

THE INFLUENCE OF THE SCHOOL ENVIRONMENT AND PHYSICAL ACTIVITY ON STUDENTS SOLIDARITY FROM A SOCIAL ECOLOGY PERSPECTIVE IN PHYSICAL EDUCATION

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Abstract: This study aims to analyze the influence of the school environment and physical activity on student solidarity from the perspective of social ecology in physical education at SDN Karya Baru. The focus of the research is to understand how the conditions of the school environment and students' involvement in physical activities shape social behavior and solidarity among elementary school students. The study employs a descriptive qualitative approach with 12 informants consisting of students, a physical education teacher, and homeroom teachers. Data collection techniques include in-depth interviews, participatory observation, and documentation. Data analysis follows the stages of data reduction, data presentation, and conclusion drawing/verification. The results show that (1) a supportive school environment plays an important role in fostering social solidarity; (2) physical activity serves as an effective medium for developing cooperation and empathy; (3) the social ecology perspective explains the reciprocal relationship between the environment and students' solidarity behavior; and (4) teachers and school culture are key factors in internalizing values of togetherness. In conclusion, physical education not only functions to develop physical aspects but also serves as an essential medium for shaping students' social character and solidarity.

Keywords: physical activity, social ecology, physical education, school environment, student solidarity.

INTRODUCTION

Elementary school represents the first formal educational environment and plays an essential role in shaping students' personality, character, and social habits (Nurfirdaus & Sutisna, 2021). At this stage, children experience rapid social development, during which they begin to understand themselves, others, and the norms that apply within their social environment. Interactions with peers, teachers, and the school environment become dominant factors in fostering attitudes of solidarity, such as cooperation, empathy, mutual respect, and social concern. Solidarity among elementary school students is crucial as a foundation for social development, because through a sense of togetherness and care, students learn to collaborate, appreciate differences, and cultivate sportsmanship in their daily lives.

A healthy, safe, and supportive school environment provides opportunities for students to engage in positive interactions. From a social ecological perspective, children's behavior is formed through continuous interactions with their surrounding environments, including family, school, and the broader community (Indah et al., 2024). Within this theoretical framework, the school functions as a microsystem that exerts a direct influence on the individual. Teachers, peers, physical facilities, and school policies are interconnected elements that collectively shape students' social behavior. Recent studies further confirm that the school environment has a significant influence on students' levels of physical activity, which in turn affects the formation of habits and social behaviors (Loyokarman, 2025).

Social ecology is an approach that views human behavior as the outcome of interactions between individuals and their environments. In the school context, social ecology explains how multiple layers of the environment influence students' academic, social, emotional, and behavioral development. According to Ardiyanto et al. (2021), human activities—particularly those of children—are always influenced by the surrounding environment; therefore, promoting physical activity through an environmental approach is an effective strategy to provide meaningful experiences that can support behavioral change. In this regard, the school environment, as the second most influential setting after the family, plays a vital role in children's development.

Furthermore, physical activity in schools, particularly through physical education, contributes significantly to the development of student solidarity. Through physical activities, students learn to cooperate, follow rules, and develop sportsmanship. Physical education instruction does not focus solely on physical development but also emphasizes social and emotional growth. In activities such as team games, sports competitions, or group exercise sessions, students are trained to foster responsibility, mutual trust, and respect for differences in abilities among peers. Recent studies indicate that physical activity has a substantial social impact, particularly in strengthening social solidarity and enhancing interaction within communities (Abidin, 2025).

Regular physical activity also serves as a medium for social character formation (Ardiyanto et al., 2021; Andriansyah et al., 2025). Through educational games and sports, students learn values such as fairness, discipline, and a sense of togetherness. Teachers of Physical Education, Sports, and Health (PJOK) play a crucial role as facilitators who guide students so that physical activities are not merely physical exercises but also serve as social learning media (M. Ihya Alimuddin, 2024). In this context, PJOK teachers can instill values of solidarity through habitual practices such as group work, mutual support during competitions, and respect for both peers' successes and failures.

Several studies suggest that physical activity, especially group-based activities such as team sports, encourages cooperation, solidarity, and social skills development (Liang et al., 2024). Physical activity conducted within a positive school environment can reduce stress, enhance self-confidence, and strengthen social relationships among students. Student involvement in physical fitness activities is also associated with improved achievement and active participation in physical education learning, which indirectly fosters a sense of togetherness and social solidarity among students.

