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Exploring the Condition of Sports Facilities and Their Influence on Physical Education Learning in Indonesian Junior High Schools

Andri Tri Pratomo, Endang Sri Hanani, Heny Setyawati
Universitas Negeri Semarang, Indonesia

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ABSTRACT
Background: The effectiveness of physical education in schools is strongly tied to the adequacy of sports facilities. However, limited resources in many Indonesian junior high schools often restrict learning opportunities, pushing teachers to adapt through creative practices.
Aims: This study investigates the current state of sports facilities in public junior high schools and examines how their availability and condition influence the delivery of physical education.
Methods: Using a descriptive qualitative approach, data were gathered from five public junior high schools in Purbalingga, Central Java. Information was collected through document analysis, direct observation, and teacher questionnaires. Both numerical data on the adequacy of facilities and descriptive accounts of teacher-driven modifications were analyzed to provide a comprehensive view.
Results: Overall, the schools possessed facilities that could be categorized as moderately sufficient to support instruction. Certain equipment aligned with expected standards, while others were lacking in quality and quantity. Teachers compensated for these shortcomings by creating modified tools—such as bamboo hurdles, cloth bundles as shot puts, or improvised relay batons—which proved effective in sustaining student participation and meeting instructional goals despite spatial and material constraints.
Conclusion: Adequate facilities remain an essential foundation for quality physical education, yet teacher ingenuity can mitigate some of the challenges posed by limited infrastructure. Supporting both the provision of proper facilities and the development of teacher creativity is vital to strengthening physical education in Indonesian junior high schools.

Keyword: Junior High Schools; Learning Quality; Physical Education; Sports Facilities

*** Corresponding author:**
Andri Tri Pratomo, Universitas Negeri Semarang, Indonesia
andripratomo@gmail.com

INTRODUCTION

The importance of this study emerges from the growing demand to improve the quality of education in a holistic way, including the physical domain. Schools are not only places to transfer knowledge but also arenas for developing health, fitness, and character (Borgen et al., 2021; Brunsdon & Walker, 2022). Physical education (PE) has a central role because it equips students with the skills and habits needed for lifelong well-being. However, the effectiveness of PE is strongly linked to the availability of adequate sports facilities. If schools lack proper fields, courts, or equipment, the learning process tends to be limited and less engaging. Such constraints may discourage students from active participation, which undermines the core goals of PE (Chen et al., 2024; Ribeiro et al., 2024). In Indonesia, disparities in school infrastructure are still evident between regions. Therefore, it is crucial to examine the condition of sports facilities to ensure that PE can fulfill its educational mission.

Physical education is widely acknowledged as an essential component of the curriculum, as it contributes not only to physical health but also to social development. Students learn teamwork, discipline, and resilience through structured physical activities (Duchek et al., 2023; Kang et al., 2024). Yet, these outcomes are highly dependent on the learning environment and the tools available. When facilities are sufficient, teachers can provide varied activities that stimulate both skill and motivation (Rahiem, 2021; Yu et al., 2021). In contrast, limited facilities often lead to repetitive lessons that reduce student enthusiasm. This limitation does not only affect physical outcomes but can also shape negative attitudes toward sports and exercise. Over time, such experiences may influence students' willingness to adopt active lifestyles. For this reason, the adequacy of sports infrastructure deserves close attention.

Another urgent reason to investigate this issue is the global emphasis on educational standards that balance academic and non-academic competencies. International frameworks for quality education increasingly highlight the need for physical, social, and emotional learning (Newaz, 2023). Schools that provide sufficient opportunities for physical activity are more likely to produce well-rounded graduates. However, many schools in developing countries, including Indonesia, continue to struggle with inadequate sports infrastructure. This situation often forces teachers to use conventional approaches that do not fully engage students (Cevikbas & Kaiser, 2023; Jääskä & Aaltonen, 2022). A lack of variety in teaching reduces the potential impact of PE on student development. Furthermore, without proper facilities, schools cannot align with modern curriculum expectations. Hence, evaluating the current state of facilities is critical for ensuring that Indonesia's education system keeps pace with global standards.

