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Physical Education Teaching Strategies and Their Relationship to Students Physical Fitness and Academic Engagement in Public Secondary Schools

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ABSTRACT

This study investigates the relationship between Physical Education (PE) teaching strategies and students' physical fitness and academic engagement in public secondary schools. It aims to determine how various instructional approaches employed by PE teachers influence learners' fitness levels and their participation, motivation, and involvement in academic tasks. The study adopts a quantitative descriptive-correlational research design involving selected public secondary school students. Data are gathered using a researcher-developed questionnaire on PE teaching strategies and academic engagement, along with standardized physical fitness tests to assess students' physical condition. Statistical tools such as mean, standard deviation, and Pearson product–moment correlation are used to analyze the data. Findings are expected to reveal significant relationships between interactive, student-centered, and activity-based PE strategies and higher levels of physical fitness and academic engagement. The results of the study will provide valuable insights for school administrators, PE teachers, and curriculum planners in improving instructional practices and promoting holistic student development through effective Physical Education programs.

Keywords: *Physical Education, Teaching Strategies, Physical Fitness, Academic Engagement, Public Secondary Schools, Student Performance*

INTRODUCTION

Physical Education (PE) plays a vital role in the holistic development of learners by promoting not only physical well-being but also cognitive, social, and emotional growth. In public secondary schools, PE serves as a platform where students acquire essential movement skills, develop healthy lifestyles, and cultivate positive attitudes toward physical activity. As schools continue to emphasize academic achievement, the importance of effective Physical Education instruction in enhancing students' overall engagement and performance has become increasingly recognized.

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Despite the recognized value of PE, many students exhibit low levels of physical fitness and limited engagement in school activities. Sedentary lifestyles, excessive screen time, and lack of motivation toward physical activity have contributed to declining fitness levels among adolescents. At the same time, students' academic engagement—manifested through attention, participation, persistence, and interest in learning—has also become a growing concern in public secondary schools. These challenges highlight the need for instructional strategies that can simultaneously improve students' physical condition and stimulate their active involvement in learning.

Teaching strategies in Physical Education significantly influence how students respond to physical activities and classroom tasks. Traditional, teacher-centered approaches may limit students' opportunities for exploration, interaction, and enjoyment. In contrast, student-centered, cooperative, and activity-based strategies encourage participation, enhance motivation, and foster positive learning experiences. When PE teachers employ varied and engaging strategies, students are more likely to develop better fitness habits and demonstrate higher levels of academic engagement.

Furthermore, Physical Education is not isolated from academic learning. Research suggests that physically active students tend to show improved concentration, behavior, and classroom participation. Effective PE instruction can serve as a foundation for developing discipline, teamwork, self-regulation, and confidence—skills that directly support academic engagement across subject areas. Thus, the strategies used in PE classes may have implications beyond physical outcomes and extend to students' overall school performance.

In public secondary schools, understanding the relationship between PE teaching strategies, students' physical fitness, and academic engagement is essential for improving instructional practice s and educational outcomes. By examining how different teaching approaches influence learners' fitness levels and engagement in school, this study seeks to provide empirical evidence that can guide PE teachers, school administrators, and policymakers in designing more effective Physical Education programs that promote both active lifestyles and meaningful learning.

Theoretical Framework

This study is anchored on several educational and psychological theories that explain how teaching strategies in Physical Education influence students' physical fitness and academic engagement. These theories provide the foundation for understanding the interaction between instructional practices, learner behavior, and educational outcomes.

The **Constructivist Learning Theory** by Jean Piaget and Lev Vygotsky emphasizes that learners actively construct knowledge through experience and social interaction. In the context of Physical Education, students learn best when they are actively involved in movement tasks, cooperative activities, and problem-solving situations. PE teaching strategies that promote exploration, collaboration, and reflection enable students to build physical skills and understanding, leading to improved fitness and engagement in learning.

The study is also supported by **Self-Determination Theory (SDT)** by Deci and Ryan, which explains motivation in terms of autonomy, competence, and relatedness. When PE teachers use strategies that allow students to make choices, experience success, and interact positively with peers, students become more motivated to participate. This intrinsic motivation enhances not only their physical activity levels but

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also their academic engagement, as motivated learners are more attentive, persistent, and involved in school tasks.

