questionnaire consisting of 25 items was constructed, distributed equally across five dimensions (5 items per dimension): (1) Problem-Solving Strategy; (2) Social Interaction; (3) Cooperation and Teamwork; (4) Communication, Participation, and Decision-Making; and (5) Group Cohesion and Sense of Belonging. A three-point Likert scale was adopted: Disagree (1 point), Neutral (2 points), and Agree (3 points).
- **Statistical Treatment:** The data were processed using descriptive metrics (frequencies, percentages, arithmetic means, standard deviations), Cronbach's alpha coefficient for internal consistency, and Spearman's rank correlation coefficient (ρ) to assess the relationships between the ordinal study variables.

2.3. Presentation of Results

Table (01): Descriptive Statistics and Reliability Indicators for the Study Dimensions (N=38)

Dimension	Number of Items	Mean	Overall Standard Deviation	Cronbach's Alpha
Problem-Solving Strategy	5	2.38	0.412	0.812
Social Interaction	5	2.21	0.458	0.784
Cooperation and Teamwork	5	2.08	0.486	0.768
Communication, Participation, and Decision-Making	5	2.44	0.384	0.856
Group Cohesion and Sense of Belonging	5	2.29	0.435	0.825

The table shows that the dimension of Communication, Participation, and Decision-Making ranked first with a mean of 2.44, followed by the Problem-Solving Strategy dimension with a mean of 2.38, and Group Cohesion and Sense of Belonging with a mean of 2.29. Social Interaction ranked fourth with a mean of 2.21, whereas Cooperation and Teamwork recorded a mean of 2.08. These results indicate a consistent level of engagement across the dimensions, with communication and participation emerging as the most prominent indicators of group dynamics during problem-solving tasks.

Table (02): Statistical Distribution of the Items of the Problem-Solving Strategy Dimension (N=38)

Item No.	Disagree (%)	Neutral (%)	Agree (%)	Mean	Standard Deviation	Corrected Item–Total Correlation
1	5.3	26.3	68.4	2.63	0.589	0.621
2	21.1	36.8	42.1	2.21	0.777	0.548
3	7.9	31.6	60.5	2.53	0.647	0.682
4	13.2	42.1	44.7	2.32	0.702	0.591
5	10.5	34.2	55.3	2.45	0.686	0.614

The table shows variation in the teachers' responses to the items of the Problem-Solving Strategy dimension. The highest mean was recorded for Item 1 at 2.63, whereas the lowest mean was recorded for Item 2 at 2.21. All corrected item-total correlation values are positive and substantial (ranging from 0.548 to 0.682), confirming the construct cohesion of this dimension.

Table (03): Statistical Distribution of the Items of the Social Interaction Dimension (N=38)

Item No.	Disagree (%)	Neutral (%)	Agree (%)	Mean	Standard Deviation	Corrected Item–Total Correlation
6	7.9	28.9	63.2	2.55	0.647	0.588
7	23.7	39.5	36.8	2.13	0.777	0.531

8	28.9	44.7	26.4	1.97	0.753	0.604
9	18.4	36.8	44.8	2.26	0.760	0.562
10	26.3	34.2	39.5	2.13	0.811	0.547

The table shows the teachers' responses to the items of the Social Interaction dimension. The highest mean was recorded for Item 6 at 2.55, whereas the lowest mean was recorded for Item 8 at 1.97. Corrected item-total correlations range from 0.531 to 0.604, demonstrating solid internal consistency across all items in this section.

Table (04): Statistical Distribution of the Items of the Cooperation and Teamwork Dimension (N=38)

Item No.	Disagree (%)	Neutral (%)	Agree (%)	Mean	Standard Deviation	Corrected Item–Total Correlation
11	31.6	42.1	26.3	1.95	0.769	0.519
12	28.9	47.4	23.7	1.95	0.732	0.542
13	23.7	39.5	36.8	2.13	0.777	0.573
14	18.4	44.7	36.9	2.18	0.730	0.560
15	21.1	39.5	39.4	2.18	0.766	0.528

The table reveals that within the Cooperation and Teamwork dimension, means ranged between 1.95 (for Items 11 and 12) and 2.18 (for Items 14 and 15). The corrected item-total correlations are consistently positive and stable (0.519 to 0.573), reflecting reliable measurement across items measuring collaborative behavior.

