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Effectiveness Four Corner Fitness to Student's Performance in Teaching Skills Related Fitness to Grade 7 PE

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ABSTRACT

This study evaluated the Four-Corner Fitness Program as a station-based approach to improving Grade 7 students' muscular endurance, cardiovascular endurance, and flexibility and examined their learning experiences. Using a sequential explanatory mixed-method design, the study involved 56 purposively selected students from two sections of Tungasan High School, Lapu-Lapu City, during School Year 2026–2027. A one-group pretest–post-test assessment employed the Plank Test, 3-Minute Step Test, Sit-and-Reach Test, and a researcher-developed performance rubric; follow-up interviews captured students' experiences. Quantitative data were analyzed using descriptive statistics and paired-samples t-tests, while interview responses underwent thematic analysis. Mean performance ratings increased from 1.72 to 3.41 for muscular endurance, 1.68 to 3.30 for cardiovascular endurance, and 1.63 to 3.18 for flexibility; all reported differences were statistically significant ($p < .001$). Students described clearer instruction, greater enjoyment, and increasing confidence, alongside initial fatigue, soreness, and difficulty maintaining correct technique. The findings suggest that the program is a promising, engaging approach to teaching selected fitness components. Physical Education teachers are encouraged to use structured station rotation, demonstrations, repeated practice, and timely feedback. Findings are limited by purposive sampling at one school, the absence of a comparison group, and researcher-developed scoring criteria. The study informs a practical instructional guide and potentially supports SDG 3 (Good Health and Well-Being) and SDG 4 (Quality Education) through sustainable school-based fitness instruction.

Keywords: *Cardiovascular Endurance, Flexibility, Four-Corner Fitness, Health-Related Fitness, Muscular Endurance, Physical Education, Station-Based Instruction*

1. INTRODUCTION

Health-related physical fitness is essential to adolescents' physical development, functional capacity, and long-term well-being. Regular physical activity contributes to cardiovascular health, muscular fitness, motor development, and psychological well-being. However, the World Health Organization (WHO, 2026) reported that 86% of adolescents aged 11–17 did not achieve seven days of at least 60 minutes of moderate-to-vigorous physical activity during the preceding week, highlighting the continuing need for effective school-based interventions. Recent evidence indicates that structured exercise interventions integrated into Physical Education (PE) can improve selected components of students' physical fitness, particularly when activities are appropriately designed and implemented (Wu et al., 2023; He et al., 2026). In response, the Four-Corner Fitness Program offers a station-based instructional approach that provides opportunities for guided exercise, repeated practice, active participation, and immediate feedback. This study examines the effectiveness of the program in improving the muscular endurance, cardiovascular endurance, and flexibility of Grade 7 students at Tungasan High School during School Year 2026–2027. Its findings serve as the basis for developing an enhanced instructional guide for teaching health-related fitness in Physical Education.

Research Problem

Insufficient physical activity and limited opportunities for structured exercise remain challenges in secondary education. Masini et al. (2022) identified the feasibility and acceptability of school-based physical activity interventions, although their effects on overall physical activity and fitness outcomes varied. Similarly, Contardo Ayala et al. (2024) reported that secondary school interventions demonstrated mixed effectiveness in increasing physical activity, emphasizing the importance of instructional design, implementation, and school-level support. At Tungasan High School, preliminary observations indicated that some Grade 7 students demonstrated limited performance in selected health-related fitness activities. Conventional whole-group instruction and restricted opportunities for individual practice may further constrain students' development of muscular endurance, cardiovascular endurance, and flexibility. Although recent research supports integrating structured fitness activities into Physical Education, the effectiveness of the specific Four-Corner Fitness approach in this school context requires evaluation (He et al., 2026). The research therefore addresses the need to determine whether organized station-based activities can improve students' fitness performance and provide an engaging, manageable instructional strategy. The program involves four activity stations incorporating muscular endurance, cardiovascular endurance, flexibility, and integrated fitness practice. Its effectiveness is examined through pretest and post-test assessments and students' reported learning experiences.