The urgency is also linked to the rising concern over sedentary lifestyles among adolescents. With the widespread use of smartphones, gaming platforms, and social media, young people spend more time being inactive (Salmensalo et al., 2024; Tomczyk & Selmanagic Lizde, 2023). Schools have the responsibility to counteract this trend by offering structured opportunities for physical activity. Yet, this responsibility cannot be fulfilled effectively without the support of appropriate sports facilities. When choices for physical activity are limited, students may lose interest in PE and opt for less active behaviors outside of school (Ávalos-Ramos et al., 2024; Fenandez-Rio et al., 2025). Research in various countries has shown that well-equipped schools succeed in motivating students to engage in regular exercise. On the other hand, poor infrastructure often results in disengagement

and low participation. Thus, exploring the state of school facilities is a timely response to growing health concerns.

Equity and fairness also underline the urgency of this research. Students in resource-rich schools enjoy better opportunities to experience high-quality PE, while those in under-resourced schools face structural disadvantages. This inequality has long-term implications for both education and health (Khalatbari-Soltani et al., 2022; Laliberté, 2021). In Indonesia, public junior high schools in smaller towns or rural areas often lack basic infrastructure, limiting their ability to deliver diverse physical activities. Addressing these disparities is essential for promoting equal educational opportunities (Lopez et al., 2021; Roshanaei, 2024). Policymakers need reliable evidence to distribute resources more equitably. By systematically documenting facility conditions, this study contributes to policy discussions on reducing inequality in education. Ensuring fairness in facility provision is therefore a matter of justice and educational quality.

Beyond infrastructure, teacher innovation plays a critical role in maintaining the quality of PE. Teachers often face the challenge of limited resources yet find ways to adapt creatively (Busch & Barkema, 2021; ElSayary, 2024). They develop modified equipment from locally available materials, adjust teaching methods, and redesign learning activities to keep students engaged. Such practices illustrate resilience and ingenuity in the teaching profession (Anderson et al., 2022; Smith et al., 2022). However, relying solely on teacher innovation risks normalizing structural deficiencies in education. While creativity is valuable, it should not substitute the necessity of proper facilities. Understanding how teachers cope with these challenges provides important insights for designing professional development programs. Therefore, studying both infrastructure conditions and teacher adaptation offers a more complete picture of PE implementation.

Physical education also plays a strategic role in supporting national health agendas. Governments are increasingly concerned with non-communicable diseases caused by inactivity, such as obesity, diabetes, and cardiovascular problems (Manderson & Jewett, 2023). Schools are positioned as primary agents in encouraging healthy habits early in life. However, this mission is undermined when infrastructure is lacking. Students deprived of diverse physical activities are less likely to develop the skills or interest needed to pursue lifelong fitness (Eyre et al., 2022; Habyarimana et al., 2022). The risks extend beyond individual outcomes to public health challenges for society at large. Adequate sports facilities are thus not only an educational necessity but also a public health imperative. Evaluating the situation in schools provides evidence to strengthen the connection between education and health policies.

Finally, this study is urgent because it informs both practical and policy-level decisions. Reliable data on the state of facilities and teacher responses can guide more effective resource allocation (Owan et al., 2023; Song & Wang, 2025). It also supports the design of training programs that enhance teachers' ability to adapt to limitations. Without such evidence, decisions about educational improvement may overlook the actual conditions faced by schools. At the same time, documenting teacher creativity offers inspiration for other schools facing similar constraints (Swanzy-Impraim et al., 2023; Tromp & Baer, 2022). Understanding the relationship between infrastructure and learning outcomes also provides a foundation for continuous quality improvement. In the long term, improving both facilities and teacher practices is essential for sustainable progress. Therefore, examining these aspects is timely and highly relevant for advancing the quality of physical education in Indonesia.

Research in physical education consistently underlines the importance of adequate facilities as the backbone of effective learning. Li & Zhang (2026) pointed out that technological integration can strengthen equitable access, while Işıkgöz et al. (2025) stressed their role in ensuring gender equality, supported by Eşkil & Gökyürek (2025) who showed the benefits of game-based learning when facilities are sufficient. Socioeconomic gaps remain a challenge; Wilén et al. (2025) linked inequality to participation rates, and Sheng (2025) emphasized the need for systematic evaluation of facilities. Evidence from Zhao et al. (2025) and Ke et al. (2025) shows that diverse sports programs improve fitness and even cognitive development, while Peng et al. (2021) highlighted disparities in access between communities. On the pedagogical side, Anapalı Şenel et al. (2025) suggested predictive models to assist teacher training, and Shao et al. (2025) revealed that adaptive sports programs foster inclusion and empathy. Collectively, these findings confirm that facilities are not merely physical assets but enablers of equality, innovation, and holistic growth, which strongly resonates with the Indonesian context where disparities across schools are still evident.

