



Curriculum Navigation and Local Sport Wisdom in Shaping Meaningful Physical Education in Rural Primary Schools

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ABSTRACT

This study explores how Curriculum Navigation and local sport wisdom contribute to creating meaningful Physical Education (PE) in rural elementary schools. Using a mixed-methods approach involving literature review, field observations, and interviews with teachers, stakeholders, and practitioners, the research focuses on curriculum design that integrates local context and traditional sports. The findings show that incorporating local sport wisdom enhances student motivation, participation, motor skills, cultural identity, and social relationships. Moreover, place-based and culturally relevant pedagogy strengthens students' sense of ownership and enriches the learning experience. The study concludes that the synergy between curriculum design and local sport traditions fosters more meaningful PE and recommends curriculum adaptation and teacher training that are responsive to local culture to improve learning effectiveness and sustain cultural values.

INTRODUCTION

Physical education is an essential component in the development of motor skills, physical health, and character formation of students around the world (Suryadi Damanik et al., 2025). In many countries, physical education plays an important role not only in fostering physical fitness, but also in instilling the values of cooperation, sportsmanship, and respect for sports culture. The latest approach in education emphasizes the importance of learning that is relevant to students' lives, so that teachers are expected to be able to connect the material with the socio-cultural context of students. One of the widely recognized strategies is Culturally Relevant Pedagogy (CRP) and place-based education, which seeks to utilize local wisdom and the surrounding environment as a learning resource (Wang et al., 2025).

In Indonesia, especially in rural elementary schools, the implementation of PJOK often faces challenges in the form of limited facilities, access to teacher training, and learning materials that are less relevant to students' lives. This condition causes the physical education curriculum used to tend to be generic and less accommodating to the rich local culture. In fact, many rural areas have unique traditional sports heritage, such as gobak sodor, engklek, and hadang, which can be a source of meaningful learning for students. Studies (Setiawan et al., 2024) confirm that the revitalization of traditional sports in physical education can strengthen cultural identity and significantly increase student engagement.

The phenomenon of integrating traditional sports in physical education is getting more and more attention, along with increasing awareness of the importance of cultural preservation through education. In various regions, traditional games not only serve as a means of entertainment, but also contain social values such as cooperation, leadership, and respect for the rules. The findings (Fauzi et al., 2024) show that the use of traditional games in physical education significantly increases student participation ($p < 0.05$). This proves the great potential to incorporate local sport wisdom into learning to be more contextual, relevant, and meaningful for rural students.

Although previous studies have proven the effectiveness of traditional games in improving motivation and motor skills (Hilmy Aliriad et al., 2024), most of those studies have focused only on the influence of physical activity without exploring how teachers navigate the curriculum to systematically integrate local values. Research that discusses in depth the mechanism of curriculum navigation, namely the process of teachers designing, adjusting, and reflecting learning materials in the context of integrating local sport wisdom in rural elementary schools, is still limited.

This research focuses on two main aspects, namely first, analyzing teachers' strategies in managing and navigating the physical education curriculum to include elements of traditional sports and games; Second, identify the impact of such integration on students' learning motivation, motor skills, cultural identity, and social interaction. Explicitly, the purpose of the research is to provide a comprehensive understanding of the synergy between curriculum navigation and local sport wisdom in forming meaningful PJOK in rural elementary schools.

From the theoretical side, this research contributes to the development of the concept of physical education based on local culture, enriching the literature on culturally relevant pedagogy and place-based education in the context of physical education. The study also proposes a conceptual model that describes the relationship between curriculum navigation strategies, the integration of local wisdom, and the achievement of physical education learning objectives. These findings are expected to broaden academic understanding of how teachers can play the role of adaptive and culturally sensitive curriculum managers.

Practically, the results of this study provide policy recommendations and teacher training strategies to implement physical education curricula that are relevant to students' local lives and cultures. These findings are expected to assist policymakers, curriculum developers, and education practitioners in designing learning materials that not only improve the quality of physical education, but also preserve regional cultural values. Thus, physical education in rural elementary schools can be an effective, meaningful, and sustainable learning medium for the younger generation.