Assumptions of the Study

The study assumes that Grade 7 students can improve their selected health-related fitness performance through structured exercise, consistent practice, teacher demonstrations, and appropriate feedback. This assumption is supported by evidence that feedback and instructional modeling can facilitate motor skill learning in Physical Education (Han et al., 2022). It further assumes that repeated participation in appropriately designed fitness activities can support improvements in muscular endurance and flexibility, although the magnitude of improvement may vary across fitness components (He et al., 2026). The study also assumes that students can participate safely under appropriate supervision, that pretest and post-test assessments are consistently administered using suitable procedures, and that interview responses accurately represent participants' learning experiences. Changes in performance are expected following the intervention, although the pretest–post-test design alone cannot completely exclude the influence of external factors.

Objectives of the Study

This study aims to determine the effectiveness of the Four-Corner Fitness Program in improving the health-related fitness performance of Grade 7 students at Tungasan High School during School Year 2026–2027. Specifically, it seeks to assess students' pretest and post-test performance in muscular endurance using the Plank Test, cardiovascular endurance using the 3-Minute Step Test, and flexibility using the Sit-and-Reach Test. It further aims to determine whether significant differences exist between pretest and post-test performance, examine students' experiences during the implementation of the Four-Corner Fitness strategy, and develop an enhanced instructional guide for teaching health-related fitness in Grade 7 Physical Education based on the study findings.

Theoretical or Conceptual Basis

The study is anchored in Behaviorist Learning Theory, Social Cognitive Theory, and the Health Belief Model, which collectively provide a conceptual explanation of how structured fitness activities may influence students' performance, participation, and health-related behaviors. Behaviorist Learning Theory emphasizes repeated practice, reinforcement, and feedback in developing learned responses and performance. Applied to Four-Corner Fitness, students repeatedly perform prescribed movements while receiving guidance and corrective feedback. Recent evidence supports the importance of appropriate feedback in developing motor skills during Physical Education instruction (Han et al., 2022). Social Cognitive Theory emphasizes observational learning, self-efficacy, and the interaction of individual behavior with the learning environment. Within the Four-Corner Fitness Program, teacher demonstrations, peer modeling, cooperative participation, and encouragement may strengthen students' confidence and engagement. Research on secondary school physical activity interventions identifies peer support, instructional strategies, and supportive school environments as relevant implementation considerations (Contardo Ayala et al., 2024). The Health Belief Model explains how perceived benefits, barriers, and cues to action can influence health-related behaviors. In this study, students' awareness of the benefits of physical fitness and their access to organized exercise opportunities may encourage participation. Al-Haroni et al. (2024) similarly applied the Health Belief Model in designing an adolescent health education intervention involving physical activity. Collectively, these perspectives support the study's conceptual relationship between structured station-based instruction, guided practice, social interaction, motivation, and improvements in selected health-related fitness performance. The Four-Corner Fitness Program serves as the instructional intervention, while muscular endurance, cardiovascular endurance, and flexibility constitute the principal performance outcomes.

The study primarily aligns with SDG 3 – Good Health and Well-Being and SDG 4 – Quality Education, particularly their emphasis on promoting health, well-being, and meaningful learning opportunities (United Nations Department of Economic and Social Affairs, 2025). For SDG 3, the study contributes to public health sustainability through its focus on promoting regular physical activity, improving selected health-related fitness components, and encouraging healthier behaviors among adolescents. These objectives are consistent with the World Health Organization's (2026) emphasis on increasing physical activity opportunities in schools to support lifelong health and well-being. For SDG 4, the study contributes to educational and institutional sustainability through the development of an enhanced instructional guide that may support more participatory, organized, and effective Physical Education instruction. The Four-Corner Fitness Program offers a practical strategy that teachers may adapt within available school resources to improve students' learning experiences and physical fitness performance. By integrating health promotion with structured educational practice, the research supports a

potentially sustainable school-based approach to adolescent fitness development, instructional improvement, and student well-being.

