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Jambura Arena Sports

Effectiveness Of Student-Centered Learning Approach In Physical Education At Candipari Elementary School, Porong, Sidoarjo

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ABSTRACT

This study was motivated by the dominance of teacher-centered approaches in physical education, which often result in low student engagement and limited opportunities for active participation. The purpose of this research was to analyze the effectiveness of the Student-Centered Learning (SCL) approach in improving the quality of physical education learning at Candipari Elementary School, Porong, Sidoarjo. This study employed a qualitative descriptive design involving one physical education teacher and students who participated directly in the learning process. Data were collected through observations, interviews, and documentation. Data analysis followed the interactive model consisting of data reduction, data display, and conclusion drawing to ensure systematic interpretation of the findings. The results indicate that the implementation of SCL increased student participation, learning enthusiasm, motor skills, and social interaction during physical education activities. Improvements were also identified in affective aspects, including discipline, responsibility, and sportsmanship. Although several challenges were encountered, particularly limited facilities and varying levels of teacher readiness, the approach remained effective in creating a more active and meaningful learning environment. The novelty of this study lies in its theoretical contribution: it extends constructivist accounts of SCL by demonstrating that student agency and meaning-making can be sustained even when material resources are constrained, showing that teacher facilitation skill, rather than facility adequacy, is the primary condition enabling active knowledge construction. This context, an elementary school with limited educational resources and diverse student abilities, has received limited attention in previous physical education research. The findings suggest that SCL can serve as an innovative and adaptable strategy for enhancing the quality of physical education learning in resource-constrained elementary schools...

Keywords: student-centered learning; physical education; student engagement; motor skills; active learning

ABSTRAK

Penelitian ini dilatarbelakangi oleh dominasi pendekatan teacher-centered dalam pembelajaran pendidikan jasmani yang sering menyebabkan rendahnya keterlibatan siswa dan terbatasnya kesempatan untuk berpartisipasi secara aktif. Penelitian ini bertujuan menganalisis efektivitas pendekatan Student-Centered Learning (SCL) dalam meningkatkan kualitas pembelajaran pendidikan jasmani di SDN Candipari, Porong, Sidoarjo. Penelitian menggunakan metode kualitatif

deskriptif dengan melibatkan satu guru pendidikan jasmani dan siswa yang terlibat langsung dalam proses pembelajaran. Data dikumpulkan melalui observasi, wawancara, dan dokumentasi. Analisis data dilakukan menggunakan model analisis interaktif yang meliputi reduksi data, penyajian data, dan penarikan kesimpulan sehingga interpretasi hasil dilakukan secara sistematis. Hasil penelitian menunjukkan bahwa penerapan SCL mampu meningkatkan keaktifan, antusiasme belajar, keterampilan motorik, serta interaksi sosial siswa selama pembelajaran pendidikan jasmani. Peningkatan juga ditemukan pada aspek afektif, seperti disiplin, tanggung jawab, dan sportivitas. Meskipun terdapat kendala berupa keterbatasan sarana-prasarana dan variasi kesiapan guru dalam menerapkan pembelajaran, pendekatan ini tetap efektif dalam menciptakan pengalaman belajar yang lebih aktif dan bermakna. Kebaruan penelitian ini terletak pada kontribusi teoretisnya: penelitian ini memperluas teori konstruktivis SCL dengan menunjukkan bahwa agensi dan pemaknaan belajar siswa tetap dapat terjaga meskipun sumber daya materiil terbatas, sehingga kesiapan fasilitasi guru, bukan kelengkapan sarana, menjadi faktor penentu utama konstruksi pengetahuan aktif. Konteks sekolah dasar dengan keterbatasan sumber daya pendidikan serta karakteristik kemampuan siswa yang beragam ini masih relatif jarang dibahas dalam penelitian pendidikan jasmani sebelumnya. Temuan penelitian menunjukkan bahwa SCL dapat menjadi strategi pembelajaran yang inovatif dan adaptif untuk meningkatkan kualitas pendidikan jasmani di sekolah dasar dengan kondisi sumber daya terbatas.