Table (05): Statistical Distribution of the Items of the Communication, Participation, and Decision-Making Dimension (N=38)

Item No.	Disagree (%)	Neutral (%)	Agree (%)	Mean	Standard Deviation	Corrected Item–Total Correlation
16	13.2	28.9	57.9	2.45	0.724	0.664
17	7.9	23.7	68.4	2.61	0.636	0.712
18	10.5	31.6	57.9	2.47	0.687	0.690
19	15.8	36.8	47.4	2.32	0.739	0.641
20	15.8	34.2	50.0	2.34	0.745	0.678

The table shows elevated positive ratings across the Communication, Participation, and Decision-Making dimension. Item 17 recorded the highest mean at 2.61, while Item 19 recorded 2.32. The corrected item-total correlations are high (ranging from 0.641 to 0.712), confirming that these items represent a unified construct.

Table (06): Statistical Distribution of the Items of the Group Cohesion and Sense of Belonging Dimension (N=38)

Item No.	Disagree (%)	Neutral (%)	Agree (%)	Mean	Standard Deviation	Corrected Item–Total Correlation
21	18.4	36.8	44.8	2.26	0.760	0.612
22	10.5	34.2	55.3	2.45	0.686	0.648
23	7.9	36.8	55.3	2.47	0.647	0.671
24	23.7	39.5	36.8	2.13	0.777	0.589
25	21.1	42.1	36.8	2.16	0.754	0.605

The table shows that teachers' responses on the Group Cohesion and Sense of Belonging dimension yielded means between 2.13 (Item 24) and 2.47 (Item 23). Standard deviations reflect healthy response variability, and item-total correlations range reliably from 0.589 to 0.671.

2.4. Reliability Analysis

Table (07): Cronbach's Alpha Coefficients by Dimension and Overall Scale (N=38)

Dimension	Cronbach's Alpha	Reliability Assessment
Problem-Solving Strategy	0.812	Highly Acceptable
Social Interaction	0.784	Acceptable
Cooperation and Teamwork	0.768	Acceptable
Communication, Participation, and Decision-Making	0.856	Highly Acceptable
Group Cohesion and Sense of Belonging	0.825	Highly Acceptable
Total Scale (Composite: 25 items)	0.842	Strong Overall Reliability

The overall Cronbach's alpha coefficient reached 0.842, and the individual dimension coefficients ranged between 0.768 and 0.856. All coefficients exceed the conventional 0.70 threshold, confirming that the measurement instrument possesses robust internal consistency and high psychometric stability across all surveyed dimensions.

Testing the Relationship between the Problem-Solving Strategy and Group Dynamics:

Table (08): Spearman's Correlation Coefficient between the Main Study Variables (N=38)

Relationship	N	Spearman's ρ	Sig. (2-tailed)	Decision
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Problem-Solving Strategy × Overall Group Dynamics	38	0.618	< 0.001	Statistically Significant at 0.01
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The Spearman correlation coefficient between the composite score for the Problem-Solving Strategy and the composite score for Group Dynamics was $\rho = 0.618$ ($p < 0.001$). This indicates a strong positive and statistically significant association between the Problem-Solving Strategy and overall Group Dynamics during PES classes.

Table (09): Correlation between the Problem-Solving Strategy and the Dimensions of Group Dynamics (N=38)

Dimension	Spearman's ρ	Sig. (2-tailed)	Decision
Social Interaction	0.462	0.004	Statistically Significant at 0.01
Cooperation and Teamwork	0.384	0.017	Statistically Significant at 0.05
Communication, Participation, and Decision-Making	0.651	< 0.001	Statistically Significant at 0.01
Group Cohesion and Sense of Belonging	0.512	< 0.001	Statistically Significant at 0.01

The findings show that the strongest correlation emerged between the Problem-Solving Strategy and Communication, Participation, and Decision-Making ($\rho=0.651, p < 0.001$). Group Cohesion and Sense of Belonging followed with a strong correlation of $\rho=0.512$ ($p < 0.001$). Statistically significant positive correlations were also confirmed for Social Interaction ($\rho=0.462, p=0.004$) and Cooperation and Teamwork ($\rho=0.384, p=0.017$).

2.5. Discussion of the Results

The descriptive results indicate that Communication, Participation, and Decision-Making constitutes the most prominent dimension ($M=2.44$). This outcome is rooted in the operational nature of problem-solving pedagogy: presenting students with an open tactical or motor dilemma requires verbal exchanges, proposal of alternatives, and joint evaluation of collective trials. Consequently, the statistically significant correlation ($\rho=0.651, p<0.01$) aligns directly with the descriptive patterns observed in the field.