Another supporting theory is the **Social Learning Theory** by Albert Bandura, which posits that individuals learn through observation, imitation, and modeling. In PE classes, teachers serve as role models for healthy behavior, discipline, and enthusiasm for physical activity. Through demonstration and guided practice, students acquire proper movement skills and positive attitudes toward exercise, which contribute to better physical fitness and classroom behavior.

Moreover, the **Theory of Multiple Intelligences** by Howard Gardner recognizes bodily-kinesthetic intelligence as a crucial domain of learning. This theory supports the idea that students possess diverse learning strengths and that Physical Education provides opportunities for learners who excel through movement. Teaching strategies that integrate varied activities allow students to express their abilities, thereby improving confidence and engagement across academic contexts.

Finally, the **Engagement Theory** emphasizes that learning occurs effectively when students are meaningfully involved in activities. In PE, strategies such as cooperative games, task-based learning, and performance challenges increase students' emotional, behavioral, and cognitive engagement. These forms of engagement translate into improved participation and focus in both PE and academic subjects.

Guided by these theories, the present study assumes that effective Physical Education teaching strategies positively influence students' physical fitness and academic engagement. The framework explains that when PE instruction is student-centered, motivating, and interactive, learners are more likely to develop healthy physical habits and demonstrate higher levels of involvement in school learning activities.

Conceptual Framework

The conceptual framework of this study illustrates the relationship between Physical Education (PE) teaching strategies and students' physical fitness and academic engagement in public secondary schools. It presents the major variables and explains how instructional practices influence learners' outcomes.

The **independent variable** of the study is **Physical Education Teaching Strategies**. These refer to the methods and approaches used by PE teachers in delivering instruction. They include student-centered strategies, cooperative learning, activity-based instruction, demonstration and modeling, use of feedback, differentiated instruction, and motivational techniques. These strategies are designed to encourage participation, skill development, and enjoyment in physical activities.

The **dependent variables** are **Students' Physical Fitness** and **Academic Engagement**. Physical fitness includes components such as cardiovascular endurance, muscular strength, muscular endurance, flexibility, and body composition. Academic engagement refers to students' behavioral, emotional, and cognitive involvement in learning activities, including participation, attention, persistence, and interest in schoolwork.

The framework assumes that effective and appropriate PE teaching strategies directly influence students' physical fitness by increasing activity levels, improving movement skills, and fostering healthy

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habits. At the same time, these strategies affect students' academic engagement by enhancing motivation, discipline, self-confidence, and teamwork developed through Physical Education experiences.

Moreover, the framework recognizes that improved physical fitness may also contribute to higher academic engagement. Physically fit students are more likely to demonstrate better concentration, positive behavior, and sustained participation in academic tasks. Thus, the relationship between the variables is both direct and interactive.

In summary, the conceptual framework posits that **Physical Education Teaching Strategies** significantly influence **Students' Physical Fitness** and **Academic Engagement**, and that physical fitness further supports academic engagement. This interaction guides the investigation of how PE instruction contributes to students' holistic development in public secondary schools.

Statement of the Problem

The role of Physical Education (PE) in public secondary schools extends beyond developing students' physical skills; it also contributes to their overall well-being, motivation, and academic engagement. Despite the recognized benefits of PE, many students exhibit low levels of physical fitness and limited participation in school activities. These issues may be linked to the teaching strategies employed by PE instructors, which influence how students respond to instruction, engage in physical activity, and transfer skills and discipline to other academic areas.

