



PHYSICAL EDUCATION CURRICULUM AMID THE CHALLENGES OF STUDENTS' SEDENTARY LIFESTYLE

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ARTICLE INFO	ABSTRACT
Article History Receive: 18-04-2026 Revision: 07-05-2026 Accept: 30-06-2026	Sedentary behavior among elementary school students has become a challenge to maintaining adequate physical activity, particularly during unstructured periods and transition times at school. This study aimed to examine the implementation of the Physical Education curriculum in responding to students' sedentary behavior and to identify teacher strategies for increasing students' physical activity. This study employed a qualitative approach involving 32 students and two Physical Education teachers at an elementary school. Data were collected through interviews, observations, and documentation and analyzed using the Miles, Huberman, and Saldaña model, consisting of data condensation, data display, and conclusion drawing and verification. The findings showed that some students engaged in sedentary behavior by using smartphones during unstructured periods and before Physical Education lessons. During activities such as <i>kasti</i>, volleyball, and basketball, some students who experienced difficulties performing the required skills tended to sit and observe their peers. The teacher responded by modifying learning activities through interactive and group-based games, including designated activity paths, group tasks, and varied games across meetings. These modifications resulted in more evenly distributed student participation, with students becoming actively involved in physical activities rather than remaining seated and observing. The findings suggest that adaptive implementation of the Physical Education curriculum through interactive and varied game modifications can provide greater opportunities for students with different abilities to participate in physical activity.
Keywords	Sedentary lifestyle, Physical Education curriculum, physical activity, student engagement, elementary school

1. INTRODUCTION

The introduction contains the problems that relevant with the scope, aims of study, past study that will be strong your ideas.

Physical education is an important component of the educational process because its instruction is not limited to the development of motor skills but also provides students with experiences that can foster active and healthy lifestyles. Through structured physical activities and sports, students have opportunities to develop movement skills while improving their physical fitness. Well-designed physical education programs can also provide health benefits for students, positioning schools as important settings for providing regular opportunities for physical activity (Rocliffe et al., 2024). Student participation in physical education has also been associated with higher levels of physical activity and lower levels of sedentary behavior (Silva et al., 2022). Physical education therefore extends beyond the teaching of sports skills, as it has the potential to support the development of active lifestyle patterns among students.

The need to promote active lifestyles has become increasingly important as students' daily activities have changed with the development of digital technology. Smartphones, social media, digital games, videos, and computers have become part of children's and adolescents' daily lives for both learning and entertainment. These activities are commonly performed while sitting and involve relatively little body movement, meaning that prolonged use of digital devices may increase students' sedentary time (Maulana et al., 2021). A study of elementary school students by Prakoso et al. (2024) found that screen use averaged approximately three hours per day, with smartphone gaming being one of the most common activities. The use of technology in learning may also extend the amount of time students spend sitting. Cibo et al. (2022) found that increased use of information technology was associated with greater sedentary behavior during learning activities, as well as several physical complaints among students, including eye discomfort, headaches, and body pain.

Screen-based activities have also become part of how students spend their free time. Playing games, watching videos, using social media, and accessing the internet can occupy substantial amounts of time without requiring meaningful physical activity. Rangul et al. (2024) found that social media use and video gaming were common forms of screen-based activity among adolescents, while high levels of screen use were associated with poorer psychological conditions and quality of life in some groups of adolescents. A relationship between screen use and physical activity has also been identified among younger children. Rachmania & Ludyanti (2022) reported a negative relationship between screen time and physical activity, indicating that increased time spent on screen-based activities may be accompanied by reduced physical activity. These changes in activity patterns make sedentary lifestyles an issue that requires attention, particularly because schools are strategic environments for providing students with opportunities for regular physical activity (Weaver et al., 2021).

