



## **Implementing a Hybrid Model of TGFU and Fitness Education to Improve Physical Fitness and Social Intelligence of Elementary Students**

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### **Abstract**

This study aims to enhance students' physical fitness and social intelligence through a hybrid model combining Teaching Games for Understanding (TGFU) and Fitness Education. Using Classroom Action Research (CAR), the study involved 28 fifth-grade students at SDPN 252 Setiabudi and was conducted in two cycles, each comprising two interventions and one evaluation. Data were collected using the Indonesian Students' Physical Fitness Test (TKSI) and the Social Intelligence Scale (TSIS). Results showed significant improvement in students' physical fitness: initially, 40% were in low categories ("very poor" and "poor"), 46% "moderate", 14% "good", and 0% "excellent". By the end of the second cycle, only 4% remained in low categories, with 11% "moderate", 46% "good", and 43% "excellent". Social intelligence also improved at the pre-cycle stage, 25% of students were in the "fair" category and 75% in "good", with none in "excellent". After the second cycle, 79% reached "good", 14% "excellent", and only 7% remained in "fair". The findings indicate that the hybrid TGFU and Fitness Education model effectively enhances both physical fitness and social intelligence among elementary students.

**Keywords:** Fitness Education, Hybrid Model, Physical Fitness, Social Intelligence, TGFU

### **INTRODUCTION**

Physical fitness is a crucial aspect that supports students' learning activities and daily life. A physically fit body indicates that a person does not experience excessive fatigue after engaging in both measured and unmeasured physical activities (Trisnata et al., 2020:47). Good physical fitness can enhance productivity and academic performance. Structured physical activity implemented in Physical Education (PJOK) classes has been proven to improve student learning outcomes (Riyanto, 2020:123). Therefore, PJOK instruction should provide sufficient physical activity to improve students' physical fitness and support the achievement of national education goals (Beauty et al., 2020:500).

However, data shows that the physical fitness level of elementary school students in Indonesia remains low and concerning. A fitness test survey conducted on 1,578 children aged 10–15 years across 34 provinces in Indonesia found that only 6.79% of students were categorized as having "good" or "excellent" fitness, while 77.12% were classified as "poor" or "very poor" (Kemenpora RI, 2023:16). Other studies also reveal that in some schools, not even 1% of students achieved the "excellent" category, and only 14.8% were in the "good" category. This low level of fitness is largely due to lifestyle changes. Today's students are more interested in online games and social media than in engaging in outdoor physical activity. In addition, PJOK classes are typically held only once a week, further limiting physical activity (Prasetyo & Winarno, 2019:198).

Beyond physical health, PJOK lessons also have the potential to develop students' social intelligence. Social intelligence refers to the ability to interact effectively and understand both one's own emotions and those of others. Individuals with high social intelligence are more capable of cooperating, empathizing, and respecting others (Kemendikbud, 2017:3). However, the rapid

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development of technology has impacted students' social behavior, causing a tendency toward individualism and a lack of social skills (Irfan et al., 2023:59).

Physical education can serve as an effective means for character building and the development of social skills through play and movement-based activities that cultivate social values such as teamwork, mutual respect, and empathy (Setiawati et al., 2024:2729). However, teacher-centered and conventional physical education models are considered less effective in developing students' social and physical competencies. Therefore, an active, collaborative, and enjoyable learning approach is needed (Fajra et al., 2023:123). One innovative approach is Teaching Games for Understanding (TGFU), a game-based learning model that encourages students to understand game concepts and make strategic decisions in an active and meaningful context (Simamora, 2019:12). In addition, the **Fitness Education** model is also a progressive approach in physical education that emphasizes the comprehensive development of physical fitness and promotes lifelong healthy living (Silva et al., 2024:2049).

Previous studies have demonstrated the effectiveness of the TGFU model in enhancing physical fitness among elementary school students (Cocca et al., 2020), as well as improving students' psychomotor, cognitive, and social abilities (Akbar, 2023:1003). However, in the context of physical education in Indonesia, the implementation of holistic learning models such as TGFU and Fitness Education remains limited due to constraints such as inadequate facilities and teachers' readiness (Messy et al., 2023:65).

This study aims to implement a hybrid model that combines TGFU and Fitness Education within the elementary physical education (PJOK) curriculum, focusing on improving students' physical fitness and social intelligence. Through this approach, it is expected to foster a joyful, participatory, and meaningful learning experience and contribute to the development of adaptive and contextual learning models in physical education.