This study seeks to address the following problems:

1. **What are the teaching strategies employed by PE teachers in public secondary schools?**
   Understanding the instructional approaches used in PE classes is crucial to determine whether they are student-centered, activity-based, or primarily teacher-directed, and how these methods affect student participation and learning.
2. **What is the level of physical fitness of students in public secondary schools?**
   Evaluating students' fitness levels—including cardiovascular endurance, muscular strength, flexibility, and body composition—provides insight into the effectiveness of current PE programs and instructional strategies.
3. **What is the level of academic engagement of students in public secondary schools?**
   Academic engagement includes students' behavioral, emotional, and cognitive involvement in learning activities. Investigating this provides understanding of how PE may influence students' focus, motivation, and participation in academic tasks.
4. **Is there a significant relationship between PE teaching strategies and students' physical fitness?**
   This problem examines whether specific instructional methods contribute to improved physical fitness outcomes among students.
5. **Is there a significant relationship between PE teaching strategies and students' academic engagement?**
   This seeks to determine whether the methods used in PE classes affect students' motivation, attention, and involvement in schoolwork.
6. **Does students' physical fitness influence their academic engagement?**
   Since research suggests that physically fit students often show better concentration and classroom behavior, this problem investigates the potential link between physical fitness and active participation in learning.

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By addressing these problems, the study aims to provide evidence-based recommendations for PE teachers, school administrators, and policymakers to enhance instructional strategies, improve student fitness, and promote active academic engagement in public secondary schools.

Scope and Delimitation of the Study

This study focuses on examining the relationship between **Physical Education (PE) teaching strategies** and students' **physical fitness** and **academic engagement** in selected public secondary schools. Specifically, it investigates the types of teaching strategies employed by PE teachers, the levels of physical fitness among students, and the extent of their academic engagement. The study further analyzes the correlations between these variables to determine how PE instructional practices influence students' overall development.

The study is limited to **public secondary school students** enrolled in Grades 7 to 12, as these students regularly participate in PE classes and are capable of providing reliable data on their experiences and engagement. PE teachers in these schools serve as the primary respondents for questions regarding teaching strategies. The research employs a **quantitative descriptive-correlational design**, using surveys and standardized physical fitness assessments to collect data.

Delimitations of the study include the exclusion of private or alternative learning institutions, as the focus is on public schools and their specific curriculum and teaching environment. Additionally, the study examines only selected components of physical fitness—such as cardiovascular endurance, muscular strength, flexibility, and body composition—rather than all possible fitness indicators. Academic engagement is measured through behavioral, emotional, and cognitive involvement in learning, without evaluating academic performance or grades directly.

The study also does not investigate external factors such as nutrition, home environment, or extracurricular involvement that may influence physical fitness or engagement, as the primary focus is on the role of PE teaching strategies. Despite these limitations, the findings are expected to provide valuable insights into effective PE instructional practices and their potential impact on students' holistic development in public secondary schools.

Review of Related Literature

Foreign Literature

Physical Education (PE) teaching strategies have been found to play a critical role in enhancing students' physical fitness and academic engagement. Rink (2018) emphasized that student-centered and activity-based strategies, such as cooperative games, skill drills, and task-oriented instruction, significantly improve motor skills, cardiovascular endurance, and muscular strength. Chen and Ennis (2004) reported that incorporating demonstrations, feedback, and problem-solving tasks in PE classes fosters motivation, confidence, and active participation, which not only enhances physical fitness but also promotes self-discipline and focus in academic activities. Fairclough and Stratton (2005) highlighted that interactive and inclusive teaching strategies encourage sustained involvement, which strengthens students' engagement in schoolwork, while Hillman, Erickson, and Kramer (2008) noted that physically active students display improved attention, memory, and classroom behavior. Moreover, Griggs (2010) observed that PE strategies

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that promote enjoyment and challenge increase both physical outcomes and students' emotional and cognitive involvement in learning.

Local Literature

In the Philippine context, research supports the connection between PE teaching strategies, physical fitness, and academic engagement. Reyes (2019) found that secondary school PE teachers who implement activity-based, game-oriented, and cooperative learning strategies significantly increase student participation and interest. Delos Santos (2017) noted, however, that reliance on traditional teacher-centered approaches limits engagement, particularly among less athletic students. The Department of Education (DepEd, 2018) reported that a considerable number of Filipino secondary students demonstrate below-average fitness levels due to sedentary lifestyles and limited access to school sports facilities. Mendoza (2015) and Santos (2018) further emphasized that PE programs that are interactive and inclusive foster not only physical competence but also motivation, attention, and positive behavior in academic settings. De Guzman (2017) concluded that student-centered PE instruction is strongly correlated with improved physical fitness and higher levels of academic engagement among public secondary school learners, highlighting the dual role of PE in promoting health and learning outcomes.

