PHYSICAL EDUCATION OF STUDENTS

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The effectiveness of collaborative game-based learning on movement skills in physical education: a quasi-experimental study

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Abstract

Background and Study Aim Movement competence is essential for physical literacy and long-term engagement in active lifestyles. This study aimed to evaluate the effectiveness of a 12-week cooperative game-based learning (CGBL) intervention in enhancing fundamental movement patterns among university students compared to a traditional physical education curriculum.

Material and Methods Sixty male university students (age: 19.02 ± 0.84 years) were divided equally into an experimental group (CGBL based activities) and a control group (standard PE instruction). Five core movement competencies (bodyweight squat, lunge and twist, push-up, bend and pull, and single-leg squat) were assessed pre and post intervention using a validated rubric. Data met normality (Shapiro-Wilk, $p > 0.05$) and homogeneity assumptions (Levene's test, $p > 0.05$). Independent and paired sample t-tests were used for analysis, and effect sizes (Cohen's d) quantified practical significance.

Results No significant baseline differences were observed between groups ($p > 0.05$), confirming equivalence. Post intervention scores were significantly higher in the experimental group across all tests ($p < 0.001$). For example, push-up scores improved from 4.85 ± 0.40 to 9.25 ± 1.80 in the experimental group ($t = -12.501$, $p < 0.001$, $d = 2.69$) versus 5.15 ± 0.75 to 8.30 ± 0.80 in the control group ($t = -15.024$, $p < 0.001$, $d = 2.71$). Lunge and twist showed the highest effect size ($d = 3.71$) in the experimental group. Between group comparisons post test revealed moderate to large effect sizes ($d = 0.86$ to 1.87), favoring the CGBL approach.

Conclusions The cooperative game-based learning intervention significantly enhanced movement competence compared to traditional instruction. The combination of strong statistical significance and large effect sizes underscores the pedagogical value of integrating peer based, interactive motor tasks in physical education. These findings support CGBL as a powerful strategy for improving physical skill acquisition and should inform future curriculum designs.

Keywords: resistance training, muscular strength, balance and coordination, physical performance, body mass index

Introduction

Motor competence is widely acknowledged as a foundational element in children's physical development and long-term engagement in physical activity, directly influencing both health outcomes and lifelong movement behavior [1, 2]. Early and developmentally appropriate physical education (PE) plays a crucial role in fostering these competencies, particularly through structured opportunities for fundamental motor skills, body management, and coordinated movement patterns [3, 4]. These foundational motor experiences, when implemented during early childhood, provide a critical base for the acquisition of more complex motor abilities and athletic skills later in life [5, 6]. Traditional PE practices, often characterized by repetitive drills and teacher-centered instruction, are increasingly criticized for failing to meet the needs of diverse learners and for disengaging students from active participation [7, 8]. In contrast,

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contemporary pedagogical strategies such as gamification, Teaching Games for Understanding (TGfU), and cooperative learning have been shown to enhance student motivation, cognitive engagement, and motor skill acquisition [9, 10, 11, 12, 13]. These approaches transform PE into an interactive, student-centered environment where learners are more likely to experience enjoyment, intrinsic motivation, and social connection [14, 15, 16]. Game-based learning (GBL), in particular, has gained substantial attention as an instructional method that not only promotes physical development but also strengthens teamwork, problem-solving, and self-efficacy [17,18]. Studies have highlighted the potential of cooperative games to create supportive environments that improve performance, engagement, and peer interaction among students [19, 20, 21]. In this context, the integration of movement competency assessment tools into collaborative learning environments is increasingly advocated, especially as digital education and health-monitoring technologies evolve [22, 23, 24].

An analysis of previous research findings shows that motor competence plays a critical role in supporting lifelong physical activity and health outcomes. The authors emphasize that traditional physical education methods may be insufficient for meeting the needs of diverse learners. Instead, they highlight the benefits of innovative, student-centered approaches such as game-based learning, which have been shown to improve motivation, engagement, and motor skill development. Cooperative learning strategies, in particular, are identified as effective tools for fostering social interaction and enhancing movement competence in educational settings. Particularly noteworthy is the study based on the Physical Literacy and Motor Competence Development Model proposed by Whitehead [25]. This model views movement competence as a foundational component of lifelong physical activity. It encompasses physical, cognitive, and affective domains. Equally important is the study in which the pedagogical design is informed by Social Interdependence Theory, as described by Johnson and Johnson [26]. This theory emphasizes collaborative learning environments in which group success depends on individual contributions. In this context, there is a clear need to conduct research where game-based learning is deliberately structured to align with both frameworks. Such an approach enhances not only motor skills but also motivation, peer interaction, and self-efficacy in physical education settings.