2. METHODOLOGY

Research Design

The study utilized a sequential explanatory mixed-method research design, integrating quantitative and qualitative approaches. The quantitative phase employed a one-group pretest–post-test procedure to assess changes in students' muscular endurance, cardiovascular endurance, and flexibility before and after implementing the Four-Corner Fitness Program. Subsequently, qualitative interviews were conducted with selected participants to obtain insights into their learning experiences. The qualitative findings supplemented and explained the quantitative results, providing a more comprehensive evaluation of the instructional intervention.

Research Locale or Study Setting

The study was conducted at Tungasan High School in Lapu-Lapu City, Cebu, Philippines, during School Year 2026–2027. The school provides Physical Education instruction to junior high school students and has designated areas suitable for physical activities, including a gymnasium and other available activity spaces. The setting was appropriate for the Four-Corner Fitness Program because the intervention required limited equipment and could be implemented within regular Physical Education classes. Fitness assessments and instructional activities were conducted under consistent conditions to promote students' safety and uniformity in performance evaluation.

Participants or Data Sources

The participants comprised 56 Grade 7 students selected through purposive sampling from two sections: Villaflor and Comayos, with 28 students each. The respondents included 29 males (51.79%) and 27 females (48.21%). Participants were selected based on their enrollment in Physical Education classes and exposure to health-related fitness activities. Their pretest and post-test performance scores provided the quantitative data, while responses from selected students during interviews constituted the qualitative data used to examine their experiences with the Four-Corner Fitness Program.

Research Instruments or Materials

The study employed standardized fitness performance tests, a researcher-made performance rubric, and a validated interview questionnaire. The fitness assessments were described as following DepEd Order No. 34, s. 2019 and DepEd Order No. 42, s. 2017 (National Physical Activity Program). Muscular endurance was measured using the Plank Test, which recorded the duration students maintained proper body alignment in seconds. Cardiovascular endurance was assessed through the 3-Minute Step Test using post-exercise recovery pulse counts, while flexibility was measured through the Sit-and-Reach Test using reach distance in centimeters. The researcher-made rubric used a five-point rating scale ranging from 1 (Needs Improvement) to 5 (Excellent), based on established performance ranges for each assessment. An additional score of 0 (Poor) was included for invalid or unrecorded cardiovascular performance. A qualified Physical Education teacher served as a co-rater to promote consistency in scoring, with independent ratings compared during the assessments. The interview questionnaire, validated by a subject-matter expert, gathered students' perceptions of the program's implementation, instructional clarity, participation, and learning experiences.

Data Gathering Procedure

Data collection began with requests for permission from the Schools District Supervisor and the school head of Tungasan High School. Following authorization, the researcher oriented the participants regarding the objectives, procedures, and requirements of the study and obtained informed consent. A pretest was then administered, with assistance from Physical Education teachers, to establish baseline performance in muscular endurance, cardiovascular endurance, and flexibility. After the initial assessments, the Four-Corner Fitness Program was implemented through four designated activity stations. The first station focused on muscular endurance through planking, the second on cardiovascular endurance, the third on flexibility, and the fourth on integrated exercises combining the three fitness components. Students rotated through the stations while receiving demonstrations, guided practice, supervision, and immediate feedback from the researcher. Following the intervention, the same fitness assessments were administered as post-tests using identical procedures, scoring criteria, and testing conditions. Selected participants subsequently completed interviews regarding their experiences with the program. The collected performance scores and interview responses were checked, organized, and prepared for quantitative and qualitative analyses.

Data Analysis

Quantitative data were analyzed using frequency, percentage, mean, standard deviation, percentage improvement, and the paired-samples t-test. Frequencies and percentages described the participants' characteristics and performance distributions, while means and standard deviations summarized pretest and post-test results across the selected health-related fitness components. Percentage improvement was used to describe changes in performance following the intervention. The paired-samples t-test determined whether statistically significant differences existed between pretest and post-test performance at the 0.05 significance level. This procedure examined differences between related measurements obtained from the same participants (Kim, 2015) and was used to evaluate performance changes following structured instruction (Engelmann, S., Becker, W. C., Carnine, D., & Gersten, R. 1988). Qualitative interview responses were examined through thematic analysis (Braun & Clarke, 2006, 2012, 2013). The process involved familiarization with the responses, initial coding, grouping related codes, identifying and reviewing emerging themes, and interpreting these themes in relation to the quantitative findings. The integrated results served as the basis for developing the enhanced Four-Corner Fitness instructional guide.