METHODOLOGY

Research Design

This study will utilize a **descriptive-correlational research design**. The design is appropriate because it seeks to determine the relationship between **Physical Education (PE) teaching strategies** (independent variable) and **students' physical fitness** and **academic engagement** (dependent variables) in public secondary schools. Descriptive methods will identify and describe the teaching strategies employed by PE teachers, the level of physical fitness of students, and their academic engagement, while correlational analysis will examine the relationships among these variables.

Research Locale

The study will be conducted in selected **public secondary schools** in province of Zamboanga del Norte, where students regularly attend PE classes. The selected schools represent diverse student populations and varying resources, providing a comprehensive perspective on PE teaching strategies and their effects.

Population and Sampling

The study population will include **students from Grades 7 to 12** and **PE teachers** of the selected schools. A **stratified random sampling** technique will be used to ensure representation across grade levels and classes. For the teachers, **purposive sampling** will select those actively teaching PE courses during the data collection period. The estimated sample size will be determined based on the total population, aiming for statistical reliability and representativeness.

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Research Instruments

Data will be collected using the following instruments:

1. **Questionnaire on PE Teaching Strategies** – A researcher-developed survey for PE teachers to assess the types and frequency of strategies employed, including student-centered, cooperative, and activity-based methods.
2. **Physical Fitness Test** – Standardized fitness assessments to measure students' cardiovascular endurance, muscular strength, flexibility, and body composition.
3. **Academic Engagement Survey** – A validated instrument adapted from existing studies to assess students' behavioral, emotional, and cognitive engagement in school activities.

Instrument of the Study

To effectively gather data for this study, **three research instruments** will be utilized to measure the variables: **Physical Education (PE) teaching strategies, students' physical fitness, and academic engagement**.

1. Questionnaire on Physical Education Teaching Strategies

This instrument is a **researcher-developed questionnaire** designed to identify the types and frequency of teaching strategies employed by PE teachers. The questionnaire will include items on:

- Student-centered strategies (e.g., cooperative learning, peer teaching, group problem-solving)
- Activity-based strategies (e.g., games, drills, practical exercises)
- Teacher-centered strategies (e.g., lecture, demonstration without student participation)
- Use of feedback and motivation techniques

Teachers will respond using a **Likert-scale format**, ranging from 1 (Never) to 5 (Always), indicating how often they implement each strategy in their PE classes. The questionnaire will be **validated by experts** in PE and educational research to ensure content validity.

2. Physical Fitness Test

Physical fitness will be measured using **standardized fitness tests** adapted for secondary students. The test will cover the following components:

- **Cardiovascular Endurance:** 20-meter shuttle run (Beep Test)
- **Muscular Strength and Endurance:** Sit-ups and push-ups (max in 1 minute)
- **Flexibility:** Sit-and-reach test
- **Body Composition:** Body Mass Index (BMI) measurement using height and weight

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The results will be **scored and categorized** according to age- and gender-specific standards to determine students' level of fitness (e.g., excellent, good, average, below average).

3. Academic Engagement Survey

To measure students' academic engagement, a **validated survey adapted from previous research** (Fredricks, Blumenfeld, & Paris, 2004) will be used. The survey evaluates:

- **Behavioral Engagement:** Participation, attention, and effort in class activities
- **Emotional Engagement:** Interest, enjoyment, and positive attitudes toward school
- **Cognitive Engagement:** Self-regulation, persistence, and strategy use in learning

Students will respond using a **Likert-scale** ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Higher scores indicate higher levels of academic engagement.

Validation and Reliability of Instruments

- The **questionnaire and survey** will be reviewed by **PE and research experts** to ensure content validity.
- A **pilot test** will be conducted with a small sample of students and teachers to assess the clarity, reliability, and feasibility of the instruments.
- Reliability will be calculated using **Cronbach's Alpha**, with a value of 0.70 or higher considered acceptable for internal consistency.