Cooperation and Teamwork, while recording a moderate mean ($M=2.08$) and a significant correlation ($\rho=0.384, p<0.05$), displayed a comparatively lower coefficient than the communication dimension. This demonstrates that confronting learners with a problem situation does not spontaneously eliminate individualistic tendencies unless the motor task is explicitly

constructed around positive resource and reward interdependence. Without structured cooperative guidelines, skilled students may dominate motor execution, highlighting the need for pedagogical structuring.

These dynamics align with the pedagogical perspective emphasized by Dr. Afaf Abdelkarim, who affirmed that the physical education and sports teacher is an essential educational actor capable of transforming the gymnasium into a space of direct social dialogue. Through structured instructional tasks, the teacher facilitates learners' personal development, enabling them to shift from passive individual habits toward shared responsibility, reasoned decision-making, and constructive group problem-solving. (Abdelkarim, 2000, p. 89).

The findings regarding Social Interaction ($\rho=0.462, p<0.01$) corroborate theoretical expectations regarding peer socialization through motor learning. This is consistent with the sociological framework articulated by Dr. Hamed Abdel Salam Zahran, based on the foundational theories of Muzafer Sherif and Carolyn Sherif. When members of a group interact to achieve a common superordinate goal—as occurs in cooperative motor tasks and team games—group structures emerge naturally, accompanied by differentiated roles and cooperative norms that mitigate conflict and promote cohesive social behaviors. (Zahran, 2000, p. 174).

Furthermore, Dr. Moataz Al-Sabouni emphasized that sports activities provide fertile ground for consolidating interpersonal bonds when two or more individuals unite their efforts toward shared outcomes. (Chamekh, Salah al-Din Omar, 2022, p. 115) The positive findings of the current study are also coherent with the Algerian empirical literature, specifically the findings of Tahir and Ben Abderrahmane (2023) regarding the role of problem-solving in fostering social interaction, and Chamekh and Aziz (2022) concerning the positive impact of competency-based physical education on secondary school group dynamics in Djelfa.

3. Conclusion

The study concluded that the problem-solving strategy plays a significant, positive role in enhancing group dynamics during secondary school physical education classes in Djelfa. Its most pronounced associations relate to communication, participation, collective decision-making, and group cohesion. Simultaneously, the moderate correlation observed for cooperation underscores that group dynamics is a multifaceted construct requiring deliberate didactic engineering.

By establishing high measurement reliability across a representative sample of secondary school teachers, the present investigation provides empirical evidence supporting the integration of constructivist, problem-based instructional methodologies into Algerian physical education curricula. These findings offer practical guidance for educators aiming to leverage physical education as a powerful vehicle for both motor competence and socio-affective maturation.

3.1. Findings

1. The findings revealed a statistically significant positive relationship between the reported use of the problem-solving strategy and teachers' perceptions of group dynamics among secondary school students in the study sample ($\rho = 0.618$).
2. The strength of this relationship varied across the different dimensions of perceived group dynamics, indicating that these dimensions are not associated with the problem-solving strategy to the same extent.
3. Communication, participation, and collective decision-making showed the strongest positive associations with the reported use of problem-solving tasks.
4. Cooperation and teamwork demonstrated a comparatively moderate relationship, suggesting that these dimensions may require additional pedagogical structuring and intentional organization.
5. Overall, the findings highlight the importance of task design, teacher mediation, and systematic group organization as pedagogical factors associated with positive perceptions of group dynamics in physical education settings.

3.2. Recommendations

1. Design structured problem-solving tasks that promote positive role interdependence and shared accountability among secondary school students during physical education and sports sessions.
2. Provide continuous professional development programs for physical education teachers focusing on didactic mediation, active teaching strategies, collaborative learning, and the management of group dynamics.
3. Integrate complementary assessment approaches, such as sociometric tools, including Moreno's sociogram, and systematic observation grids to enable more direct assessment of socio-affective interactions within student peer groups.
4. Encourage collaborative reflection and group discussion during the evaluation phases of physical education lessons to support communication, collective decision-making, and group cohesion.
5. Conduct future research using experimental, longitudinal, and mixed-method designs to examine potential causal relationships and the development of social competencies across different educational and sporting contexts.

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