



Emotional Scaffolding Through Sport-Based Educational Games in Early Childhood Education: A Qualitative Study Using NVivo

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Abstract: Social–emotional learning (SEL) in early childhood is a foundational predictor of later wellbeing, learning engagement, and life outcomes. Movement- and game-based learning is frequently recommended for preschool settings, yet evidence remains limited on how teachers provide emotional scaffolding while children engage in sport-based educational games, particularly in Indonesian early childhood education and care (ECEC). This qualitative case study explored (1) how teachers scaffold children’s emotions during sport-based educational games, (2) how game structure elicits opportunities for emotion regulation and prosocial behavior, and (3) how SEL goals are integrated into planning and reflection. Data were collected through classroom observations of game sessions, semi-structured interviews with three ECEC teachers and five parents, and document review of lesson plans (RPPH/RPPM). Data were analyzed thematically with Nvivo 12 plus (open coding, categorization, and theme refinement), supported by a codebook and matrix-coding queries. Four themes emerged: teacher emotional scaffolding practices, game structure as a trigger for SEL, observed socio-emotional behavioral change, and integration into planning and reflective practice. The findings highlight the pedagogical value of sport-based educational games as a context for emotion coaching and co-regulation, and provide practical guidance for embedding SEL indicators into early childhood physical education activities.

Keywords: Early Childhood Education, Social–Emotional Learning, Emotion Regulation, Teacher Emotional Scaffolding, Sport-Based Educational Games.

1. Introduction

Social–emotional learning (SEL) refers to the process through which children acquire skills to understand and manage emotions, set and achieve goals, show empathy, build relationships, and make responsible decisions. Strong early SEL is associated with later academic, mental health, and public health benefits, whereas early difficulties can predict later risk and maladjustment (Domitrovich *et al.*, 2017; Jones *et al.*, 2015). Meta-analytic evidence also indicates that well-designed SEL programs can improve social–emotional outcomes and academic performance across educational (Corcoran *et al.*, 2018; Durlak *et al.*, 2011).

In the preschool years, emotion regulation and self-regulation develop rapidly and are shaped by everyday interactions with caregivers and teachers.

Teachers therefore act as co-regulators who help children label emotions, calm down after setbacks, and re-engage with peers and tasks. Recent work in early childhood education highlights that emotionally supportive teacher–child interactions, including co-regulation and emotion socialization practices, are central to children’s self-regulation development and classroom adjustment (Bai *et al.*, 2021; J. Silkenbeumer *et al.*, 2024; J.R. Silkenbeumer *et al.*, 2018). Professional development programs that strengthen educators’ co-regulation skills are increasingly viewed as a promising approach for improving everyday emotional support in ECEC settings (Kostøl & Mänty, 2024; Vabø *et al.*, 2025). Related IJPEFS evidence shows that practicum experiences can strengthen preservice physical education teachers’ emotional intelligence and

student engagement, underscoring the role of teacher competence in shaping children's affective learning experiences (Agiastotelis *et al.*, 2025).

Movement and play offer natural opportunities for SEL because children experience excitement, frustration, competition, cooperation, and conflict in a safe and structured context. Systematic reviews suggest that physical education and body-oriented interventions can support children's emotional and social competence, including emotional intelligence and prosocial skills (Aisyah & Sembiring, 2024; Cruz-Ferreira *et al.*, 2022; Alotaibi, 2024; Rodrigues *et al.*, 2023). Evidence from preschool intervention research also points to the role of cognitively challenging physical activities and play-based approaches in strengthening self-regulation and executive functioning—mechanisms closely linked to SEL (Muir *et al.*, 2023). In IJPEFS, a games-based PE study reported that Teaching Games for Understanding (TGfU) can influence moral disengagement among children with social, emotional, and mental health needs, reinforcing the relevance of structured games as SEL contexts (Dimmick, 2023). IJPEFS classroom research also indicates that music (with or without lyrics) can affect pupils' enjoyment and activity levels during elementary PE, highlighting the value of affective design in movement-based learning (Chen, 2025). Additionally, an IJPEFS systematic review links participation in PE classes with diverse health outcomes among children and adolescents, supporting PE as a holistic developmental setting beyond motor (Coledam *et al.*, 2025).