Kata Kunci: student-centered learning; pendidikan jasmani; keterlibatan siswa; keterampilan motorik; pembelajaran aktif

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INTRODUCTION

Physical education plays a crucial role in shaping the physical, mental, and social development of students from an early age. At the elementary school level, physical education instruction focuses not only on motor skills but also on fostering sportsmanship, cooperation, and healthy lifestyle habits. However, in practice, physical education instruction is often dominated by a teacher-centered approach, where the teacher serves as the center of information and students tend to be passive in the learning process. (Ulma Erdilanita, 2025) state that in physical education, SCL positions students as active subjects of learning, while the teacher acts as a facilitator, helping students explore movement and learning experiences independently. And also (Febrianto, 2025) conveyed that Active learning methods such as discussions, games, and reflective activities can significantly enhance students' enthusiasm and participation in the classroom. These approaches encourage learners to engage more deeply with the material, making the learning process more dynamic and meaningful. Moreover, they align well with the principles of Student-Centered Learning (SCL), where students take an active role in exploring and constructing their own learning experiences. And opinions from

(Satunggale Kurniawan, 2025) stated that students showed high enthusiasm during the learning process. This approach has been shown to increase student engagement in physical activity.

Along with the development of modern educational paradigms, the student-centered learning approach has begun to be widely implemented to improve the quality of learning. This approach places students as the primary subjects in the learning process, enabling them to be more active, creative, and independent. In the context of physical education, this approach is relevant because students' physical activity can be more optimal if they are directly involved and given the opportunity to explore their abilities. (Mulya, 2023) found that SCL in physical education can improve physical literacy and provide a more meaningful learning experience because students are directly involved in project- and game-based learning processes. Student-centered learning allows students to learn through experience, reflection, and interaction with peers. The teacher acts as a facilitator, guiding and directing the learning process. Thus, students not only receive instructions but also engage in decision-making, problem-solving, and self-evaluation. And also (Dewi Septaliza, 2024) argue that project-based learning provides a more meaningful learning experience. This is believed to improve student motivation and learning outcomes in physical education.

At Candipari Elementary School, Porong, Sidoarjo, physical education learning faces various challenges, such as limited facilities and infrastructure, and varying student abilities. This situation demands innovation in learning methods to optimally achieve educational goals. One alternative that can be implemented is the student-centered learning approach, which is expected to accommodate individual student differences.

Implementing a student-centered learning approach in physical education in elementary schools can provide a more meaningful learning experience. Students can learn through group activities, games, and assignments that require active participation. Furthermore, this approach can also improve students' social skills, such as cooperation, communication, and a sense of responsibility. (Ulma Erdilanita, 2025) demonstrated, through experimental research, that the SCL approach in physical education significantly improves students' learning experiences compared to conventional teacher-centered methods.

However, the effectiveness of the student-centered learning approach in physical education still requires further study, particularly in elementary school settings like Candipari Elementary School. Each school has unique characteristics, so implementing a learning approach may not necessarily produce the same results. Therefore, research on the effectiveness of this approach is crucial. (Junlong Zhang, 2024) a systematic review of the Sport Education Model found that this student-centered pedagogical approach in physical education is effective in enhancing students' athletic capabilities and fostering greater enthusiasm for sports and learning. This finding supports the broader premise that student-centered instructional models can strengthen students' active engagement and enjoyment of physical education, regardless of the specific activity being taught. Student-centered learning encourages active participation because students have greater control over their learning process, and this active involvement helps students build confidence and independence

alongside their physical skills.

Learning effectiveness can be measured in various aspects, such as improved learning outcomes, student engagement, and changes in attitudes and behavior. In physical education, effectiveness can also be measured through improvements in movement skills, physical fitness, and active student participation in learning activities. With a student-centered learning approach, improvements in these aspects are expected. (Arne Sørensen, 2023) stated that SCL provides a more meaningful learning experience for student teachers, particularly in developing pedagogical skills and active engagement in the learning process. The Student-Centered Learning (SCL) approach provides a more meaningful learning experience for prospective teachers because it positions students as active participants in the learning process. In SCL, students not only receive information but also participate in designing, exploring, and reflecting on their own learning process. This fosters a sense of responsibility, autonomy, and professional ownership of their learning, which are crucial for developing pedagogical competence. (Muhammad Hafid Hafid, 2025) Furthermore, SCL encourages the development of 21st-century skills such as critical thinking, creativity, collaboration, and independent learning, which are essential competencies for professional teachers. This approach shifts the role of the lecturer from the "primary source of knowledge" to a facilitator supporting students' knowledge construction process, And also explained that SCL-based physical education learning contributes to student character development, such as discipline, responsibility, and cooperation in sports activities. (Kurniawan, 2025) also said that The 21st century Technological developments have brought significant changes to various aspects of human life, including the education sector. Consequently, the transformation of the education system has become an inevitable necessity to address global challenges, technological advancements, and the evolving demands of 21st-century competencies.