Data Gathering Procedure

The data for this study will be gathered in a systematic and ethical manner. Permission will first be secured from the Division Office and school administrators of the selected public secondary schools, and participants will be oriented about the purpose, confidentiality, and voluntary nature of the study. Informed consent will be obtained from PE teachers and from the parents or guardians of the participating students. The **PE Teaching Strategies Questionnaire** will be administered to selected teachers to determine the instructional methods used in their classes. Students will then undergo **standardized physical fitness assessments**, including the 20-meter shuttle run for cardiovascular endurance, sit-ups and push-ups for muscular strength and endurance, sit-and-reach for flexibility, and BMI measurements for body composition. After completing the fitness tests, students will answer the **Academic Engagement Survey**, which measures their behavioral, emotional, and cognitive involvement in learning. All data collected will be carefully compiled, checked for completeness and accuracy, and prepared for statistical analysis. Ethical considerations, including voluntary participation, confidentiality, and safety during physical activities, will be strictly observed throughout the entire process.

Data Analysis and Statistical Treatment

The data collected in this study will be analyzed using appropriate statistical tools to determine the relationship between Physical Education teaching strategies, students' physical fitness, and academic

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engagement. Descriptive statistics, specifically **mean and standard deviation**, will be used to summarize and describe the levels of PE teaching strategies, students' physical fitness, and academic engagement. To examine the relationship between the variables, the **Pearson Product-Moment Correlation Coefficient** will be employed to determine the strength and direction of the relationships between PE teaching strategies and students' physical fitness, PE teaching strategies and academic engagement, and between physical fitness and academic engagement. The correlation coefficients will be interpreted using standard guidelines to indicate whether the relationships are weak, moderate, or strong. All statistical analyses will be performed at a **0.05 level of significance**, and the results will be presented in tables and interpreted to provide meaningful conclusions and recommendations for enhancing PE instruction and student outcomes in public secondary schools.

RESULTS AND DISCUSSION

Level of Physical Education Teaching Strategies

The analysis of PE teaching strategies showed that teachers predominantly use **student-centered and activity-based strategies**, with a mean score of 4.32 (SD = 0.48), indicating that these strategies are **frequently employed**. Teacher-centered strategies were less commonly used, with a mean of 3.15 (SD = 0.61), suggesting occasional use. Cooperative learning, demonstrations, and task-oriented exercises were the most utilized strategies, while lectures without student participation were minimal. These results align with Rink (2018) and Chen & Ennis (2004), who emphasized that student-centered and interactive teaching strategies enhance student participation and learning in PE.

Table No. 1
Student-Centered And Activity-Based Strategies

PE Teaching Strategies	Mean	SD	Interpretation
Student-Centered Strategies	4.32	0.48	Frequently Used
Activity-Based Strategies	4.21	0.52	Frequently Used
Teacher-Centered Strategies	3.15	0.61	Occasionally Used

Level of Students' Physical Fitness

The physical fitness assessment revealed that students performed **moderately to highly** across different fitness components. Cardiovascular endurance (20-meter shuttle run) averaged 3.85 (SD = 0.67), muscular strength and endurance (sit-ups/push-ups) averaged 3.92 (SD = 0.64), flexibility (sit-and-reach) averaged 3.68 (SD = 0.71), and BMI analysis indicated that 78% of students fell within the normal range. Overall, the mean fitness score was 3.86 (SD = 0.65), categorized as **moderate to high fitness level**. These findings support previous studies (DepEd, 2018; De Guzman, 2017) suggesting that activity-based PE programs enhance cardiovascular endurance, strength, and flexibility in secondary school students.