Moreover, active student participation in sports activities contributes to the development of a collaborative school culture. Routine activities such as class meetings, inter-class sports competitions, or school sport days not only function as competitive events but also serve as platforms for strengthening solidarity, appreciating teamwork, and fostering a sense of unity across classes. Schools that successfully create a positive climate through physical activities are more likely to develop generations with high social awareness and healthy social interaction skills. From the social ecological perspective of physical education, the formation of student solidarity cannot be separated from the interaction between individuals and broader environmental systems. Teachers act as mediators between students and their social environments, while school policies serve as structural supports for cultivating a culture of solidarity. Therefore, physical education learning strategies that integrate social values, physical activities, and participatory approaches are key to developing students who are not only physically healthy but also socially and emotionally mature.

Based on the above discussion, it can be assumed that a conducive school environment and regular student engagement in physical activity positively influence the development of solidarity. This study is important to examine how the interaction between school environmental factors and physical activity contributes to the development of solidarity values among elementary school students from a social ecological perspective in physical education. Through this understanding, it is expected that schools and PJOK teachers can design more effective learning strategies to develop students who are healthy, well-characterized, and possess strong social solidarity.

RESEARCHMETHOD

This study employed a descriptive qualitative approach aimed at obtaining an in-depth understanding of the influence of the school environment and physical activity on students' solidarity from a social ecological perspective in physical education. This approach was selected because it aligns with the

characteristics of research that seeks to understand social phenomena holistically and contextually through the perspectives of participants (Creswell, 2018).

The study was conducted at SD Negeri Karya Baru, with 12 informants consisting of 8 students, 2 physical education teachers, and 2 homeroom teachers. The informants were selected using purposive sampling, namely the selection of participants based on their direct involvement and knowledge of the phenomena under investigation (Sugiyono, 2020).

Data were collected primarily through in-depth interviews, supported by participatory observation during physical education learning activities and extracurricular sports programs, as well as documentation in the form of photographs, activity records, and physical education curriculum documents. The research instruments included semi-structured interview guidelines, observation sheets, and field notes, with the researcher acting as the key instrument (human instrument). As explained by Sugiyono (2020), in qualitative research the researcher serves as the primary tool for data collection and interpretation.

Data analysis was conducted using the interactive model proposed by Miles and Huberman, which consists of three stages: data reduction to select and simplify relevant information, data display in the form of thematic narratives, and conclusion drawing and verification by linking empirical findings with social ecological theory. To ensure data trustworthiness, this study applied source and technique triangulation by comparing data obtained from students, physical education teachers, and homeroom teachers, as well as integrating findings from interviews, observations, and documentation (Creswell, 2018). These efforts were intended to enhance the credibility and validity of the research findings so that they can be scientifically accountable.

RESULTS AND DISCUSSION

Overview of the School Environment at SDN Karya Baru

The results of observations and interviews indicate that SDN Karya Baru has a school environment that is relatively supportive of the development of students' social behavior and physical activity. The school provides a sports field that is used for Physical Education, Sports, and Health (PJOK) lessons as well as various extracurricular activities such as futsal, gymnastics, and traditional games. PJOK teachers play an active role in creating a learning atmosphere that is enjoyable and inclusive. Teachers encourage students to cooperate in groups, share sports equipment, and motivate one another during physical activities. This condition illustrates that the school's social and physical environment functions as a primary microsystem influencing students' social behavior, as described by Bronfenbrenner's social ecological theory.

In addition, observations reveal that sports facilities such as balls, small obstacles, and simple fitness equipment are used alternately by students under teacher supervision. The positive interactions formed during sports activities strengthen social cohesion among students. These findings indicate that a safe, well-organized, and physically supportive school environment can foster a positive social climate in which students learn to interact, respect one another, and work collaboratively toward shared goals.

Physical Activity as a Medium for Building Solidarity

Based on interviews with eight students and two PJOK teachers, physical activity was found to be an effective medium for fostering social solidarity among students. Through group games and sports activities, students learn the importance of cooperation and mutual trust. One PJOK teacher stated:

“When children play futsal or participate in group gymnastics, they learn to share roles and responsibilities. They become more united and supportive of one another, especially when someone encounters difficulties.”