Although the role of school facilities in shaping physical education has been widely acknowledged, most existing studies have looked at it in isolation. Research often emphasizes participation levels, health benefits, or teaching methods, but rarely connects these outcomes to the condition of the facilities themselves. In Indonesia, much of the available work remains descriptive, focusing on the number of facilities rather than their impact on classroom practice. Very few studies have examined how teachers respond to these limitations and what strategies they use to keep learning effective. The absence of such integrated perspectives leaves a gap in understanding the full picture of challenges faced in delivering quality physical education.

This study seeks to respond to that gap by exploring not only the state of facilities in junior high schools but also the ways teachers adapt when resources are insufficient. The combination of quantitative data on adequacy and qualitative insights into teacher practices provides a more balanced view than previous descriptive accounts. It recognizes that learning quality is shaped both by structural resources and by the professional creativity of teachers. By focusing on these two elements together, the study offers findings that are more relevant for schools, teachers, and policymakers. Such an approach can support more equitable educational planning and highlight practical solutions for schools working under constraints.

The main purpose of this study is to evaluate the adequacy of sports facilities in junior high schools and to understand how teacher-driven innovations contribute to maintaining learning quality. The research aims to clarify whether limited facilities significantly reduce instructional effectiveness, and to what extent teacher creativity can compensate for these gaps. The working hypothesis is that adequate facilities are fundamental for strong physical education outcomes, but in their absence, teacher innovation plays a crucial role in sustaining meaningful student learning.

METHOD

Research Design

This study adopted a descriptive qualitative design to explore the condition of sports facilities and how these facilities influence the learning process in physical education. The approach was chosen because it enables a thorough description of real conditions without manipulating any variables. In this research, both numerical data and descriptive narratives were combined. The

quantitative aspect provided measurable information about the adequacy of facilities, while the qualitative component captured the creativity and adaptive strategies of teachers who worked with limited resources. This blend of methods allowed a more complete understanding of the situation as it naturally occurs in schools.

Participants

The participants were physical education teachers from five public junior high schools located in Purbalingga, Central Java. The schools were selected intentionally to represent different levels of sports facility adequacy and geographical diversity across the area. All participating teachers had at least three years of teaching experience and were directly responsible for planning, managing, and conducting physical education activities. Their firsthand experiences were invaluable for identifying the real challenges in using existing facilities and for understanding how they maintained learning quality despite constraints.

Instrument

Three instruments were employed to gather the data: a documentation checklist, an observation guide, and a structured questionnaire. The documentation checklist was used to record the type, quantity, and condition of sports facilities, including fields, courts, and athletic equipment. Observations were conducted to see how these facilities were used during lessons and how teachers adapted when resources were lacking. The questionnaire, which contained both closed and open-ended questions, aimed to capture teachers' perspectives on facility use, constraints faced, and innovations applied. To ensure data accuracy, all instruments were reviewed and validated by experts in physical education before use.

Data Analysis

The data analysis combined both numerical and thematic approaches. Quantitative data obtained from documentation and questionnaires were presented in percentage form to indicate the level of facility adequacy—classified as adequate, moderately adequate, or inadequate. Meanwhile, qualitative data from observations and teacher responses were analyzed thematically to uncover patterns of adaptation and creativity. The integration of these analyses made it possible to draw conclusions that reflect both the structural and human aspects influencing the quality of physical education.