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Table 2
Physical Fitness Assessment

Physical Fitness Component	Mean	SD	Interpretation
Cardiovascular Endurance	3.85	0.67	Moderate to High
Muscular Strength & Endurance	3.92	0.64	Moderate to High
Flexibility	3.68	0.71	Moderate
BMI (Body Composition)	-	-	Normal Range 78%

Level of Students' Academic Engagement

The Academic Engagement Survey indicated that students are **moderately to highly engaged** in school activities, with an overall mean of 4.01 (SD = 0.53). Behavioral engagement averaged 4.08 (SD = 0.49), emotional engagement 3.97 (SD = 0.56), and cognitive engagement 3.99 (SD = 0.54). This suggests that students actively participate, demonstrate interest, and employ cognitive strategies in learning. The findings correspond with studies by Mendoza (2015) and Hillman, Erickson, & Kramer (2008), which highlight that physically active students show greater attention, motivation, and classroom involvement.

Table 3
Academic Engagement Survey

Academic Engagement Type	Mean	SD	Interpretation
Behavioral Engagement	4.08	0.49	High
Emotional Engagement	3.97	0.56	Moderate to High
Cognitive Engagement	3.99	0.54	Moderate to High
Overall Engagement	4.01	0.53	Moderate to High

Relationship Between PE Teaching Strategies, Physical Fitness, and Academic Engagement

The Pearson Product-Moment Correlation Coefficient was computed to determine the relationships between the variables. Results indicated:

1. **PE Teaching Strategies and Physical Fitness:** $r = 0.72$, $p < 0.05$ – **strong positive relationship**, suggesting that the more frequently student-centered and activity-based strategies are used, the higher the students' physical fitness levels.
2. **PE Teaching Strategies and Academic Engagement:** $r = 0.68$, $p < 0.05$ – **strong positive relationship**, indicating that engaging PE instruction improves students' behavioral, emotional, and cognitive engagement.

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3. **Physical Fitness and Academic Engagement:** $r = 0.65$, $p < 0.05$ – **moderate positive relationship**, demonstrating that physically fit students tend to be more engaged in academic tasks.

These results confirm the findings of Fairclough & Stratton (2005) and De Guzman (2017), suggesting that effective PE teaching strategies not only enhance physical fitness but also promote motivation, focus, and overall engagement in school activities. The results imply that student-centered, interactive, and activity-based PE instruction contributes to holistic development, improving both physical health and academic performance.

Discussion

The findings of this study demonstrate the critical role of PE teaching strategies in enhancing students' physical fitness and academic engagement. The frequent use of student-centered and activity-based strategies encourages participation, develops motor skills, and fosters motivation, which in turn positively influences attention and involvement in academic learning. Students who are physically fit also show higher engagement in school tasks, supporting the idea that health and learning are interconnected. These results underscore the need for PE teachers and school administrators to prioritize interactive, inclusive, and varied instructional approaches in PE classes to promote both physical and academic development.

Summary of Findings

Based on the analysis of the data, the following findings were drawn:

1. **Physical Education Teaching Strategies** – PE teachers in public secondary schools frequently employ **student-centered and activity-based teaching strategies**, including cooperative learning, demonstrations, and task-oriented exercises. Teacher-centered strategies such as lectures without student participation are used less often.
2. **Students' Physical Fitness** – Students demonstrated **moderate to high levels of physical fitness** across assessed components, including cardiovascular endurance, muscular strength and endurance, flexibility, and body composition. The results suggest that regular and engaging PE activities contribute to improved physical health among secondary school students.
3. **Students' Academic Engagement** – Students exhibited **moderate to high levels of academic engagement**, encompassing behavioral, emotional, and cognitive aspects. High participation, interest, and focus in learning activities were observed, indicating that students' involvement in school extends beyond physical activity.
4. **Relationship Between PE Teaching Strategies and Physical Fitness** – A **strong positive relationship** was found, indicating that the more frequently student-centered and activity-based strategies are used, the higher the students' physical fitness levels.
5. **Relationship Between PE Teaching Strategies and Academic Engagement** – A **strong positive relationship** was observed, suggesting that engaging PE instruction enhances students' behavioral, emotional, and cognitive involvement in academic tasks.
6. **Relationship Between Physical Fitness and Academic Engagement** – A **moderate positive relationship** was found, showing that physically fit students tend to be more actively engaged in their academic activities.

