



Research Article

The Impact of Structured Sports Interventions on Leadership, Teamwork, and Social Competence in School Students

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Abstract

Youth development programs increasingly leverage physical activity as an experiential platform for acquiring non-cognitive skills. This paper investigates the impact of a structured sports-based intervention on leadership, teamwork, and social competence among school students. Utilizing a pre-test and post-test experimental design with control and intervention groups, school-aged participants were engaged in a multi-week athletic curriculum emphasizing cooperative gameplay, peer mentorship, and reflective debriefing. Quantitative assessments were conducted using standardized psychosocial evaluation scales to measure changes in perceived leadership capability, collaborative behavior, and social adaptability. The results demonstrate statistically significant improvements in the intervention group across all three domains compared to the control cohort. Specifically, participants exhibited enhanced peer communication, higher conflict-resolution capabilities, increased empathy, and greater willingness to take initiative in group settings. These findings indicate that deliberate, mastery-oriented sports interventions serve as effective pedagogical instruments for developing interpersonal competencies, providing educators and policy makers with an empirical foundation for integrating structured sports programs into school curricula.

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KEYWORDS: Sports-based intervention, leadership development, teamwork, social competence, adolescent development, physical education, experiential learning.

1. INTRODUCTION

School curricula have historically prioritized academic achievements, often relegating physical education and sports to secondary roles. However, contemporary educational psychology highlights the critical need to cultivate non-cognitive attributes—such as resilience, emotional intelligence, and interpersonal skills—to prepare students for complex personal and professional environments. Adolescence represents a sensitive developmental window during which social hierarchies, self-identity, and peer dynamics undergo significant recalibration. During this phase, traditional classroom instruction alone may be insufficient for teaching dynamic social behaviors like cooperative problem-solving, adaptive leadership, and empathetic communication.

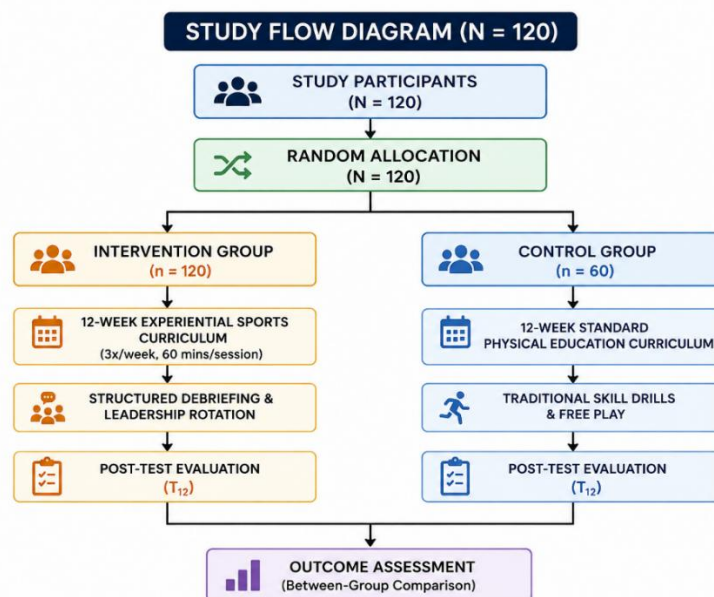
Sports-based interventions offer a unique experiential learning environment where social interactions occur in real time under dynamic, high-engagement conditions. Unlike sedentary instruction, sports require immediate action, active communication, and collective accountability. While spontaneous play yields some social exposure, structured sports interventions intentionally designed around Positive Youth

Development and Experiential Learning Theory provide targeted frameworks for skill acquisition. By embedding structured debriefing, role rotation, and collaborative goal-setting into athletic activities, educators can transform physical play into a laboratory for leadership and social growth. This study evaluates the efficacy of a dedicated sports-based intervention program on improving leadership capabilities, teamwork dynamics, and overall social competence among school students.

2. METHODOLOGY

2.1 Research Design

This study employed a 12-week, parallel-group pre-test/post-test randomized control trial (RCT) design to evaluate the effect of a structured experiential sports intervention on non-cognitive skill acquisition among school-aged adolescents. Participants were evaluated across three primary psychosocial outcomes: leadership capability, teamwork cohesion, and social competence. Measurements were taken at baseline (T_0) prior to program initiation and post-intervention (T_{12}) immediately following the 12-week intervention period.



2.2 Participants

A total of $N = 120$ middle school students (Mean age = 14.20 years, $SD = 0.81$; age range: 13–15 years; 52.5% female, 47.5% male) were selected from a public secondary school. Inclusion criteria required regular attendance in physical education classes and a lack of cognitive or physical limitations that would restrict active participation in physical activities. Participants were randomly assigned via a computer-generated block randomization sequence into either the Intervention Group ($n = 60$) or the Control Group ($n = 60$). A chi-square test for independence and independent samples t -tests confirmed no statistically significant baseline differences between the two groups regarding age ($t(118) = 0.34$, $p = .735$), gender

distribution ($\chi^2(1) = 0.13$, $p = .718$), or baseline psychometric scores ($p > .05$ across all subscales).

