Asian Journal of Social Science and Management Technology
ISSN: 2313-7410
Volume 8, Issue 2, March-April, 2026
Available at www.ajssmt.com

Enhancing Motivation, Engagement, and Skill Confidence in Elementary Physical Education: A Quasi-Experimental Study of Game-Based Teaching with Peer Leadership

Angeline C. Gutierrez[1], Christine Ann G. Pascual[2], Andrea P. Francisco[3], Jelene S. Tagaza[4], Eliza D. Ganado[5]

Central Luzon State University

Abstract: Physical Education (PE) plays a critical role in fostering learners' physical competence, engagement, and motivation; however, traditional teacher-centered approaches often result in low participation and increased boredom among pupils. This study examined the effectiveness of game-based teaching integrated with peer leadership in enhancing motivation, engagement, and skill confidence among Grade 6 pupils. A quasi-experimental two-group pretest–posttest design was employed involving 75 pupils from Caanawan Elementary School (experimental = 40; control = 35). Data were collected using a Motivation, Enjoyment, and Engagement Scale and a Physical Education Skill Confidence Scale. Statistical analyses included mean scores, standard deviations, paired sample t-tests, and independent sample t-tests. Results revealed that although both groups showed improvement, the experimental group demonstrated significantly higher gains in motivation, participation, and skill confidence, alongside a greater reduction in boredom ($p < 0.001$). Findings suggest that cooperative game-based teaching with peer leadership is more effective than traditional approaches in promoting both affective and psychomotor outcomes in PE. The study recommends integrating learner-centered strategies in elementary PE, while future research should explore long-term implementation and broader populations.

Keywords: game-based learning, peer leadership, motivation, engagement, physical education, skill confidence

---

1. Introduction

Physical Education (PE) plays a vital role in promoting physical competence, social interaction, and lifelong engagement in physical activity. It provides learners with opportunities to develop movement skills, build confidence, and cultivate positive attitudes toward active living. However, despite its importance, persistent issues of low participation, reduced motivation, and boredom remain evident in many PE settings, particularly when instruction is dominated by repetitive, teacher-centered approaches (Diloy-Peña et al., 2025).

Empirical evidence in the Philippine context underscores the central role of motivation in shaping students' physical activity behaviors. Studies have shown that motivation significantly predicts participation in physical activity among Filipino learners, with higher motivation levels associated with increased engagement and sustained involvement (Martin et al., 2016; Martin et al., 2017). Conversely, perceived barriers such as lack of interest, limited autonomy, and monotonous instructional strategies negatively affect students' willingness to

participate (Esmaeil et al., 2024; Martin & Santos, 2015). These findings suggest that traditional pedagogical approaches may not sufficiently address learners' motivational needs.

Further research highlights the importance of participatory and learner-centered strategies in enhancing engagement and performance. For instance, participative coaching approaches have been found to improve self-confidence and self-efficacy among student-athletes, emphasizing the value of interactive and collaborative learning environments (Pestaño et al., 2025). Similarly, studies on physical competence and engagement in culturally relevant activities, such as Arnis, demonstrate that meaningful and context-based instruction enhances both skill development and student motivation (Santos et al., 2022).

Despite these contributions, much of the existing literature has focused on secondary and tertiary populations, with limited attention given to elementary learners. Additionally, while motivation and participation have been extensively examined (Miao et al., 2024), there is a lack of classroom-based evidence exploring how innovative pedagogical strategies such as game-based teaching combined with peer leadership can simultaneously influence affective outcomes and skill confidence in younger learners.

To address this gap, the present study investigates the effectiveness of game-based teaching integrated with peer leadership in enhancing motivation, engagement, and skill confidence among Grade 6 pupils. This approach emphasizes active participation, collaboration, and shared responsibility, aligning with contemporary learner-centered frameworks in Physical Education.

2. Literature Review

Game-Based Teaching and Student Engagement in Physical Education

Game-based teaching has gained increasing recognition as an effective pedagogical approach in Physical Education, as it integrates skill development within interactive and meaningful learning experiences. Unlike traditional drill-based instruction, game-based approaches promote active engagement, intrinsic motivation, and contextualized learning (Adipat et al., 2021). This aligns with broader educational perspectives emphasizing experiential and student-centered learning.

A growing body of literature supports the effectiveness of game-based instruction in improving both affective and psychomotor outcomes. Systematic reviews have shown that students exposed to game-based learning demonstrate higher levels of enjoyment, engagement, and skill performance (Camacho-Sánchez et al., 2023). Similarly, hybrid pedagogical models such as Teaching Games for Understanding (TGfU) have been found to enhance participation and tactical awareness (Mahardhika et al., 2024).