LITERATURE REVIEW

Integration of Traditional Sports in Physical Education

The integration of traditional sports in physical education has proven to be an effective approach to improving students' participation, motivation, as well as motor skills. (Setiawan et al., 2024) emphasized that the revitalization of traditional sports, such as gobak sodor, engklek, and hadang, not only plays a role in cultural preservation, but also strengthens social cohesion and a sense of collective identity among elementary school students. (Santoso et al., 2024) found that the structured use of traditional games was able to significantly improve manipulative skills such as throwing, catching, and kicking in both male and female students. In addition, research (Yoda et al., 2024) that developed traditional game-based learning models shows that this method is not only culturally relevant, but also effective in improving the basic motor skills of students with high levels of active participation. These findings confirm that local sport wisdom can be a strategic pedagogical instrument in physical learning in rural areas.

Adaptive and Holistic Curriculum

The development of an adaptive and holistic physical education curriculum is an urgent need to deliver learning that is relevant to the local context. (Mustafa et al., 2024) highlight that effective curriculum design must include the development of students' physical, cognitive, social, and emotional aspects in a balanced manner, as well as having the flexibility to integrate local cultural values and practices. (Aliriad et al., 2024) also emphasized that although physical education learning in Indonesia has accommodated various models, play-based approaches that are relevant to local culture are still underappreciated. This shortcoming indicates that the curriculum navigation process requires an active role of teachers in designing learning that not only

meets national standards, but also brings local potential to life as a learning resource.

Implementation Challenges and Local Learning Models

Although the potential for the integration of traditional sports in physical education is enormous, the challenges of its implementation are still significant. (Pomatahu et al., 2023) through bibliometric analysis shows that the development of traditional game-based learning models in Indonesia has received considerable academic attention, but obstacles such as limited teaching facilities and materials are still the main obstacles. (Nurhikmah et al., 2022) emphasized that the low application of traditional games in physical education in schools is due to the absence of structured guidance, making it difficult for teachers to integrate local wisdom systematically. This underscores the need for the development of learning tools that are practical and can be implemented in various rural school contexts.

Culturally Relevant Pedagogy and Local Context-Based Education

The culturally relevant pedagogy (CRP) and place-based education approaches provide a strong conceptual framework to relate learning to the lives and cultures of students. (Wibowo et al., 2024) emphasized that physical education designed by considering students' cultural backgrounds can strengthen their sense of belonging to the learning process while maintaining cultural identity. In the context of rural schools, CRP enables teachers to become adaptive learning facilitators, linking local cultural values with the physical skills being taught. This approach aligns with the goal of physical education that not only develops physical fitness, but also fosters students' cultural awareness and social skills.

METHODOLOGY

Types and Approaches to Research

This study uses a mixed-method approach that combines quantitative and qualitative methods to obtain a comprehensive understanding of the synergy of curriculum navigation and local sport wisdom in Physical Education learning in rural elementary schools. A quantitative approach is used to measure the impact of traditional sport integration on student motivation, motor skills, and participation, while a qualitative approach is used to explore teachers' strategies in navigating the curriculum and integrating local cultural values (Creswell & Plano Clark, 2022). The research design used is a sequential explanatory design, where the collection and analysis of quantitative data is carried out first, followed by the collection and analysis of qualitative data to deepen the findings.

Population and Sampling Techniques

The research population included all physical education teachers, elementary school students in grades IV–VI, and local stakeholders in three rural areas that have typical sports traditions in West Java Province that have typical sports traditions, namely Bandung Regency, Garut Regency, and Ciamis Regency. The sampling technique for quantitative data uses probability sampling

using the stratified random sampling method, so that each school has the same opportunity to be selected according to the regional strata (Etikan & Bala, 2023). The number of quantitative respondents of 120 students was selected based on the calculation of sample size using the Slovin formula with an error rate of 5%. Meanwhile, for qualitative data, non-probability sampling was used with the purposive sampling method on 15 participants consisting of 6 PJOK teachers, 3 school principals, and 6 community leaders who had in-depth knowledge of local traditional sports. This selection is based on consideration of the relevance and depth of information that can be provided.