Furthermore, the success of implementing a student-centered learning approach is also influenced by teacher readiness in designing and implementing learning. Teachers need a good understanding of the concept of student-centered learning and the ability to manage the classroom effectively. School support is also a crucial factor in the success of this approach. (Nur Azis Rohmansyah, 2022) found that the SCL approach in physical education has a positive effect on positive youth development, including increased motivation, social skills, and physical activity in students. (Yin-Die Li, 2023) Student-Centered Learning (SCL) has a positive impact on several important aspects of student development. It enhances non-academic competencies, such as communication skills, critical thinking, and collaboration. In addition, SCL promotes better social interaction, as students are encouraged to engage with peers through discussions and group activities. Furthermore, it supports students' personal growth by fostering independence, self-confidence, and a stronger sense of responsibility for their own learning.

Although previous studies have demonstrated that the Student-Centered Learning (SCL) approach can improve student engagement, motivation, motor skills, and character development in physical education, most of these studies have been conducted in educational settings with relatively adequate learning facilities or have focused primarily on general

learning outcomes. Limited attention has been given to examining the effectiveness of SCL in elementary schools that face constraints in facilities and infrastructure while accommodating students with diverse physical abilities, learning motivation, and participation levels. Investigating this context is important because the success of an instructional approach depends not only on its theoretical strengths but also on its suitability for real classroom conditions. Therefore, research at Candipari Elementary School, Porong, Sidoarjo, is needed to provide a deeper understanding of how SCL is implemented in a resource-constrained elementary school environment, to identify the factors that support and hinder its implementation, and to explore its contribution to improving the quality of physical education learning in a context that differs from those examined in previous studies. This context-specific investigation contributes to the literature by extending the evidence base of SCL implementation in underrepresented elementary school settings.

Based on this description, it can be concluded that the student-centered learning approach has the potential to improve the quality of physical education instruction in elementary schools. Therefore, research on the effectiveness of this approach at Candipari Elementary School, Porong, Sidoarjo, is necessary to obtain a clear picture of its impact on student learning processes and outcomes. The results of this study are expected to serve as a reference for teachers and schools in developing more effective learning strategies.

RESEARCH METHOD

This study used a qualitative approach with a descriptive approach (Sugiyono, 2022). This approach was chosen because it aimed to deeply understand the process and effectiveness of implementing a student-centered learning approach in physical education instruction at Candipari Elementary School, Porong, Sidoarjo. Qualitative research emphasizes the meaning, experiences, and interactions that occur during the learning process.

The subjects of this study were a Physical Education (PE) teacher and students at Candipari Elementary School, Porong, Sidoarjo. The selection of participants was carried out using a purposive sampling technique, which is based on specific considerations relevant to the objectives of the study. These considerations included the participants' direct involvement in the Physical Education learning process as well as their experience in implementing a student-centered learning approach. The research participants comprised one PE teacher and 27 students drawn from the selected focus class.

The object of this study was the effectiveness of implementing a student-centered learning approach in Physical Education instruction. This effectiveness was evaluated through several key indicators, such as the level of student engagement during learning activities, the quality of interactions among students, the teacher's role as a facilitator in guiding the learning process, and students' responses to the learning activities provided. These indicators were used to determine whether the student-centered approach could create an active, participatory, and meaningful learning environment for students.

The data collection techniques used in this study were observation and documentation. Observations were conducted directly in the field by examining the Physical Education learning process as it took place in the classroom. Through this method, the researcher observed students' learning activities, including their participation in physical tasks, collaboration with peers, and responses to teacher instructions. In addition, the teacher's role in managing the class and facilitating learning was also carefully observed. To support and validate the observation data, documentation was collected in the form of lesson plans, attendance records, photographs of learning activities, and other relevant school documents related to the implementation of Physical Education learning. The data obtained from both observation and documentation were then used to describe and analyze the effectiveness of the student-centered learning approach in improving the quality of Physical Education learning at the elementary school.