In Indonesia, early childhood programs (PAUD) increasingly emphasize character education and holistic development. Physical education activities can be used to cultivate discipline, cooperation, respect, and self-control, but implementation often varies across settings. Local research in schools suggests that physical education (PJOK) can be an effective vehicle for character education when teachers intentionally connect movement activities with values and reflection (Febriza *et al.*, 2024; Lubis *et al.*, 2025; Saputra *et al.*, 2022). However, there is still a need for empirical work that explains how SEL-supportive interactions unfold moment-to-moment during play and sport-based educational games. A scoping review in IJPEFS further suggests that integrating indigenous/traditional games into PE is perceived to support socialization and foundational values, aligning with culturally grounded sport-based educational (Balay-as *et al.*, 2023).

This study addresses that gap by examining emotional scaffolding in sport-based educational games

implemented in an ECEC context. Rather than only asking whether a program "works," we focus on how teachers and game structure jointly create SEL learning opportunities in everyday practice. We also provide NVivo-assisted coding outputs (codebook, thematic map, and matrix-coding visualization) to strengthen transparency and replicability of qualitative analysis. Research questions: (1) How do teachers scaffold children's emotions during sport-based educational games? (2) How does game structure trigger SEL learning opportunities? (3) What socio-emotional changes are observed and how are SEL goals integrated into planning and reflection.

2. Materials and Methods

Design. This research used a qualitative case study design to understand emotional scaffolding processes in depth within a naturalistic ECEC setting. The study focused on sport-based educational games as implemented during routine learning activities.

2.1 Participants

Participants and setting. Participants consisted of three early childhood education and care (ECEC) teachers with a PGPAUD background and five parents/guardians who consented to be interviewed. The study was conducted at Pertiwi Kindergarten, Siulak Mukai, Kerinci Regency, Jambi Province, Indonesia, during a series of game-based learning sessions. All participants were recruited purposively based on their direct involvement in the activities.

2.2 Procedures

Data collection. Data sources included (a) non-participant observations during multiple sessions of sport-based educational games, (b) semi-structured interviews with teachers and parents, and (c) document analysis of lesson plans (RPPH/RPPM) and learning reflections. Observation notes focused on emotionally salient moments (e.g., frustration after losing, conflict between peers, anxiety before performing), teacher responses, and children's coping and peer behaviors. Interviews explored teachers' instructional intentions and parents' perceptions of children's socio-emotional changes.

Trustworthiness and ethics. Credibility was strengthened through method triangulation (multiple data sources), analytic memos, and peer debriefing among the research team. Transferability is supported

by rich description of activities and context. Dependability and confirmability were enhanced by maintaining an audit trail in NVivo (coding logs, memos, and codebook iterations). Ethical considerations followed institutional guidelines; participation was voluntary and based on informed consent.

2.3 Analysis

Data analysis (NVivo). Data were analyzed using thematic analysis supported by NVivo 12 Plus. The procedure included: (1) familiarization and memo creation; (2) open coding of observation and interview data; (3) iterative refinement into a code book with operational definitions; (4) grouping codes into higher-level themes; and (5) validation through triangulation across data sources (observations, teacher interviews, parent interviews, and documents). NVivo outputs were used to summarize evidence across data sources through matrix coding visualizations (Figure 3), while word clouds were presented as exploratory summaries of dominant vocabulary in the data corpus (Figure 4).

2.4 Instruments and Software

Three instruments guided data collection. First, an observation protocol and fieldnote guide was used during non-participant observations of sport-based educational game sessions. The protocol focused on emotionally salient moments (e.g., frustration after losing, peer conflict, anxiety before performing), children’s emotion regulation and prosocial behaviors, and teachers’ immediate responses (emotion coaching, co-regulation, conflict mediation). Second, semi-structured interview guides were developed for (a) teachers and (b) parents. Teacher interviews explored

instructional intentions, SEL targets, and strategies for managing children’s emotions during games; parent interviews explored perceived socio-emotional changes at home and consistency with school experiences. Third, a document review checklist was used to examine lesson plans (RPPH/RPPM) and reflective notes, focusing on the alignment of planned activities with SEL indicators and evidence of reflection for improvement.

Qualitative data management and analysis are supported by NVivo 12 Plus. All observation notes, interview transcripts, and documents are imported into NVivo and organized based on data sources (observations, teacher interviews, parent interviews, and learning plans/reflections). NVivo is used to perform open coding, develop and refine code books (including operational definitions), and organize codes into hierarchical nodes for theme development. To improve analytical rigor, memos and audit trails (coding logs, memo creation, and code book iterations) are maintained within NVivo. Visual and query features—including hierarchy charts to examine node structure and matrix coding queries to compare evidence patterns across data sources used to support triangulation and examination—yielded thematic mapping and matrix coding visualizations as well as exploratory summaries of dominant vocabulary.

