



# Traditional games as warm-up activities in elementary physical education: A qualitative study of teachers' perspectives

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## Abstract

Warm-up activities in elementary physical education are often treated as routine preliminaries, even though they can shape students' readiness, engagement, and early learning experience. Traditional games may offer a more enjoyable and culturally responsive alternative to conventional warm-up routines. This study explored elementary physical education teachers' perspectives on the use of traditional games as warm-up activities. The study employed a qualitative descriptive design involving six elementary physical education teachers from public and private schools in Cimahi City, West Java, Indonesia. Data were collected from 26 to 30 April 2025 through non-participant lesson observations, semi-structured interviews, and document analysis. The data were analyzed thematically. Four interrelated themes were identified. First, teachers positioned traditional games as a structured part of the opening phase of the lesson rather than as incidental play. Second, teachers perceived traditional games as beneficial for both physical readiness and affective engagement because students appeared more enthusiastic, active, and willing to participate. Third, teachers attached pedagogical, social, and cultural value to traditional games because they were seen as supporting cooperation, discipline, sportsmanship, and cultural appreciation. Fourth, implementation was shaped by contextual constraints, including limited facilities, restricted lesson time, shared activity spaces, and students' declining familiarity with traditional play. Across themes, teacher adaptability emerged as central to the successful use of game-based warm-ups. The findings suggest that traditional games can function as low-cost, culturally responsive, and educationally meaningful warm-up resources in elementary physical education.

## Introduction

Physical education in elementary school is expected to do more than improve fitness or teach movement techniques. It is also a pedagogical space in which children develop motor competence, confidence, cooperation, self-regulation, and positive attitudes toward active living. Within this learning process, warm-up activities occupy a strategic position because they prepare students physiologically and psychologically for subsequent movement demands (Afonso et al., 2024). Evidence from a systematic review and school-based studies indicates that appropriately designed warm-up activities can improve readiness for performance, influence physiological responses to subsequent exercise, and, in some contexts, reduce sports-related injuries among school-aged students (Emery et al., 2020; Faigenbaum et al., 2022; Fradkin et al., 2010).

Although warm-up is widely recognized as essential, it is often treated in school practice as a routine preliminary activity rather than an educational opportunity. In many physical education settings, students

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are still asked to jog or perform repetitive stretching with limited variation, which may satisfy minimal preparation goals but does not necessarily maximize enjoyment or meaningful participation. This issue is particularly important in elementary school, where enjoyment, engagement, and active involvement strongly influence children's willingness to move. Recent evidence shows that game-based physical education interventions can significantly enhance enjoyment among children and adolescents, while game-based PE programs in elementary school can also support physical fitness and mental health outcomes (Mo et al., 2024; Cocca et al., 2020).

One promising strategy for redesigning warm-up in elementary physical education is the use of traditional games. Traditional games are culturally rooted forms of movement that are generally low-cost, social, adaptable, and familiar to children's everyday contexts (Febrianti et al., 2026). Because they combine movement, interaction, rules, and local meaning, traditional games can transform warm-up from a merely mechanical routine into a more engaging and educationally rich activity. International studies suggest that traditional games can foster motivation and positive learning experiences in elementary settings, generate moderate-to-vigorous levels of physical activity among primary school children, and serve as valuable resources for culturally contextualized education (Adnan et al., 2020; Luchoro-Parrilla et al., 2024; Trajkovik et al., 2018).

In Indonesia, the educational relevance of traditional games has also been increasingly documented. Riadi & Lestari (2021) reported that traditional games can support the social development of elementary school students in the digital era. Asrial et al. (2021) showed that integrating hide-and-seek into learning contributed positively to students' responses and character-related outcomes. In the physical education context, Nawawi et al. (2023) found that the traditional game *Galah Asin (Gobak Sodor)* attracted student interest when used in warm-up activities, while Astiati et al. (2021) reported that modified traditional-game warm-ups were perceived as more enjoyable than jogging and were able to raise students' pulse into the training zone. Taken together, these studies indicate that traditional games have potential not only as movement tasks, but also as media for social interaction, character development, and culturally meaningful participation in physical education.