Data Collection Techniques and Instruments

Data collection was carried out through a combination of questionnaires, in-depth interviews, participatory observations, and documentation studies. The questionnaire instrument was prepared based on an adaptation of the Physical Education Motivation Scale (Vallerand et al., 2021) which has been modified according to the local context. In-depth interviews use semi-structured interview guidelines that are prepared based on the framework of culturally relevant pedagogy and place-based education. Observations were made during the PJOK learning process to record interaction patterns, the use of learning media, and student involvement in traditional games. The validity of the questionnaire content was tested through expert judgment assessment by three experts in physical education and local culture, while reliability was tested using Cronbach's Alpha with a value of ≥ 0.7 as the acceptance limit (Taber, 2021).

Research Procedure

The research stage starts from the literature study and preparation of relevant instruments, followed by instrument trials in small groups. Quantitative data collection was carried out first through the distribution of questionnaires to students, followed by initial analysis to identify significant variables. Furthermore, qualitative data was collected through interviews and observations to deepen the interpretation of quantitative results. All processes are carried out with due regard to research ethics, including providing information to participants, informed consent, data confidentiality guarantees, and participants' right to resign at any time (American Educational Research Association, 2022).

Data Analysis Techniques

Quantitative data were analyzed using descriptive and inferential statistics. The paired t-test and ANOVA test were used to measure differences in student motivation, motor skills, and participation before and after traditional sports integration. The analysis was conducted using IBM SPSS Statistics software version 27. Qualitative data were analyzed by thematic analysis following steps (Braun & Clarke, 2021), including transcription, coding, theme grouping, and interpretation of meaning. This process is supported by NVivo 14 software to make it easier to organize data and identify thematic patterns.

RESEARCH RESULTS

The Impact of Local Sport Wisdom Integration on Motivation, Participation, and Motor Skills

Based on quantitative data analysis of 120 students in grades IV–VI in three rural areas, the application of traditional games into Physical Education, Sports, and Health (PJOK) learning showed a significant increase in all measured indicators. These findings include aspects of learning motivation, active participation, and basic motor skills, each of which is described as follows.

Learning Motivation

The results of the paired t-test showed that the average student learning motivation score increased from 3.45 before the intervention to 4.12 after the intervention, on a Likert scale of 1–5, with a statistically significant difference ($p < 0.05$). This increase in motivation can be seen from the higher enthusiasm of students when participating in learning, both in the form of physical and mental readiness.

One of the key factors driving this increase is the cultural relevance of the games used. Traditional games such as gobak sodor, engklek, and hadang have been known and played by students in their home or community environment, thus creating a sense of familiarity and comfort. This sense of emotional connectedness makes students more open and eager to engage in learning activities.

In addition, the competitive yet social nature of the game encourages the emergence of an intrinsic drive to excel and actively participate. Many students who were previously passive became more confident due to the physical and social challenges in traditional games according to their abilities and experiences. This indicates that the contextualization of material has an important role in driving learning motivation, especially in rural elementary schools.

Active Participation

The level of active participation of students in PJOK learning increased significantly, from 65% before the implementation of local sport wisdom to 88% after the implementation, or an increase of 23%. This increase is not only measured by the number of students attending, but also by the intensity of their involvement during the learning process.

The results of field observations noted that students were more often directly involved in activities, both as main players and in team support roles. Social interaction between students is also more positive, with better support, motivation, and team coordination. Teachers reported that students were less likely to abandon activities or quit in the middle of a game, which was previously common with conventional learning methods.

One of the causes of increased participation is the matching of the difficulty level of the game with the physical abilities and skills of the students. Traditional games tend to have simple rules but are still challenging, so they can be followed by all students, including those who previously tended to be less active in PJOK lessons. Another impact observed was the emergence of a sense

of collective responsibility within the group, which encouraged all team members to play an active role for the success of the game.

Basic Motor Skills

Analysis using the ANOVA test showed a significant improvement in students' basic motor skills, with an average increase of 18.3% ($F = 6.87$; $p < 0.01$). These upgrades include locomotor skills such as running and jumping, as well as manipulative skills such as throwing, catching, and kicking.

This increase is closely related to the nature of traditional games that combine a variety of physical movements in a single set of activities. For example, the game of gobak sodor trains speed, agility, and coordination of movements, while the engklek trains balance, leg strength, and concentration focus. Barrier games encourage the development of movement strategies while improving the ability to react quickly to changes in the situation on the field.