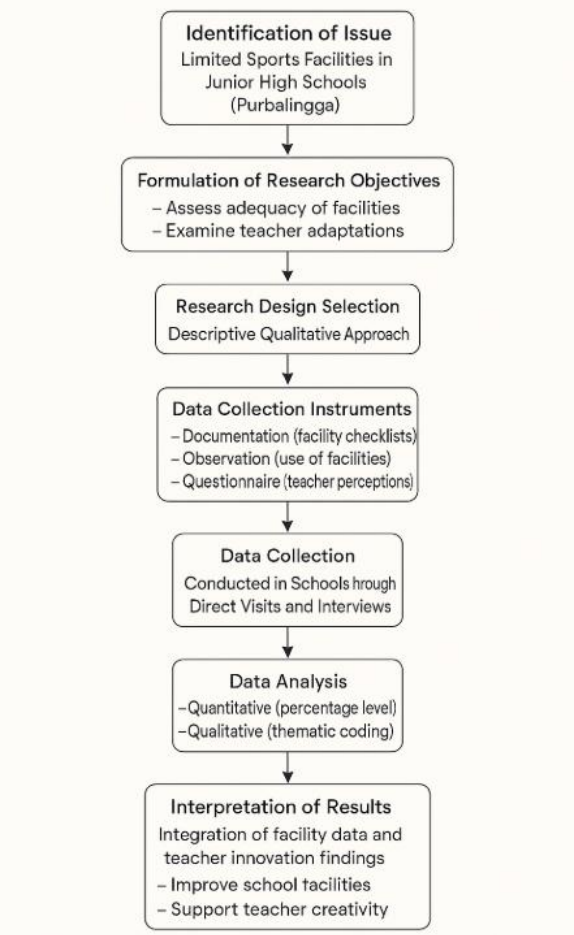

Figure 1. Flowchart of the Research Process on Sports Facilities in Physical Education

RESULTS AND DISCUSSION

Result

The findings of this study provide a clear picture of how the availability and condition of sports facilities vary among public junior high schools in Purbalingga. Overall, the data show that the facilities can be categorized as moderately adequate, indicating that most schools possess some standard infrastructure but still face notable limitations. Several schools have relatively complete facilities, such as volleyball and badminton courts, yet others lack basic items including goalposts, mats, and track equipment. In some cases, the facilities that do exist are outdated or damaged, which affects the diversity and quality of learning activities that teachers can conduct. Teachers also noted that limited space often restricted their ability to organize varied physical education activities. During observations, it was found that outdoor fields were shared for multiple sports, causing scheduling difficulties and reducing students' opportunities for practice. Despite these limitations, physical education teachers consistently showed adaptability and commitment. Many developed creative solutions to compensate for the lack of proper facilities, designing improvised equipment from low-cost and easily available materials. For instance, bamboo was crafted into hurdles, used bottles became cone markers, and worn-out cloth was turned into makeshift balls. This resourcefulness

allowed teachers to continue implementing PE lessons that met learning objectives, even with constrained resources. Students remained engaged and participated actively, demonstrating that creativity and instructional commitment can, to some extent, offset material shortcomings. In general, the results highlight both the structural challenges and human innovation within the physical education system in local schools.

The summarized data on facility adequacy are presented below.

Table 1. Condition of Sports Facilities in Junior High Schools

School Name	Adequate (%)	Moderately Adequate (%)	Inadequate (%)
SMPN 1 Purbalingga	70	25	5
SMPN 2 Purbalingga	60	35	5
SMPN 3 Purbalingga	55	40	5
SMPN 4 Purbalingga	50	40	10
SMPN 5 Purbalingga	45	45	10

The data indicate that SMPN 1 Purbalingga has the highest adequacy level at 70%, while SMPN 5 shows the lowest, with only 45% of its facilities considered adequate. Figure 1 visualizes these variations in facility adequacy across schools.