## METHODS

This study employed a Classroom Action Research (CAR) design with a collaborative approach, referring to the model proposed by Kemmis and McTaggart. The actions were implemented through the application of a hybrid model that integrates the Teaching Games for Understanding (TGFU) and Fitness Education approaches. In CAR, each cycle consists of four stages: planning, implementation, observation, and reflection. (Utomo et al., 2024:9). The research was conducted in two cycles over a period of seven weeks at SDPN 252 Setiabudi, Bandung. Each cycle included three actions: two instructional meetings and one session for evaluation through physical fitness and social intelligence assessments. The research subjects were 28 fifth-grade students of SDPN 252 Setiabudi, consisting of 16 boys and 12 girls. The instrument for collecting physical fitness data was the *Tes Kebugaran Siswa Indonesia* (TKSI), which includes tests such as: child ball, tok-tok ball, move the ball, 4x10m shuttle run, and 600-meter run. Social intelligence data were collected using the Tromsø Social Intelligence Scale (TSIS) questionnaire. Data were analyzed using descriptive quantitative methods and presented in tables and graphs. The success indicators were based on the increase in the percentage of students achieving higher categories in both physical fitness and social intelligence outcomes.

## RESULTS AND DISCUSSION

### Results

Based on the two cycles of action implemented across six meetings, the data revealed that the physical fitness and social intelligence of fifth-grade students at SDPN 252 Setiabudi improved through the implementation of the hybrid model combining Teaching Games for Understanding (TGFU) and Fitness Education. The research results were analyzed using descriptive quantitative methods and presented in tables and comparative graphs between cycles, as illustrated in the following diagram

Table 1. Comparison of Physical Fitness Percentage Results Using the Hybrid Model of TGFU and Fitness Education in the Pre-Cycle, Cycle I, and Cycle II

Category	Pre-Cycle	Cycle I	Cycle II
Very Poor	11%	0%	0%
Poor	29%	4%	0%
Moderate	46%	21%	11%
Good	14%	61%	46%
Excellent	0%	14%	43%

According to Table 1. the percentage of students' physical fitness levels in the pre-cycle phase indicated that the majority were in the lower categories, such as "very poor," "poor," and "moderate." Specifically, 11% of students were categorized as "very poor," 29% as "poor," 46% as "moderate," 14% as "good," and none had achieved the "excellent" category.

In Cycle I, after the implementation of the first and second interventions, an improvement in categories was observed. The proportion of students in the "good" category increased to 61%, and the "excellent" category rose to 14%. The "very poor" category was eliminated, and only 4% of students remained in the "poor" category.

In Cycle II, even more significant improvements were evident. No students were found in the "very poor" or "poor" categories. The proportion of students in the "excellent" category increased to 43%, those in the "good" category reached 46%, and only 11% remained in the "moderate" category.

These findings demonstrate that the gradual implementation of the hybrid model was effective in enhancing students' physical fitness levels over the course of the study.

The percentage distribution of physical fitness and social intelligence categories is presented in a bar chart, as shown in Figure 1 below.

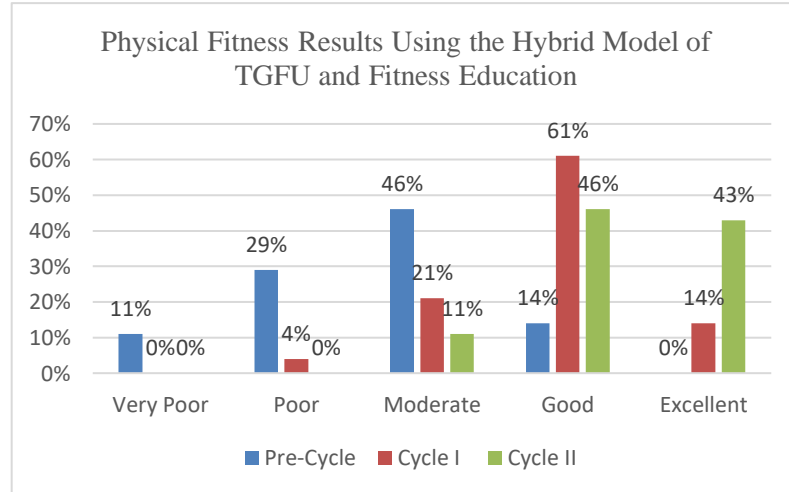


Figure 1. Physical Fitness Results Using the Hybrid Model of TGFU and Fitness Education