Teachers report that the development of these motor skills occurs naturally because students engage in activities that demand thorough and repetitive use of the body. This is in contrast to conventional physical exercises that are often done separately and less contextually. The integration of traditional games provides a varied and fun motor stimulus, thus accelerating the improvement of students' physical abilities.

Table 1. Comparison of Indicators Before and After Local Sport Wisdom Integration

Indicator	Before Integration	After Integration	Increase (%)	Signification Statistics
Learning Motivation (Scale 1-5)	3,45	4,12	+19,4	$p < 0,05$ (paired <i>t</i> -test)
Student Active Participation (%)	65	88	+23,0	-
Basic Motor Skills (%)	71	84	+18,3	$p < 0,01$ (ANOVA)

Curriculum Navigation Strategy by Teachers

The results of qualitative analysis from in-depth interviews with 6 PJOK teachers, 3 principals, and 6 community leaders showed that teachers in rural elementary schools applied an adaptive approach in navigating the PJOK curriculum to be in harmony with the local cultural context. This strategy runs in three main patterns, namely adaptation of learning planning, collaboration with local communities, and continuous evaluation and adjustment.

Adaptation of Learning Planning

In the adaptation stage of learning planning, teachers modify the Learning Implementation Plan (RPP) by including traditional games as core materials, adjusting learning objectives, and relating relevant local cultural values. A teacher revealed, "*I added the game of gobak sodor in the lesson plan on the theme of locomotor skills, because this is close to the lives of students and can train their agility*"

(G1, Interview, June 5, 2025). This statement was corroborated by another teacher who emphasized that this adjustment does not only focus on the technical aspect, but also the grades, *"In my lesson plan, the learning goal is not only to master techniques, but also to understand the value of cooperation in the game of hadang"* (G3, interview, June 6, 2025). The principal even assessed that this approach made it easier for students to understand, *"Children understand learning faster when the material is taken from a game they have known since childhood"* (KS2, Interview, June 7, 2025), while community leaders emphasized the importance of teacher flexibility, *"Adjusting the lesson plan makes learning more flexible, I can connect local wisdom with the core competencies required by the curriculum"* (TM1, interview, June 8, 2025).

Collaboration with Local Communities

The next stage is collaboration with local communities, where teachers actively engage community leaders and traditional sports coaches to introduce the history, rules, and philosophy of the game. One of the teachers said, *"We invite experts in traditional games in the village to teach the techniques and history of the engklek game firsthand"* (G5, interview, June 6, 2025). Another teacher added that this collaboration adds value, *"Traditional leaders tell that the game of hurdles used to be used to train strategies and cooperation in the community"* (G2, interview, June 7, 2025). The principal sees the involvement of local figures as having an impact on students' attitudes, *"Involving community leaders makes children appreciate play more and see it as part of their identity"* (KS1, Interview, June 5, 2025). This is in line with the experience of the community leaders involved, *"I was asked by the teacher to explain the cultural meaning of gobak sodor, so that the children know that this is not just a game"* (TM4, Interview, June 8, 2025).

Continuous Evaluation and Adjustment

The last strategy is continuous evaluation and adjustment, which the teacher performs after each learning session. This evaluation includes the level of student involvement, competency achievement, and the effectiveness of learning methods. Teachers often ask for direct input from students, as expressed by one of the teachers, *"After the game is over, I discuss with the students which parts they like the most and which ones need to be improved"* (G4, interview, June 6, 2025). Other teachers adjust the game format to increase participation, *"If I see that students are less active, I change the game format to be more challenging so that everyone is involved"* (G6, interview, June 7, 2025). The principal appreciated this evaluation because it strengthened the relevance of learning, *"Regular evaluations allow me to find new ways to associate cultural values with physical skills material"* (KS3, interview, June 8, 2025). Community leaders also consider this flexibility as the key to success, *"Sometimes I adjust the rules of the game to the conditions of the field and the number of students to be more effective"* (TM5, interview, June 5, 2025).

Overall, the curriculum navigation strategy implemented by teachers shows an awareness of the importance of harmony between the formal curriculum and the richness of local culture. This approach not only enhances the effectiveness of PJOK learning, but also strengthens students' bonds with cultural values inherited in their communities.

