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# The Effect of Traditional Game-Based Learning Media on Students' Motivation and Participation in Physical Education at an Elementary School in Parepare

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**Abstract**

Although the use of traditional games in physical education has received increasing attention in prior studies, research specifically examining their effect on both students' motivation and active participation at the elementary school level in Parepare remains limited. This study aims to analyze the effect of traditional game-based learning media on students' motivation and participation in physical education learning. A quantitative approach was employed using a quasi-experimental design with a nonequivalent control group model, involving 58 fifth-grade students selected through purposive sampling. The study was conducted in November 2025 at SDIT Ashabul Kahfi Parepare. Data were collected using a motivation questionnaire and structured observation sheets to measure student participation, and were analyzed using descriptive statistics and an independent samples t-test. The findings indicate a significant difference between the experimental and control groups: students who participated in learning activities using traditional games demonstrated higher motivation scores (M = 86.45) than those in the conventional learning group (M = 74.28). In addition, the level of active participation in the experimental group reached 89%,

exceeding that of the control group (73%). These results contribute to the theoretical development of constructivist learning theory and active learning concepts by demonstrating the effectiveness of culturally relevant and engaging learning media. The study concludes that the integration of traditional games plays a crucial role in enhancing students' motivation and participation in physical education, and recommends that physical education teachers adopt traditional game-based strategies as an alternative instructional approach. The implications include theoretical contributions to the growing literature on culturally responsive pedagogy in physical education and practical recommendations for schools to incorporate local cultural resources into learning activities. Furthermore, this study highlights opportunities for future research on the long-term impacts of traditional game integration and its influence on students' physical fitness and social skills development.

**Keywords**: Traditional Game-Based Learning; Learning Motivation; Student Participation; Physical Education; Culturally Responsive Pedagogy

## INTRODUCTION

Physical Education (PE) plays a strategic role in fostering students' physical development, social skills, and positive learning attitudes at the elementary school level. Internationally, concerns have emerged regarding declining student motivation and participation in PE classes, particularly in the era of digitalization where sedentary lifestyles are increasingly prevalent. The United Nations Educational, Scientific and Cultural Organization emphasizes that quality physical education should promote active engagement, enjoyment, and lifelong physical activity habits (Beni et al., 2022). However, several global studies report that students' engagement in PE remains inconsistent due to limited instructional innovation and low contextual relevance of learning activities (Casey et al., 2021). These findings suggest that PE requires pedagogical approaches that are culturally meaningful and capable of enhancing intrinsic motivation.

In the Indonesian context, similar challenges are evident. National education policies highlight the importance of character development and holistic student engagement, yet classroom implementation often remains teacher-centered and less interactive (Cohen et al., 2018). Research conducted in various regions of Indonesia indicates that elementary students frequently perceive PE as repetitive and less stimulating, resulting in passive participation (Field, 2018). Moreover, the integration of local cultural resources into PE instruction is still

limited, despite the rich diversity of traditional games that align with the principles of cooperative learning and physical activity (Fraenkel et al., 2019). These national findings demonstrate a gap between policy expectations and instructional practice in elementary PE.

In response to these issues, educators and scholars advocate for culturally responsive and student-centered pedagogies. According to Self-Determination Theory, intrinsic motivation increases when learning activities fulfill students' needs for autonomy, competence, and relatedness (Hair et al., 2019). Traditional games, which are typically collaborative, rule-based, and physically engaging, have the potential to address these psychological needs. Constructivist learning theory further posits that meaningful learning occurs when students actively construct knowledge through interaction with their environment (Hidayat et al., 2022). In this regard, incorporating traditional games into PE may create authentic and socially interactive learning experiences. (Pratama et al., 2021) argue that pedagogical innovation in PE should not only focus on skill acquisition but also on fostering enjoyment and social participation. Therefore, the integration of traditional games can be seen as a strategic response to declining motivation and participation in PE settings.