Based on the conceptual framework, the following hypotheses were formulated: H1: Students in the experimental group receiving game skill-based learning will show significantly greater improvement in movement competence compared to students in the control group. H2: Collaborative game-based learning will foster increased student motivation, engagement, and peer interaction compared to traditional physical education methods.

This study aimed to evaluate the effectiveness of a 12-week cooperative game-based learning (CGBL) intervention in enhancing fundamental movement patterns among university students compared to a traditional physical education curriculum.

Materials and Methods

Participants

This research encompassed students from institutions located in the northeastern region. Sixty students, selected from various institutions, had a mean age of 19.02 years (standard deviation: 0.84) and ranged in age from 18 to 22 years (Fig. 1). Thirty students were randomly allocated to the experimental group of the physical education course, whereas the control group also consisted of thirty students. Before conducting the preliminary assessments, we excluded individuals from the research who had a history of significant injuries, impairments, or health issues that might impede their capacity to participate in the movement competence tests. As a result, five participants were removed from the initial sample, leading to a final sample size of 60 college students who completed the study. G*Power 3.1.9.7 software, developed by Franz Faul at the University of Kiel in Germany, was employed to calculate the appropriate sample size for the study. This statistical tool is widely used for power analysis, allowing the researcher to ensure that the sample size is sufficient to detect a significant effect if one exists while minimizing the risk of Type I and Type II errors [27]. The inclusion criteria for this study required participants to be college students aged 18 to 22 years, enrolled in physical education classes at universities in the northeastern region, and in generally good health without significant medical conditions that would impair their ability to engage in physical activities.

Participants also needed to provide informed consent, indicating their understanding of the study's aims and procedures, and demonstrate a willingness to participate in both the pre- and post-test assessments as well as the 12-week intervention program. Conversely, the exclusion criteria encompassed students with physical disabilities that could affect their performance, individuals with immunocompromised conditions or a history of cardiovascular difficulties, those reporting significant injuries related to sports or physical activities, and students not enrolled in physical education classes or who did not attend the required sessions for the study. All participants were male college students, with 30 assigned to the

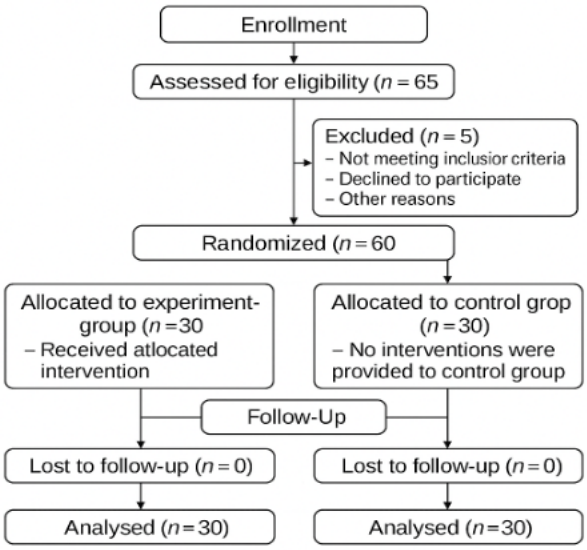

Figure1. Flow Diagram

experimental group and 30 to the control group, resulting in a total sample size of 60.

Ethical Consideration

Prior to the commencement of the experiment, ethical considerations were meticulously reviewed. All participants were asked to provide their informed consent after being informed about the study methodologies. Each participant filled out a brief survey soliciting essential biographical details and any previous or existing injuries potentially arising from sports or other physical activities. No participants were excluded from the research, since there were no documented hardships that would necessitate exclusion based on their responses. All participants in this study received comprehensive information regarding the objectives and overall procedures of the research project. They voluntarily agreed to take part by signing a written consent form. This process was implemented to guarantee the reliability of the scientific findings derived from the study. The research adhered to the principles outlined in the Declaration of Helsinki. All data collected were treated with strict confidentiality. Participants' identities were anonymized using coded identifiers, and all results were stored securely on password-protected systems accessible only to the research team. Participants were fully informed of their right to withdraw from the study at any point without penalty or academic consequence. This right was emphasized both in the consent form and in verbal briefings, ensuring autonomy and voluntary participation throughout the research.