3. Results

Through observation, interviews, and documents, four interrelated themes were identified. Figure 1 summarizes the conceptual model of the study on emotional strengthening in sports-based educational games (ESSP).

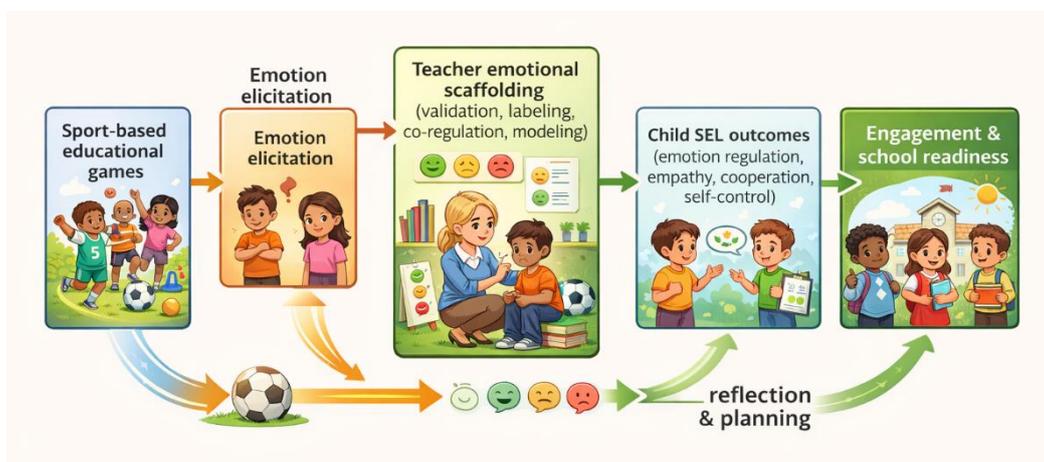


Figure 1. Emotional Scaffolding through Sport-based Educational Games (ESSP) conceptual model



Figure 2. NVivo-derived thematic coding structure (themes and sub-codes)

To increase the transparency of the analysis process, representative NVivo outputs are included: Figure 2 shows the thematic coding structure (themes and sub-codes), Figure 3 presents a matrix coding visualization that summarizes the distribution of evidence across data sources, and Figure 4 shows a word cloud as an exploratory summary of the dominant vocabulary in the data corpus. Furthermore, details of the themes are presented in Subsections 3.1–3.4. Table 1 presents the NVivo code book used to operationalize themes and sub-codes.

3.1 Teacher emotional scaffolding (emotion coaching and co-regulation)

Teachers often respond to children's emotional episodes by validating their feelings, labeling emotions (e.g., disappointment, anger, fear), and offering calming guidance before directing behavior. Co-regulation strategies include breathing guidance, counting, asking children to ask for help appropriately, and modeling sportsmanship after failure. In some situations, teachers also provide positive reinforcement when children are able to wait their turn, follow rules, or demonstrate prosocial behavior (e.g., helping peers).

3.2 Game structure as a trigger for SEL learning

The rules of the game, turn-taking, and cooperative-competitive mechanisms create predictable “emotional hot spots” (winning/losing, waiting for turns, rule disputes). Teachers use these moments to insert SEL micro-lessons (fair play, empathy, conflict

resolution) without disrupting the flow of the game. Repeated situations in structured games provide opportunities for children to practice following rules, resisting impulses, and coordinating with peers during activities.

3.3 Observed socio-emotional behavioral change

Teachers and parents reported an increase in children's ability to calm themselves after experiencing setbacks, negotiate with peers, follow rules, and persevere in completing tasks. Observation notes also recorded more frequent prosocial behaviors, such as helping peers and inviting others to participate. Reported changes include the ability to reengage in play after an emotional response, as well as increased adherence to agreed-upon play routines.

3.4 Integration into planning and reflective practice

Document analysis shows that SEL indicators are increasingly being made explicit in planning (RPPH/RPPM), such as targets for cooperation, self-control, and respectful communication. Teachers described using brief reflective routines after games (e.g., “How did you feel when...?” “What can we do next?”) to reinforce emotional vocabulary and social problem solving. These brief reflections were part of the closing of the activity, so that the experience during the game was followed up through a brief, focused conversation.