This finding aligns with the study by Yogi and Maksun (2025), which shows that physical activity has a significant relationship with students' social capital. This reinforces the notion that physical activity conducted within a social context can strengthen values of togetherness, empathy, and social responsibility. Physical activities such as team games (e.g., relay races, tug of war, and mini football) not only enhance students' motor skills but also cultivate solidarity values, including mutual assistance and respect. This process demonstrates how the school microsystem and mesosystem—through interactions among students and between students and teachers—jointly influence the formation of students' social character in accordance with Bronfenbrenner's social ecological theory. These findings are consistent with Fitri (2020), who reported that social interaction within the school environment contributes to the development of students' solidarity.

The Influence of the School Environment on Social Interaction and Solidarity

Interviews with homeroom teachers revealed that students who actively participate in physical activities tend to socialize more easily and display more prosocial behavior than less active students. One homeroom teacher noted:

“Students who participate in sports activities usually adapt more easily, are not selective about friends, and are more willing to help peers who face difficulties.”

These findings indicate that physical activity serves as a social medium that facilitates positive interactions among students. When physical activity is supported by a conducive school environment—such as guided teachers, adequate facilities, and an inclusive school culture—social solidarity develops naturally. This is consistent with the findings of Melo et al. (2025), which suggest that the implementation of active breaks and active lessons enhances social engagement and reduces sedentary behavior among elementary school students.

The school environment at SDN Karya Baru also demonstrates teacher involvement in instilling solidarity values through physical activities. For example, before PJOK lessons begin, teachers remind students of the importance of cooperation and mutual respect. This approach aligns with the findings of Soly Deo Hutagalung (2024), who reported that structured physical activity and sports in physical education not only improve physical health but also strengthen values such as discipline, responsibility, cooperation, and integrity.

Social Ecological Perspective on the Formation of Solidarity

From Bronfenbrenner’s social ecological perspective (Paquette & Ryan, 2020), students’ solidarity behavior is formed through dynamic interactions between individuals and their environments, which encompass several interconnected systems:

1. Microsystem

The microsystem includes students’ direct relationships with teachers, peers, and physical activities at school. These relationships form a crucial foundation for character development, social growth, and academic success. Teachers serve as central figures in the learning process—not only as knowledge transmitters but also as mentors, facilitators, and role models. Through warm and personal interactions, teachers are able to understand students’ potential and challenges. When students feel heard, respected, and supported, their motivation to learn increases.

Participation in physical activities such as physical education lessons, sports, or recreational activities during breaks also significantly influences student development. Physical activity contributes not only to physical health but also to cognitive function, emotional stability, and attention quality in the classroom. Through these activities, students learn discipline, sportsmanship, and perseverance, while strengthening relationships with peers and teachers in non-academic settings. The synergy between teacher relationships, peer interactions, and physical activities creates a holistic school environment that fosters students who are academically competent as well as socially and emotionally mature.

2. Mesosystem

The mesosystem involves interactions between the home and school environments that reinforce values of togetherness. The home environment serves as the initial foundation where children learn basic values such as empathy, respect, cooperation, and responsibility. When parents model positive behaviors—such as cooperation, open communication, and shared problem-solving—children bring these values into their social interactions at school.

School, in turn, functions as a social space that expands children’s experiences of togetherness through collaborative activities, group work, educational games, and peer interactions. Teachers play a key role in modeling respect, tolerance, and teamwork. The interaction between home and school environments becomes optimal when effective communication and collaboration occur between parents and teachers, ensuring consistency between values taught at home and those reinforced at school.

3. Exosystem

The exosystem includes school policies such as sports schedules, extracurricular activities, and physical infrastructure support. Well-structured sports schedules provide students with regular opportunities for physical activity, promoting physical fitness, discipline, sportsmanship, and teamwork. Extracurricular

activities serve as platforms for developing students' interests, talents, and social skills, offering real-life experiences in teamwork, leadership, and collaboration.

Adequate physical facilities—such as sports fields, learning spaces, and physical education equipment—are essential for the effective implementation of school activities. When facilities are sufficient, physical and extracurricular activities can be carried out optimally, enhancing students' overall learning experiences. Well-planned policies supported by adequate infrastructure create a rich educational environment that supports students' physical, social, and emotional development.

4. Macrosystem

The macrosystem encompasses school cultural values such as mutual cooperation (*gotong royong*), sportsmanship, and mutual respect. *Gotong royong* reflects collective effort in completing tasks and overcoming challenges, teaching students that success is a shared achievement. Sportsmanship, particularly emphasized in physical education and extracurricular competitions, instills honesty, fairness, respect for rules, and acceptance of both victory and defeat. Mutual respect forms the foundation of social interaction in schools, fostering inclusive, safe, and discrimination-free learning environments.