Within the Philippine context, research consistently highlights the role of motivation and participatory approaches in promoting physical activity engagement. Foundational studies indicate that students' motivation profiles significantly influence their participation in physical activity (Martin et al., 2016; Martin et al., 2017). Additionally, factors such as social interaction and behavioral influences including media use have been linked to variations in physical activity engagement (Martin et al., 2017). More recent work further emphasizes that participative and collaborative approaches enhance self-confidence, self-efficacy, and sustained engagement among learners (Pestaño et al., 2025). These findings collectively suggest that instructional strategies that prioritize interaction, enjoyment, and collaboration are more effective in promoting meaningful participation in Physical Education.

Affective Outcomes in Physical Education: Motivation, Interest, and Boredom

Affective outcomes particularly motivation, enjoyment, and boredom are critical determinants of students' engagement in Physical Education. Research grounded in motivational theory indicates that students who experience higher levels of intrinsic motivation are more likely to actively participate and sustain involvement in physical activities (Fierro-Suero et al., 2023; Ahmed et al., 2024; Martin & Santos, 2019).

Evidence from Filipino student populations reinforces this perspective. Motivation has been identified as a key predictor of physical activity participation, while perceived barriers significantly reduce engagement (Martin et al., 2016; Martin & Santos, 2015). Moreover, instructional approaches that fail to provide meaningful interaction often led to increased boredom and disengagement.

Conversely, learner-centered and participatory approaches have been shown to enhance students' affective experiences. For example, participative coaching and collaborative learning environments foster self-confidence and engagement (Lobo et al., 2025), while culturally relevant and activity-based instruction improves perceived competence and motivation (Santos et al., 2022). These findings highlight the importance of designing PE experiences that address both affective and psychomotor domains.

Theoretical Framework

This study is based on the Constructivist Learning Theory by Jean Piaget, which explains that learners gain knowledge through active participation and meaningful experiences (Dewey et al., 1997). In Physical Education, game-based activities help students learn skills by doing, making lessons more engaging.

It is also supported by the Self-Determination Theory of Edward Deci and Richard Ryan, which states that students are more motivated when they feel capable, connected to others, and involved in their learning (Deci & Ryan, 2000). Game-based teaching promotes these, helping reduce boredom. Additionally, the study is guided by Social Learning Theory by Vygotsky (1978), which highlights the importance of interaction, collaboration, and peer involvement in learning. These theories support the integration of game-based activities and peer leadership in enhancing both engagement and skill development.

Conceptual Framework

This study follows a quasi-experimental pretest–post-test control group model, where two groups of pupils are compared to determine the effectiveness of the intervention. The independent variable is the game-based teaching with peer leadership, while the dependent variables are the pupils' motivation, engagement, and enjoyment. Both groups undergo a pretest to determine their initial level. The experimental group receives the intervention, while the control group undergoes traditional instruction. After the intervention, both groups take a post-test, and the results are compared to determine the effect of the intervention.