Table 1. NVivo codebook (themes/nodes, operational definitions, indicators, and dominant data sources)

Theme/Node	Operational definition	Indicators/manifestations	Dominant data sources
1. Teacher emotional scaffolding			
• Validation and emotion labeling	Teachers acknowledge children’s feelings (e.g., fear, disappointment, anger) and help name emotions accurately before giving direction.	Verbal guidance; reflective questions; calm tone; referencing game rules	Observation; teacher interviews
• Co-regulation and metacognitive prompts	Teachers guide children to choose calming strategies (e.g., breathing, counting, seeking help) using prompts and invitations.	Verbal prompts; reflective questions; calm tone; strategy rehearsal	Observation; teacher interviews
• Modeling self-regulation and sportsmanship	Teachers model calm and fair responses to conflict or failure and demonstrate sportsmanship.	Teacher demonstrates calming; apologizing; congratulating peers; rule reminders	Observation
• Positive reinforcement and prosocial feedback	Teachers provide specific praise and feedback when children wait their turn, share, help peers, or follow rules.	Specific praise; reinforcement of prosocial acts; reminders of group goals	Observation; teacher interviews
2. Game structure as a trigger for SEL learning			
• Challenges/obstacles as emotion triggers	Physical challenges (e.g., balance, throwing, jumping) elicit emotions (anxiety, excitement, frustration) that can be scaffolded constructively.	Hesitation; trying again after failure; seeking support; celebrating effort	Observation; teacher interviews
• Rules and turn-taking routines	Structured rules and turn-taking create predictable situations for practicing patience, fairness, and impulse control.	Waiting turns; following signals; accepting outcomes; negotiating rule disputes	Observation; documents (RPPH/RPPM)
• Movement coordination and teamwork	Games that require coordinated movement and teamwork encourage communication, role-taking, and shared responsibility.	Synchronizing movements; coordinating strategies; encouraging peers; collective success/failure	Observation; teacher interviews
3. Observed socio-emotional behavioral change			
• More adaptive emotional expression	Children increasingly express emotions in more appropriate ways during	Using words rather than aggression; shorter tantrums; accepting feedback; calmer tone	Observation; teacher interviews

	games, with fewer disruptive outbursts.		
• Improved self-regulation	Children demonstrate better inhibitory control, attention, and persistence during structured play.	Following instructions; staying on-task; waiting; persisting after losing; returning to play	Observation; teacher and parent interviews
• Prosocial behavior and cooperation	Children show more helping, sharing, and cooperative play behaviors during and after games.	Helping peers; sharing equipment; inviting others; turn negotiation; teamwork	Observation; parent interviews
4. Integration into planning and reflection			
• Explicit SEL indicators in planning	Teachers integrate SEL targets (e.g., cooperation, self-control) into RPPH/RPPM planning for sport-based games.	Learning objectives include SEL indicators; assessment notes; reflection prompts	Documents; teacher interviews
• Reflection routines after games	Short reflections help children label emotions and derive lessons from game experiences.	Debrief questions; emotion vocabulary; discussing fairness and teamwork	Observation; teacher interviews
• School–parent partnership	Teachers involve parents in reinforcing SEL goals by sharing strategies and child progress related to games and daily routines.	Parent communication; home practice suggestions; shared reflection on children’s behavior	Parent interviews; teacher interviews; documents

Validating and labeling emotions helps children shift their affective experiences from impulsive reactions to something that can be recognized and managed. Once emotions are “held,” co-regulation strategies (e.g., breathing, counting, asking for help) give children concrete ways to regain self-control so they can reengage in play. Modeling sportsmanship after failure expands the teacher's support function from simply calming to guiding social norms: failure is understood as part of the game and can be responded to fairly without damaging social relationships. This pattern is consistent with research that positions teachers as co-regulators in emotionally charged preschool situations (Silkenbeumer *et al.*, 2018; Vabø *et al.*, 2025).

4.2 Game structure as a trigger for SEL learning

Theme 3.2 shows that rules, turns, and cooperative-competitive mechanisms create predictable “emotional hot spots.” This predictability has pedagogical value because it allows for repeated

practice in the same situations (e.g., waiting for one's turn, accepting defeat, negotiating rules), so that SEL learning occurs precisely when the need for self-regulation and social responses arises. The insertion of micro-lessons in SEL without interrupting the flow of the game shows that SEL can be embedded in movement-based activities that simultaneously demand attention, understanding of rules, and negotiation with peers. This aligns with evidence that movement-based and cognitively engaging activities can contribute to self-regulation and social competence (Gil-Moreno & Rico-González, 2023; Muir *et al.*, 2023; Xie *et al.*, 2025; Yuan *et al.*, 2025).