The research instrument in this qualitative study was the researcher herself, acting as the main instrument or human instrument. In addition, several supporting instruments were used to ensure that data collection was more focused, systematic, and comprehensive. These supporting instruments included observation guidelines, interview guides, and documentation sheets, which helped the researcher gather relevant and accurate information from the field.

The data analysis technique applied in this study followed an interactive analysis model consisting of three main stages: data reduction, data presentation, and conclusion drawing. In the data reduction stage, the researcher selected, organized, and simplified the data obtained from observations, interviews, and documentation. This process aimed to focus on information that was most relevant to the research objectives. To ensure the credibility and validity of the findings, data triangulation was conducted by comparing and cross-checking information obtained from different sources and data collection methods, including observations, interviews, and documentation. In addition, member checking was carried out by confirming key findings with selected participants to ensure the accuracy of the interpretations. The reduced data were then presented in a descriptive narrative form to facilitate understanding and interpretation of the findings. Finally, conclusions were drawn based on patterns, relationships, and meanings identified within the data. The conclusions were continuously verified throughout the research process to ensure their consistency and trustworthiness, thereby providing a clear and credible explanation of the research results. Trustworthiness was further established following Lincoln and Guba's criteria: credibility through triangulation and member checking as described above; dependability through an audit trail of field notes, interview transcripts, and documentation retained for verification; confirmability through cross-checking of interpretations against raw data by the researcher and supervising lecturer; and transferability by providing a thick description of the research context so that readers can judge the applicability of the findings to comparable resource-constrained settings.

By using this qualitative method, the study is expected to provide a more in-depth understanding of the effectiveness of the student-centered learning approach in physical education instruction at Candipari Elementary School, Porong, Sidoarjo, and to uncover various factors influencing its success.

RESULTS

Based on research conducted at Candipari Elementary School, Porong, Sidoarjo, the findings indicate that the implementation of a student-centered learning approach in physical education lessons has a positive impact on the overall learning process and student development. This is evident from increased student engagement during learning activities, where students appear more active in following instructions, participating in discussions, and engaging in various physical tasks designed by the teacher. Observations indicate that students are more enthusiastic when learning is conducted using a student-centered approach. They not only follow instructions but are also given the opportunity to take initiative, such as choosing games, developing strategies within groups, and providing opinions on the progress of activities. This differs from conventional learning, which tends to make students more passive and simply follow the teacher's directions.

The findings indicate that the implementation of Student-Centered Learning (SCL) increased student engagement during physical education lessons. Students were actively involved in group discussions, decision-making activities, and physical tasks designed by the teacher. Classroom observations showed that students participated more frequently in learning activities and demonstrated greater initiative compared to conventional teacher-centered instruction.

A physical education teacher explained:"When I used the student-centered approach, students became more willing to participate. They were not only following instructions but also discussing strategies with their peers and taking initiative during activities." (Teacher Interview, February 2026) This observation was supported by a field note recorded during a learning session: "Most students actively discussed game strategies within their groups. Several students volunteered to demonstrate movements without being prompted by the teacher." (Observation Note, February 2026)

A student also expressed: "I enjoy physical education more because we can work together with friends and share ideas. It makes learning more interesting." (Student Interview, February 2026) Improvement in Learning Enthusiasm and Motivation The implementation of SCL contributed to higher levels of enthusiasm and motivation among students. During observations, students appeared more excited and actively engaged throughout the learning process. One student stated:"I feel happier during physical education lessons because we play games and learn through activities. It is not boring like just listening to explanations." (Student Interview, February 2026) Similarly, another student commented: "I am more confident to participate because the teacher allows us to try and learn from our mistakes." (Student Interview, February 2026). Field observations also noted: "Students remained actively involved until the end of the lesson. No students were observed leaving activities or showing signs of disengagement." (Observation Note, February 2026). Development of Social Interaction and Collaboration

The results revealed that SCL encouraged collaboration and communication among students. Group-based learning activities created opportunities for students to cooperate, share

responsibilities, and solve problems collectively. According to the teacher: "Students communicate more with each other when learning is organized in groups. They learn to cooperate and help friends who experience difficulties." (Teacher Interview, February 2026) This finding was reinforced by observation data: "Students frequently exchanged ideas during activities and assisted peers in completing movement tasks. Positive communication was observed among group members." (Observation Note, February 2026)