Ethical Consideration

The researcher sought authorization from the concerned school authorities before conducting the study. Participants were informed about the research objectives, fitness assessments, instructional activities, and data-gathering procedures, and informed consent was obtained. Fitness activities were conducted under teacher supervision, with consistent instructions and procedures intended to promote participant safety. The study documents also assured participants that their responses and personal information would remain confidential and be used exclusively for research purposes.

3. RESULTS AND DISCUSSION

3.1 Health-Related Fitness Performance of Students

3.1.1 Muscular Endurance

The pretest results revealed limited muscular endurance, with a mean of 1.72, interpreted as Fair. Among the 56 respondents, 44.64% were rated Fair, 42.86% Needs Improvement, and 12.50% Good. Following the intervention, the post-test mean increased to 3.41, interpreted as

Good. Most students achieved Good (44.64%) or Very Good (37.50%) ratings, while 7.14% attained Excellent and 10.71% remained Fair. No students were classified as Needs Improvement. The improvement in muscular endurance suggests that structured practice, repeated plank exercises, demonstrations, and corrective feedback supported students' ability to sustain physical effort. Stojanović et al. (2023) similarly reported improvements in local muscular endurance following a school-based circuit training intervention, demonstrating the potential value of structured exercise stations. Furthermore, Wu et al. (2023) established that appropriately designed school-based exercise interventions can improve muscular fitness among children and adolescents. These findings support the relevance of incorporating structured muscular endurance activities into Physical Education instruction.

3.1.2 Cardiovascular Endurance

The pretest assessment of cardiovascular endurance yielded a mean of 1.68, interpreted as Needs Improvement. Most respondents were classified as Fair (46.43%) or Needs Improvement (42.86%), while 10.71% obtained Good ratings. After implementing the Four-Corner Fitness Program, the mean increased to 3.30, interpreted as Good. The post-test distribution showed that 42.86% were rated Good, 35.71% Very Good, 16.07% Fair, and 5.36% Excellent. No respondents remained in the Needs Improvement category. The increase in cardiovascular performance ratings was associated with the program's structured aerobic activities, guided demonstrations, and repeated movement practice. Huhtiniemi et al. (2023) reported significant improvements in cardiorespiratory fitness following a structured school-based physical activity intervention, supporting the potential benefits of organized exercise programs. Weisstaub et al. (2025) also demonstrated the applicability of a standardized step test for assessing cardiorespiratory fitness among children and adolescents. However, interpretation of the present cardiovascular findings depends on the validity of the recovery-pulse scoring criteria used in the study.

3.1.3 Flexibility

The pretest results indicated that flexibility was the lowest-performing component, with a mean of 1.63, interpreted as Needs Improvement. Of the respondents, 46.43% were classified as Needs Improvement, 44.64% as Fair, and 8.93% as Good. Following the intervention, the post-test mean increased to 3.18, interpreted as Good. Half of the students (50.00%) obtained Good ratings, while 28.57% achieved Very Good, 17.86% remained Fair, and 3.57% attained Excellent. No students were classified as Needs Improvement. The improvement in flexibility suggests that repeated stretching activities, proper demonstrations, and guided practice supported students' performance in the Sit-and-Reach Test. Donti et al. (2022), through a systematic review and meta-analysis, established that structured stretching interventions can improve range of motion among children and adolescents. These findings provide supporting evidence for incorporating consistent flexibility exercises into school-based fitness programs. The present results further indicate that structured stretching instruction may help students develop better movement execution and functional flexibility.