The present study is also informed by Meaningful Physical Education (Meaningful PE), a pedagogical perspective that emphasizes learning experiences characterized by social interaction, fun, challenge, motor competence, and personal relevance (Beni et al., 2017). Previous implementation research further shows that teachers are more likely to adopt Meaningful PE when they can connect it to beneficial student outcomes and to their own pedagogical values (Beni et al., 2021). Traditional games are relevant to this perspective because they offer movement experiences that are social, enjoyable, culturally grounded, and adaptable to the realities of elementary school practice. However, the literature still shows an important limitation. Most existing studies have been oriented toward outcomes such as social development, motor ability, motivation, participation, or student responses to traditional games (Gadais et al., 2020). Even in warm-up settings, the available studies tend to emphasize a specific game or short-term student responses rather than the broader pedagogical reasoning behind teachers' choices (Astiati et al., 2021; Nawawi et al., 2023). This gap matters because teachers are decisive actors in the implementation of school-based physical activity programs and in the translation of pedagogical ideas into classroom practice (Latif et al., 2023).

In addition, school context may shape the feasibility of using traditional games. Differences in facilities, space, class organization, and institutional routines can influence how teachers adapt activities in everyday practice. A recent study likewise shows that elementary teachers' perceptions and practices need to be interpreted contextually rather than assumed to be uniform across school settings (Nabillah et al., 2025). If teachers' perspectives on traditional game-based warm-ups are understood more clearly, the findings may inform low-cost lesson design, culturally responsive instruction, and more focused professional development for elementary physical education teachers.

Based on this background, the present study aims to explore Indonesian elementary physical education teachers' perspectives on the use of traditional games as warm-up activities. Specifically, this study examines (1) How do teachers perceive the physical, affective, pedagogical, social, and cultural value of traditional games as warm-up activities? (2) How do teachers implement and adapt traditional games during warm-up sessions? and (3) What contextual challenges shape their implementation in everyday school practice? The novelty of this study lies in shifting the analytical focus from student outcomes and isolated game effects to teacher's lived pedagogical perspectives on traditional games as a structured warm-up strategy in elementary PE. By doing so, this study is expected to contribute context-sensitive evidence

for the development of more engaging, culturally responsive, and educationally meaningful warm-up practices in primary school physical education

## Methods

### Research Design

This study employed a qualitative descriptive design to explore elementary physical education teachers' perspectives on the use of traditional games as warm-up activities. A qualitative descriptive approach was considered appropriate because the study aimed to provide a clear, practice-oriented, and data-near account of teachers' perceptions, experiences, and instructional strategies in everyday school settings, rather than to generate formal theory. In qualitative description, researchers seek a comprehensive summary of events in the everyday terms of those events, while remaining close to participants' accounts and practical contexts (Sandelowski, 2010).

The study was also designed as a bounded qualitative inquiry, focusing on a specific educational issue within a clearly defined context, namely the use of traditional games in warm-up activities in elementary physical education in Cimahi City, West Java, Indonesia. This narrow study aim supported the use of a relatively small, information-rich sample. In qualitative interview studies, sample adequacy is determined less by statistical representativeness than by the relevance and richness of the data. The concept of information power suggests that fewer participants may be sufficient when the study aim is focused, the sample is specific, and the data generated are highly relevant to the phenomenon under investigation (Malterud et al., 2016). The reporting of this study was guided by the Standards for Reporting Qualitative Research (SRQR), while interview-related procedures were informed by the Consolidated Criteria for Reporting Qualitative Research (COREQ). These frameworks were used to strengthen transparency in the description of the research setting, participant selection, data collection procedures, analysis, and trustworthiness (O'Brien et al., 2014; Tong et al., 2007).

### Research Setting and Participants

The study was conducted in Cimahi City, West Java, Indonesia, from 26 to 30 April 2025. The research setting involved public and private elementary schools in which the participating teachers were teaching physical education during the period of data collection. This study focused on teachers who were directly involved in planning and implementing warm-up activities in elementary physical education classes.

A purposive criterion sampling strategy was employed to recruit information-rich participants who met the following criteria: (1) they were teaching physical education at the elementary-school level, (2) they were actively responsible for organizing warm-up activities during lessons, and (3) they had experience using, adapting, or considering traditional games in their teaching practice. Based on these criteria, a total of six participants were recruited. All participants were elementary school physical education teachers drawn from public and private schools in Cimahi City, West Java, Indonesia. To ensure confidentiality, each participant was assigned a code (e.g., T1–T6) in the interview transcripts and reporting of findings.