A student reported: "If someone cannot perform a movement correctly, we help and encourage each other until everyone can do it." (Student Interview, February 2026). Enhancement of Motor Skills The study also found improvements in students' psychomotor abilities. Students demonstrated better performance in basic physical education movements such as running, jumping, and throwing. The teacher explained: "Students showed noticeable improvement in movement skills because they practiced more actively and repeatedly during learning activities." (Teacher Interview, February 2026). Field notes recorded: "Students performed movement sequences with greater coordination and confidence compared to the initial observation sessions." (Observation Note, February 2026)

A student added: "Now I can perform the exercises more confidently because we practice directly and receive feedback from friends and the teacher." (Student Interview, February 2026) Positive Changes in Affective Development The findings indicate positive development in affective aspects, including discipline, responsibility, and sportsmanship. The teacher stated: "Students have become more responsible during activities. They follow rules better and show greater respect toward their teammates." (Teacher Interview, February 2026). Observation notes also revealed: "Students accepted both victory and defeat positively and demonstrated fair play throughout the activities." (Observation Note, February 2026). One student reflected: "I learned that winning is not the most important thing. What matters is working together and following the rules." (Student Interview, February 2026). Challenges in Implementing Student-Centered Learning Despite its benefits, several challenges were identified during implementation. Limited facilities and infrastructure occasionally restricted the variety of learning activities.

The teacher explained: "Sometimes it is difficult to organize activities because the available equipment is limited, and not all students can use the equipment at the same time." (Teacher Interview, February 2026). Field observations confirmed: "Several activities had to be modified due to the limited availability of sports equipment and learning space." (Observation Note, February 2026). Nevertheless, both teachers and students reported that the benefits of SCL outweighed these challenges, particularly in enhancing participation, collaboration, and meaningful learning experiences.

Table 1 Effectiveness of Student-Centered Learning Approach

No.	Aspect Observed	Indicator	Research Evidence	Interpretation
1	Student Engagement	Active participation during learning activities	Observation data showed that students actively participated in discussions, volunteered to demonstrate movements, and contributed to group activities. Interview data indicated that students felt more involved in the learning process.	The SCL approach promoted active participation and reduced passive learning behaviors.
2	Learning Enthusiasm	Interest, enjoyment, and motivation during learning	Students expressed greater enjoyment during physical education lessons, while observation notes recorded sustained participation and enthusiasm throughout learning activities.	SCL created a more engaging and enjoyable learning environment.
3	Teacher's Role	Teacher functioning as facilitator	Observations revealed that the teacher guided, motivated, and facilitated learning rather than dominating classroom activities. Students were encouraged to make decisions and solve problems independently.	The teacher successfully adopted a facilitator role consistent with SCL principles.
4	Social Interaction	Collaboration and communication among students	Students frequently worked in groups, exchanged ideas, and assisted peers during learning activities. Positive peer interactions were observed consistently.	SCL fostered cooperative learning and enhanced social communication skills.
5	Psychomotor Skills	Performance of basic movement skills	Observation data demonstrated improvements in students' ability to perform fundamental movements such as running, jumping, and throwing with greater confidence and coordination.	Active participation and repeated practice contributed to motor skill development.
6	Affective Development	Discipline, responsibility, and sportsmanship	Students demonstrated greater adherence to rules, accepted game outcomes positively, and showed increased responsibility during learning activities.	SCL supported the development of positive character values and social attitudes.
7	Learning Comprehension	Understanding of learning materials and movement concepts	Students reported that practical experiences and active participation helped them understand learning content more easily.	Experiential learning facilitated deeper understanding of physical education concepts.
8	Student Responses	Perceptions toward the learning approach	Interview findings indicated that students viewed SCL positively and preferred it over conventional teacher-centered instruction.	Students perceived the approach as meaningful and motivating.
9	Implementation Challenges	Constraints affecting learning implementation	Limited facilities, equipment availability, and the need for additional teacher preparation	Successful implementation of SCL requires adequate

	were identified through observations and interviews.	resources and teacher readiness.

The table illustrates that most aspects improved after the implementation of the student-centered learning approach, thus concluding that this approach is effective in physical education learning.