Based on Figure 1. the results of the third intervention in Cycle II demonstrate a significant improvement in students' physical fitness levels compared to both the pre-cycle and Cycle I results. Students in the "very poor" and "poor" categories were no longer found in Cycle II. Previously, 11% of students were in the "very poor" category and 29% in the "poor" category during the pre-cycle, while in Cycle I these figures decreased to 0% and 4%, respectively. This indicates that after Cycle II, all students had improved to at least the "moderate" category in terms of physical fitness. The percentage of students in the "moderate" category also declined—from 46% in the pre-cycle, to 21% in Cycle I, and further down to 11% in Cycle II. This decline reflects a positive shift, as students moved into higher fitness categories "good" and "excellent." Students in the "good" category experienced a significant increase from 14% in the pre-cycle to 61% in Cycle I. Although this percentage decreased to 46% in Cycle II, it was balanced by a notable rise in students who achieved the "excellent" category. Specifically, students in the "excellent" category increased from 0% in the pre-cycle, to 14% in Cycle

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I, and sharply to 43% in Cycle II. These results demonstrate the positive and cumulative impact of the hybrid TGFU and Fitness Education model on students' physical fitness development throughout the intervention process.

Table 2. Comparison of Social Intelligence Results Using the Hybrid Model of TGFU and Fitness Education in Pre-Cycle, Cycle I, and Cycle II

Category	Pre-Cycle	Cycle I	Cycle II
Very Poor	0%	0%	0%
Poor	0%	0%	0%
Fair	25%	18%	7%
Good	75%	75%	79%
Excellent	0%	7%	14%

Based on Table 2. above, the percentage of students' social intelligence levels in the pre-cycle phase shows that, in general, students already demonstrated a good level of social intelligence. No students were found in the "very poor" or "poor" categories. A total of 25% of students were in the "fair" category, and 75% were in the "good" category; however, no students had yet reached the "excellent" category.

Following the implementation of the hybrid model combining Teaching Games for Understanding (TGFU) and Fitness Education during the first and second interventions, the evaluation in Cycle I revealed a slight improvement. In this cycle, 18% of students were in the "fair" category, 75% remained in the "good" category, and 7% of students successfully moved into the "excellent" category. Although the percentage of students in the "fair" category decreased from 25% to 18%, this was balanced by the emergence of students in the higher "excellent" category. Importantly, there were no students who regressed into the lower categories of "very poor" or "poor."

In Cycle II, a more significant improvement was observed. The proportion of students in the "excellent" category increased to 14%, those in the "good" category rose to 79%, while the "fair" category further decreased to only 7%. These findings indicate that the implementation of the hybrid model had a positive impact on the development of students' social intelligence, particularly in enhancing collaboration, empathy, and interpersonal skills during physical education learning activities.

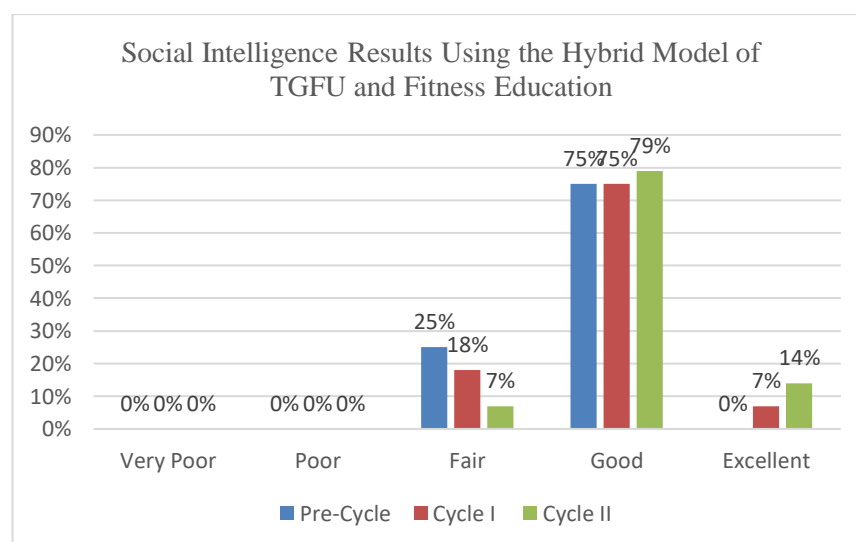


Figure 2. Social Intelligence Results Using the Hybrid Model of TGFU and Fitness Education

Based on Figure 2 above, there was a significant improvement compared to the results of the pre-cycle and previous cycles. In the pre-cycle stage, the percentage of students who reached the "excellent" category was 0%. This increased to 7% in Cycle I and further improved to 14% in Cycle II. This positive trend indicates a notable enhancement in students' social abilities.

The “good” category continued to dominate the assessment results of students’ social intelligence. In both the pre-cycle and Cycle I, the percentage remained consistent at 75%. However, in Cycle II, this percentage increased to 79%. Meanwhile, the percentage of students in the “fair” category showed a steady decline: from 25% in the pre-cycle to 18% in Cycle I, and down to 7% in Cycle II. This decline does not indicate a regression in social intelligence levels but rather reflects a positive shift, with students moving into higher categories.