The inclusion of six participants was considered appropriate for this qualitative descriptive study because the study had a narrow research focus, the participant group was highly specific, and the selected teachers were expected to provide information-rich accounts relevant to the research questions. In qualitative interview studies, sample adequacy is not determined by statistical representativeness, but by the depth, relevance, and explanatory value of the data. The concept of information power suggests that a smaller sample may be sufficient when the study aim is focused and the participants are highly relevant to the phenomenon under investigation (Malterud et al., 2016). In addition, methodological studies on qualitative interviewing have shown that core thematic patterns may begin to emerge within a relatively small number of interviews in homogeneous samples, although deeper interpretive meaning may require a larger sample depending on the analytic purpose (Guest et al., 2016; Hennink et al., 2017).

The data collection period of five days was considered acceptable because the study was focused on a clearly bounded topic and used multiple sources of evidence, including interviews, observations, and document analysis. In qualitative descriptive research, the adequacy of the fieldwork period is judged less

by duration alone than by the suitability of the design, the richness of the data collected, and the alignment between the research aim and the data collection strategy. This approach is also consistent with qualitative reporting guidance, which emphasizes transparency in describing setting, sampling, and data collection procedures rather than prescribing a fixed minimum duration for fieldwork (O'Brien et al., 2014; Tong et al., 2007).

## Data Collection

Data were collected from 26 to 30 April 2025 in Cimahi City, West Java, Indonesia, through three complementary techniques: non-participant observation, semi-structured interviews, and document analysis. The use of multiple data sources was intended to provide a richer understanding of the phenomenon and to support triangulation across participants' reported perspectives, observed classroom practices, and contextual school documents. This multi-source strategy is consistent with qualitative descriptive inquiry, which typically draws on a flexible but coherent combination of data collection techniques suited to the practical aims of the study (Sandelowski, 2010).

First, non-participant observations were conducted during regular physical education lessons taught by the participating teachers. Given the bounded five-day fieldwork window, one scheduled lesson for each teacher was observed, resulting in six lesson observations in total. Each observation focused on the opening phase of the lesson, including the introduction of the warm-up, the organization of students, the use or modification of traditional games, and the transition into the main activity. Observation time ranged approximately from 30 to 40 minutes per lesson, depending on the school schedule. A brief observation guide was used to structure field notes around five aspects: (a) teacher instructions and demonstrations, (b) game selection and rule modification, (c) use of space and equipment, (d) student participation and responses, and (e) safety and class management. To reduce disruption, the researcher remained at the edge of the activity area, did not participate in the lesson, and did not intervene in teacher-student interaction. No video recording was used; instead, detailed field notes were written during the lesson and expanded immediately afterward.

Second, semi-structured individual interviews were conducted with all six participants. A purposive criterion sampling approach had been used to identify information-rich participants, namely physical education teachers who taught at public or private elementary schools in Cimahi City and had direct experience organizing warm-up activities in class. Purposeful sampling is widely recommended in qualitative research for selecting participants who are especially relevant to the phenomenon under study (Palinkas et al., 2015). Interviews were guided by open-ended questions covering teachers' views on the value of traditional games, their use in warm-up activities, perceived benefits for students, implementation strategies, and practical challenges encountered in school settings. Follow-up probes were used to elicit clarification and concrete examples. Each interview lasted approximately 30–45 minutes, was audio-recorded with participant consent, and was later transcribed verbatim for analysis.

Third, document analysis was used to contextualize and cross-check the observation and interview data. The document set consisted of lesson plans, teaching notes, class schedules, and available school records related to physical education facilities and equipment. These documents were reviewed to identify how warm-up activities were planned, what equipment and spaces were available, and whether reported classroom constraints were reflected in the documented school context. In this study, document analysis was not treated as a stand-alone source of claims, but as a triangulation resource that helped verify, enrich, or qualify patterns emerging from interviews and observations.

**Table 1.** Data collection procedures and sources

Data source	Procedure	Primary focus	Role in triangulation
Observation	Six non-participant lesson observations (one per teacher), approximately 30-40 minutes each; guided field notes; no video recording	Opening routines, game selection, rule modification, student participation, safety, and use of space/equipment	Provided practice-based evidence to compare with interview accounts
Interview	Six semi-structured interviews, 30-45 minutes; audio-recorded and transcribed verbatim	Teacher perceptions, reasoning, benefits, challenges, and adaptation strategies	Primary source for theme development

Data source	Procedure	Primary focus	Role in triangulation
Document analysis	Review of lesson plans, teaching notes, class schedules, and available facility/equipment records	Planned warm-up design and contextual school conditions	Used to verify, enrich, or qualify patterns from interviews and observations

Because the study was designed as a focused descriptive inquiry rather than prolonged ethnography, the five-day fieldwork period should be understood as a bounded data-collection window. In qualitative research, the adequacy of the fieldwork period is judged not by duration alone, but by the fit between the research aim, the sampling strategy, the richness of the data, and the transparency of reporting procedures (Malterud et al., 2016; O'Brien et al., 2014). Credibility was therefore strengthened not through long-term immersion, but through source triangulation, analytic memoing, and comparison across teachers working in different school conditions. At the same time, the brief field period and the possible influence of observer presence are acknowledged explicitly in the limitations section.