Research Design

The study employed a quasi-experimental, non-equivalent group design, where participants were assigned to groups based on pre-existing physical education classes, not through true randomization. While care was taken to ensure group comparability, full random assignment was not feasible due to administrative and logistical constraints within the institutional academic structure. The control group had regular education in fundamental movement methods; a 12-week program was implemented to enhance movement proficiency. The experimental group, conversely, engaged in activities aimed at enhancing gaming abilities. Both groups undertook the same examination to assess their competencies prior to and after the intervention. The five activities included in the competence screening tests for evaluating basic movement abilities were bodyweight squats, lunges and twists, push-ups, bends and pulls, and single-leg squats. Their decision was swayed by the reliability and accuracy of these evaluations in assessing essential motor skills. Students in both groups participated in a 12-week physical education program after the initial evaluations, with identical class schedules, facility access, and other contextual characteristics.

Experimental Group Design

The experimental group participated in a 12-week program focused on exercises designed to improve their gaming skills. Players needed collaboration to accomplish various mobility objectives dictated by the games. Each exercise incorporated multiple aspects of movement competence evaluation, aiming to inspire full participation and contribution from all group members. The primary objective of this collaborative effort was to improve the performance capabilities of the participants. The structure and progression of the intervention are presented in Table 1.

Students were motivated to collaborate in order to attain shared goals. Providing shared incentives for group involvement emphasized the need for cooperation and fostered positive interdependence. The group's success relied on the individual efforts of each student. Consistent peer assessments and performance evaluations guaranteed equitable involvement. The educators in this group acted as facilitators instead of conventional professors, offering students direction, feedback, and incentive using collaborative learning methods such as peer teaching, learning circles, and group projects. These strategies, designed to enhance student engagement, were anticipated to improve students' movement performance, foundational abilities, social skills, and self-efficacy. Standardized examinations were conducted to evaluate these objectives; comments from instructors and students contributed to their assessment. Prior to the intervention, instructors in the experimental group underwent a two-day training workshop conducted by a certified physical education methodology expert. The training included detailed session plan briefings, simulations of game-based exercises, and instructional consistency guidelines. Standardization was ensured through the use of activity manuals, performance checklists, and weekly feedback meetings to maintain uniformity in delivery across different groups and sessions.

The game-based learning method employed in this study aligns closely with university-level physical education course syllabi, which emphasize holistic motor development, teamwork, and active learning. The intervention was integrated as a practical module within the official physical education curriculum, fulfilling course objectives such as enhancing motor skills, promoting social interaction, and improving student engagement. Furthermore, the approach supports current accreditation frameworks that demand measurable learning outcomes, competency-based assessments, and inclusive pedagogical strategies. The cooperative and participatory nature of the method meets modern pedagogical standards advocated by bodies such as the National Council for Accreditation of Teacher Education (NCATE) and other curriculum quality benchmarks.

Control Group Design

The control group participated in a conventional exercise regimen characteristic of HEI physical education courses, which includes basic movement patterns, games, strategies, and sport-specific activities. Lessons were conducted weekly for a specified duration, similar to the experimental group, to ensure comparison. The program's foundational elements consisted of assignment rubrics, instructional DVDs, and textbooks. Instructors who prioritized individual student accomplishment above collaborative efforts conducted the sessions, therefore delivering direct instruction and facilitating activities and assessments. The program sought to enhance general physical health and cultivate sport-specific talents in alignment with physical education goals, while also enhancing skill performance, refining foundational skills, and promoting sportsmanship. The control group's progress was evaluated using standard criteria and teacher evaluations, ensuring adherence to the physical exercise schedule. Periodic assessments monitored variations in fitness, skill competency, and other pertinent outcomes. We examined students' movement skills and fitness levels before and after the intervention to evaluate the efficacy of the cooperative learning approach relative to standard teaching methods.

Movement Competency Assessment Protocol (MCAP)

1. Bodyweight Squat: Begin by standing with your fingertips placed at the sides of your head. Lower your body into a squat position as far as is comfortable, then return to a standing position.
2. Lunge and Twist: Cross your arms and place your hands on your shoulders, ensuring your elbows are pointed forward. Step into a forward lunge, then twist your torso toward the knee that is in front. Return to the center and stand up. Alternate legs with each repetition.
3. Push-up: Execute a standard push-up while maintaining proper form throughout the entire movement.
4. Bend and Pull: Start with your arms extended overhead. Lean forward, allowing your arms to lower beneath your torso. Pull your hands toward your torso, mimicking the motion of a barbell row. Return to the starting position with