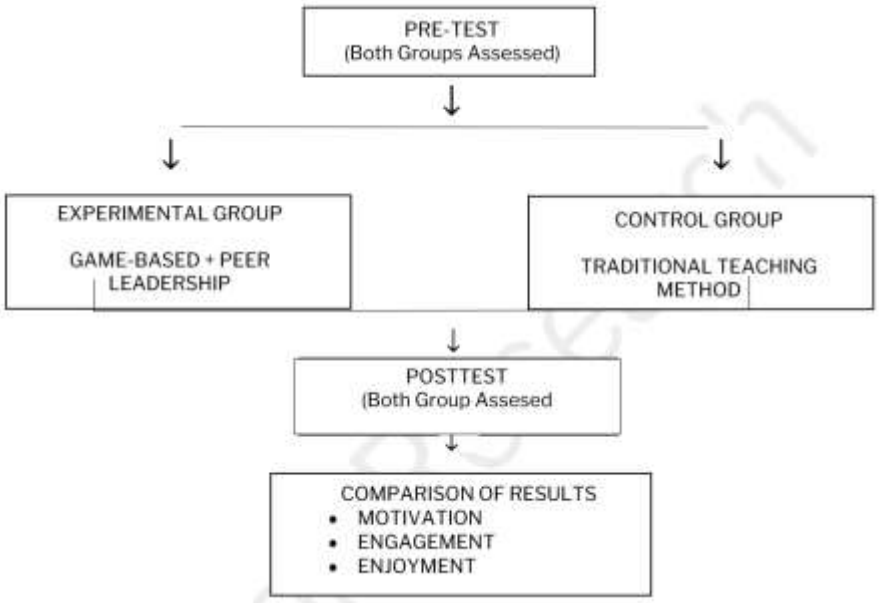

Figure 1. Conceptual Framework of the Study

3. Methodology

Research Design and Sample

This study employed a quasi-experimental two-group pretest-post-test design to determine the effectiveness of game-based teaching integrated with peer leadership in enhancing physical skills and reducing boredom among Grade 6 pupils. This design was used because it allows comparison between two groups an experimental group and a control group before and after the intervention. It is appropriate for classroom-based action research as it enables the researcher to evaluate the effectiveness of an intervention in a real educational setting.

Participants

The participants of the study consisted of 75 Grade 6 pupils from Caanawan Elementary School, involving two intact classes. The experimental group, composed of 40 pupils from Grade 6 Venus, was exposed to cooperative game-based activities with peer leadership. The control group, composed of 35 pupils from Grade 6 Del Pilar, was taught using traditional teaching methods. The participants were selected through convenience sampling due to their accessibility to the researchers. This sampling method is appropriate for classroom-based action research. The pupils were chosen because they are directly involved in Physical Education classes and are the intended beneficiaries of the intervention.

Instruments

The following instruments were used to gather data:

1. Perceived Motivation Scale – A 10-item instrument using a 4-point Likert scale designed to measure pupils' level of interest, motivation, and boredom in Physical Education.
2. Perceived Skill Confidence Scale – A 10-item Likert-scale questionnaire that measures pupils' confidence in performing physical skills, cooperating with peers, and completing Physical Education tasks.

These instruments were adapted and contextualized based on the objectives of the study. Content validity was ensured through alignment with the study's objectives, while reliability was maintained through consistent administration procedures.

Data Collection

Data were collected over a period of three weeks, following a structured procedure aligned with the intervention plan. Prior to the implementation, a pretest was administered to both the experimental and control groups to assess their initial levels of engagement, boredom, and skill confidence. During the intervention period, the experimental group participated in cooperative game-based activities with peer leadership, including relay games, partner challenges, and group tasks. These activities were designed to promote interaction, teamwork, and active participation. Meanwhile, the control group was exposed to traditional teaching methods, such as drill-based and teacher-directed instruction. After the intervention, a posttest was administered to both groups to measure changes in engagement and skill performance. To measure the effectiveness of the intervention, a pretest and posttest instrument was administered to both groups before and after the implementation. The instrument consisted of two parts:

(1) Motivation, Enjoyment, and Engagement Scale, and

(2) Physical Education Skill Confidence Scale, each composed of 10 items using a 4-point Likert scale (4 = Strongly Agree, 3 = Agree, 2 = Disagree, 1 = Strongly Disagree) .

The first part measured pupils' level of engagement, interest, and boredom during Physical Education, including reverse-scored items to ensure accuracy of responses. The second part assessed pupils' confidence in performing physical skills, cooperating with peers, and completing Physical Education tasks.

Overall, this intervention was designed to provide a more engaging, interactive, and learner-centered approach to Physical Education, addressing the identified issues of low participation and skill confidence. By integrating game-based learning and peer leadership, the intervention aimed to improve both the affective domain (engagement, motivation, interest) and the psychomotor domain (skill performance) of the pupils.

Data Analysis

Mean scores and standard deviations were computed to determine the levels of engagement, motivation, and skill confidence of the pupils before and after the intervention. Pre-test and post-test mean comparisons were used to determine the improvement in performance of both the experimental and control groups. Paired sample t-test was used to determine the significant differences between pre-test and post-test scores within each group. Independent sample t-test was used to determine the significant differences between the experimental and control groups. A level of significance of 0.05 was used, where a p-value less than 0.05 indicates a statistically significant difference.

Ethical Consideration

Ethical standards were observed throughout the study. Informed consent was secured from the participants and their teacher prior to data collection. All data, including video submissions and performance assessments, were

kept confidential. Personal identifiers were removed or anonymized. Additionally, students were informed their right to opt out of the study at any stage without any academic repercussions. All collected data were securely stored and only accessible to authorized researchers.