### Researcher Role and Reflexivity

In line with qualitative descriptive inquiry, the researchers served as the primary instruments of data collection and analysis. To enhance reflexivity, the researchers maintained field notes and analytic memos throughout the study, particularly after classroom observations and interviews. These notes were used to document early impressions, potential assumptions, emerging questions, and analytic decisions. Reflexive discussions among the research team were conducted regularly to reduce individual bias and to ensure that interpretations remained grounded in the data.

### Data Analysis

The data were analyzed using thematic analysis following the procedures proposed by Braun & Clarke, (2006). This analytic approach was selected because it provides a flexible and systematic way to identify, organize, and interpret patterns of meaning across qualitative data, while remaining suitable for a qualitative descriptive design that aims to stay close to participants' accounts and everyday practice (Sathananthan et al., 2025). In line with qualitative description, the analysis was conducted to produce a rich, practice-oriented summary of teachers' perspectives on the use of traditional games as warm-up activities in elementary physical education, rather than to generate abstract theory.

The analysis was carried out iteratively in six stages. First, the researchers familiarized themselves with the dataset by reading and re-reading the interview transcripts, observation field notes, and relevant documents while making preliminary notes on recurring ideas and potentially significant patterns. Second, initial codes were generated inductively from the data and kept as close as possible to the participants' language and classroom practices. Third, codes that shared conceptual similarity were grouped into preliminary categories and candidate themes. Fourth, these candidate themes were reviewed across the entire dataset to assess their coherence, consistency, and relevance to the research questions. Fifth, the themes were refined, clearly defined, and named to reflect their central meaning. Finally, the themes were organized into a coherent analytic narrative and supported with representative interview excerpts as well as triangulated evidence from observations and documents. This stepwise process follows the widely used six-phase model of thematic analysis and supports transparent reporting of qualitative findings (Calia et al., 2026; Fereday & Muir-Cochrane, 2006).

To preserve the descriptive orientation of the study, the researchers prioritized interpretations that remained grounded in the data and closely connected to teachers' reported experiences and observed classroom practices. Interview data served as the primary source for theme development, while observation notes and documents were used to confirm, enrich, and contextualize the emerging themes. Thus, document analysis and classroom observation were not treated merely as supplementary materials, but as complementary sources that strengthened the credibility of the analysis through triangulation.

Several strategies were used to enhance the trustworthiness of the analytic process. An audit trail was maintained throughout coding and theme development, including analytic notes, code groupings, theme revisions, and reflexive memos. The researchers also engaged in repeated discussion during the refinement of themes to ensure that interpretations remained logically consistent and adequately supported by the dataset. In addition, representative quotations were selected to illustrate each theme and to allow readers to see the connection between the raw data and the final analytic claims. These strategies are consistent with

established guidance on rigorous thematic analysis and transparent qualitative reporting (Nowell et al., 2017).

**Table 2.** Data analysis procedures

No.	Stage	Analytic procedure	Output/purpose
1	Familiarization	Researchers read and re-read interview transcripts, observation field notes, and relevant documents while writing preliminary notes.	To gain immersion in the dataset and identify early patterns.
2	Initial coding	Codes were generated inductively and kept close to participants' language and reported classroom practice.	To produce data-near units of meaning.
3	Category and theme development	Conceptually related codes were clustered into candidate categories and preliminary themes.	To organize recurring patterns across sources.
4	Theme review	Candidate themes were checked across the full dataset for coherence, consistency, and relevance to the research questions.	To test whether the themes were well supported by the data.
5	Theme refinement and naming	Themes were refined, clearly defined, and named to reflect their central meaning.	To sharpen analytic focus and improve interpretive clarity.
6	Narrative synthesis and triangulation	Themes were written into a coherent narrative supported by interview excerpts and contextualized with observation and document evidence.	To produce the final findings while integrating cross-source evidence.