DISCUSSION

The findings demonstrate that the implementation of the Student-Centered Learning (SCL) approach positively influenced student engagement, motivation, motor skill development, social interaction, and affective outcomes in physical education learning at Candipari Elementary School. These findings can be interpreted through the lens of Constructivist Learning Theory, which argues that knowledge is actively constructed through meaningful experiences and social interaction rather than passively received from teachers. In the present study, students were actively involved in learning activities, group discussions, and problem-solving tasks, enabling them to construct understanding through direct participation. This finding supports the fundamental principle of SCL, where learners become active agents in the learning process while teachers function as facilitators who guide learning experiences.. This aligns with research by (Risma Shafa Nuhandini, 2025), SCL makes students more active in learning, increasing motivation, knowledge, and skills through collaboration and problem solving. which also explains that the student-centered learning (SCL) approach places students at the center of learning, enabling them to be more actively involved in the learning process. This model not only improves cognitive aspects but also impacts affective and psychomotor aspects such as cooperation, discipline, and social skills. And also research from (Lely Pratiwi, 2024) which shows that SCL positions students as the main actors in learning and improves learning outcomes and skills. Notably, these prior studies were conducted in settings with relatively adequate infrastructure, whereas the present findings extend this body of evidence by showing that the same mechanism, active construction of knowledge through experience, holds even where facilities are limited. This suggests that facility adequacy functions as a moderating rather than a necessary condition for SCL effectiveness, with teacher facilitation quality emerging as the more decisive factor.

In addition to the involvement aspect, this approach also has a positive impact on students' social aspects. Group activities implemented in learning encourage students to work together, discuss, and share roles. This interaction contributes to improved communication skills and social attitudes such as tolerance, cooperation, and responsibility. Thus, learning focuses not only on physical aspects but also on developing students' social character. From a psychomotor perspective, the improvement in students' ability to perform basic movements demonstrates that this approach is effective in improving physical skills. The opportunity for hands-on and repeated practice allows students to optimally develop coordination, strength, and precision of movement. This reinforces the view that active learning experiences are more effective in learning motor skills than demonstration methods alone. This is also in line with

research from (Budiman, 2024) which shows that cooperative learning improves social relationships and the ability to work together between students. And also research from (Ely Yuliawan, 2025) which states that the cooperative learning model is effective in improving students' basic motor skills. And research from (Ishak Bachtiar, 2025) which states that there is a significant increase in coordination, accuracy and motor skills.

From an affective perspective, positive changes are observed, such as an increased sense of responsibility, sportsmanship, and discipline. Students are also better able to accept game outcomes with a positive attitude, whether they win or lose. These changes demonstrate that physical education with a student-centered approach not only develops physical skills but also fosters character values that are important in everyday life. However, the implementation of this approach is not without several obstacles. Limited facilities and infrastructure are a major obstacle to optimal learning implementation. Furthermore, teachers are required to have more mature planning skills in designing activities that are appropriate to student characteristics. This shows that the success of this approach is highly dependent on teacher readiness and the support of the school environment.

From an evaluation perspective, student-centered learning requires more comprehensive assessment, focusing not only on final results but also on the learning process, such as student participation, cooperation, and effort. This assessment approach provides a more holistic picture of student development.

Overall, the student-centered learning approach has proven effective in improving the quality of physical education instruction at the elementary school level. With teacher support, adequate facilities, and appropriate evaluation, this approach has great potential to create active, enjoyable, and meaningful learning for students. However, the implementation of the student-centered learning approach is not without various obstacles. Limited facilities and infrastructure are one of the main obstacles in implementing learning. Furthermore, teachers are also required to be more creative and prepared in designing appropriate learning activities. This indicates that the success of this approach is greatly influenced by supporting factors within the school. in line with research from (Hasmyati, 2025) which states that teachers play a crucial role in creating a supportive learning environment for all students. Through a caring approach, teachers can ensure that each student feels accepted, valued, and supported in their learning process.

An important contribution of this study lies in its contextual setting. While many previous studies have examined the effectiveness of SCL in well-supported educational environments, this research demonstrates that the approach remains effective even in schools with limited facilities and infrastructure. This finding suggests that teacher creativity and pedagogical competence may play a more important role than the availability of material resources alone. Nevertheless, the study also identified challenges related to equipment limitations and the need for greater teacher preparation. These findings indicate that successful SCL implementation requires institutional support, professional development opportunities, and careful instructional planning.