Implementation of Local Sport Wisdom in PJOK Activities

The results of participatory observations conducted in three rural areas show that the implementation of local sport wisdom in Physical Education, Sports, and Health (PJOK) learning is not only focused on improving students' physical skills, but also directed at instilling social and cultural values. Traditional games such as gobak sodor, engklek, and hadang are at the core of the learning process, where each game is strategically selected to achieve the targeted competencies while strengthening students' ties to their cultural heritage.

In application in the field, teachers integrate this game with an active and collaborative learning model. For example, gobak sodor is used to train agility, reaction speed, and group strategy skills, while fostering a spirit of togetherness and sportsmanship. Engklek helps students develop balance, coordination, and concentration, as well as teaches the importance of perseverance in achieving goals. Meanwhile, the barrier trains running skills, organizes tactics, and builds a sense of collective responsibility within the team.

In addition to the physical aspect, teachers consciously take advantage of the moment of play to insert social values. Before the game starts, teachers often hold a brief briefing to explain the rules of the game and emphasize the importance of playing honestly, respecting your opponent, and working together to achieve victory. After the game is over, a reflection session is used to discuss the students' experiences, such as how they solve problems in teams, resolve minor conflicts, or support each other when a member is struggling.

The limited formal sports facilities in rural schools are not a significant barrier. Teachers make use of simple local resources, such as rope to mark the boundaries of the field, stones or wood as markers for the game path, as well as a manually created field line using chalk or sand. This utilization not only reduces costs, but also teaches students creativity in harnessing the potential of the surrounding environment – a core principle of place-based education. Thus, students learn that simple means do not reduce the quality of learning, they can even increase engagement because they feel familiar with the medium used.

Observations also show that when traditional games are applied consistently, social interaction among students becomes closer. They tend to support each other during games, share strategies, and show pride when they successfully play games that have historical value in their community. This strengthens the sense of belonging to the school and community, while encouraging intrinsic motivation to continue to be involved in PJOK activities.

Overall, the implementation of local sport wisdom in PJOK activities in rural elementary schools proves that physical learning can not only be a means of improving physical fitness, but also a vehicle to foster social skills, cultural awareness, and creativity in utilizing environmental resources. This approach is relevant and effective because it combines physical competencies with local values, thus creating meaningful, contextual, and sustainable learning for students.

Strengthening Cultural Identity and Social Relations

The results of a quantitative survey given to 120 students showed that 87% of students stated that they felt more familiar and proud of their local culture after participating in PJOK learning based on local sport wisdom. This data was obtained through a post-intervention questionnaire that contained statements about students' perceptions of their knowledge, pride, and involvement in preserving traditional games. Students' answers were analyzed using a Likert scale of 1–5, where most respondents chose the categories of "agree" to "strongly agree" on statement items such as *"I feel like this traditional game is part of my identity"* and *"I want to introduce this game to my friends or family"*.

Qualitative data analysis from interviews and observations also corroborated these findings. Students not only show pride verbally, but also express it in real behavior on the field. For example, some students are seen teaching the rules of the game to unfamiliar friends, while others bring the game to their home environment to play with their families. Teachers noted that students are increasingly actively using local terms from traditional games when discussing, which reflects their emotional connection to the local culture.

The strengthening of cultural identity goes hand in hand with improving the quality of social relations between students. Observations during PJOK activities recorded more intense positive interactions, such as strategic coordination in the team, moral support to colleagues who were struggling, and sportsmanship when accepting defeat. This interaction fosters mutual respect and strengthens teamwork. For example, in a game of hedgehog, a more skilled student helps train their friend to run and dodge quickly, while in gobak sodor, they discuss to determine the most effective guard strategy.

This phenomenon is also in line with the principle of culturally relevant pedagogy, where culturally relevant learning can create a sense of ownership of the learning process. Students feel that this learning is not just a physical activity, but also an experience that connects them to the history, traditions, and values inherited by their community. Observational data showed that students who were previously passive tended to become more confident when playing games that are familiar to them. This confidence influences social dynamics in the classroom, making them more actively interacting and taking a role in group work.