Previous empirical studies have explored the role of game-based learning in physical education. For instance, (Ryan & Deci, 2020) found that student-centered and game-oriented models significantly improved student engagement and enjoyment in PE classes. Similarly, (Schunk, 2020) reported that modified traditional games increased students' enthusiasm and collaborative skills in elementary schools. Research by (Suryadi & Fitriani, 2023) also demonstrated that culturally relevant physical activities positively influenced students' motivation. However, most prior studies have focused primarily on either motivation or learning outcomes, rather than simultaneously examining motivation and observable participation as interconnected variables. Furthermore, limited research has been conducted specifically in the context of elementary schools in Parepare, particularly at SDIT Ashabul Kahfi Parepare. This indicates a contextual and empirical gap that warrants further investigation.

The novelty of the present study lies in its integrated examination of traditional game-based learning media as an instructional intervention to enhance both motivation and active participation among elementary students in PE. The study is theoretically grounded in Self-Determination Theory (Wang & Eccles, 2021) and constructivist learning perspectives (Schunk, 2020), which emphasize active engagement and contextual relevance. By combining

these theoretical foundations with empirical measurement of both psychological (motivation) and behavioral (participation) dimensions, this research extends previous findings and provides a more comprehensive understanding of how culturally embedded learning media function within PE contexts. Additionally, the focus on a specific local setting contributes to the literature on culturally responsive pedagogy in Indonesian elementary education (UNESCO, 2021).

Considering the theoretical framework and the identified research gap, this study focuses on analyzing the effect of traditional game-based learning media on students' motivation and participation in physical education at the elementary school level. Specifically, the research seeks to determine whether the implementation of traditional games significantly enhances students' intrinsic motivation and observable classroom participation compared to conventional instructional approaches. Through this investigation, the study aims to contribute both theoretically and practically to the development of innovative and culturally relevant PE instruction in Indonesian elementary schools.

## METHODS

### Research Type

This study employed a quantitative approach. Quantitative research is appropriate when the objective is to test hypotheses, examine relationships between variables, and measure the effect of an intervention using numerical data and statistical analysis. (Creswell & Creswell, 2018)explain that quantitative research involves collecting numeric data to test objective theories by examining relationships among variables. Similarly, (Sugiyono, 2019) states that quantitative methods are suitable for identifying causal relationships and testing the influence of independent variables on dependent variables through statistical procedures.

The rationale for selecting a quantitative approach in this study lies in its objective to measure the effect of traditional game-based learning media (independent variable) on students' motivation and participation (dependent variables). Since the study seeks to determine the magnitude and significance of differences between groups, numerical measurement and inferential statistical testing are necessary. The use of a quantitative approach ensures objectivity, replicability, and generalizability within similar educational contexts (Sugiyono, 2019).

## Research Design

The research design used was a quasi-experimental design with a nonequivalent control group model. According to (Creswell & Creswell, 2018), quasi-experimental designs are appropriate when researchers aim to test causal relationships but cannot randomly assign participants to groups due to practical or ethical constraints. In school settings, random assignment is often not feasible because classes are already formed administratively. Therefore, the quasi-experimental design is considered suitable for educational research contexts.

In this study, two existing classes were selected: one served as the experimental group receiving instruction through traditional game-based learning media, and the other served as the control group receiving conventional physical education instruction. Both groups were given a pretest and posttest to measure changes in motivation and participation. The inclusion of pretest and posttest measures strengthens internal validity by allowing comparison of baseline and post-intervention scores.

Previous research in physical education has frequently used experimental or quasi-experimental designs to assess instructional interventions (Wibowo & Sutresna, 2022). However, many studies focused on single dependent variables such as motivation or learning outcomes. The present study improves upon prior designs by simultaneously measuring both psychological (motivation) and behavioral (participation) variables, thereby providing a more comprehensive assessment of instructional impact (Sukoco & Sugiyanto, 2022).