The issue of sedentary lifestyles is particularly relevant to physical education because the presence of the subject does not automatically ensure that students remain physically active throughout the lesson. A study by Alhumary et al. (2025) of secondary school students in North Sumatra found that approximately 46.8% of students had insufficient physical activity and spent an average of 8.5 hours per day engaging in sedentary behavior. Observations of physical education lessons in the same study showed that approximately 45% of instructional time was spent in sedentary activities, while high-intensity activities accounted for only about 4%. Adding physical education sessions was estimated to reduce students' daily sedentary time by approximately 42.6 minutes (Alhumary et al., 2025). These findings indicate that students' physical activity is influenced not only by their habits outside school but also by how time and activities are organized during physical education lessons.

This situation highlights the need for physical education instruction that provides meaningful opportunities for physical activity while connecting learning with students'

everyday habits. Physical education can serve as a means of encouraging students to become more active through lessons, games, sports, and other movement-based activities within the school environment. School-based programs that combine education and physical activity have also shown potential for reducing sedentary behavior and supporting healthy lifestyles among children and adolescents (Longobucco et al., 2023). Piores et al. (2023) emphasized the importance of considering the role of the school curriculum in addressing increased screen time and low levels of physical activity among school-aged children. These findings suggest that responding to sedentary lifestyles requires more than short-term increases in physical activity; it also needs to be connected to an organized educational process within schools.

This issue draws attention to the physical education curriculum as a foundation for determining learning objectives, content, learning experiences, and instructional direction. The curriculum should not only provide opportunities for developing sports skills but may also be directed toward building the knowledge, experiences, and habits needed to support active lifestyles. Effective physical education practices are associated with various aspects of student development and provide learning experiences through movement, interaction, and active participation in learning activities. School-based physical education programs can also contribute to improvements in physical fitness among school-aged children (Rico-González, 2023). The challenge lies in how these objectives and potentials are translated into instruction that is responsive to students' changing lifestyles and their increasing exposure to screen-based sedentary activities.

Previous studies have examined the relationships among physical education, physical activity, digital device use, and sedentary behavior among students. Silva et al. (2022) demonstrated an association between physical education participation, physical activity levels, and sedentary behavior, while Maulana et al. (2021), Cibo et al. (2022), and Rachmania & Ludyanti (2022) identified relationships between device use or screen time and sedentary patterns or physical activity among children. Alhumary et

al. (2025) also provided evidence of high levels of sedentary behavior among students and limited movement during physical education lessons. However, these studies have primarily described physical activity levels, sedentary behavior, screen use, or the effects of physical activity programs, while less attention has been given to how the physical education curriculum is implemented as a response to students' sedentary lifestyles, particularly from the perspective of teachers and their instructional practices. This area remains important because the presence of a curriculum does not directly determine students' learning experiences; teachers play a central role in translating the curriculum into instructional content, activities, strategies, and movement experiences.

This gap indicates the need to examine the relationship between changes in students' lifestyles and the implementation of the physical education curriculum in schools. Such an examination can provide insight into how teachers perceive students' sedentary lifestyles, how curriculum expectations are applied through instruction, what strategies are used to increase students' engagement in physical activity, and what challenges teachers face in promoting active lifestyles. This focus is important for determining whether physical education instruction has provided an adequate response to changes in students' activity patterns, which are increasingly influenced by digital technology use. This study aims to analyze the implementation of the physical education curriculum in responding to the challenge of students' sedentary lifestyles and to identify the strategies and challenges faced by teachers in promoting active lifestyles through physical education instruction.

2. RESEARCH METHOD

This study employed a **qualitative approach** to examine the implementation of the physical education curriculum in responding to students' *sedentary lifestyles* at an elementary school. The study was conducted during physical education classes, which were held once a week on Fridays. The research informants consisted of two physical education teachers, while 32 students served as observation subjects during the learning process. The teachers were selected

using purposive sampling based on their direct involvement in planning and implementing physical education instruction.

Data were collected through interviews, observations, and documentation. Interviews were conducted with the two physical education teachers to obtain information about their understanding of students' *sedentary lifestyles*, curriculum implementation, instructional strategies, and challenges in encouraging students to engage in physical activity. Observations were conducted during physical education classes to examine students' participation in physical activities, the types of movement activities performed, students' responses to the learning activities, and the implementation of learning content related to physical activity. Documentation was used to support the interview and observation data and included learning materials, curriculum-related documents, and documentation of physical education activities. The observation process was conducted over four weekly meetings, with the focus of each observation presented in Table 1.