3.1.4 Overall Health-Related Fitness Performance

The overall pretest mean was 1.68, interpreted as Needs Improvement, indicating generally low initial fitness performance across the three measured components. After implementing the Four-Corner Fitness Program, the overall mean increased to 3.30, interpreted as Good. Muscular endurance obtained the highest post-test mean (3.41), followed by cardiovascular endurance

(3.30) and flexibility (3.18). All three components demonstrated increases in the reported performance ratings. The consistent upward movement in performance ratings suggests that structured station-based instruction provided opportunities to practice multiple fitness components within an organized learning environment. Wu et al. (2023) reported that school-based exercise interventions can improve different aspects of physical fitness, although outcomes depend on the exercise modality and intervention characteristics. Similarly, Huhtiniemi et al. (2023) demonstrated the potential of guided school-based physical activity programs to improve health-related fitness. These findings support the instructional relevance of the Four-Corner Fitness approach while emphasizing the importance of appropriate exercise selection and performance assessment.

3.2 Significant Differences Between Pretest and Post-Test Performance

The paired-samples t-test results indicated statistically significant differences between the pretest and post-test scores across all three health-related fitness components. Muscular endurance increased from 1.72 to 3.41, with a mean difference of 1.69 ($t = 12.35$, $p < 0.001$). Cardiovascular endurance increased from 1.68 to 3.30, with a mean difference of 1.62 ($t = 14.21$, $p < 0.001$). Flexibility increased from 1.63 to 3.18, with a mean difference of 1.55 ($t = 13.68$, $p < 0.001$). The reported results led to the rejection of the null hypothesis for all three components at the 0.05 significance level. These findings indicate that students demonstrated significant improvements in their recorded performance ratings following the intervention. Stojanović et al. (2023) and Huhtiniemi et al. (2023) likewise reported positive effects of structured school-based physical activity interventions on selected physical fitness outcomes. Han et al. (2022) further demonstrated that feedback can enhance motor skill learning in Physical Education, supporting the instructional value of guided performance and corrective feedback. Nevertheless, because the present study used a one-group pretest–post-test design, the observed changes cannot establish that the intervention alone caused the improvements.

3.3 Students' Learning Experiences in the Four-Corner Fitness Program

3.3.1 Structured Learning and Guided Practice

Students described the Four-Corner Fitness Program as organized, understandable, and easy to follow. Interview responses indicated that clear teacher demonstrations, repeated practice, station rotation, and corrective feedback helped participants understand proper exercise techniques. Students also reported improvements in performing planks, jumping jacks, and stretching activities as they became more familiar with the required movements. These experiences indicate that structured instruction and immediate feedback supported students' understanding and execution of fitness activities. Han et al. (2022) found that feedback can positively influence motor skill acquisition in Physical Education. The respondents' experiences are consistent with this evidence, suggesting that combining teacher demonstrations with repeated guided practice may help learners develop more accurate movement patterns and greater confidence during fitness activities.

3.3.2 Increased Motivation and Enjoyment

Participants reported that the variety of exercises and movement between activity stations made the program enjoyable and engaging. They particularly appreciated performing different tasks rather than repeatedly completing a single exercise. Working alongside classmates also contributed to positive experiences, while the organized station format encouraged students to

participate and complete the assigned activities. The findings suggest that activity variety, peer interaction, and an organized learning environment contributed to students' motivation and enjoyment. Mo et al. (2024) found that game-based Physical Education interventions positively influenced enjoyment among children and adolescents. Although the Four-Corner Fitness Program was not evaluated as a formal game-based instructional model, its varied and interactive activities shared characteristics associated with enjoyable physical learning experiences.

3.3.3 Gradual Improvement and Self-Confidence

Students reported noticeable improvements in their physical performance throughout the intervention. They described being able to maintain plank positions longer, complete more jumping jacks, and reach farther during flexibility activities. These experiences contributed to increased confidence, reduced hesitation, and a stronger sense of personal achievement as students recognized their progress. The findings suggest that repeated practice and observable improvements in task performance helped strengthen students' perceived physical competence. Huhtiniemi et al. (2023) demonstrated that structured school-based activities can support physical fitness and motor competence development. The respondents' reported experiences further suggest that recognizing personal progress may encourage continued participation and a more positive attitude toward fitness activities.