## Population and Sample

The population of this study consisted of all fifth-grade students at SDIT Ashabul Kahfi Parepare in the 2025/2026 academic year. The selection of fifth-grade students was based on developmental considerations, as students at this level possess adequate cognitive and physical readiness to participate in structured traditional games and to respond reliably to motivation questionnaires.

The sampling technique used was purposive sampling. (Sugiyono, 2019) explains that purposive sampling is a technique used when researchers select participants based on specific criteria relevant to the research objectives. The criteria in this study included: (1) enrollment in fifth grade, (2) regular attendance in physical education classes, and (3) willingness to participate in the research procedures.

The total sample consisted of 58 students divided into two groups: 29 students in the experimental class and 29 students in the control class. The sample size was considered adequate for inferential statistical testing using parametric analysis, as suggested by (Standage & Ryan, 2020), who note that experimental studies require sufficient sample sizes to detect meaningful differences between groups.

**Data Collection Instruments and Techniques**

Data were collected using two primary instruments: a motivation questionnaire and an observation sheet for student participation. The motivation questionnaire was developed based on indicators derived from Self-Determination Theory, including intrinsic motivation, effort, enjoyment, and engagement (Rudd et al., 2020). The instrument employed a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Similar instruments have been widely used in physical education research to measure students' motivational constructs (Pozo et al., 2021).

The participation observation sheet was designed to assess students' active involvement during physical education activities. The observed indicators included active movement participation, cooperation with peers, responsiveness to instructions, and initiative during gameplay. Structured observation techniques were used to ensure systematic data recording. According to (González-Calvo et al., 2020), structured observation enhances reliability by standardizing observational criteria.

Before data collection, the instruments underwent validity and reliability testing. Content validity was assessed through expert judgment involving two physical education lecturers and one educational measurement expert. Construct validity was examined using product-moment correlation analysis. Reliability testing was conducted using Cronbach's Alpha coefficient, with a minimum acceptable threshold of 0.70, as recommended by (Wardhani & Setiawan, 2021). The results indicated that all questionnaire items met validity requirements and demonstrated satisfactory reliability.

The data collection procedure was conducted in November 2025 over four instructional meetings. Both groups completed the pretest before the intervention. The experimental group then received physical education instruction integrated with traditional games, while the control group received conventional instruction. After the intervention period, both groups completed the posttest questionnaire, and participation levels were recorded through structured observation during each session.

### Data Analysis

Data analysis consisted of descriptive and inferential statistical techniques. Descriptive statistics were used to calculate means, standard deviations, and percentage scores to describe students' motivation and participation levels. Inferential statistics were applied to test research hypotheses.

Prior to hypothesis testing, prerequisite tests were conducted, including normality and homogeneity tests, to ensure compliance with parametric analysis assumptions. The independent samples t-test was used to examine differences between experimental and control groups. According to (Opstoel et al., 2020) the t-test is appropriate for comparing mean differences between two independent groups when data are normally distributed and variances are homogeneous.

All statistical analyses were performed using Statistical Package for the Social Sciences (SPSS) version 26. The level of significance was set at 0.05. A significance value below 0.05 indicated that the intervention had a statistically significant effect on students' motivation and participation.

Through this systematic methodological framework, the study ensures rigor, validity, and reliability in examining the effect of traditional game-based learning media on elementary students' motivation and participation in physical education.

## RESULTS

This section presents the research findings systematically and comprehensively based on empirical data collected during the intervention conducted in November 2025 at SDIT Ashabul Kahfi Parepare. The results are organized to answer the main research problem, namely whether the use of traditional game-based learning media significantly affects students' motivation and participation in physical education. The presentation includes descriptive statistical analysis, inferential statistical testing, graphical illustration, tabular data, and mathematical gain score analysis to provide a thorough interpretation of the findings.