Table 1. Observation Focus of Physical Education Lessons

Meeting	Observation Focus	Aspects Observed
1st meeting	Initial conditions and students' activity characteristics	Students' participation in learning, tendencies to be active or inactive, forms of physical activity, sitting or waiting time, responses to teacher instructions, and general learning conditions
2nd meeting	Curriculum implementation in learning	Learning content, types of activities, instructional methods, alignment between

Meeting	Observation Focus	Aspects Observed
		activities and learning objectives, time allocated for movement activities, and opportunities for students to participate actively
3rd meeting	Teacher strategies for promoting physical activity	Strategies used to increase student participation, modification of games or activities, motivational approaches, management of less-active students, activity variations, and efforts to encourage active lifestyle habits
4th meeting	Consistency of implementation and student responses	Consistency of teacher strategies, patterns of student participation, continuity of physical activity during lessons, student responses to teacher strategies, and factors supporting or hindering active learning

3. RESULT

a. Initial Conditions and Students' Sedentary Behavior

The observations showed that screen-based sedentary behavior was present among students

during unstructured periods at school. When there was free time because a teacher had not yet arrived, some students used smartphones, while others chose to play with their peers. These unstructured periods could last for several minutes and, in some cases, nearly half an hour.

A similar pattern was observed during the transition period before Physical Education lessons. Physical Education was scheduled during the second period, so students were given approximately 25 minutes to change into their sports uniforms. Students who finished changing earlier sometimes used the remaining time to play on their smartphones, while others went directly to the school field and played with their peers. This condition indicates that students demonstrated different patterns in using unstructured time, ranging from screen-based activities involving limited movement to play activities involving physical activity.

Although the school had a rule prohibiting students from bringing smartphones, some students were still found to bring and use them while at school, including during class time. This finding indicates that screen-based sedentary behavior remained part of students' daily activities at school despite the existing restrictions on smartphone use.

b. Curriculum Implementation in Physical Education

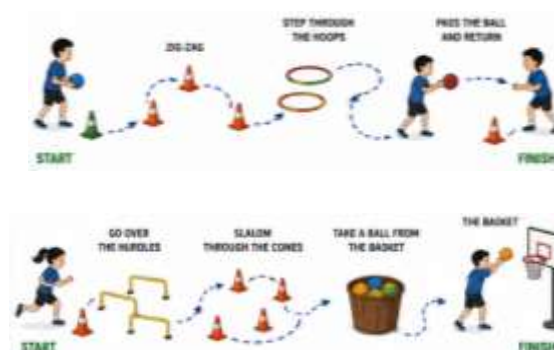
The observations showed that Physical Education instruction initially focused on the use of learning materials and several specific sports or games, such as *kasti* (Indonesian traditional ball game), volleyball, and basketball. The implementation of these activities revealed differences in students' abilities to participate. Some students still experienced difficulties performing the required skills, which limited their involvement in physical activities. Students who were unable to participate effectively tended to sit and observe their peers, whereas those who were able to perform the activities tended to be more active.

This condition indicates that implementing instruction through specific sports activities did not result in active participation from all students. Differences in students' abilities became one of the conditions affecting their involvement during the lessons. Students who experienced difficulties did not always receive the same level of physical activity as those who were more capable, resulting in some students remaining less physically active during the activities.

This finding was also related to the sedentary behavior observed during unstructured periods. When students had the opportunity to choose their own activities, some chose to use smartphones. During Physical Education lessons, some students who had difficulty participating in sports activities also chose to sit and observe. These two conditions indicate that encouraging students to engage in physical activity remained a challenge within the school environment.

c. Teachers' Strategies for Promoting Students' Physical Activity

To address the limited involvement of some students, the teacher developed more interactive and group-based games. The learning activities were not limited to sports such as *kasti*, volleyball, and basketball but were modified into simpler activities that allowed all students to participate. One form of modification involved creating paths that students had to follow as part of the game. Students were instructed to follow the designated paths and complete the assigned tasks within their groups.