4.3 Observed socio-emotional behavioral changes

In Theme 3.3, improvements in self-calming, negotiation, rule compliance, and perseverance can be interpreted as a process of internalizing regulation strategies that were initially guided by teachers. Observations of increased prosocial behavior (helping

friends, encouraging friends to participate) reinforce the idea that emotional stability and clear rules create space for cooperation and empathy. Similar patterns have been reported in studies where play and physical activity interventions strengthen executive function and social-emotional competence in preschool children (Colliver *et al.*, 2022; Rosas *et al.*, 2019; Schmidt *et al.*, 2020; Xie *et al.*, 2025). Furthermore, the presence of cross-source evidence reinforces the consistency of findings through triangulation of observations, interviews, and documents.

4.4 Integration into planning and reflective practice

Theme 3.4 emphasizes the importance of SEL implementation infrastructure: SEL indicators are explicitly stated in the RPPH/RPPM and reinforced through brief post-game reflective routines. Reflections such as "How did you feel...?" or "What can we do next?" help children transform emotional experiences into emotional vocabulary and social problem-solving strategies. Thus, reflection serves as a bridge between real emotional experiences and the formation of more adaptive social habits in subsequent situations. The importance of continuous educator reflection and professional learning for consistent SEL implementation is also emphasized in international research (Corcoran *et al.*, 2018; Kostøl & Mänty, 2024; Muir *et al.*, 2023).

4.5 Implications for practice and theory

These findings suggest that sports-based educational games can serve as practical SEL pedagogy when teachers deliberately combine (a) emotionally supportive interactions (validation, labeling, co-regulation) with (b) structured games that naturally elicit emotions and peer negotiation. This complements evidence that physical education and body-oriented interventions can support social-emotional competencies in young children (Cruz-Ferreira *et al.*, 2022; Gil-Moreno & Rico-González, 2023; Kalata *et al.*, 2025; Rodrigues *et al.*, 2023).

For practitioners, we recommend: (1) designing games with clear rules and cooperative goals; (2) preparing short emotion training scripts ("I see you feeling...", "Let's try..."); (3) embedding reflective questions aligned with SEL indicators; and (4) documenting SEL targets in lesson plans to support consistency. For research, future studies should include longer observation periods and, if possible, independent second coders to measure coding agreement.

Based on these findings, we propose the Emotional Scaffolding through Sport-based Educational Games (ESSP) model (Figure 1), which links game design features, emotion elicitation, teacher co-regulation/emotion scaffolding, and children's SEL (Social and Emotional Learning) outcomes.

5. Conclusion

This study shows that sports-based educational games can serve as practical SEL pedagogy in early childhood education when teachers deliberately combine structured game design with direct emotional support. Based on observations, interviews, and planning documents, this study identified four interrelated themes: (1) teacher emotional support through validation, emotion labeling, co-regulation, modeling, and prosocial reinforcement; (2) predictable social-emotional "hot spots" arising from rules, turns, and cooperation-competition dynamics; (3) behavioral changes evident in self-regulation, persistence after setbacks, and increased prosocial behavior; and (4) explicit integration of SEL targets in lesson plans reinforced through brief reflection routines after games. These findings confirm that the value of games stems not only from physical activity, but from the way games are consistently structured to elicit emotions and peer negotiations, thereby creating repeated opportunities for teachers to guide more adaptive emotional expression and sportsmanship. The Emotional Scaffolding through Sport-based Educational Games (ESSP) model summarizes the relationship between game features, emotion generation, teacher co-regulation, and children's SEL outcomes. Further studies are recommended to extend the observation period, involve independent coders to strengthen the reliability of the analysis, and test the application in more diverse early childhood education contexts

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Author's contribution & Statement

Both the authors equally contributed and approved the final version of this work.

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Ethics Approval Statement

Ethical approval was sought from Institutional Review Board.

Informed Consent

Written informed consent was obtained from all adult participants; consent for observation of children was obtained through parents/guardians and the institution.

Additional Materials

Data are available from the corresponding author upon reasonable request, subject to ethical restrictions.

Does this article pass screening for similarity?

Yes

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