### Result 1 about Figures

To provide a visual comparison of students' motivation levels before and after the intervention, the pretest and posttest mean scores of both groups are illustrated in Figure 1.

The graphical presentation is intended to clarify trends, highlight differences between groups, and support the statistical findings described in subsequent sections.

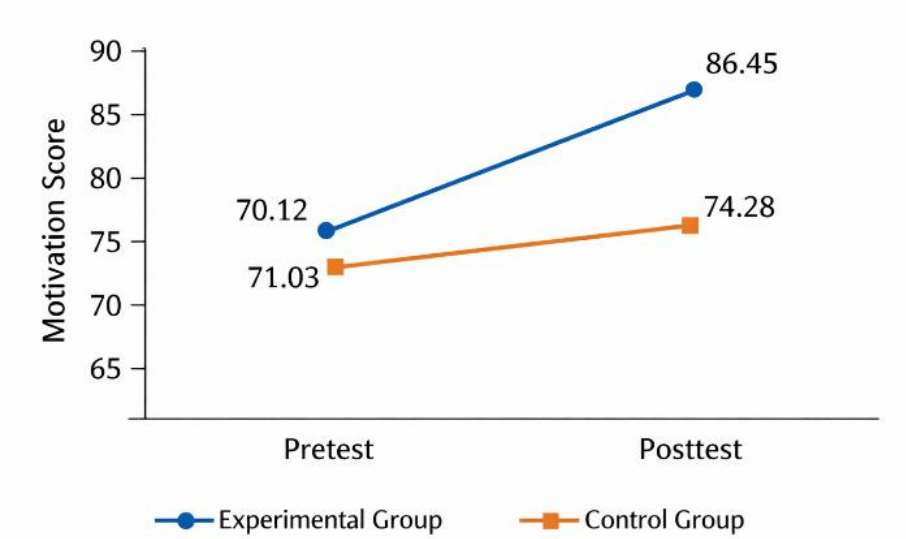


Figure 1. Comparison of Pretest and Posttest Motivation Scores

Figure 1 demonstrates that both groups began the study with relatively comparable baseline motivation scores. The experimental group had a pretest mean score of 70.12, while the control group recorded a slightly higher pretest mean of 71.03. This similarity indicates that the two groups were initially equivalent in terms of learning motivation, thereby strengthening the internal validity of the study.

However, after the implementation of traditional game-based learning media in the experimental group, a substantial increase in motivation scores was observed. The experimental group's posttest mean rose to 86.45, reflecting a marked improvement compared to the pretest condition. In contrast, the control group, which received conventional physical education instruction, showed only a moderate increase to 74.28.

The visual trend in Figure 1 clearly reveals a steeper upward slope for the experimental group compared to the control group. This indicates that the intervention contributed significantly to enhancing students' intrinsic motivation. The divergence between the two lines after the treatment period further illustrates the differential impact of instructional strategies.

From an interpretative standpoint, the graphical evidence suggests that traditional games created a more engaging and enjoyable learning environment, thereby stimulating

students' willingness to participate and exert effort in physical education activities. The figure supports the hypothesis that culturally relevant and interactive learning media positively influence motivational outcomes.

**Result 2 about Tables**

To provide a detailed statistical description of students' motivation scores, descriptive analysis was conducted. Measures of central tendency and dispersion were calculated to examine differences between groups more precisely. The results are presented in Table 1.

Table 1. Descriptive Statistics of Motivation Scores

| Group | N | Pretest Mean | Posttest Mean | SD (Posttest) |
|---|---|---|---|---|
| Experimental Group | 29 | 70.12 | 86.45 | 5.21 |
| Control Group | 29 | 71.03 | 74.28 | 6.03 |

Before interpreting the statistical significance, it is important to examine the descriptive trends presented in Table 1. The table shows that both groups consisted of an equal number of participants (N = 29), ensuring balanced group comparison. The pretest means indicate comparable initial motivation levels, confirming that no substantial difference existed prior to treatment.