Notably, no students were found in the “poor” or “very poor” categories across all stages, from the pre-cycle through Cycle II. This suggests that none of the students experienced serious difficulties in the domain of social intelligence throughout the implementation of the hybrid model.

## Discussion

The improvements observed in both physical fitness and social intelligence indicate that the hybrid approach of Teaching Games for Understanding (TGFU) and Fitness Education had a positive impact. The implementation of educational game-based activities such as “Fitness Games,” “Puzzle,” “Word Search,” “Crossword Puzzle,” “Matching Categories,” and “Match the Answer” created an active and enjoyable learning environment. These activities fostered student engagement in group collaboration, discussion, decision-making, and joint problem-solving. Therefore, the hybrid model of TGFU and Fitness Education proved effective in enhancing both physical fitness and social intelligence of elementary school students, while also improving their learning outcomes in physical education through concept-based play.

The improvements observed in the application of the TGFU model align with the findings of Syamsuar & Zen (2021:134), who reported that the TGFU model is effective in increasing students’ motivation and physical fitness. The holistic nature of TGFU—combining instructional strategies, play-based activities, physical exercises, and cognitive reinforcement—was a key factor in its success. Similarly, Nababan (2015:75) emphasized that the TGFU model positively influenced students’ motivation and fitness test results. Rather than focusing solely on sports techniques, the TGFU approach dynamically meets students’ developmental needs through play, thus encouraging higher student participation and engagement. Games that required continuous movement contributed to improvements in students’ physical fitness without them realizing they were exercising. Furthermore, the results of this study regarding the implementation of the Fitness Education model support Maulana (2019:78) findings, which showed that cooperative-based Fitness Education approaches significantly enhanced elementary students’ physical fitness compared to non-cooperative models.

In terms of social intelligence, the improvement observed also supports the views of Mustafa et al. (2025:48), who suggested that the TGFU model can help develop students’ social skills, such as teamwork, discussion, and team communication skills essential in physical education. The student-centered and participatory nature of TGFU creates a collaborative learning environment that strengthens social competencies. Risma & Rohendi (2018:11) also highlighted that exploratory fitness education positively impacts students’ self-regulation, as measured by indicators such as cooperation, assertiveness, empathy, and responsibility.

The effectiveness of implementing the hybrid TGFU and Fitness Education model in physical education at SDPN 252 Setiabudi was evident from the consistent improvements in students’ physical fitness and social intelligence from the pre-cycle through Cycle II. The hybrid approach effectively integrates tactical understanding through games (TGFU) with structured physical training principles (Fitness Education). The sustainable combination of both models was proven to enhance two essential aspects of physical education: the physical and the social domains.

The learning process designed in this study successfully created a joyful, interactive, and meaningful learning environment for students. This is in line with the research by Cocca et al. (2020:8), which found that cognitive, psychological, and physical fitness components increased significantly through the Teaching Games for Understanding (TGFU) approach compared to traditional learning methods. Similarly, Akbar (2023:1003) concluded that the implementation of the TGFU model significantly improved students’ psychomotor, cognitive, and social skills.

The effectiveness of combining instructional models in this study also supports the view of Beaman (2013:38), who argued that integrating various models such as fitness education and sport education creates a reciprocal relationship in contributing to physical education programs. In the same



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vein, Ikhwani (2017) developed a play-based Fitness Education model and found that this model was not only effective and efficient but also engaging for students, resulting in improved physical fitness.

It can be concluded that the hybrid model of TGFU and Fitness Education is an effective approach for physical education (PE) learning in elementary schools. The integration of both models not only enhances physical competence but also contributes to character development in the form of social skills through enjoyable and meaningful learning experiences.

## CONCLUSSION

The implementation of the hybrid model combining Teaching Games for Understanding (TGFU) and Fitness Education over three actions in two cycles has proven effective in improving the physical fitness and social intelligence of elementary school students. The results of the physical fitness tests showed a significant improvement from the pre-cycle to the second cycle. This improvement was reflected in the shift from predominantly lower categories such as “very poor,” “poor,” and “moderate” to higher categories like “good” and “excellent” by the end of the second cycle. A similar trend was observed in social intelligence, where there was an increase in the proportion of students categorized as “good” and “excellent.” These findings indicate that movement-based activities packaged as educational games, along with a gradual approach to fitness components, are effective in enhancing students’ physical capacity as well as their social skills. Therefore, the hybrid model of TGFU and Fitness Education can serve as a relevant and practical alternative for physical education instruction in elementary schools, particularly for the integrated and sustainable development of physical fitness and social intelligence.

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