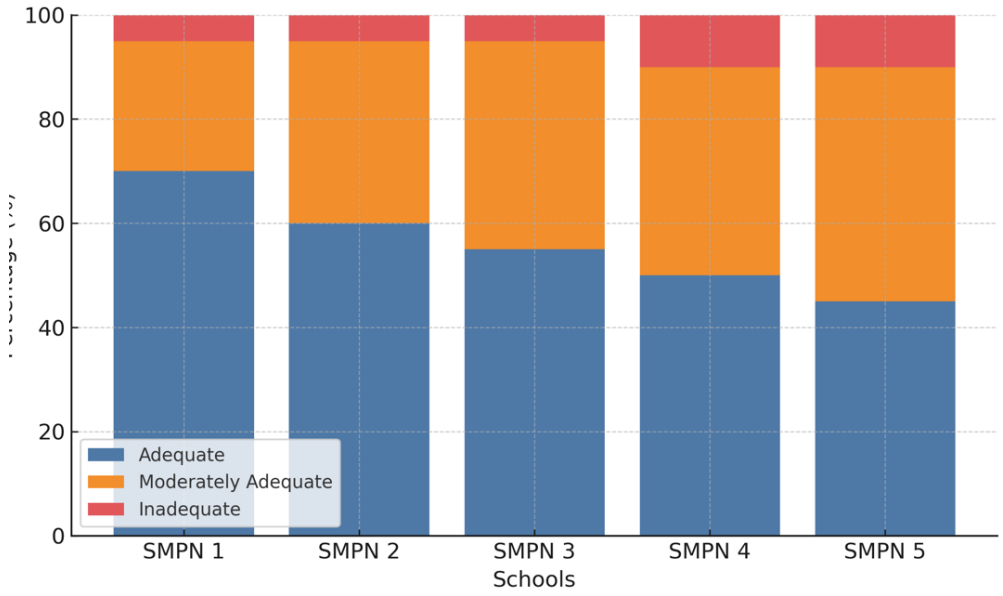

Figure 2. Adequacy Level of Sports Facilities in Junior High Schools (Purbalingga)

In addition to quantitative data, qualitative insights revealed how teachers adapted to real classroom challenges. Table 2 summarizes examples of innovations made by teachers to sustain physical education learning.

Table 2. Examples of Teacher Innovation in Equipment Modification

Type of Equipment	Materials Used	Function in Learning
Hurdles	Bamboo sticks	Athletics training
Shot put ball	Cloth and sand	Strength exercises
Baton	PVC pipe	Relay practice
Cone markers	Plastic bottles	Dribbling and direction drills

The presence of such creative modifications illustrates that teachers in Purbalingga are not passive recipients of infrastructural limitations but active problem-solvers who design meaningful learning experiences despite physical constraints. This finding reflects the resilience and professionalism of physical education teachers in maintaining the quality of instruction under challenging conditions.

Discussion

This study reveals conditions in Purbalingga's public junior high schools that reflect a broader reality in developing countries, where infrastructure development in physical education is still uneven. Some schools possess adequate facilities and can implement the curriculum effectively, while others struggle with insufficient or damaged equipment. These differences affect the quality of learning and the opportunities students have to participate actively in physical activities. The finding resonates with Li and Zhang (2026), who emphasized that progress in sports education depends not only on available facilities but also on how innovation is integrated into daily practice. The uneven distribution of resources suggests that policy implementation still lacks balance and consistency. Physical education often receives less attention compared to academic subjects, resulting in limited budgets and outdated infrastructure. This situation underscores the need for a more equitable approach to facility management and development across schools.

The moderate adequacy of facilities identified in this study supports the conclusion that many schools still operate under constrained environments. While some basic equipment is present, it is often inadequate in quantity or quality to support diverse learning activities. Several schools lack mats, hurdles, or proper sports fields, which limits the range of skills that students can learn. Işıkgöz et al. (2025) pointed out that inclusivity in physical education cannot be achieved without suitable facilities, especially for activities that require gender-sensitive environments. The same concern applies in Purbalingga, where limited infrastructure can indirectly affect the participation of female students. Eşkil and Gökyürek (2025) found that creative games enhance student motivation, but such innovations are difficult to implement when resources are minimal. Thus, facility improvement must go hand in hand with instructional creativity to maintain student engagement.

Even though material resources are limited, the teachers in this study demonstrated impressive creativity and professional resilience. They constructed simple yet functional tools using bamboo, cloth, or recycled materials to replace unavailable equipment. These improvisations not only maintained learning continuity but also reflected the teachers' ability to adapt curriculum goals to local conditions. Their actions align with Sheng (2025), who highlighted the importance of reflective and data-based strategies in enhancing learning outcomes despite limited resources. Similarly, Zhao et al. (2025) emphasized that variety in sports programs fosters student fitness and enthusiasm, a principle also seen in the teachers' efforts in Purbalingga. Their willingness to innovate demonstrates that teacher agency is a crucial factor in sustaining physical education. When teachers are

empowered to create solutions, constraints can be transformed into opportunities for meaningful learning.