4. Results and Discussion

Game-Based Teaching in PE: Short-Term Skill Improvement

Table 1A presents the pre-test and post-test mean scores of the experimental and control groups in Part A of the instrument, which measured motivation, enjoyment, and engagement. Before the intervention, the two groups had comparable mean scores, suggesting a relatively similar starting point.

The substantial increase in motivation, enjoyment, and engagement among the experimental group highlights the effectiveness of the intervention. This finding is consistent with prior research demonstrating that motivation is a key determinant of physical activity participation among Filipino learners (Martin et al., 2016). The interactive and collaborative nature of game-based activities likely contributed to increased intrinsic motivation and active engagement.

Table 1A. Pre-test and post-test results of Experimental and Control Group

Part A. Motivation, Enjoyment and Engagement Scale

Statistics	Experimental Group	Control Group
Average Pre-test Result	(n=40)	(n=35)
Mean	2.74	2.80
SD (Standard Deviation)	0.22	0.11
Average Post-test Result	(n=40)	(n=35)
Mean	3.76	2.85
SD (Standard Deviation)	0.32	0.15

Within-Group Changes in Performance After the Intervention

Table 2A shows whether the changes within each group were statistically significant. The experimental group recorded a t-value of 8.91 with a p-value of <0.001, indicating a significant difference between the pre-test and post-test scores. In contrast, the control group obtained a t-value of 1.12 and a p-value of 0.290, which indicates no significant difference. These results confirm that the intervention produced a meaningful improvement in motivation, enjoyment, and engagement only among pupils exposed to game-based teaching with peer leadership.

Table 2A. Comparison of pre-test and post-test within groups

Part A. Motivation, Enjoyment and Engagement Scale

Group	Pre-Test Mean	Post-test Mean	T-value	P-Value	Interpretation
Experimental group	2.74	3.76	8.91	<0.001	Significant Difference
Control group	2.80	2.85	1.12	0.290	No significant Difference

The statistically significant improvement observed in the experimental group reinforces the impact of learner-centered strategies. This aligns with findings that participatory approaches enhance engagement and learning outcomes by fostering autonomy and collaboration (Pestaño et al., 2025). The absence of significant change in the control group further underscores the limitations of traditional instructional methods.

Table 1B. Pre-test and post-test results of Experimental and Control Group
Part B. Perceived Skill Confidence Scale

Statistics	Experimental Group	Control Group
Average Pre-test Result	(n=40)	(n=35)
Mean	2.80	2.75
SD (Standard Deviation)	0.20	0.25
Average Post-test Result	(n=40)	(n=35)
Mean	3.73	2.78
SD (Standard Deviation)	0.39	0.13

Table 1B presents the pre-test and post-test results for Part B, which measured perceived skill confidence. Both groups started with nearly similar pre-test means, but the post-test results show a much larger gain in the experimental group.

As shown in Table 2B, the experimental group improved from 2.80 to 3.73 and obtained a t-value of 8.00 with a p-value of <0.001, indicating a significant difference. Meanwhile, the control group changed only slightly from 2.75 to 2.78 and showed no significant difference. This means that the intervention was also effective in strengthening pupils' confidence in performing Physical Education skills.

Table 2B. Comparison of pre-test and post-test within groups
Part B. Perceived Skill Confidence Scale

Group	Pre-Test Mean	Post-test Mean	T-value	P-Value	Interpretation
Experimental group	2.80	3.73	8.00	<0.001	Significant Difference
Control group	2.75	2.78	1.20	>0.05	No significant Difference

The improvement in perceived skill confidence suggests that game-based teaching not only enhances affective outcomes but also strengthens learners' self-efficacy. This is supported by research showing that participatory and activity-based learning environments improve students perceived competence and performance (Santos et al., 2022) including improved controlled aggression in combat sports (Santos, 2026).

Comparing Group Performance in Physical Education

Table 3 compares the post-test performance of the experimental and control groups in both parts of the instrument. In Part A, the experimental group obtained a higher post-test mean of 3.76 than the control group's 2.85, while in Part B the experimental group also outperformed the control group, 3.73 to 2.78.

The computed p-values of <0.001 in both parts indicate statistically significant differences between the two groups after the intervention. This shows that game-based teaching with peer leadership was more effective than the traditional approach in improving both affective outcomes and skill confidence in Physical Education.

