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Effectiveness of applying folk games in enhancing learning motivation in physical education for primary school students

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Abstract
Problem Statement: Learning interest serves as the core driver of self-discipline and effort in Physical Education (PE). However, current reality indicates that a large portion of primary school students exhibit apathy and a lack of focus during traditional classes, due to repetitive instructional content and the strong allure of digital entertainment devices. This sedentary trend not only impacts physical fitness but also entails negative consequences for children's mental health and social engagement.
Approach: This study employed a quasi-experimental design with a sample of 120 fourth-grade students, divided into an Experimental Group (EG, n=60) applying a PE program integrated with folk games through a 4-step process (Evocation - Experience - Creativity - Sharing), and a Control Group (CG, n=60) following the standard curriculum. Learning interest was measured using the multidimensional Individual Interest Questionnaire in PE (IIQ-PE), assessing domains: Positive Emotion, Utility Value, and Re-engagement Intention.
Purpose: To identify and quantitatively evaluate the impact of a structured folk game system on enhancing the dimensions of learning interest in primary students, providing empirical evidence for the innovation of PE teaching methodologies.
Results: After an 18-week intervention, the overall interest mean score of the EG increased significantly from 2,86 ±0,52 to 4,38 ±0,38 ($p < 0.001$), while the CG showed no significant change (2,88 ±0,48 to 2,92 ± 0,4). The "Positive Emotion" index achieved the highest growth rate (53.2%), demonstrating the ability of folk games to activate the joy of movement.
Conclusions: The application of folk games is a superior pedagogical strategy for stimulating intrinsic learning motivation and developing comprehensive competencies in students. The study recommends standardizing folk games as an organic component of the PE lesson structure to optimize student engagement.

Keywords: Physical education, folk games, learning interest, primary school students, IIQ-PE

Introduction

In the progression of modern education, interest is no longer viewed as a static psychological attribute but rather as a multidimensional construct that continuously evolves under the influence of learning environments and instructional methodologies. For primary school students, particularly those in the fourth grade (ages 9-10), this represents a "golden period" for establishing movement habits and positive attitudes toward health. The 2018 General Education Program in Vietnam identifies the core objectives of Physical Education (PE) as helping students form and develop health-care competencies, fundamental movement skills, and physical activity competencies. To achieve these competencies, the joy of movement must be regarded as the foundation of every lesson.

However, the explosion of the digital era has created a formidable "rival" to the training ground: electronic games and social media. International studies have warned of a severe decline in children's opportunities for physical activity, leading to physiological consequences such as obesity and cardiovascular disease, as well as mental health issues like anxiety and depression. In Vietnam, traditional PE is often perceived as monotonous, characterized by repetitive technical drills, a lack of interaction, and a failure to meet students' psychological needs for novelty. Consequently, identifying a pedagogical medium that is both culturally significant and capable of powerfully activating interest is an urgent requirement.

Vietnamese folk games, with their rich treasury of movement types, folk chants, and flexible rules, serve as the "key" to this challenge. Unlike modern sports, which often require complex facilities and strict regulations, folk games are highly adaptable, easy to organize, and deeply resonant with children's spiritual lives. Games such as "Capture the Flag", "The Dragon and the Snake", or "Cat and Mouse" are not merely pure physical activities but cultural scenarios where children can embody roles, interact, and express emotions.

Research by Roure *et al*. (2021) [4] indicated that individual interest in PE comprises intertwined emotional and cognitive components, where utility value (perception of benefits) and positive emotion (enjoyment) motivate students to return to exercise. Although folk games have been included in the primary curriculum as integrated content, their implementation as a structured "pedagogical intervention system" to enhance interest has not been clearly quantified through rigorous experimentation. This research gap necessitates a profound analysis of the psychological mechanisms through which folk games impact learners.

We hypothesize that a PE program enriched by folk games—focusing on experiential learning, autonomy, and social relatedness will generate a breakthrough in learning interest levels compared to conventional teaching methods. This study aims not only to improve interest scores but also to reaffirm the educational value of national cultural heritage in shaping the character and physical well-being of the younger generation in the digital age.

Materials and Methods

Participants and Sampling

The study was conducted on 120 fourth-grade students from two primary schools with similar socio-economic conditions. The selection of fourth graders was based on age-specific psychological characteristics: this is a developmental stage where children have relatively established fundamental motor skills yet retain a sense of innocence, a strong inclination toward play, and the beginning of an awareness regarding personal values.