## Results

This study involved six elementary physical education teachers from public and private schools in Cimahi City, West Java, Indonesia. Across interviews, observations, and document review, the findings were organized into four interrelated themes: (1) the implementation of traditional games as structured warm-up activities, (2) teachers' perceived physical and affective benefits of game-based warm-ups, (3) the pedagogical, social, and cultural meanings attached to traditional games, and (4) contextual challenges and teacher adaptability. Across participants, traditional games were perceived not merely as preliminary physical tasks, but as meaningful pedagogical practices that combined movement readiness, student engagement, character-related learning, and cultural relevance.

**Table 3.** Summary of themes and cross-participant patterns

No	Theme	Main pattern across participants	Evidence base	Participants reflected in the theme
1	Implementation of traditional games in warm-up sessions	Teachers integrated traditional games into the opening phase of PE lessons as part of a structured warm-up routine	Interviews, observations	T1, T2, T3, T4, T5, T6
2	Perceived physical and affective benefits	Traditional games were perceived to increase enthusiasm, participation, enjoyment, and readiness for movement	Interviews, observations	T1, T2, T4, T5, T6
3	Pedagogical, social, and cultural meanings	Teachers associated traditional games with discipline, cooperation, sportsmanship, teamwork, and cultural appreciation	Interviews	T2, T3, T4, T5, T6
4	Contextual challenges and teacher adaptability	Implementation was influenced by limited facilities, short lesson duration, and students' declining familiarity with traditional play	Interviews, observations, document analysis	T1, T4, T5, T6

*Note.* This table is synthesized from the themes and evidence reported in the source manuscript.

### Implementation of Traditional Games as Structured Warm-up Activities

Across participants, traditional games were described as a structured part of the opening phase of elementary physical education lessons rather than as incidental play. Teachers explained that warm-up activities generally combined basic movement preparation, such as stretching or simple activation, with modified traditional games that encouraged students to move actively from the beginning of the lesson. Observation data also indicated that teachers used traditional games in a planned way, with attention to student grouping, safety, and participation. In this process, teachers positioned themselves primarily as facilitators who introduced the activity, explained the rules, monitored movement, and maintained students' motivation. This pattern is consistent with the source manuscript's description that warm-up activities included stretching and modified traditional games, with the teacher acting as a facilitator and safety guide.

Participants from both public and private schools reported that game-based warm-ups made the transition into the lesson more active and less monotonous. T1 and T4 emphasized that students responded more positively when the warm-up was presented in the form of games:

*"Students become more engaged and less bored when warm-ups use games. They enjoy the learning process and move naturally." (T1)*

*"I usually begin with simple instructions and a short demonstration so the children understand the game quickly before we move into the main lesson." (T4)*

Similarly, T2 and T3 explained that game-based warm-ups were easier to implement when the games were simple, familiar, and adaptable to the age of elementary school students. T6 also noted that warm-up activities became more effective when teachers gave short demonstrations before starting the game, especially for younger children or those who were less familiar with traditional play. Overall, these findings show that teachers across schools perceived traditional games as a feasible and structured warm-up strategy in elementary PE.

### **Teachers' Perceived Physical and Affective Benefits of Game-based Warm-ups**

Across the interview and observation data, teachers consistently described traditional games as beneficial for both students' physical readiness and affective involvement. From a physical perspective, teachers perceived that these games activated multiple movement components, including endurance, balance, coordination, and speed. From an affective perspective, they reported that students were more enthusiastic, less bored, and more willing to participate when warm-up sessions were presented in game-based formats rather than as repetitive routines.

Importantly, teachers did not define a successful warm-up only in physiological terms. Instead, they framed warm-up as effective when it prepared students not only to move, but also to enter the lesson with positive emotion, attention, and readiness to participate. This suggests that, in teachers' perspectives, traditional games supported both bodily activation and a more positive emotional climate for subsequent learning. As the following participant said, the participants emphasized the physical activation involved in those games:

*"Through simple movements in games, students warm up all their body parts, but in a fun and relaxed way." (T2)*

*"When the warm-up is turned into a game, the students look happier and are more willing to move from the beginning of the lesson." (T6)*

Across participants, physical readiness was not understood in a narrow physiological sense alone. T4, T5, and T3 similarly emphasized that warm-up was successful when students appeared ready to move, focused, emotionally positive, and willing to continue with the main lesson. This indicates that, from the teachers' perspectives, traditional games functioned as both a movement preparation strategy and an affective entry point into the learning process. The overall source text likewise states that teachers viewed traditional games as increasing enthusiasm, participation, and physical readiness.