Table 3. Comparison of Post-test Scores Between the Experimental and Control Groups

Group	Post-Test Mean	SD	T-value	P-Value	Interpretation
PART A:					
Experimental group	3.76	0.32	8.02	<0.001	Significant Difference
Control group	2.85	0.15			

PART B:					
Experimental group	3.73	0.39			
Control group	2.78	0.13	6.50	<0.001	Significant Difference

The significant differences between the experimental and control groups provide strong evidence for the effectiveness of the intervention. These findings extend earlier work demonstrating that motivation and engagement are critical predictors of physical activity participation (Martin et al., 2017), highlighting the added value of integrating peer leadership in enhancing learning outcomes.

Game-Based Teaching in PE: Participation, Motivation, and Skill Confidence

Table 4 presents the students' participation, motivation, boredom, and skill confidence performance in both groups. In participation, the experimental group increased from 2.74 in the pre-test to 3.76 in the post-test, while the control group increased only from 2.70 to 2.85. In motivation, the experimental group improved from 2.82 to 3.75, whereas the control group showed almost no change. In boredom, the control group showed a slight decrease from 3.15 to 2.95, while the experimental group demonstrated a greater reduction from 3.20 to 2.18. In learning or skill confidence, the experimental group also posted a higher increase from 2.83 to 3.76, compared to the control group's slight increase from 2.80 to 2.82.

These findings indicate that the intervention did not only improve performance scores but also increased students' participation, motivation, and confidence while reducing their boredom during Physical Education activities.

Table 4. Student's Participation, Motivation, Boredom, and Skill Confidence Performance

Focus Area	Indicator	Control group (n=35)		Average	Experimental group (n=40)		Average
		Pretest	Posttest		Pretest	Posttest	
Participation	Student's engagement in PE activities	2.70	2.85	2.78	2.74	3.76	3.25
Motivation	Students' interest and effort in PE	2.89	2.84	2.87	2.82	3.75	3.29
Boredom	Students' level of boredom and loss of interest during PE activities	3.15	2.95	3.05	3.20	2.18	2.69
Perceived skill confidence	Students' skill confidence and performance	2.80	2.82	2.83	2.83	3.76	3.30

The consistent improvements across participation, motivation, and skill confidence, along with the reduction in boredom, reinforce the effectiveness of the intervention. These results are aligned with previous findings that reducing perceived barriers and enhancing motivation are essential for increasing physical activity engagement (Martin & Santos, 2015). The findings also support the role of participatory learning environments in fostering sustained engagement and positive learning experiences.

5. Conclusion

The study provides empirical evidence that game-based teaching integrated with peer leadership significantly enhances motivation, engagement, and skill confidence among Grade 6 pupils. The findings extend previous research on motivation and physical activity participation among Filipino learners (Martin et al., 2016; Martin et al., 2017) by demonstrating that these relationships are equally relevant in elementary school contexts.

The results further reinforce the importance of participatory and learner-centered instructional approaches in Physical Education, supporting earlier findings that such strategies improve self-confidence, engagement, and overall learning outcomes (Pestaño et al., 2025; Santos et al., 2022). By integrating interactive and collaborative learning experiences, educators can create more meaningful and effective PE environments.

6. Recommendations

Based on the findings of the study, it is recommended that Physical Education teachers implement cooperative game-based activities with peer leadership regularly in their weekly lessons to improve pupils' engagement, reduce boredom, and enhance skill development. This strategy should focus on structured activities such as relay games, partner challenges, and cooperative group tasks, and should be measured through pretest and posttest results, classroom observations, and learner feedback. The implementation is achievable using available school resources and is relevant in promoting active and student-centered learning, while being time-bound within one academic quarter and regularly evaluated to ensure effectiveness. However, the study was limited by its short duration of three weeks and its focus on a single grade level, which may affect the generalizability of the results. Therefore, future studies are encouraged to extend the duration of the intervention, include a larger sample size, and explore its application in different grade levels or subject areas to further validate and strengthen the effectiveness of game-based teaching strategies.