The teacher also divided students into several groups and provided different game formats during each meeting. These variations were used to prevent boredom and provide students with different activity experiences. The games did not only require students to perform specific sports techniques but also required them to move, follow game rules, and cooperate with their group members.

This strategy was a response to the condition in which some students previously had difficulty participating in *kasti*, volleyball, or basketball activities. Students who experienced difficulties tended to sit and observe. Through modified games, the teacher provided activities that were easier for students to follow and positioned them as active participants in the learning process.

d. Changes in Students' Involvement in Physical Activity

The observations showed changes in students' involvement after the teacher implemented interactive and group-based games. During lessons focused on *kasti*, volleyball, and basketball, some students who were unable to perform the required skills tended to sit and observe the activities. This condition resulted in uneven participation in physical activity, as students who were able to perform the sports activities tended to be more active than those who experienced difficulties.

A change was observed when the teacher introduced games involving designated paths and group activities. In these games, students were not simply waiting for or observing peers with greater abilities but were given tasks to complete within their groups. Each student was required to participate in the sequence of activities and perform movements according to the rules provided by the teacher. The use of different game formats during each meeting also made the learning activities more varied.

The implementation of these interactive games resulted in more evenly distributed student involvement. **No students were observed simply sitting still during the games, as**

all students had roles within their groups and were required to move. This finding indicates that modifying activities from sports-oriented tasks that emphasize specific skills toward more interactive games can support students' physical engagement, including those who previously experienced difficulties participating in sports activities.

4. DISCUSSION

a. Sedentary Behavior Among Students as a Challenge to Physical Activity

The findings of this study show that students' sedentary behavior was particularly evident during unstructured periods at school. When there was free time because a teacher had not yet arrived, some students chose to use their smartphones, while others played with their peers. A similar pattern was observed before Physical Education lessons. Students who finished changing into their sports uniforms earlier sometimes used the remaining time to play on their smartphones, whereas others went directly to the school field and played with their peers. These findings indicate that when students are not engaged in structured activities that encourage movement, they may choose different types of activities, ranging from screen-based activities to physical play.

These findings suggest that sedentary behavior at school should not be viewed solely in terms of smartphone use. Smartphone use represents one form of low-movement activity, but sedentary behavior can also occur when students choose not to participate in physical activities. This was reflected in the differences observed among students during free periods and before Physical Education lessons. Some students used these opportunities to play with their peers and engage in movement, whereas others remained in place while using digital devices. This condition is consistent with Prakoso et al. (2024), who found that electronic device use among elementary school students in Indonesia averaged 3.03 hours per day, with playing games

on smartphones being one of the most common activities.

The existence of a school rule prohibiting students from bringing smartphones also did not completely prevent this behavior. In this study, some students were still observed bringing and using smartphones at school, including during lessons. This finding indicates a gap between the regulation implemented by the school and the behavior still observed among some students. This condition is important to consider because restricting the use of digital devices does not automatically encourage students to become physically active. Hadianfard et al. (2021) also showed that students' sedentary behavior was not limited to *screen time* but could occur through various other activities involving limited movement.

The transition period before Physical Education provided another example of this condition. Students had approximately 25 minutes to change into their sports uniforms because Physical Education was scheduled during the second period. After changing, some students used the remaining time to play on their smartphones, while others went directly to the field. This difference in behavior indicates that the availability of an opportunity for physical activity does not necessarily mean that all students will use that opportunity actively. This issue is important for Physical Education because the development of active habits does not occur only during formal Physical Education lessons but is also related to how students use other periods while they are at school. Hodder et al. (2025) emphasized the importance of providing opportunities for physical activity during different periods of the school day.