Table 1. Weekly Session Plan for Experimental Group

Week Range	Phase	Focus	Activities	Reps/Sets	Progression Strategy
Weeks 1–4	Foundation	Basic coordination and mobility	Relay squats, simple push-up games	3 sets × 8–10 reps	Emphasis on correct form
Weeks 5–8	Development	Strength, balance, and movement combinations	Lunge and twist relays, bend and pull partner drills	3–4 sets × 10–12 reps	Add single-leg variations and timing challenges
Weeks 9–12	Mastery	Game performance under pressure	Team challenges, skill circuits, push-up relays	4 sets × 12 reps	Time-bound tasks and complexity in sequencing

your arms extended overhead.

5. Single-Leg Squat: Perform a bodyweight squat on one leg, with your fingertips resting at the sides of your head. Extend the non-weight-bearing leg behind your torso. Lower into the squat as far as is comfortable, then return to the standing position.

- Each movement competency test was scored on a 10-point rubric, developed based on form accuracy, control, and completion: 10–9 points: Excellent technique, full range of motion, stable and controlled movement.
- 8–7 points: Good execution with minor form lapses.
- 6–5 points: Moderate control, inconsistent depth or alignment. 4–3 points: Poor control, multiple form deviations.
- 2–1 points: Unable to complete the movement properly or required assistance.

Two trained assessors independently rated each performance, and discrepancies greater than 1 point were resolved through consensus. Inter-rater reliability was assessed prior to data collection (ICC = 0.91).

Statistical Analysis

The data analysis for this study was conducted with SPSS version 26. Descriptive statistics including mean, frequency, and standard deviation were used to analyze the quantitative data. A paired sample t-test was used to compare the scores of each group before and after the intervention. An independent sample t-test was used to evaluate the differences between the control and experimental groups. The criterion for significance in every statistical test was a p-value below 0.05.

Results

Both the experimental and control groups underwent a pre-experimental movement competence assessment to provide a baseline for evaluating students' movement skill performance and to ensure comparability of outcomes. Before the intervention, both groups completed a pre-test movement competency assessment to establish baseline equivalence. Shapiro-Wilk tests confirmed normal distribution for all variables ($p > 0.05$), and Levene's tests indicated homogeneity of variances ($p > 0.05$), validating the use of parametric tests.

Table 2 presents the results of the movement competency pre-tests for both the experimental and control groups across five movement patterns: bodyweight squat, lunge and twist, push-up, bend and pull, and single-leg squat. The purpose of this baseline assessment was to ensure that both groups were equivalent in skill before the intervention.

No statistically significant differences ($p > 0.05$) were found between the groups on any of the movement patterns. The mean scores were relatively close in all five categories, with standard deviations indicating moderate variation. The absence of significant pre-test differences confirms that the groups were homogeneous and comparable. This allowed for a fair assessment of the effectiveness of the 12-week collaborative game-based learning intervention.

Table 3 summarizes the movement competency scores after the 12-week intervention using independent samples t-tests. The experimental group significantly outperformed the control group in all five tested movements (p-values < 0.05). For example, in push-up performance, the experimental group achieved a mean score of 13.75 compared to 11.60 in the control group.

The statistical differences were not only significant but also practically meaningful, supported by strong Cohen's *d* effect sizes (ranging from moderate to large). These results suggest that collaborative game-based learning activities had a clear and measurable impact on improving motor competencies. Overall, this table highlights the success of the intervention in enhancing physical skill acquisition among students.

Table 4 evaluates within-group improvements by comparing pre- and post-test scores for each group

Table 2. Pre-test Scores (Independent Samples t-test)

Movement Pattern	Group	N	M	SD	t-value	p-value
Bodyweight Squat	Experimental	30	5.65	1.10	-0.512	0.617
	Control	30	5.85	0.80		
Lunge and Twist	Experimental	30	5.50	1.15	-0.345	0.731
	Control	30	5.70	1.25		
Push-up	Experimental	30	4.90	0.45	-1.654	0.105
	Control	30	5.20	0.70		
Bend and Pull	Experimental	30	5.75	1.05	-1.432	0.156
	Control	30	6.00	0.90		
Single-leg Squat	Experimental	30	5.10	0.80	-1.620	0.115
	Control	30	5.40	0.75		

Table 3. Post-test Scores (Independent Samples t-test with Effect Sizes)