7. References

1. Adipat, S., Laksana, K., Busayanon, K., Asawasowan, A., & Adipat, B. (2021). Engaging students in the learning process with game-based learning: The fundamental concepts. *International Journal of Technology in Education*, *4*(3), 542-552.
2. Ahmed, B., Yaru, H., Rafiq, M., & Im, C. (2024). Escaping the Boredom Trap: Enhancing Usability with 3D Games in Monotonous Subjects. *IEEE Access*, *12*, 180361-180384.
3. Camacho-Sánchez, R., Manzano-León, A., Rodríguez-Ferrer, J. M., Serna, J., & Lavega-Burgués, P. (2023). Game-based learning and gamification in physical education: a systematic review. *Education Sciences*, *13*(2), 183.
4. Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American psychologist*, *55*(1), 68.
5. Dewey, J., Montessori, M., Strzemiński, W., Piaget, J., Vygotsky, L., von Foerster, H., ... & Morin, E. (1997). Constructivism (learning theory). *Journal of Social Sciences, Literature and Languages*, 9-16.
6. Diloy-Pena, S., García-González, L., Haerens, L., De Cocker, K., Burgueno, R., & Abós, Á. (2025). Exploring (de-) motivating teaching profiles from a fine-grained directiveness approach: Differences in students' need-based experiences. *Teaching and Teacher Education*, *159*, 105003.
7. Esmaeil, A. A. A. H., Kiflee, D. N. B. A., Maakip, I., Halik, M., & Marshall, S. (2024). Psychosocial Barriers to Promoting Self-Directed and Autonomous Learning: The Perception of Students and Lecturers in Malaysia. *Journal of Education and e-Learning Research*, *11*(3), 464-472.
8. Lobo, J., Santos, M., Miller, J., Martin, J., Celso, R., & Bautista, C. (2025). "Autarchic, Missing-in-action, or Participative?": Viewed through the Lens of Competitive Dance Team Members' Organizational Commitment Vis-à-vis Choreographer's Management Approaches and Years of Service. *Journal of Dance Education*, *25*(4), 355–366. https://doi.org/10.1080/15290824.2024.2394413.

9. Mahardhika, D. B., Pelana, R., Sulaiman, I., Samsudin, S., Asmawi, M., Tannoubi, A., ... & Setiawan, E. (2024). Effect of Game-based Instructional on Learning Engagement and Game Performance of Students in Physical Education. *Studia sportiva*, *18*(01), 161-172.
10. Martin, J. T., Acampad, E. M., Baligad, R. A., Larce, A. E., & Santos, M. E. (2017, October). Correlation of physical activity and social media use of students. In *2nd International Conference on Sports Science, Health and Physical Education*.
11. Martin, J. T., Tubera, J. G., Monta, V. D., Naguiat, E. S., Yambao, M. J. C., Tullao, M., ... & Baligad, R. (2016). Motivation and physical activity participation of Filipino college students. *Asia Life Sciences*, *25*(1), 245-54.
12. Martin, J., Santos, M., & Tubera, J. (2017). Students' motivation profiles as predictors of physical activity participation. In *Proceedings of the 2nd International Conference on Sports Science, Health and Physical Education (ICSSHPE 2017)-Volume* (Vol. 1, pp. 349-353).
13. Martin, J. T., & Santos, M. E. (2019). Correlates for Arnis Participation of Philippine Junior High School Students. *Ido Movement for Culture. Journal of Martial Arts Anthropology*, *19*(2), 36-40.
14. Martin, J. T., & Santos, M. E. (2015). Perceived barriers to walking activity of college students. Asia Life Sciences, 24(1), 207-218.
15. Miao, M., Chai, H., Xue, R., & Wang, Q. (2024). Effects of perceived variety-support on middle school students' learning engagement in physical education: the mediating role of motivation. *Frontiers in Psychology*, *15*, 1459362.
16. Pestaño, R. D., Salazar, N. L., De Jesus, J. T., Martin, J. T., Santos, M. E., & Miller, J. C. (2025). Fostering sustainable development in sports: The role of participative coaching on self-confidence and self-efficacy of student-athletes. *Journal of Lifestyle and SDGs Review*, *5*(2).
17. Santos, M., Martin, J., Mhico Sigua, E., & Manuel, S. (2022). Effects of Online Teaching on Perceived Physical Competence and Cultural Appreciation of the Philippine Martial Arts "Arnis". *Ido Movement for Culture. Journal of Martial Arts Anthropology*, *22*(5), 48-54.
18. Santos, M. (2026). Investigating aggression control in combat training among college physical education students. *SPORT TK-EuroAmerican Journal of Sport Sciences*, *15*, 14. https://doi.org/10.6018/sportk.621791.

INFO

Corresponding Author: Angeline C. Gutierrez, Central Luzon State University.

How to cite/reference this article: Angeline C. Gutierrez, Christine Ann G. Pascual, Andrea P. Francisco, Jelene S. Tagaza, Eliza D. Ganado, Enhancing Motivation, Engagement, and Skill Confidence in Elementary Physical Education: A Quasi-Experimental Study of Game-Based Teaching with Peer Leadership, *Asian. Jour. Social. Scie. Mgmt. Tech*. 2026; 8(2): 86-94.