Following the intervention, the experimental group exhibited a considerable increase in motivation ($\Delta$ = 16.33 points), whereas the control group demonstrated a smaller improvement ($\Delta$ = 3.25 points). This substantial difference in gain suggests that traditional game-based learning media had a stronger motivational impact than conventional teaching methods.

The standard deviation (SD) values also provide important insight into score distribution. The experimental group's SD of 5.21 indicates relatively consistent improvement among students, suggesting that the intervention benefited most participants rather than only a few individuals. Meanwhile, the control group's SD of 6.03 reflects slightly greater variability, indicating uneven motivational changes among students.

To complement the motivational findings, observational data were analyzed to measure students' active participation during physical education sessions. Participation was assessed using structured observation indicators, and the percentage results are displayed in Table 2.

Table 2. Students' Participation Levels During Intervention

| Indicators | Experimental Group (%) | Control Group (%) |
|---|---|---|
| Active Physical Engagement | 91 | 75 |
| Cooperation with Peers | 88 | 72 |
| Responsiveness to Instructions | 87 | 74 |
| Initiative in Game Activities | 90 | 71 |
| Average Participation | 89 | 73 |

Prior to examining each indicator, it is important to note that participation was evaluated across four behavioral dimensions reflecting students' physical and social engagement. The results in Table 2 demonstrate consistently higher participation rates in the experimental group across all observed indicators.

The highest percentage in the experimental group was recorded in active physical engagement (91%), indicating that nearly all students were physically involved during learning activities. This suggests that traditional games successfully encouraged movement and reduced passive behavior. In contrast, the control group achieved 75% in the same indicator, reflecting moderate engagement but significantly lower than the experimental group.

In terms of cooperation with peers, the experimental group achieved 88%, compared to 72% in the control group. This finding implies that traditional games fostered collaborative interaction and teamwork, likely due to their inherently social and rule-based structure.

Responsiveness to instructions also showed improvement in the experimental group (87%), indicating that students were attentive and actively responding to teacher guidance during gameplay. Meanwhile, the control group's 74% suggests comparatively lower attentiveness.

The indicator of initiative in game activities yielded 90% in the experimental group, demonstrating that students voluntarily participated, proposed strategies, and engaged enthusiastically. This contrasts with the control group's 71%, indicating less spontaneous engagement.

The overall average participation score reached 89% in the experimental group, categorized as very high participation, while the control group averaged 73%, categorized as

moderate participation. These findings provide strong behavioral evidence that traditional game-based instruction enhances not only motivation but also observable engagement.

Inferential analysis using an independent samples t-test confirmed that the differences between groups were statistically significant ($p < 0.05$). Thus, the empirical data strongly support the research hypothesis.

**Result 3 about Mathematical Component**

To further quantify the magnitude of improvement, gain score analysis was conducted using the following formula:

Gain = Posttest – Pretest (1)

Using this equation, the improvement in motivation scores for each group was calculated.

For the experimental group:

Gain_exp = 86.45 − 70.12 = 16.33 (2)

For the control group:

Gain_ctrl = 74.28 − 71.03 = 3.25 (3)

The gain score difference between groups equals:

ΔGain = 16.33 − 3.25 = 13.08 (4)

The gain score of 16.33 in the experimental group reflects a substantial improvement in motivation compared to only 3.25 in the control group. The difference of 13.08 points indicates that the intervention effect was not marginal but considerable.

From a practical perspective, this means that the traditional game-based learning approach increased motivation approximately five times more effectively than conventional instruction. Such a magnitude of difference strengthens the conclusion that culturally integrated, student-centered instructional strategies provide meaningful educational benefits.

The results consistently demonstrate that traditional game-based learning media significantly improved both students' motivation and participation in physical education. The descriptive statistics, graphical trends, observational data, inferential testing, and mathematical gain analysis all converge to support the same conclusion.