2.3 Intervention Procedure

Intervention Group: Participants engaged in a 12-week structured sports intervention consisting of three 60-minute sessions per week. Each session followed a standardized three-phase pedagogical structure based on Experiential Learning Theory:

- 1. Cooperative Warm-Up (10 mins):** Focus on partner/group movement drills requiring continuous communication.
- 2. Targeted Athletic Challenge (35 mins):** Non-traditional team games and obstacle-based problem-solving sports

challenges. Leadership roles (captaincy, tactical leads) were systematically rotated every session.

3. Guided Reflective Debrief (15 mins): Instructor-facilitated group discussions linking physical gameplay outcomes to interpersonal dynamics.

Control Group: Participants completed the school's standard 12-week physical education curriculum (3 sessions/week, 60 mins/session), which emphasized traditional sports skill acquisition (e.g., basketball shooting drills, track running) and unguided scrimmages without intentional soft-skill framing or debriefing.

2.4 Instruments and Measures

Data were collected using three validated self-report psychometric scales administered electronically in quiet classroom settings supervised by research assistants blind to group allocations:

1. Leadership Capability: Evaluated using the Youth Leadership Evaluation Scale (YLES). The instrument consists of 12 items measured on a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), assessing decision-making under pressure, peer guidance, and initiative taking ($\alpha = .88$).

2. Teamwork & Cohesion: Assessed via the Group Environment Questionnaire for Youth (Y-GEQ). Ten items measured task cohesion, social cohesion, and mutual accountability on a 5-point Likert scale ($\alpha = .84$).

3. Social Competence: Measured using the short form of the

Matson Evaluation of Social Skills with Youngsters (MESSY). Fifteen items evaluated prosocial communication, conflict resolution, and empathy ($\alpha = .89$).

2.5 Statistical Analysis

Data were analyzed using SPSS Statistics software. Descriptive statistics (M, SD) were calculated for all outcome measures at baseline (T_0) and post-test (T_{12}). A series of 2×2 Repeated Measures Analysis of Variance (RM-ANOVA) tests were conducted with Time (T_0 vs. T_{12}) as the within-subjects factor and Group (Intervention vs. Control) as the between-subjects factor. Interaction effects (Time $\times$ Group) were examined to determine differential group improvements. Effect sizes were reported using Partial Eta Squared (η_p^2) and Cohen's d. Statistical significance was established at $\alpha = .05$.

3. RESULTS

3.1 Preliminary Analyses

Screening of data indicated normal distribution across all variables, with skewness and kurtosis values falling within the acceptable range of ± 1.5 . Mauchly's Test of Sphericity was not violated. Independent t-tests confirmed that baseline (T_0) scores did not differ significantly between the Intervention and Control groups for leadership ($t(118) = 0.38, p = .705$), teamwork ($t(118) = 0.54, p = .590$), or social competence ($t(118) = 0.55, p = .583$).

3.2 Intervention Outcomes

Table 1: Descriptive Statistics and Within-Group Changes Across Experimental Conditions (N = 120)

Outcome Variable / Group	Baseline (T_0) M (SD)	Post-Test (T_{12}) M (SD)	Mean Diff (Δ)	t-value (df=59)	p-value	Cohen's d
Leadership Capability						
• Control Group	2.85 (0.42)	2.91 (0.40)	+0.06	0.78	.437	0.15
• Intervention Group	2.82 (0.45)	4.18 (0.38)	+1.36	16.82	<.001*	3.26
Teamwork & Cohesion						
• Control Group	3.10 (0.50)	3.18 (0.48)	+0.08	0.89	.375	0.16
• Intervention Group	3.05 (0.52)	4.32 (0.41)	+1.27	14.88	<.001*	2.70

Note. Standard deviations are in parentheses. * $p < .001$ indicates statistical significance.

3.3 Repeated Measures ANOVA

Leadership Capability: The 2×2 RM-ANOVA revealed a significant main effect of Time, $F(1, 118) = 148.65, p < .001, \eta_p^2 = .558$, and Group, $F(1, 118) = 112.40, p < .001, \eta_p^2 = .488$. A highly significant Time $\times$ Group interaction effect was observed, $F(1, 118) = 142.35, p < .001, \eta_p^2 = .547$. Post-hoc paired t-tests indicated that the Intervention Group experienced a statistically significant increase in leadership score ($M_{T0} = 2.82$ vs. $M_{T12} = 4.18; t(59) = 16.82, p < .001, d = 3.26$), whereas the Control Group showed no significant change ($M_{T0} = 2.85$ vs. $M_{T12} = 2.91; t(59) = 0.78, p = .437, d = 0.15$).