DISCUSSION

The findings of this study show that the integration of local sport wisdom in Physical Education, Sports, and Health (PJOK) learning in rural elementary schools has a significant impact on increasing students' learning motivation, active participation, and motor skills. The increase in motivation score from 3.45 to 4.12 and the increase in active participation from 65% to 88% show that the connection of learning materials with the cultural context of students plays a strong intrinsic driver. This is in line with the principles of Culturally Relevant Pedagogy (Ladson-Billings, 2021) which emphasizes that culturally relevant learning increases student engagement and facilitates deeper understanding. Similar findings were also reported by (Santoso et al., 2024), who found that

traditional games can arouse motivation to learn through a sense of familiarity and emotional closeness to the activities performed.

An 18.3% increase in basic motor skills indicates that the game Traditional Capable of providing comprehensive physical stimulus. Gobak sodor, engklek, and hamang demand a combination of locomotor, manipulative, and balance skills that are in accordance with the fundamental theory of motor skills development (Barnett et al., 2022). The advantage of traditional games over conventional exercises lies in their contextual and fun nature, so physical exercise occurs naturally without coercion. (Yoda et al., 2024) corroborate that traditional game-based learning models result in higher levels of active participation than monotonous structured training methods.

From the perspective of curriculum navigation, teachers play the role of adaptive learning designers who integrate local cultural values into national curriculum objectives. The adaptation strategies of the Learning Implementation Plan (RPP), collaboration with community leaders, and continuous evaluation found in this study reflect a responsive teaching approach that focuses on the suitability of the material to the context of students (Gay, 2022). This approach is effective not only in improving physical skills, but also in fostering awareness and pride in cultural identity (Wibowo et al., 2024).

The strengthening of cultural identity, which is reflected in 87% of students feeling proud of their local heritage, confirms the role of PJOK as a vehicle for cultural preservation. These results are in line with (Setiawan et al., 2024) which emphasizes that traditional games can strengthen a sense of belonging to the community. Positive social relationships formed during the learning process also support Vygotsky's theory of social constructivism, where social interaction is an important medium in the formation of knowledge and skills (Chaiklin, 2022).

Nevertheless, this research cannot be separated from its limitations. First, the coverage of the area is limited to three districts in West Java, so the generalization of findings to the context of other regions with different cultural backgrounds needs to be done carefully. Second, motor skills measurements were carried out in a relatively short span of time, so it could not yet describe the long-term impact. Third, the availability of facilities and local policy support has the potential to affect the results of implementation. Therefore, advanced research can expand the study area, extend the observation period, and integrate regional education policy analysis as important variables.

Conceptually, this research contributes to the enrichment of the literature on the integration of local sport wisdom and curriculum navigation in physical education based on local contexts. Practically, the results of this study confirm the need for teacher training that is oriented towards the utilization of local cultural potential and the development of adaptive learning tools. This approach is not only relevant to the rural context in Indonesia, but also has global implications, especially in regions that seek to preserve cultural heritage through formal education.

CONCLUSION AND RECOMMENDATION

The results of this study show that the synergy between curriculum navigation and local sport wisdom results in more meaningful, contextual, and sustainable PJOK learning in rural elementary schools. The integration of traditional games has been shown to significantly improve students' learning motivation, active participation, and motor skills. In addition, this learning strengthens students' cultural identity, builds a sense of pride in local heritage, and encourages positive social interaction between them. The strategies used by teachers ranging from adaptation of learning planning, collaboration with community leaders, to continuous evaluation and adjustment ensure integration between national curriculum goals and local cultural richness. Thus, this approach is not only beneficial for the achievement of physical competence, but also plays a role in the preservation of cultural values and the strengthening of social cohesion in the school community. The practical implication of these findings is the need for policy support and teacher training programs that accommodate the systematic integration of local wisdom in the PJOK curriculum, so that physical education in rural areas can be an effective, relevant, and character-building learning vehicle for students.

ADVANCED RESEARCH

Future research could further explore how the integration of local sports wisdom and curriculum design influences broader educational outcomes, such as character development, social cohesion, and cultural sustainability. Comparative studies across different rural regions and cultural contexts would provide deeper insights into the adaptability and scalability of this approach. Additionally, longitudinal research could examine the long-term impact of traditional game-based learning on students' physical, social, and cultural competencies. Investigating the role of teacher training, community involvement, and policy support in sustaining this integration would also contribute to more effective and context-sensitive physical education practices.

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