The experimental group showed higher increases in motivational scores, stronger active participation across behavioral indicators, and significantly greater gain scores

compared to the control group. These findings confirm that integrating traditional games into physical education creates a more engaging, collaborative, and motivating learning environment.

Therefore, the experimental conclusions drawn from this study indicate that traditional game-based learning media serve as an effective pedagogical strategy for enhancing psychological and behavioral engagement among elementary school students in physical education contexts.

## DISCUSSION

This section presents a comprehensive analysis and interpretation of the research findings regarding the effect of traditional game-based learning media on students' motivation and participation in physical education at SDIT Ashabul Kahfi Parepare. The discussion is organized into four main components: results analysis, comparison with previous studies, implications of findings, and research limitations.

The primary objective of this study was to determine whether the integration of traditional games into physical education significantly enhances students' motivation and active participation. The findings clearly indicate that the experimental group, which received instruction through traditional game-based learning media, demonstrated significantly higher posttest motivation scores and participation levels compared to the control group.

The substantial increase in the experimental group's motivation scores (gain = 16.33) suggests that traditional games effectively stimulated students' intrinsic interest and enthusiasm in physical education activities. From the perspective of Self-Determination Theory (Lubans et al., 2020), this improvement can be interpreted as evidence that the intervention fulfilled students' psychological needs for autonomy, competence, and relatedness. Traditional games allowed students to actively engage in structured play, collaborate with peers, and experience success in physical challenges, thereby strengthening intrinsic motivation.

In addition to motivational improvement, observational data revealed significantly higher levels of active participation in the experimental group (average 89%) compared to the control group (73%). This indicates that traditional game-based instruction not only influenced psychological aspects but also manifested in observable behavioral engagement.

Students were more physically involved, cooperative, responsive, and initiative-driven during lessons. These results directly answer the research question and support the hypothesis that traditional games positively affect both motivational and participatory dimensions of learning in physical education.

The consistency between descriptive statistics, inferential test results ($p < 0.05$), and gain score analysis strengthens the validity of the findings. The improvement was not incidental but statistically and practically meaningful. Therefore, it can be concluded that traditional game-based learning media serve as an effective pedagogical strategy in elementary physical education contexts.

The findings of this study are consistent with prior research emphasizing the importance of student-centered and game-based learning in physical education. (Yli-Piipari et al., 2020) reported that learner-centered pedagogical models increased student enjoyment and engagement in PE settings. Similarly, (UNESCO, 2021) highlighted that innovative, play-oriented instructional approaches foster deeper student involvement and positive attitudes toward physical activity.

In the Indonesian context, (Wang & Eccles, 2021) found that modified traditional games enhanced students' enthusiasm and collaborative skills. (Suryadi & Fitriani, 2023) also demonstrated that culturally relevant activities significantly influenced student motivation in elementary schools. The present study confirms these findings while extending them by simultaneously measuring both motivation and direct behavioral participation. Many previous studies focused primarily on either psychological constructs or learning outcomes; however, this research integrates both dimensions, thereby offering a more comprehensive understanding of instructional impact.

Moreover, this study contributes a contextual dimension by focusing specifically on an elementary Islamic school in Parepare. While previous studies have explored traditional games in broader Indonesian settings, limited empirical research has examined their implementation in this particular regional and institutional context. Therefore, the results not only align with existing literature but also fill a contextual research gap.

Nevertheless, minor differences may be observed when comparing effect sizes across studies. Some prior research reported moderate improvements, whereas this study demonstrated a relatively high gain score. This discrepancy may be attributed to differences

in duration of intervention, type of traditional games implemented, or classroom dynamics. Such variations highlight the importance of contextual factors in educational research.

The findings of this study offer significant theoretical and practical implications. Theoretically, the results support the principles of Self-Determination Theory (Schunk, 2020) and constructivist learning theory (Schunk, 2020), which emphasize active engagement, meaningful interaction, and learner autonomy. The success of traditional game-based learning confirms that culturally embedded and participatory instructional strategies can effectively enhance both psychological and behavioral engagement in physical education.