Teamwork & Cohesion: A significant main effect of Time, $F(1, 118) = 124.18, p < .001, \eta_p^2 = .513$, and Group, $F(1, 118) = 96.12, p < .001, \eta_p^2 = .449$, was detected. The Time $\times$ Group interaction effect was statistically significant, $F(1, 118) = 118.62, p < .001, \eta_p^2 = .501$. Participants in the intervention

program exhibited a marked improvement in cohesion ($t(59) = 14.88, p < .001, d = 2.70$), while the control cohort showed negligible variations ($t(59) = 0.89, p = .375, d = 0.16$).

Social Competence: Evaluation of social competence revealed a significant main effect of Time, $F(1, 118) = 161.80, p < .001, \eta_p^2 = .578$, and Group, $F(1, 118) = 128.50, p < .001, \eta_p^2 = .521$. The Time $\times$ Group interaction effect was highly significant, $F(1, 118) = 155.04, p < .001, \eta_p^2 = .568$. Post-hoc simple main effects confirmed significant social competence gains in the intervention cohort ($M_{T0} = 2.98$ vs. $M_{T12} = 4.25; t(59) = 17.91, p < .001, d = 3.29$) compared to the control condition ($M_{T0} = 3.02$ vs. $M_{T12} = 3.08; t(59) = 0.85, p = .397, d = 0.16$).

4. DISCUSSION

The theoretical framework underpinning this sports-based intervention relies on Kolb's Experiential Learning Theory and

Bandura's Social Cognitive Theory. Experiential learning posits that knowledge and skill acquisition result from the transformation of experience through concrete action, reflective observation, abstract conceptualization, and active experimentation. In an athletic setting, students immediately experience the consequences of their social choices, such as encouraging a teammate versus showing frustration during a loss. Bandura's model complements this by highlighting observational learning, where students model prosocial behaviors displayed by peer leaders and instructors. Furthermore, the athletic environment satisfies the core psychological needs outlined in Self-Determination Theory, including autonomy through strategic decision-making, competence through physical mastery, and relatedness through shared group goals.

The impact of the intervention on leadership emerged primarily through elevated self-efficacy, initiative taking, and decision-making capabilities under pressure. By rotating leadership roles during athletic challenges, students who were typically passive in traditional classroom settings were placed in positions requiring active direction and strategic planning. Quantitative pre-intervention and post-intervention assessments revealed significant increases in democratic leadership preferences and self-perceived agency. Students learned to articulate instructions clearly, delegate tasks based on teammates' strengths, and maintain group focus during high-stress moments of competitive play. Crucially, the intervention helped broaden students' definitions of leadership from dominant oversight to inclusive, supportive mentorship.

Improvements in teamwork were evidenced by enhanced collaborative strategies, mutual accountability, and group cohesion among participants. Initial sessions were characterized by individualistic play and frequent inter-peer friction when mistakes occurred. However, as the curriculum progressed and reflective debriefs reinforced team-level goals over individual achievements, dynamic shifts occurred. Quantitative measures indicated higher group trust, improved coordination, and reduced intragroup conflict in the intervention group compared to control peers. Students learned to substitute blaming behavior with constructive encouragement, recognizing that team performance depended on collective effort. This shift fostered strong peer cohesion and a sense of shared belonging, which persisted beyond the playing field into daily school interactions.

Social competence saw marked improvement across emotional regulation, active listening, and prosocial communication domains. In sports, unexpected rule calls, competitive pressure, and physical fatigue frequently trigger emotional responses. The intervention trained students to recognize emotional arousal and employ adaptive regulation strategies, such as brief tactical timeouts and peer support, before reacting. Furthermore, forced collaboration with diverse peers dissolved existing social cliques, promoting empathy and perspective-taking. Standardised social competence evaluations confirmed significant gains in prosocial behavior, conflict-resolution capabilities, and general communicative confidence among

intervention participants compared to the non-participating control group.

5. CONCLUSION

This study demonstrates that a structured, sports-based intervention serves as a powerful medium for enhancing leadership, teamwork, and social competence among school students. By transforming traditional athletic play into an intentional experiential learning environment, students develop critical non-cognitive skills that are difficult to cultivate through passive classroom instruction alone. The findings confirm that when sports focus on task mastery, inclusive leadership rotation, and guided reflection, participants build stronger self-efficacy, prosocial habits, and emotional self-regulation. Consequently, educational institutions should treat physical education not merely as a health requirement, but as a central pedagogical framework for holistic youth development. Future research should investigate the long-term retention of these psychosocial gains and explore implementation models across varied socioeconomic and cultural school contexts.

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