### **Pedagogical, Social, and Cultural Meanings of Traditional Games**

All teachers interviewed viewed traditional games as more than a movement-based warm-up technique. They described these activities as pedagogical tools that could foster discipline, cooperation, sportsmanship, teamwork, and mutual respect. Teachers also attached cultural value to traditional games because they introduced children to local traditions and helped preserve forms of play that are increasingly

less visible in students' everyday lives. In this sense, warm-up was understood not only as physical preparation, but also as an educational space for value formation and cultural learning.

Interview data further suggested that teachers intentionally linked traditional games to broader school goals related to character education. Through playing together, students were perceived to learn how to follow rules, collaborate with peers, and respect others while participating in activities that reflected local cultural heritage. This indicates that teachers assigned multidimensional meaning to traditional games, extending beyond physical preparation alone. Two teachers stated:

*“Traditional games are part of our heritage. When we use them in class, students learn to respect culture while still exercising.” (T3)*

*“These games help children learn to take turns, follow rules, and work with classmates, so the warm-up also teaches behavior, not just movement.” (T5)*

T1 and T4 similarly explained that traditional games helped students learn to follow rules, take turns, and interact more respectfully with peers. T6 also noted that using traditional games in warm-up activities gave teachers an opportunity to connect PE lessons with local culture in a way that felt natural and relevant for children. Across participants, therefore, warm-up was viewed not merely as physical preparation, but as a meaningful pedagogical space in which movement, social learning, and cultural appreciation could be integrated.

### Contextual challenges and teacher adaptability

Despite the perceived benefits, all participants also identified practical challenges that affected the implementation of traditional game-based warm-ups. Three recurring constraints were found across interviews: students' declining familiarity with traditional games, limited facilities or equipment, and restricted lesson time. The original manuscript groups these same issues into student-related factors, facility limitations, and time constraints.

First, teachers reported that many students were less familiar with traditional games than in previous generations. As a result, teachers often needed to spend additional time explaining the rules and demonstrating movements before beginning the warm-up. Second, teachers described limitations in school facilities and equipment, including insufficient tools for group-based activities and limited space for movement-based games. The source manuscript likewise reports limited or inadequate equipment and the need to modify or substitute tools. Third, all participants emphasized that lesson duration constrained implementation. T6 explained that limited class time often required teachers to simplify the games so that the main learning objectives could still be achieved. This is consistent with the source text that notes PE classes typically lasted 60 minutes and that traditional game-based warm-ups were sometimes simplified or reduced in frequency because of time pressure.

Nevertheless, the striking finding among the participants was the teachers' adaptability. They reported that they modified the game rules, reduced complexity, and replaced materials so that the activities could be implemented in their respective school contexts. The source manuscript also states that teachers modified rules or materials and used alternatives such as plastic balls, ropes, and markers to keep traditional games playable despite limitations. As participant T1 said:

*“The biggest challenge is time. Sometimes we need extra minutes to explain the rules, especially when some children are not familiar with the game.” (T1)*

These findings position teacher adaptability as a central element in the successful implementation of traditional game-based warm-ups in elementary PE. Teachers appeared to negotiate institutional constraints while still trying to maintain a warm-up format that was enjoyable, educational, and culturally meaningful.

**Table 4.** Cross-participant challenges and adaptive responses

Challenge	Description across participants	Typical teacher response
Students' declining familiarity with traditional games	Students often needed more explanation of rules and movement procedures before the activity began	Teachers gave additional demonstrations and selected simpler game forms

Challenge	Description across participants	Typical teacher response
Limited equipment	Some schools lacked sufficient tools or appropriate materials for group-based traditional games	Teachers substituted materials and modified game rules
Restricted lesson time	The warm-up phase competed with the main instructional content of PE lessons	Teachers simplified activities and reduced game duration
Variable school conditions	Schools differed in available space, equipment, and scheduling arrangements	Teachers adapted game scope to the conditions of each school

*Note. This table is derived from interview, observation, and document evidence in the source manuscript.*

Taken together, the findings indicate that the six teachers from public and private elementary schools in Cimahi shared a broadly similar view of traditional games as meaningful warm-up activities. Across schools, traditional games were perceived to support movement readiness, increase enthusiasm and participation, promote social and moral learning, and connect PE lessons with cultural values. At the same time, implementation depended heavily on contextual realities such as time, facilities, and students' familiarity with traditional play. Across all themes, teacher adaptability emerged as a central factor in making traditional game-based warm-ups feasible in everyday elementary school practice. This overall synthesis is consistent with the original manuscript's summary that teachers viewed traditional games as effective, enjoyable, and culturally meaningful, while also identifying facilities, time, and student familiarity as the main obstacles.