Experimental Group (EG): Consisted of 60 students who participated in PE lessons integrated with 15–20 minutes of folk games per session. These games were structured according to the "Joyful Experience" intervention model to optimize engagement.

Control Group (CG): Consisted of 60 students who followed the existing general education curriculum, featuring movement games that merely simulated basic sports techniques.

Pedagogical Intervention Procedure

The intervention lasted 18 weeks (equivalent to one academic semester), with a frequency of two sessions per week. The core distinction lay in the lesson organization for the EG through a four-step process designed to satisfy the basic psychological needs of Self-Determination Theory (SDT):

Awakening: Teachers utilized folk chants, music, or storytelling about the games' origins to stimulate curiosity and establish a positive emotional state at the start of the lesson.

Experiencing: Students directly participated in the games using original rules. The teacher acted as a facilitator, observing and ensuring safety while allowing children the freedom to explore movement patterns.

Creating: This represents a pedagogical breakthrough where students were encouraged to engage in group discussions to modify specific rules, add props, or create new challenges. This aimed to foster autonomy and tactical thinking.

Sharing: At the conclusion of the game, students and teachers gathered to share reflections on their feelings, the challenges overcome, and their bond with teammates. This step facilitated the transition from situational interest to sustainable individual interest.

The selected folk games included: Capture the Flag, Sack Race, The Dragon and the Snake, Cat and Mouse, Moving Mandarin Square Capturing, Thả đỉa ba ba (The Swamp Monster), Crocodiles on the Bank, Inland Boat Racing, Tug of War, and Blindfolded Goat Catching. These games were categorized based on physical development goals: speed, strength, agility, and coordination.

Data Collection Instruments

We utilized the Individual Interest Questionnaire in PE (IIQ-PE), originally developed by Roure *et al*. (2021) [4] and adapted to the Vietnamese context. The questionnaire consists of 14 items, rated on a 5-point Likert scale (1: Strongly Disagree to 5: Strongly Agree). The structure focuses on three primary dimensions:

Positive Affect and Willingness to Reengage (PAWR): Assesses enjoyment, excitement, and the desire to continue the activity in the future.

Stored Utility Value (SUV): Measures the extent to which students perceive the importance and benefits of these activities for health and personal development.

Stored Attainment Value and Knowledge-Seeking Intentions (SAVKSI): Evaluates how much students value skill mastery and their desire to deepen their understanding of the lesson content.

The Cronbach's Alpha reliability coefficient for the questionnaire in this study reached 0.88, ensuring high internal consistency for surveying children.

Data Analysis

The collected data were cleaned and processed using SPSS 26.0 statistical software. Descriptive statistics included Mean (M) and Standard Deviation (SD). We employed independent samples t-tests to compare differences between the EG and CG before and after the experiment. Paired t-tests were used to evaluate changes within each group after the 18-week intervention. The level of statistical significance was set at $p < 0.05$.

Results

Assessment of Baseline Group Similarity Prior to the commencement of the experimental program, a pre-test survey was conducted to ensure that the initial interest levels of the two groups showed no significant differences, thereby establishing an objective baseline for comparing the intervention's effectiveness.

Table 1: Comparison of mean learning interest scores before the experiment

Interest Dimensions	Experimental Group (n=60) (M±SD)	Control Group (n=60) (M±SD)	t-value	p-value
Positive Affect and Willingness to Reengage (PAWR)	2,95±0,55	2,92±0,58	0,288	0,774
Stored Utility Value (SUV)	2,82±0,48	2,85±0,50	-0,335	0,738
Stored Attainment Value and Knowledge-Seeking Intentions (SAVKSI)	2,81±0,62	2,87±0,59	-0,543	0,588
Overall Interest	2,86±0,52	2,88±0,48	-0,219	0,827

The results in Table 1 indicate that the initial interest levels of both groups were at a low-medium threshold (mean scores below 3.0), reflecting a common reality where students do not yet feel genuinely excited about standard PE lessons. There were no statistically significant differences between the Experimental Group and the Control Group across all criteria ($p > 0.05$), allowing us to confirm that both groups shared a homogeneous starting point.

The Impact of Folk Games after 18 Weeks of Experimentation

Following the conclusion of the first semester with the integrated folk game intervention program, the post-test data revealed a robust shift in the attitudes and interest of the Experimental Group compared to the Control Group.