Movement Pattern	Group	N	M	SD	t-value	p-value	Cohen's d
Bodyweight Squat	Experimental	30	9.10	1.80	2.512	0.015	0.86
	Control	30	8.25	0.85			
Lunge and Twist	Experimental	30	8.70	0.75	3.215	0.002	1.15
	Control	30	7.90	1.10			
Push-up	Experimental	30	13.75	1.40	5.812	< 0.001	1.87
	Control	30	11.60	1.30			
Bend and Pull	Experimental	30	8.50	1.25	3.672	< 0.001	1.32
	Control	30	7.50	0.60			
Single-leg Squat	Experimental	30	11.25	1.05	4.210	< 0.001	1.45
	Control	30	5.50	0.80			

Table 4. Paired Samples t-test and Effect Sizes (Pre–Post Within Groups)

Movement Pattern	Group	Pre-test M ± SD	Post-test M ± SD	t-value	p-value	Cohen's *d*
Bodyweight Squat	Experimental	5.65 ± 1.05	11.20 ± 1.02	-19.512	< 0.001	3.17
	Control	5.90 ± 0.80	9.85 ± 1.05	-15.203	< 0.001	2.95
Lunge and Twist	Experimental	5.50 ± 1.10	13.75 ± 1.50	-24.912	< 0.001	3.71
	Control	5.70 ± 1.25	11.60 ± 1.30	-16.458	< 0.001	3.06
Push-up	Experimental	4.85 ± 0.40	9.25 ± 1.80	-12.501	< 0.001	2.69
	Control	5.15 ± 0.75	8.30 ± 0.80	-15.024	< 0.001	2.71
Bend and Pull	Experimental	5.75 ± 1.00	8.75 ± 0.70	-13.672	< 0.001	2.52
	Control	6.00 ± 0.90	7.80 ± 1.05	-7.123	< 0.001	1.86
Single-leg Squat	Experimental	5.10 ± 0.75	8.50 ± 1.30	-14.506	< 0.001	2.59
	Control	5.50 ± 0.95	7.50 ± 0.55	-10.217	< 0.001	2.14

using paired samples *t*-tests. The experimental group showed substantial improvement in all five motor skills, with highly significant *p*-values (all < .001). For instance, their mean score in the single-leg squat improved from 5.10 to 8.50, indicating major gains in balance and control.

The control group also improved, but to a lesser extent, which might be attributed to natural progression through the physical education curriculum. Effect sizes (Cohen's *d*) were reported to reflect the magnitude of changes, with the experimental group showing consistently larger effects. This table clearly demonstrates that the collaborative game-based program led to meaningful within-group improvements in movement competence.

The findings indicate that the collaborative game-based learning approach had a positive impact on movement competency among students. Movement assessments were conducted to compare the performance of the experimental and control groups at the end of the physical education course, using the same tests as in the initial assessment. The results of the independent samples *t*-test for these comparisons are presented in Table 2. The analysis revealed a significant difference in movement competency screening tests between the control and experimental groups after the 12-week game skill-based activity. Specifically, the mean scores for all five movement competency tests were significantly higher in the experimental group than in the control group ($p < .001$). These results highlight that the collaborative game-based learning technique effectively enhanced movement competency, promoting regulated, harmonious, and holistic development in students' movement skill performance.

Discussion

This study investigated the efficacy of a 12-week game-based learning intervention on enhancing movement competence among college students. The results demonstrated statistically significant improvements in all five fundamental movement patterns (squatting, lunging, pushing, bending, and balancing) among students in the experimental group compared to the control group.

Post-test results showed that the experimental group achieved significantly higher scores than the control group across all five movement patterns. Independent sample *t*-tests revealed statistically significant differences ($p < 0.05$) between groups in bodyweight squat ($p = 0.015$), lunge and twist ($p = 0.002$), push-up ($p < 0.001$), bend and pull ($p < 0.001$), and single-leg squat ($p < 0.001$). Cohen's d values ranged from 0.86 to 1.87, indicating large effect sizes. Paired sample t-tests within the experimental group also showed substantial improvements from pre to post test in all movement patterns ($p < 0.001$), with very large effect sizes (Cohen's d from 2.52 to 3.71). These outcomes confirm that the game skill-based learning program significantly improved movement competence compared to the traditional method.