## Discussion

The findings of this study indicate that elementary physical education teachers perceived traditional games as meaningful warm-up activities that extend beyond bodily preparation alone. From the teachers' perspectives, the warm-up phase did not function merely as a physiological pre-exercise routine, but also as an educational space that could support engagement, social interaction, and classroom readiness. This interpretation is in line and consistent with several current studies or thoughts that warm-up activities in physical education activities at the beginning of learning in schools can serve and contribute in various physical, affective, social and cognitive areas, as well as strengthen the focus of attention when designed pedagogically (Afonso et al., 2024; Bailey et al., 2019).

One of the key findings of the present study is that traditional games were used by teachers as a structured component of warm-up sessions rather than as incidental or recreational play. Teachers integrated modified traditional games into the opening phase of the lesson to create a more active and enjoyable transition into the main instructional content. These findings align with recent reviews showing that game-based and play-centered approaches in physical education can strengthen motivation, engagement, and multidimensional learning outcomes when intentionally integrated into instructional design (Camacho-Sánchez et al., 2023). Research has shown that game-based approaches can enhance students' learning experiences and support teachers' confidence in teaching, particularly in elementary schools (Wang et al., 2024; Yan et al., 2024).

Teachers' perceptions that traditional games increase student enthusiasm and reduce boredom are also important in the elementary school context. Enjoyment is a key prerequisite for meaningful participation in physical education, particularly among younger students. Previous studies have shown that children's positive perceptions of school-based physical activity and physical education are strongly associated with enjoyable and engaging experiences, while perceived competence also shapes the quality of their participation over time (Cairney et al., 2019; Ningsih et al., 2024), and can also contribute to children's movement development and physical fitness-related outcomes when implemented systematically (Suryadi et al., 2025). In this regard, the current findings suggest that traditional games can help teachers create more engaging, less monotonous, and more developmentally appropriate warm-up experiences at the beginning of the lesson.

The pedagogical, social, and cultural meanings attached to traditional games are especially well explained through the lens of Meaningful Physical Education, which was introduced in the present study as a sensitizing framework. Meaningful PE emphasizes social interaction, fun, challenge, motor competence, and personally relevant learning as important features of valuable movement experiences (Beni et al., 2017). The teachers' accounts in this study closely reflect these features. Traditional games were seen as socially interactive, enjoyable, rule-governed, and culturally familiar; as a result, they were interpreted not only as warm-up techniques, but also as meaningful lesson beginnings. This interpretation is also consistent with implementation research showing that teachers are more likely to embrace Meaningful PE when they can connect it to student outcomes and to their own teaching values (Beni et al., 2021).

A further contribution of this study is the contextual reading of teacher adaptation across school conditions. Although the sample was too small for formal subgroup comparison, the data indicate that public and private school settings should not be collapsed into a single, uniform teaching experience. The similarities across schools lay in teachers' positive valuation of traditional games; the differences appeared in the degree of simplification required by space, equipment, and scheduling constraints. This suggests that school status matters indirectly through material and organizational conditions. A recent EduStream study likewise shows that elementary teacher perceptions should be interpreted in relation to contextual variation rather than generalized as if all school settings operate in the same way (Nabillah et al., 2025).

This interpretation is further strengthened by research showing that teachers' own beliefs and prior pedagogical experiences influence how they implement innovative approaches in physical education. As research has found that classroom teachers are more likely to accept Meaningful Physical Education when they perceive a clear connection between that approach, student outcomes, and their own teaching values (Beni et al., 2017). A similar pattern appears in the present study, where teachers did not simply use traditional games because they were culturally familiar, but because they interpreted them as beneficial for student participation, behavior, and learning at the elementary level. Thus, the pedagogical significance of traditional games depends not only on the activities themselves, but also on teachers' interpretations of their educational value.

The cultural dimension of the findings is especially noteworthy. In many school contexts, warm-up activities are treated as neutral technical routines. However, the present findings suggest that traditional games can make warm-up more contextually grounded and culturally responsive. This is important because prior research on teachers' perspectives toward traditional-game approaches has shown that educators' understanding of traditional games is often uneven and influenced by their familiarity with curriculum resources and child development needs (Adi et al., 2021). The current study extends this discussion by showing that, in elementary PE, traditional games can serve not only as cultural content but also as a practical pedagogical structure for lesson openings when teachers are able to adapt them appropriately.