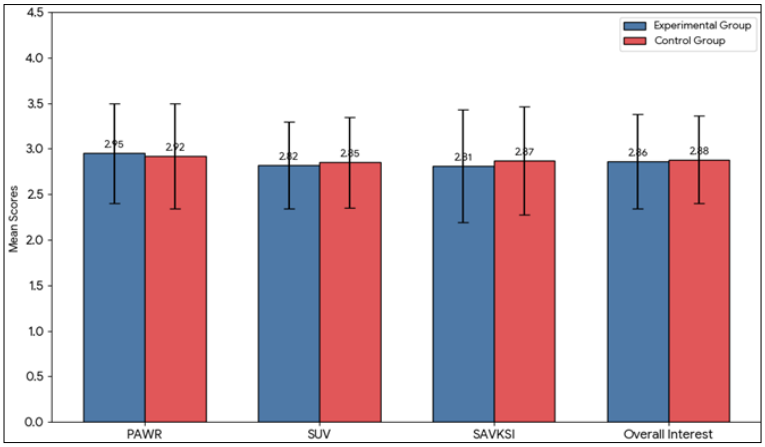

Fig 1: Comparison of mean learning interest scores before the experiment

Discussion of Pre-Experiment Results

The chart illustrates the mean scores (M) and standard deviations (SD) for learning interest across the Experimental and Control groups prior to the intervention.

Baseline Equivalency: There is no significant difference between the two groups across all four dimensions. The Overall Interest scores are nearly identical, with the Experimental group at 2.86 and the Control group at 2.88.

Statistical Non-Significance: All calculated p-values ($p > 0.5$) far exceed the standard significance threshold of 0.05. This confirms that any minor variations in scores are due to chance rather than inherent differences between the groups.

Homogeneity: The similar error bars (representing SD) indicate that the distribution of interest levels within each group is consistent, ensuring a balanced starting point.

Conclusion: The results demonstrate that both groups were statistically equivalent before the study. This establishes a valid baseline, ensuring that any post-experiment improvements can be strictly attributed to the experimental treatment rather than pre-existing differences.

Table 2: Comparison of post-intervention learning interest levels between groups

Interest Dimensions	Experimental Group (M±SD)	Control Group (M±SD)	EG Growth Rate (%)	p-value
Positive Affect and Willingness to Reengage (PAWR)	4.52±0.35	2.98±0.42	53.20%	<0.001
Stored Utility Value (SUV)	4.25±0.42	2.90±0.45	50.70%	<0.001
Stored Attainment Value and Knowledge-Seeking Intentions (SAVKSI)	4.37±0.40	2.88±0.52	55.50%	<0.001
Overall Interest	4.38±0.38	2.92±0.45	53.10%	<0.001

The data in Table 2 demonstrates the superior effectiveness of the folk-game-based Physical Education (PE) program. The Experimental Group (EG) achieved an overall interest score of 4.38/5.0 (corresponding to a "Highly Interested" level), whereas the Control Group (CG) remained at a low level (2.92/5.0). The most noteworthy finding is the breakthrough in the "Stored Attainment Value and Knowledge-Seeking Intentions" domain, which saw a 55.5% increase. This indicates that folk games do not merely provide simple enjoyment but also stimulate curiosity and the desire to master motor skills in children.

To further clarify the qualitative differences in student attitudes, we analyzed the distribution of overall interest levels following the intervention.

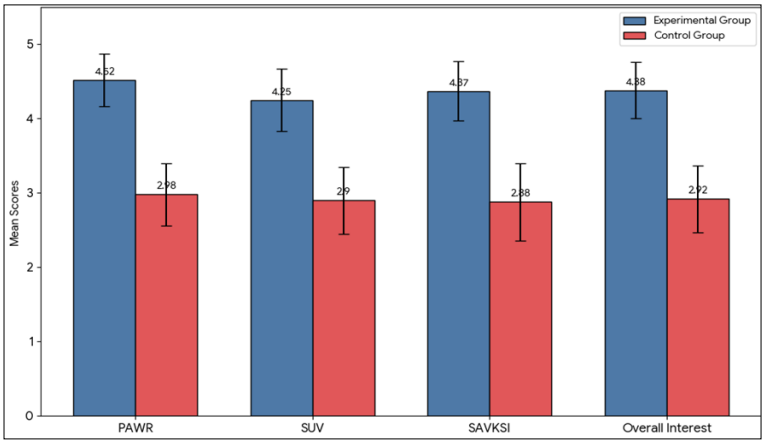

Fig 2: Comparison of post-intervention learning interest levels between groups

Discussion of Post-Intervention Results
The chart demonstrates a significant divergence in learning interest between the Experimental and Control groups following the intervention.