The correlation between facility adequacy and student participation was evident across the surveyed schools. Institutions with better facilities offered more engaging and diverse physical activities, leading to higher student motivation and involvement. Conversely, schools with poor facilities often relied on repetitive activities that limited student enthusiasm. However, where teachers employed creative modifications, students remained active and interested in lessons. This finding supports Ke et al. (2025), who observed that interventions combining multiple sports skills enhance both physical and cognitive growth. It also resonates with Peng et al. (2025), who linked disparities in participation to unequal access to sports facilities. Together, these studies confirm that improving infrastructure while nurturing teacher creativity can maximize student participation and learning outcomes.

The findings also reaffirm that physical education quality depends on both tangible and intangible resources. Tangible resources refer to infrastructure and equipment, while intangible ones involve teacher competence, innovation, and motivation. Anapalı Şenel et al. (2025) emphasized that predictive models can support educators in optimizing their resources, particularly when conditions are challenging. The teachers in Purbalingga have proven that innovation can emerge from necessity, turning limitations into learning opportunities. Yet, this reliance on individual creativity should not replace institutional responsibility. Adequate facilities remain essential for maintaining safety and instructional standards. When physical and human resources are strengthened together, schools can achieve sustainable improvement in physical education.

Equity in resource distribution remains one of the most pressing issues in Indonesian education. Schools located near urban centers tend to receive better maintenance and funding compared to those in rural areas. This inequality mirrors the findings of Wilén et al. (2025), who reported that socioeconomic disparities directly affect participation in sports activities among children. In Purbalingga, the same pattern is evident, as schools closer to city centers generally have better sports facilities. Unequal access to resources not only limits student learning but also widens the gap in physical health outcomes. Equity in education, therefore, must include both access to quality teaching and to adequate infrastructure. Without such balance, physical education will continue to reproduce disparities rather than bridge them.

Maintenance and management practices were found to be another critical issue affecting facility effectiveness. Some schools allowed equipment to deteriorate due to lack of maintenance plans or limited budgets. This observation echoes Zhao et al. (2025), who emphasized that sustained quality in sports programs depends on consistent management rather than one-time investment. Teachers in Purbalingga often expressed concern about the safety of worn-out equipment, which limited the types of activities they could safely conduct. Schools that scheduled regular maintenance demonstrated better teaching quality and student satisfaction. Proper management thus ensures both longevity and usability of resources. Sustainable planning should therefore be integrated into school management systems as part of long-term educational policy.

The creative adaptations seen among teachers also had a profound impact on students' social and emotional growth. Activities using improvised tools encouraged cooperation, empathy, and teamwork among students. These outcomes align with Shao, Cui, and Bao (2025), who concluded that adaptive sports programs strengthen inclusion and emotional resilience in students. In Purbalingga,

this approach allowed physical education to serve not just as exercise, but also as a medium for character development. Students learned to value effort, collaboration, and resourcefulness, which are equally important outcomes in education. This finding emphasizes that creativity in physical education has both pedagogical and moral dimensions. When students participate in such environments, they develop empathy and appreciation for shared learning experiences.

The integration of innovation and infrastructure reflects the ideas of Li and Zhang (2026) and Sheng (2025), who advocate for a balanced approach combining technological adaptation with human capacity building. In the Purbalingga context, although technological tools are limited, the human element of creativity serves as the main driver of quality. Teachers' initiatives demonstrate that innovation can exist even without digital or high-cost interventions. Nevertheless, institutional support remains crucial to sustain this momentum. Providing training, networking, and recognition for innovative practices would encourage more teachers to adopt creative problem-solving approaches. When innovation is supported structurally, physical education can evolve into a more adaptive and sustainable learning field.

In conclusion, this study supports the arguments of Eşkil and Gökyürek (2025) and Shao, Cui, and Bao (2025) that innovation is a key determinant of successful physical education, particularly in environments with limited facilities. The experience in Purbalingga shows that teachers' creativity and resilience can uphold learning quality despite material constraints. However, to achieve long-term improvement, this individual effort must be complemented by structural and policy-level support. A combination of facility enhancement, professional development, and equitable management is required to ensure that all students can enjoy quality physical education. When both infrastructure and human creativity are developed together, physical education can truly serve its purpose of nurturing healthy, capable, and socially responsible individuals. This balanced vision is essential for the advancement of education in Indonesia and beyond.