At the same time, the findings of this study highlight several implementation challenges, including limited facilities, restricted lesson time, shared activity spaces, and students' declining familiarity with traditional play. These constraints are consistent with the wider implementation literature in school-based physical activity and physical education. Buckler et al. (2023) reported that educator-led interventions are more likely to be effective when they are supported by theory, ongoing assistance, and attention to implementation processes. Likewise, Cepni et al. (2025) found that participant responsiveness was a significant predictor of change in students' moderate-to-vigorous physical activity in a school-based PE intervention. Together, these studies suggest that the success of warm-up activities is shaped not only by the activity design itself, but also by the extent to which students can respond positively and teachers can implement the activity effectively under real school conditions. However, other research on warm-ups suggests that when the primary goal is acute improvement in running speed, jumping, or neuromuscular performance, more targeted, multi-component protocols such as RAMP can produce stronger short-term physiological effects than general or loosely structured activities (Afonso et al., 2024; Girginer et al., 2025). In other words, traditional games may be pedagogically rich and motivating without necessarily being optimal for any particular physiological goal. Furthermore, implementation studies in other contexts have identified barriers such as inadequate training, low self-efficacy, accountability demands, and the need for school-wide support, not just facilities and time (Martyn et al., 2022). This comparison suggests that the effectiveness and feasibility of traditional game-based warm-ups depend not only on the activity itself, but also on the specific outcomes targeted and the organizational conditions surrounding implementation.

This helps explain why teacher adaptability emerged as a central theme in the present study. Teachers reported modifying game rules, simplifying procedures, and substituting materials in order to sustain the use of traditional games despite limited school resources. Such findings are consistent with implementation-oriented PE research emphasizing the importance of teacher responsiveness, instructional judgment, and contextual adaptation. Rather than acting as passive users of traditional games, teachers in this study functioned as active instructional designers who translated culturally rooted forms of play into workable warm-up practices for elementary school settings. This point also represents one of the main contributions of the study: it shifts attention from asking only whether traditional games are beneficial to examining how teachers make them pedagogically feasible in everyday PE practice (Beni et al., 2021; Yan et al., 2024).

Taken together, the findings suggest that traditional games have strong potential as warm-up activities in elementary physical education because they appear to integrate movement preparation with enjoyment, social interaction, meaningful participation, and cultural relevance. However, these potentials do not operate automatically. Their educational value depends on how teachers select, explain, adapt, and reflect on the activity within the realities of school practice. For this reason, traditional games should not be positioned merely as nostalgic play or cultural enrichment material, but as a pedagogically adaptable resource that can strengthen the opening phase of elementary PE lessons when supported by teacher knowledge, contextual responsiveness, and adequate school conditions.

This study has several limitations. First, the fieldwork window was brief and bounded to five days. Although triangulation across observations, interviews, and documents strengthened credibility, the short period limited prolonged engagement in the field and did not fully eliminate the possibility of reactivity or Hawthorne effects. Second, the study relied on a small qualitative sample from one city, so the findings are context-specific and should not be generalized statistically. Third, the study explored teachers' perceptions rather than directly measuring physiological responses or learning outcomes, which means that claims about physical readiness remain interpretive rather than experimental. Fourth, the study did not include students' perspectives, which could have deepened understanding of how children themselves experience traditional game-based warm-ups. Finally, although the sample included public and private schools, it was not designed for formal comparative analysis across school types. Future studies would benefit from longer engagement, multiple regions, inclusion of student voice, and mixed-method or intervention designs that connect teacher perspectives with observable educational and physiological outcomes.

## Conclusion

This study found that elementary physical education teachers perceived traditional games as meaningful warm-up activities that support not only students' physical readiness, but also their engagement, participation, social interaction, and cultural learning. Traditional games were viewed as making the opening phase of PE lessons more enjoyable and pedagogically valuable by integrating movement preparation with cooperation, discipline, sportsmanship, and respect for cultural heritage. The study also showed that the implementation of traditional game-based warm-ups is shaped by practical constraints, including limited facilities, restricted lesson time, shared activity spaces, and students' declining familiarity with traditional play. In this context, teacher adaptability emerged as a central factor in making these activities feasible in everyday school practice. These findings contribute to the literature by highlighting teachers' pedagogical perspectives on traditional games as warm-up activities in elementary PE, rather than focusing only on student outcomes. However, the study is limited to a specific qualitative context and reflects perceived benefits rather than experimentally measured effects. Future research is recommended to involve multiple school settings, include students' perspectives, and examine the effects of traditional game-based warm-ups on observable educational and physical outcomes.

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