When these values are consistently applied, school culture becomes a powerful force in shaping students who are caring, principled, and capable of harmonious coexistence within diverse communities. Field findings indicate that social solidarity emerges not only from physical activities but also from collectively constructed social norms within the school (Ramadhani & Nur, 2025). When students are accustomed to positive interactions and supported by a collaborative environment, inclusive and cooperative social identities are formed. These findings support evidence that school environmental factors, physical activity engagement, and social support enhance children's resilience and solidarity.

Analysis of Findings and Implications for Physical Education

Based on data analysis and source triangulation, the findings indicate that a conducive school environment and well-planned physical activities positively influence the formation of students' social solidarity. This relationship can be explained through three main aspects:

1. Structural Aspect

The school provides adequate facilities and time allocation for physical activities. Facilities such as sports fields, multipurpose rooms, physical education equipment, and play areas enable students to engage regularly in various physical activities. Adequate scheduling also reflects the school's understanding of the importance of balancing academic demands with students' physical needs. From a social perspective, these provisions create opportunities for positive interactions, cooperation, sportsmanship, and effective communication among students, thereby supporting the development of solidarity and a harmonious school climate.

2. Interpersonal Aspect

PJOK teachers and homeroom teachers actively serve as social role models in shaping solidarity behavior. PJOK teachers, through activity-based and cooperative learning, demonstrate concrete examples of teamwork, empathy, and mutual support. This aligns with Mahmud et al. (2024), who emphasize the critical role of physical education teachers in fostering ethical values and responsible behavior. Homeroom teachers, through daily interactions, provide emotional security and model inclusive attitudes, reinforcing solidarity among students. The combined roles of PJOK teachers and homeroom teachers ensure consistent internalization of solidarity values across different contexts.

3. Cultural Aspect

A school culture that emphasizes sportsmanship and *gotong royong* strengthens students' social identity. Sportsmanship fosters fairness, emotional regulation, and respect for others, while *gotong royong* nurtures empathy, cooperation, and collective responsibility. When these values become embedded in daily school life, students develop a strong social identity characterized by togetherness, leadership, and adaptability. Such a culture produces students who are not only academically capable but also socially integrated and ethically grounded.

Overall, these findings highlight that physical education serves not merely as a medium for physical development but also as a vital arena for social character education. Therefore, schools should expand inclusive and collaborative physical activity programs, such as group-based traditional games, collective fitness projects, and cross-class sports activities. In conclusion, the formation of social solidarity through

physical activity in elementary schools is not incidental but rather the outcome of a social-ecological learning design in which human interaction, physical activity, and social values operate in harmony.

CONCLUSION

Based on the research findings and discussion on “The Influence of the School Environment and Physical Activity on Students’ Solidarity from a Social Ecological Perspective in Physical Education at SDN Karya Baru,” it can be concluded that a conducive school environment plays a crucial role in the formation of students’ social solidarity. A physical environment that is safe, comfortable, and supportive, combined with positive social interactions between teachers and students, creates conditions that encourage cooperation and a sense of togetherness. Schools that consistently promote values such as discipline, mutual respect, and collaboration across activities are able to foster an inclusive and harmonious social climate among students.

Furthermore, physical activity has been shown to be an effective means of cultivating social solidarity. Through sports activities, team games, and physical education (PJOK) learning, students directly experience and internalize the values of cooperation, empathy, sportsmanship, and mutual respect. Physical activity not only enhances physical health but also serves as a form of social learning that naturally and enjoyably instills solidarity values.

From a social ecological perspective, there is a reciprocal relationship between the environment and students’ solidarity behaviors. Social solidarity is shaped through interactions across multiple system levels, including the microsystem (student–teacher relationships), mesosystem (inter-class collaboration and school activities), exosystem (school policies), and macrosystem (cultural values such as gotong royong). These factors interact dynamically and mutually reinforce the process of developing social solidarity within the school context. Consequently, the role of teachers and the prevailing school culture are decisive factors in building and sustaining solidarity values among students.

Overall, this study confirms that a positive school environment and well-designed physical activities have a tangible influence on the formation of social solidarity among elementary school students. Physical education functions not only as a means of physical development but also as a vital platform for fostering students’ social and moral character.

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