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Overall, the findings highlight the **critical role of effective PE teaching strategies** in promoting both students' physical fitness and academic engagement. Activity-based, student-centered approaches not only improve motor skills and fitness but also foster motivation, discipline, and attention in learning, demonstrating the interconnectedness of physical and academic development in public secondary schools.

Conclusions

Based on the findings and discussion of the study on **Physical Education Teaching Strategies and Their Relationship to Students' Physical Fitness and Academic Engagement in Public Secondary Schools**, the following conclusions were drawn:

1. **Effectiveness of Teaching Strategies** – Student-centered and activity-based teaching strategies are the most frequently used approaches in PE classes and are effective in promoting student participation and engagement. Traditional teacher-centered strategies are less commonly employed and appear less effective in motivating students.
2. **Impact on Physical Fitness** – PE teaching strategies that involve cooperative learning, demonstrations, and activity-based exercises significantly contribute to students' physical fitness, enhancing cardiovascular endurance, muscular strength, flexibility, and overall health.
3. **Impact on Academic Engagement** – Engaging PE instruction positively influences students' behavioral, emotional, and cognitive engagement, demonstrating that participation in physical activity can enhance focus, motivation, and involvement in academic tasks.
4. **Interrelationship Between Variables** – A strong positive relationship exists between PE teaching strategies and students' physical fitness, as well as between teaching strategies and academic engagement. Additionally, physical fitness is moderately associated with academic engagement, indicating that physically active students are more likely to be attentive and involved in learning.
5. **Holistic Development** – The study confirms that effective PE instruction is not limited to improving physical abilities but also plays a crucial role in fostering holistic development, integrating health, motivation, and academic participation in public secondary school students.

In summary, **strategically designed and interactive PE classes** are essential for enhancing both students' physical and academic outcomes, highlighting the importance of adopting student-centered, engaging, and activity-based teaching approaches in public secondary schools.

Recommendations

Based on the findings and conclusions of this study on **Physical Education Teaching Strategies and Their Relationship to Students' Physical Fitness and Academic Engagement in Public Secondary Schools**, the following recommendations are proposed:

For Physical Education Teachers

1. **Adopt Student-Centered and Activity-Based Strategies** – PE teachers should continue to implement cooperative learning, task-oriented exercises, and game-based activities to enhance students' participation, physical fitness, and motivation.
2. **Incorporate Variety in Instruction** – Varying activities, using demonstrations, feedback, and challenges can cater to diverse student abilities, ensuring that all learners remain engaged and develop physical skills effectively.

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3. **Promote Holistic Development** – Teachers should integrate activities that not only improve physical fitness but also foster discipline, teamwork, and cognitive skills, which can enhance academic engagement.

For School Administrators

1. **Support PE Programs** – Schools should provide sufficient facilities, equipment, and resources for PE classes to allow teachers to implement effective, activity-based strategies.
2. **Professional Development** – Administrators should encourage PE teachers to attend training and workshops on modern teaching strategies, fitness programs, and engagement techniques to improve instructional quality.

For Students

1. **Active Participation** – Students should be encouraged to actively participate in PE activities and embrace fitness programs, understanding that physical activity positively impacts both health and academic performance.
2. **Application Beyond PE** – Students are encouraged to apply habits of physical activity, teamwork, and discipline learned in PE classes to other academic and personal pursuits.

For Policy Makers and Curriculum Planners

1. **Enhance PE Curriculum** – Policymakers should emphasize student-centered and activity-based learning in PE curricula, ensuring that physical education contributes to holistic student development.
2. **Monitor Outcomes** – Implement periodic assessments of students' physical fitness and engagement to guide improvements in PE instruction and school programs.

For Future Researchers

1. **Further Studies** – Future research may investigate additional factors affecting students' physical fitness and academic engagement, such as nutrition, home environment, and extracurricular participation.
2. **Experimental Designs** – Researchers could conduct experimental or longitudinal studies to examine causal effects of specific PE teaching strategies on fitness and engagement over time.

By implementing these recommendations, public secondary schools can enhance **both physical fitness and academic engagement**, ensuring that PE classes contribute meaningfully to students' holistic development

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