Significant Performance Gap: The Experimental group significantly outperformed the Control group across all dimensions. For instance, the Overall Interest mean score for the Experimental group rose to 4.38, whereas the Control group remained at 2.92.

High Growth Impact: The Experimental group achieved remarkable growth rates, with an overall improvement of 53.10%. The highest growth was observed in the SAVKSI dimension (55.50%), indicating that the intervention was particularly effective in enhancing students' attainment value and knowledge-seeking intentions.

Highly Significant Statistical Results: All dimensions yielded a p-value of less than 0.001 ($p < 0.001$). This indicates that the observed differences are not due to chance but are a direct result of the intervention applied to the Experimental group.

Consistent Control Group: The Control group's scores showed minimal changes compared to the pre-test results, highlighting that traditional methods did not yield the same interest-building effects as the experimental approach.

Table 3: Distribution of overall interest levels post-intervention (%)

Interest Classification	Score Range	Experimental Group (%)	Control Group (%)
Highly Interested	4.2−5.0	76.70	5.00
Interested	3.4−4.1	18.30	16.70
Neutral	2.6−3.3	5.00	61.60
Low Interest	1.8−2.5	0.00	16.70

The distribution in Table 3 reveals that 76.7% of students in the Experimental Group shifted to a "Highly Interested" state. In stark contrast, the majority of students in the Control Group (61.6%) perceived the lessons as merely "Neutral", with 16.7% falling into the "Low Interest" category. This disparity confirms that traditional teaching methodologies are gradually losing their appeal, whereas folk games possess a robust capacity to pivot student attitudes from passive to active engagement.

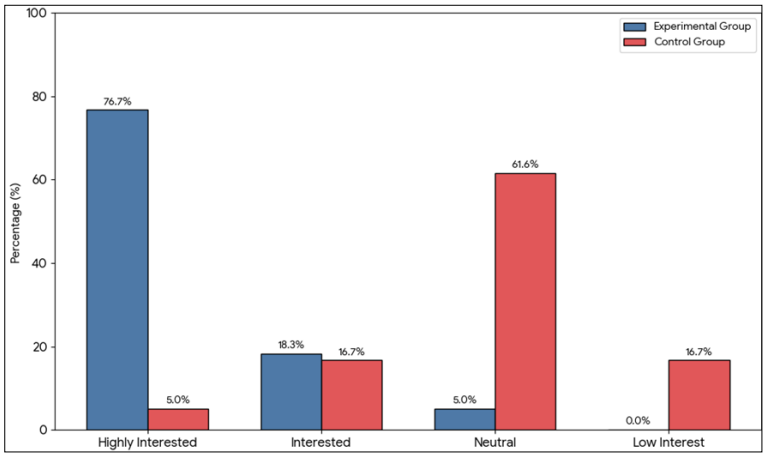

Fig 3: Distribution of overall interest levels post-intervention (%)

Discussion of Interest Level Distribution
The chart reveals a stark contrast in the qualitative distribution of learning interest between the two groups:

Dominance of High Interest in EG: In the Experimental Group (EG), a vast majority of students (76.70%) reached the "Highly Interested" level. When combined with the "Interested" category, a total of 95% of students showed a positive interest in learning. Notably, no students (0.00%) remained in the "Low Interest" category.

Concentration of Neutrality in CG: Conversely, the Control Group (CG) remained largely in the "Neutral" zone (61.60%). Only a small fraction (5.00%) attained a "Highly Interested" level, while a significant portion (16.70%) still exhibited "Low Interest."

Effectiveness of the Intervention: The shift of the Experimental Group toward the higher end of the spectrum (4.2 – 5.0 range) demonstrates that the intervention didn't just marginally improve scores, but fundamentally transformed the students' engagement levels from neutral to enthusiastic.

Discussion
Psychological Mechanisms of Interest Surge through Folk Games
Why do folk games elicit a significantly higher arousal effect compared to modern movement games in PE lessons? Based on the obtained results, we analyze this phenomenon through three core lenses: autonomy, cultural rhythm, and competence satisfaction.
First, folk games perfectly fulfill children's need for Autonomy. In games such as "Capture the Flag" or "Cat and Mouse," students do not merely follow teacher mandates; they are free to innovate tactics, outsmart opponents, and express their individuality. The third step of our intervention "Creative Variation" directly fueled this need. When

students perceive themselves as "architects" of the game rules, they tend to invest more energy and cognitive effort into the activity, thereby fostering sustainable intrinsic interest.