Implications

The outcomes of this study offer meaningful implications for schools, teachers, and policymakers concerned with the advancement of physical education. The results show that the adequacy of sports facilities has a direct influence on how effectively teachers can implement the curriculum. This highlights the importance of viewing physical education facilities as essential educational infrastructure, not as optional support. Schools that lack sufficient resources struggle to deliver varied and engaging lessons, which may reduce students' motivation and participation. Improving the physical environment of learning, therefore, becomes a form of investment in student well-being and holistic development. Equally important is the role of teachers, whose creativity proved to be a decisive factor in sustaining learning quality despite limited resources. Training programs that encourage innovative teaching and adaptive resource use should be prioritized by educational authorities. At the policy level, equitable allocation of funds is essential to minimize disparities among schools in different locations. Collaboration among local governments, schools, and community stakeholders can help build collective responsibility for maintaining facilities. Through coordinated planning and ongoing support, physical education can evolve into a more inclusive, engaging, and sustainable component of national education.

Limitations

Although this research provides valuable insights into the reality of sports facilities in Purbalingga's junior high schools, several limitations must be acknowledged. The study covered only

a limited number of schools, which means that the findings cannot fully represent conditions across all regions in Indonesia. A wider survey including urban and rural schools would produce more comprehensive and comparative results. The data collected were largely based on teacher responses and direct observations, which may introduce subjective interpretation or bias. Future research could integrate student voices or third-party assessments to achieve more objective evaluations. Another limitation relates to the study's scope. The focus was primarily on the adequacy of facilities and teacher innovation, without directly measuring their effect on student performance or fitness levels. As a result, the link between infrastructure and learning outcomes remains indirect. Subsequent studies should consider combining descriptive analysis with performance indicators to provide a clearer understanding of how physical environments contribute to educational quality. Despite these constraints, this research still offers a valuable foundation for understanding the interplay between infrastructure, teaching practice, and educational equity in Indonesian schools.

Suggestions

Based on the findings and limitations of this study, several suggestions can be made for future improvement. Researchers are encouraged to expand their studies to include a broader range of schools, comparing facility conditions, teaching strategies, and student outcomes across different regions. Longitudinal approaches could also be employed to observe how consistent investment in facilities affects learning quality and student engagement over time. Including quantitative measures of student fitness or participation would help establish a stronger empirical link between facilities and outcomes.For practitioners and policymakers, sustained attention to both infrastructure and teacher empowerment is essential. Schools should develop structured maintenance programs and transparent budgeting systems to ensure that existing facilities remain functional and safe. Local governments and educational agencies could promote collaboration between schools and communities to share resources and best practices. Teacher development initiatives should also emphasize creative problem-solving and context-based innovation. By integrating facility improvement with human resource development, schools can ensure that physical education not only promotes fitness but also cultivates creativity, teamwork, and resilience among students.

CONCLUSIONS

The results of this research show that the availability and quality of sports facilities in public junior high schools in Purbalingga are generally moderate, meaning that while some schools have adequate spaces and equipment, many still operate with limited resources. These differences reflect the unequal attention and funding allocated to physical education when compared with academic subjects. Even so, teachers have shown remarkable creativity and resilience by making their own equipment from local materials to ensure that learning continues effectively. Their dedication proves that meaningful teaching can still occur, even when facilities are far from ideal. However, this creativity should not be seen as a substitute for the proper infrastructure that schools deserve. Lasting improvement in physical education requires both sufficient facilities and ongoing teacher development so that innovation can grow alongside structural support. When schools, teachers, and policymakers work together, physical education can move beyond simple physical training—it can become a space where students learn cooperation, discipline, and respect, shaping a generation that values health and lifelong activity.

AUTHOR'S CONTRIBUTION

Andri Tri Pratomo was the sole author and main researcher responsible for the conception and design of the study, data collection, analysis, and manuscript preparation.
Endang Sri Hanani provided academic guidance, critical feedback, and methodological direction during the research process and manuscript development.
Heny Setyawati, contributed to the refinement of the research framework, validation of data interpretation, and the final review of the manuscript.
All contributors approved the final version of the manuscript and agreed to be accountable for all aspects of the work.

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