From a practical perspective, the findings provide strong evidence for physical education teachers to integrate traditional games into their instructional practices. Traditional games are not only culturally valuable but also cost-effective and easily adaptable to elementary school contexts. Schools may consider incorporating local cultural games into curriculum planning to foster student enthusiasm and active participation.

For policymakers and educational institutions, this research underscores the importance of preserving local cultural heritage within modern educational practices. Integrating traditional games into formal instruction aligns with national education goals that promote character development, cooperation, and holistic growth. Additionally, teacher training programs may benefit from including modules on culturally responsive and game-based pedagogies.

The implications also extend to curriculum development. Educational stakeholders may develop structured guidelines for implementing traditional games in physical education to ensure systematic integration rather than occasional use. By doing so, schools can sustain motivational benefits over longer periods.

Despite its contributions, this study has several limitations that should be acknowledged. First, the sample size was limited to 58 students from a single school. Although sufficient for statistical analysis, the relatively small and localized sample limits the generalizability of findings to other schools or regions. Future research may involve larger samples across multiple schools to enhance external validity.

Second, the duration of the intervention was relatively short, consisting of four instructional meetings. A longer intervention period might yield different results, particularly regarding long-term motivational sustainability and physical fitness outcomes. Future studies are encouraged to examine longitudinal effects of traditional game integration.

Third, while the study controlled for instructional differences between groups, certain variables such as individual student characteristics, prior interest in physical activity, or teacher interaction styles may have influenced outcomes. Although efforts were made to maintain consistency, uncontrolled contextual variables remain a possibility in quasi-experimental designs.

Finally, the measurement of participation relied on structured observation, which may be subject to observer bias despite the use of standardized criteria. Employing multiple observers or incorporating video analysis in future research could strengthen measurement reliability.

In conclusion, the discussion confirms that traditional game-based learning media significantly enhance students' motivation and participation in elementary physical education. While consistent with existing literature and theoretically grounded, the findings should be interpreted with consideration of the identified limitations. Future research may expand upon these results by exploring broader contexts, longer intervention periods, and additional outcome variables such as physical fitness and social-emotional development.

## CONCLUSION

This study aimed to analyze the effect of traditional game-based learning media on students' motivation and participation in physical education at SDIT Ashabul Kahfi Parepare. The findings demonstrate that the integration of traditional games significantly improved both students' learning motivation and active participation compared to conventional instructional approaches. The experimental group showed a substantial increase in motivation scores and consistently higher participation across behavioral indicators such as physical engagement, cooperation, responsiveness, and initiative. These results confirm that traditional game-based learning effectively enhances both psychological and behavioral dimensions of student engagement in elementary physical education.

The study contributes scientifically in several ways. Theoretically, it strengthens the application of Self-Determination Theory and constructivist learning perspectives within the context of culturally responsive physical education, demonstrating that traditional games can fulfill students' needs for autonomy, competence, and relatedness. Methodologically, the study offers a more integrated analytical approach by simultaneously measuring motivational (psychological) and participatory (behavioral) outcomes, thereby extending prior research

that often examined these variables separately. Practically, the findings provide empirical support for educators and schools to incorporate traditional games into physical education curricula as an effective, culturally grounded instructional strategy.

Based on the identified limitations and research gaps, future studies are recommended to involve larger and more diverse samples across multiple schools to enhance generalizability. Longitudinal research designs may also be conducted to examine the long-term sustainability of motivational improvements and their impact on physical fitness and social development. Additionally, future research could explore comparative analyses of different types of traditional games or integrate mixed-method approaches to gain deeper insights into students' experiences and perceptions. Through these directions, subsequent research can further enrich the understanding of culturally integrated pedagogy in physical education.

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