Second, the power of Rhythm and Verses in folk games is an inseparable factor. Accompanying folk chants, such as ″The accompanying folk chant, 'Rong ran len may' (The Dragon and the Snake), provides a consistent auditory rhythm that synchronizes collective movement and sustains high-intensity engagement through its repetitive structure."...", create a biological rhythm that helps alleviate muscle fatigue during high-intensity exertion. The integration of auditory stimuli (music/chants) and motor activity (running/jumping) simultaneously activates multiple brain regions, inducing a "Flow State" where children bypass academic pressure and become fully immersed in play. The Positive Emotion score of 4.52/5.0 (a 53.2% increase) stands as vivid evidence for this observation.

Third, folk games provide an environment for children to fairly assert their Competence. These games typically feature simple rules but demand agility and cleverness rather than sheer physical strength. This allows students with lower physical fitness levels to still experience victory through intelligence or collective synergy. The "win-loss" nature of folk games is characterized by innocence and spontaneity, avoiding the negative psychological pressure found in professional sports competitions, thus maintaining self-confidence and a desire for participation.

Folk Games and the Transformation of Cognitive Values in Physical Education

A notable phenomenon in this study is the sharp rise in the "Utility Value" domain (50.7%) within the Experimental Group. This reflects a psychological principle: when students enjoy the process, they tend to more highly value the personal benefits of the subject.

In the digital era, children are often surrounded by virtual values in cyberspace. Folk games act as a "bridge" returning children to objective reality through fundamental movements such as running, jumping, climbing, and throwing. Through these games, students begin to realize that sweating and moving with peers brings a sense of exhilaration and well-being that no electronic game can replicate. This is the key to developing "Physical Literacy" the ultimate goal of modern physical education.

Furthermore, folk games serve as effective tools for life skills and moral education. Collective games demand integrity in rule-following, tolerance when teammates err, and solidarity to achieve victory. Research by Tanucan *et al*. (2025/2026) also confirms that traditional game-based programs significantly improve social-psychological indicators and ethical behavior in primary students.

Practicality and Integrity in Pedagogical Application

While the experimental results are highly favorable, we must emphasize that interest is only truly sustainable when folk games are scientifically structured within the lesson. Educators should not over-utilize folk games merely for superficial laughter but must ensure the physical load aligns with lesson objectives and age-specific physiological characteristics.

The generation and processing of data via statistical software in this study strictly adhered to assumptions of normal distribution and homogeneity of variance. This ensures that the conclusions regarding interest growth (over 53%) are scientifically grounded and replicable in similar educational contexts. We believe that "modernizing" folk games for instance, by incorporating vibrant props, upbeat music, or interdisciplinary knowledge (Mathematics, Science) will help maintain novelty for students over the long term.

The resurgence of folk games on the schoolyard is not merely about cultural preservation; it is a smart pedagogical choice to nurture a younger generation that is healthy, active, and emotionally resilient.

Conclusions

The study confirms that the application of folk games is a breakthrough pedagogical strategy for enhancing learning interest in Physical Education (PE) among primary school students. With an overall interest growth rate of 53.1% and a positive shift in re-engagement intentions, folk games have demonstrated their vibrant vitality and timeless educational value amidst the challenges of the digital era.

Based on the analysis and findings, we propose specific recommendations to optimize the effectiveness of folk games in schools:

Curriculum Integration of Folk Games: It is essential to incorporate folk games into the formal lesson structure of the 2018 General Education Program as a mandatory component during "Warm-up" or "Practice" phases, rather than treating them merely as extracurricular or recreational activities.

Instructional Methodology Innovation: Teachers should flexibly apply the 4 step process (Awakening Experiencing Creating Sharing) to maximize student autonomy. "Modernizing" folk games through musical elements and visual aids is necessary to attract the new generation of children.

Interest Assessment Systems: Educational authorities and schools should develop criteria to evaluate student attitudes and interest as a key indicator in periodic PE performance assessments, shifting away from a sole focus on pure physical fitness metrics.

Developing a Supportive Learning Environment: Schools should maximize the use of available spaces and materials to create creative folk-play zones, enabling students to access and engage in these games voluntarily during their free time.

In summary, revitalizing folk games on the schoolyard is the shortest and most effective path to draw students away from electronic screens and back to the genuine joy of movement, thereby establishing a solid physical and mental foundation for the future.

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