The findings of this study indicate that the challenge of a *sedentary lifestyle* among students is related to the availability of activities, students' choices, and the situations they encounter at school. When unstructured time was available, some students chose screen-based activities. During Physical Education lessons, students' physical engagement was also not always evenly

distributed because some students had difficulty participating in certain sports activities. This condition highlights the need for Physical Education to provide physical activity experiences that can engage students with different levels of ability. Examining this condition is important for understanding how the Physical Education curriculum can respond to limited student engagement in physical activity.

b. Physical Education Curriculum Implementation and Teacher Strategies to Increase Students' Physical Activity

The findings showed that the implementation of Physical Education instruction did not initially result in equal physical engagement among all students. Activities focusing on *kasti*, volleyball, and basketball revealed differences in students' abilities to participate. Students who were unable to perform the required skills tended to sit and observe their peers, while those who had mastered the activities were more actively involved in the games. This condition indicates that providing specific sports activities does not necessarily ensure that all students receive the same opportunities to engage in physical activity.

These differences in participation highlight the importance of adapting instruction to students' abilities. When activities rely heavily on mastery of specific skills, students who have not yet developed the required abilities may be more likely to remain passive during the lesson. Medina et al. (2023) explain that instructional strategies that consider differences in students' abilities and provide opportunities for students to participate according to their capacities can support engagement and motivation in physical activity. The findings of this study reflect this condition in Physical Education, where differences in students' abilities need to be considered to encourage broader participation in physical activity.

The teacher responded by adjusting the activities used during instruction. Activities that initially focused on specific sports were modified

into more interactive and group-based games. One form of modification involved creating a path that students had to follow as part of the game. Students were also divided into groups and given different game formats during each meeting. These changes show that the teacher did not simply maintain the same activity format but adjusted the learning activities when some students were less engaged.

The modified games provided greater opportunities for students to participate without relying entirely on mastery of sports skills such as those required in *kasti*, volleyball, or basketball. In games involving designated paths and group activities, each student had a task to complete, preventing them from becoming merely observers. These activities also required students to move and cooperate with their group members. Palantig & Diampon (2026) found that modified games can support active participation, motivation, confidence, enjoyment, and cooperation among students in Physical Education.

Varying the games across meetings was also part of the teacher's strategy to maintain student engagement. Rather than repeatedly using the same type of game, the teacher changed the activities and group arrangements so that the lessons remained engaging. This approach is important because student participation is influenced not only by the type of sport being taught but also by the characteristics of the activity and the way the teacher organizes the lesson. Kolovelonis et al. (2022) showed that game characteristics, teacher interventions, and students' experiences during activities can influence participation in Physical Education.

These changes demonstrate that implementing the Physical Education curriculum involves more than delivering predetermined sports content. It also requires teachers to adapt activities to students' conditions. In this study, such adaptations included interactive games, group formation, designated activity paths, and variations in games across meetings. These approaches gave students who had previously

tended to sit and observe greater opportunities to participate in physical activities. This reflects a more adaptive approach to curriculum implementation that responds to differences in students' abilities without abandoning the main objectives of Physical Education (Demus & Kornosenko, 2025).

5. CONCLUSION

The findings of this study indicate that students' sedentary behavior remains a challenge within the elementary school environment, particularly during unstructured periods and transition times before Physical Education lessons. Some students were observed using smartphones during these periods, while others engaged in physical play with their peers. The study also found that Physical Education activities initially centered on *kasti*, volleyball, and basketball did not result in equal physical engagement among all students. Students who experienced difficulties performing the required skills tended to sit and observe their peers.

The teacher responded to these conditions by adapting the Physical Education activities through interactive and group-based games. The activities included designated paths that students had to follow, group tasks, and variations in game formats across meetings. These adaptations provided students with greater opportunities to move, participate, and work with their peers. After the implementation of the modified games, student participation became more evenly distributed, with students actively involved in the activities rather than remaining seated and observing. These findings suggest that flexible and adaptive implementation of the Physical Education curriculum can support more active student participation and provide a meaningful response to sedentary behavior among elementary school students.

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