From a practical perspective, the findings have several implications. First, physical education teachers should adopt learning strategies that provide students with greater opportunities for participation, collaboration, and decision-making. Second, schools should support the implementation of SCL by improving access to learning resources and facilitating teacher training programs focused on student-centered pedagogy. Third, assessment practices should extend beyond measuring physical performance outcomes to include indicators such as participation, cooperation, responsibility, and problem-solving abilities. Such comprehensive assessment practices can provide a more holistic understanding of student learning and development.

Overall, the findings suggest that Student-Centered Learning represents an effective pedagogical approach for enhancing the quality of elementary physical education. By promoting active engagement, meaningful learning experiences, and holistic student development, SCL offers a practical framework for addressing the challenges of contemporary physical education, particularly in schools operating under resource constraints..

CONCLUSION AND IMPLICATIONS

Theoretically, this study contributes evidence that the core mechanism of constructivist, student-centered learning, active knowledge construction through experience and social interaction, is not contingent on resource adequacy but is instead driven primarily by teacher facilitation quality; this refines existing SCL theory by clarifying facility adequacy as a moderating rather than a prerequisite condition. Empirically, this study shows that the student-centered learning approach is effectively implemented in physical education lessons at Candipari Elementary School, Porong, Sidoarjo. This approach is able to increase student engagement, enthusiasm for learning, motor skills, and social attitudes such as cooperation, discipline, and sportsmanship. Students become more active and learning takes place more meaningfully because they are directly involved in the activities. Despite obstacles such as limited facilities and teacher preparedness, overall, this approach has a positive impact on the learning process. The implication is that teachers need to develop more creative and student-centered learning strategies. Schools also need to support this by providing adequate facilities so that the implementation of student-centered learning can run optimally and sustainably in physical education.

RESEARCH LIMITATIONS

This study has several limitations that should be considered when interpreting its results. First, the study was conducted at only one school, Candipari Elementary School in Porong, Sidoarjo. Therefore, the results cannot necessarily be generalized to other schools with different conditions, student characteristics, and facilities. Second, the limited number of research subjects limited the data obtained, which could affect the depth of analysis. Third, the qualitative data collection relied heavily on observations and interviews, allowing for subjectivity on the part of both the researcher and respondents in providing information. Fourth, the limited timeframe for the study also impacted the observation process, which could not be

conducted over a long period, resulting in changes in student behavior only being visible for a specific period. Fifth, external factors, such as the limited school facilities and infrastructure, also influenced the implementation of student-centered learning. This could have resulted in less than optimal research results compared to those conducted in environments with more complete facilities. Despite these limitations, the results of this study still provide an initial overview of the effectiveness of the student-centered learning approach in physical education, but further research with a broader and more in-depth scope is needed. Future studies are also encouraged to explore the integration of technology-based learning media and inclusive teaching strategies within student-centered physical education, as these aspects were beyond the scope of the present study.

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ETHICAL STATEMENT

This research was conducted in accordance with ethical principles of educational research. The entire research process was conducted with respect for the rights, dignity, and comfort of all participants, especially students and teachers at Candipari Elementary School, Porong, Sidoarjo. Prior to conducting the research, the researcher obtained official permission from the school. Student participation in this research was voluntary with the consent of the school and the relevant teachers. The researcher ensured that there was no coercion in the involvement of research subjects. During the data collection process, the researcher maintained the confidentiality of all respondents' identities. The data obtained were used only for academic purposes and were not disseminated for purposes other than this research. The researcher also ensured that learning activities did not disrupt the ongoing teaching and learning process. The researcher strived to be objective, honest, and responsible in every stage of the research, from data collection to analysis and reporting of results. All information is presented in accordance with the facts found in the field without data manipulation. Therefore, this research has met the

ethical principles of educational research, which include informed consent, confidentiality, non-maleficence, and academic integrity.

CONFLICT OF INTEREST

The researcher declares that there is no conflict of interest in the implementation of this research. The research was conducted independently without any influence from any party that could affect the objectivity of the research results. The entire research process, from planning, data collection, analysis, to report preparation, was conducted based on honest, transparent, and responsible academic principles. There are no financial, personal, or institutional relationships that could bias the results of this research. Therefore, the results of the research on the effectiveness of the student-centered learning approach in physical education at Candipari Elementary School, Porong, Sidoarjo are presented as is, in accordance with the data and findings in the field, without any particular interests influencing the content of the research.

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