These findings validate the structured use of cooperative game-based learning (CGBL) as a pedagogical strategy in higher education physical education curricula, aligning with prior evidence on the effectiveness of interactive, student-centered approaches [28, 29]. Unlike traditional drill-based methods, the intervention used collaborative motor tasks to create engaging and inclusive environments. This approach allowed students to actively participate, observe peer strategies, and receive reciprocal feedback, which enhanced both skill development and movement quality. These findings align with the quasi-experimental research by Dyson et al. in school settings [34], but extend the implications to college populations, an area less frequently explored. While previous studies have associated CGBL with improvements in social interaction, motivation, and teamwork [29, 30], our study focused solely on observable and measurable physical outcomes.

The significant gains observed in post-intervention movement scores may be attributed to the peer-led, feedback-rich nature of the sessions, which is consistent with the Social Interdependence Theory framework that underpinned the study design [26]. These structured peer interactions fostered accountability and mutual support, enhancing skill acquisition through meaningful collaboration [15, 31]. Our results corroborate previous findings by Longakit et al. [28], who found similar improvements in motor competence following a structured game-based intervention among college students by demonstrating the effectiveness of game skill-based activities in enhancing students' movement competence within physical education programs. Their research involved 60 college students who participated in a 12-week intervention, revealing significant improvements in movement skills among the experimental group compared to the control group, despite no initial differences in motor competence scores ($p > .05$).

Importantly, the study advances prior literature by integrating movement competence assessments within the game-based framework, a method seldom applied in higher education contexts. The validated scoring rubrics, pre- and post-testing, and control group design strengthen the internal validity of these findings. Moreover, aligning the intervention with course structures makes the model scalable and applicable in academic environments.

Although some studies have shown that gamification boosts engagement [10, 32], our study offers empirical support for its capacity to yield measurable motor skill outcomes when structured correctly. However, broader claims about lifestyle changes, long-term adherence, or psychological transformations remain speculative and beyond the scope of this trial.

The current findings are consistent with earlier studies suggesting that game skill-based approaches contribute to dynamic and collaborative learning settings, where students engage more actively and provide mutual support, resulting in enhanced physical performance [33, 34]. Such instructional strategies are known to elevate students' involvement in physical tasks, subsequently improving essential movement components such as coordination, balance, and motor skills [34, 35, 36]. Additionally, a range of studies has shown that implementing game-based strategies in physical education can substantially improve physical attributes such as endurance, stamina, and muscular power. These improvements are often linked to structured activities that emphasize both personal skill refinement and teamwork-driven problem-solving [37, 38]. The findings of Choudhary et al. [39] support the present study by demonstrating that structured perturbation-based balance training can significantly enhance dynamic stability in athletes. Their evidence aligns with our results, highlighting the importance of incorporating proprioceptive challenges to improve movement competence in students.

This study contributes to the growing body of evidence supporting the pedagogical value of cooperative game-based learning in university physical education settings. By embedding structured motor tasks into collaborative formats, the intervention succeeded in significantly enhancing students' movement competence, demonstrating both academic and practical relevance. These findings underscore the effectiveness of integrating student-centered, cooperation-driven strategies into physical education curricula to improve motor performance and promote active engagement in structured learning environments.

Limitations and Future Research Directions

This study has several limitations that should be taken into consideration. The sample was limited to male college students enrolled in physical education programs within a specific geographic region, which restricts the generalizability of the findings. The intervention focused solely on physical outcomes without accounting for psychological or academic variables, and the duration of the study did not allow for assessment of long-term effects or behavioral retention.

Future research should examine the differential effects of specific cooperative structures on motor domains. It can also assess psychological constructs (e.g., motivation, confidence) alongside physical measures to better understand holistic impacts and can conduct longitudinal studies to test the sustainability of observed motor improvements over time. Future research should aim to replicate this intervention in varied higher education environments, including among non-PE students or mixed-gender groups. Longitudinal studies should explore whether gains in movement competence persist beyond the intervention period and whether they influence lifelong physical activity habits. Moreover, future studies could assess additional outcomes such as intrinsic motivation, academic performance, teamwork, or psychological well-being using validated psychometric tools. Comparing multiple pedagogical models (e.g., direct instruction versus cooperative game-based learning) across parallel sections may also help refine best practices in physical education pedagogy.

Conclusions

This study reinforces the pedagogical value of structured, game-based learning within higher education physical education programs. By integrating collaborative motor tasks into the curriculum, the approach demonstrated practical relevance for enhancing students' movement competence. These findings suggest that incorporating cooperative and student-centered methodologies may contribute meaningfully to physical education instruction. The intervention model aligns with broader educational goals promoting active engagement, motor development, and inclusive teaching practices.

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Conflict of Interest

The authors declare no conflict of interest.

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