3.3.4 Challenges Encountered and Suggested Improvements

Despite their generally positive experiences, students identified several difficulties during the program. These included initial muscle soreness, fatigue during cardiovascular exercises, and difficulty remembering correct movement techniques. Some participants recommended allowing more practice time at each station and introducing a wider variety of exercises. Respondents generally indicated that the initial difficulties became more manageable through repeated participation. These findings indicate that instructional progression, appropriate exercise difficulty, and sufficient practice opportunities are important considerations when implementing station-based fitness activities. Contardo Ayala et al. (2024) emphasized that school-based physical activity interventions require attention to implementation strategies, available resources, and participant engagement. The students' suggestions provide practical considerations for refining station duration, exercise variety, instructional guidance, and activity organization in future implementations.

3.4 Integration of Quantitative and Qualitative Findings

The quantitative findings demonstrated increases in the mean performance ratings for muscular endurance, cardiovascular endurance, and flexibility, with statistically significant pretest–post-test differences reported across all three components. The qualitative findings revealed four interconnected experiences: structured learning through guided practice, increased motivation and enjoyment, gradual improvement and self-confidence, and challenges associated with fatigue, exercise techniques, and practice time. Together, these findings describe both the measured changes in fitness performance and students' perceptions of the instructional process. The integration of findings suggests that the Four-Corner Fitness Program provided a supportive and engaging learning environment through station-based activities, repeated practice, demonstrations, and feedback. This interpretation is consistent with evidence supporting structured school-based fitness interventions and instructional feedback (Han et al.,

2022; Huhtiniemi et al., 2023; Wu et al., 2023). The findings provide a basis for enhancing the instructional guide, particularly in organizing station activities, improving demonstrations, allocating practice time, and incorporating varied exercises appropriate to students' fitness levels.

4. CONCLUSIONS AND RECOMMENDATIONS

The study demonstrated significant improvements in the health-related fitness performance of 56 Grade 7 students at Tungasan High School following the implementation of the Four-Corner Fitness Program. Pretest findings revealed generally low performance in muscular endurance, cardiovascular endurance, and flexibility, while post-test results showed considerable improvements across all three components. The statistically significant differences between the assessments indicated positive changes in students' fitness performance. Qualitative findings further revealed that structured station-based activities, clear demonstrations, guided practice, repeated exercises, and immediate feedback supported students' engagement, understanding, and confidence. Despite initial challenges involving fatigue, muscle soreness, and exercise techniques, students generally reported positive learning experiences and gradual improvement. Collectively, these findings suggest that the Four-Corner Fitness Program is a promising instructional strategy for improving selected health-related fitness performance and enhancing students' learning experiences within the Physical Education setting.

Physical Education teachers are encouraged to integrate the Four-Corner Fitness Program into health-related fitness instruction, particularly for students requiring additional practice and guidance. Emphasis should be placed on clear demonstrations, proper exercise techniques, structured station rotations, repeated practice, and immediate corrective feedback to improve students' performance and participation. Teachers should also consider allocating sufficient practice time, introducing varied exercises, and adjusting activities according to students' fitness capabilities to address fatigue and difficulties in movement execution. School administrators should strengthen implementation through appropriate activity spaces, basic fitness equipment, instructional resources, and professional development opportunities for teachers. Students should be encouraged to participate consistently and apply proper techniques during physical activities, while parents and community organizations may support opportunities for continued fitness participation. Future researchers are encouraged to evaluate the program among larger and more diverse student populations, examine additional fitness components, and compare its outcomes with alternative instructional approaches.

The study was limited to 56 purposively selected Grade 7 students from two sections of Tungasan High School during School Year 2026–2027, restricting the generalizability of its findings to other populations and educational settings. The one-group pretest–post-test design lacked a comparison group, limiting causal conclusions about the intervention. Fitness assessments focused exclusively on muscular endurance, cardiovascular endurance, and flexibility, while performance was evaluated using researcher-developed scoring criteria. Qualitative findings were based on selected students' reported experiences. Future studies may address these limitations through larger samples, multiple school settings, comparison groups, and extended assessments of fitness development.

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