

Mapping Psychomotor-Domain Instructional Strategies to Learners' Psychomotor Skill Development and Physical Education Participation Among Grade 7 Students

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ABSTRACT: This study determined the relationship between teachers' psychomotor-domain teaching strategies and learners' psychomotor skills and participation in Physical Education (PE). It specifically examined the level of implementation of instructional strategies across the psychomotor domain levels (imitation/perception, manipulation/set, precision, articulation, and naturalization), the level of learners' psychomotor skills in terms of movement competence and motor coordination, and learners' participation in PE activities in terms of frequency, duration, and type of activities engaged in. The study also investigated the significant relationship between these variables and identified which teaching strategy level best predicts learners' psychomotor skills and participation. A descriptive-correlational research design was employed, involving 220 learners as respondents. Mean, Pearson *r*, and multiple regression analysis were used to analyze the data. Results showed that teachers' psychomotor-domain teaching strategies were implemented at a high level across all domains, with naturalization consistently reflecting strong instructional influence. Learners also demonstrated strong psychomotor skills and high participation in PE activities. Findings revealed significant positive relationships between teaching strategies and learners' psychomotor skills, as well as between teaching strategies and learners' participation. Similarly, learners' psychomotor skills were found to be strongly and significantly related to their participation in PE activities. Regression analysis further showed that among all psychomotor-domain levels, only naturalization significantly predicted both learners' psychomotor skills and their participation. Based on the findings, it is concluded that effective implementation of psychomotor-domain teaching strategies significantly enhances learners' psychomotor development and participation in Physical Education, with naturalization emerging as the strongest predictor. It is recommended that PE teachers strengthen mastery-based instruction, promote sustained practice, and integrate real-life application of skills to further improve learners' physical competence and engagement.

KEYWORDS: psychomotor domain, Physical Education, teaching strategies, motor skills, learner participation

I. INTRODUCTION

Physical Education (PE) plays a vital role in promoting the holistic development of learners, particularly in the psychomotor domain which focuses on movement, coordination, and motor skill acquisition. The psychomotor domain includes progressive levels of skill development such as imitation/perception, manipulation/set, precision, articulation, and naturalization. These levels describe how learners progress from observing and imitating movements to performing complex physical skills accurately, smoothly, and automatically. Among Grade 7 learners, who are experiencing rapid physical growth and developmental changes, effective psychomotor-domain instruction becomes essential in developing movement competence, motor coordination, and active participation in Physical Education activities.

Globally, recent studies emphasized that structured and developmentally sequenced Physical Education instruction significantly improves learners' psychomotor skills and participation. A study by Fernández-Vázquez et al. (2024) revealed that practice-based teaching strategies combined with engaging instructional approaches improved learners' coordination, motor performance, and participation in PE activities. Similarly, Wang and Yuan (2024) found that well-designed PE instructional approaches enhanced students' exercise attitudes, motor skills, and engagement in physical activities. Moreover, Zhou et al. (2025) emphasized that classroom instructional factors strongly influenced learners' participation and physical activity levels during PE classes. Another study conducted by Samsidar (2025) showed that problem-based instructional strategies in PE

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improved learners' locomotor and manipulative motor skills while increasing participation in class activities. In addition, Cruz, Kim, and Kim (2021) highlighted that teacher behaviors and curriculum implementation significantly affected Filipino students' attitudes and participation in Physical Education.

At Las Piñas National High School, Grade 7 learners exhibit varying levels of psychomotor proficiency and participation in Physical Education activities. As learners transition from elementary to junior high school, they encounter increased physical, social, and academic demands that affect their engagement in PE classes. Understanding how teachers' psychomotor-domain instructional strategies influence learners' psychomotor skill development and participation is therefore essential in designing responsive, inclusive, and evidence-based Physical Education programs.

Hence, this study aimed to map psychomotor-domain instructional strategies to learners' psychomotor skill development and participation in Physical Education among Grade 7 students at Las Piñas National High School during the School Year 2025–2026. The findings of the study were expected to provide empirical evidence that would guide teachers, curriculum planners, and school administrators in strengthening instructional practices and enhancing learner participation and psychomotor skill development in Physical Education.

II. RESEARCH QUESTION

This study aimed to examine how Physical Education teachers' instructional strategies aligned with the psychomotor domain taxonomy were associated with Grade 7 learners' psychomotor skills and participation in Physical Education at Las Piñas National High School during School Year 2025–2026.

Specifically, it sought to answer the following questions:

1. What was the level of implementation of teachers' instructional strategies aligned with the psychomotor domain taxonomy as assessed by the learners in terms of:
 - 1.1. imitation/perception;
 - 1.2. manipulation/set;
 - 1.3. precision;
 - 1.4. articulation; and
 - 1.5. naturalization?
2. What is the level of learners' psychomotor skills in terms of:
 - 2.1 movement competence (balance, agility, coordination); and
 - 2.2 motor coordination (hand–eye coordination, foot–eye coordination, reaction time)?
3. What is the extent of learners' participation in Physical Education activities in terms of:
 - 3.1 frequency of participation;
 - 3.2 duration of participation; and
 - 3.3 type of Physical Education activities engaged in?
4. Is there a significant relationship between teachers' psychomotor-domain teaching strategies and learners' psychomotor skills?
5. Is there a significant relationship between teachers' psychomotor-domain teaching strategies and learners' participation in Physical Education activities?
6. Is there a significant relationship between learners' psychomotor skills and their participation in Physical Education activities?
7. Based on the findings, what instructional recommendations were proposed to strengthen psychomotor skill development and learner participation in Physical Education?

III. SCOPE AND LIMITATION OF THE STUDY

This study focused on mapping psychomotor-domain instructional strategies to learners' psychomotor skill development and participation in Physical Education among Grade 7 students at Las Piñas National High School during the School Year 2025–2026. Specifically, it examined the level of implementation of teachers' instructional strategies aligned with the psychomotor domain taxonomy in terms of imitation/perception, manipulation/set, precision, articulation, and naturalization. It also assessed learners' psychomotor skills in terms of movement competence and motor coordination, as well as their participation in PE activities in terms of frequency, duration, and type of activities engaged in.

The study employed a descriptive–correlational and predictive research design to determine the levels of the variables, examine the significant relationships among instructional strategies, psychomotor skills, and participation, and identify which instructional strategies significantly predict learners' psychomotor skill development and participation outcomes.

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The study was limited to Grade 7 learners enrolled at Las Piñas National High School during the specified school year. Data gathering was conducted during scheduled PE classes using learner-based survey questionnaires and structured psychomotor skill indicators aligned with the MAPEH curriculum. The study did not include cognitive and affective learning outcomes, nor did it control variables such as socioeconomic status, extracurricular sports involvement, family background, teacher experience, and school facilities that may have influenced learners' performance and participation.

Despite these limitations, the study provided valuable insights into how psychomotor-domain instructional strategies influence learners' psychomotor skill development and participation in Physical Education, serving as a basis for improving PE instructional practices and learner engagement.

FRAMEWORK

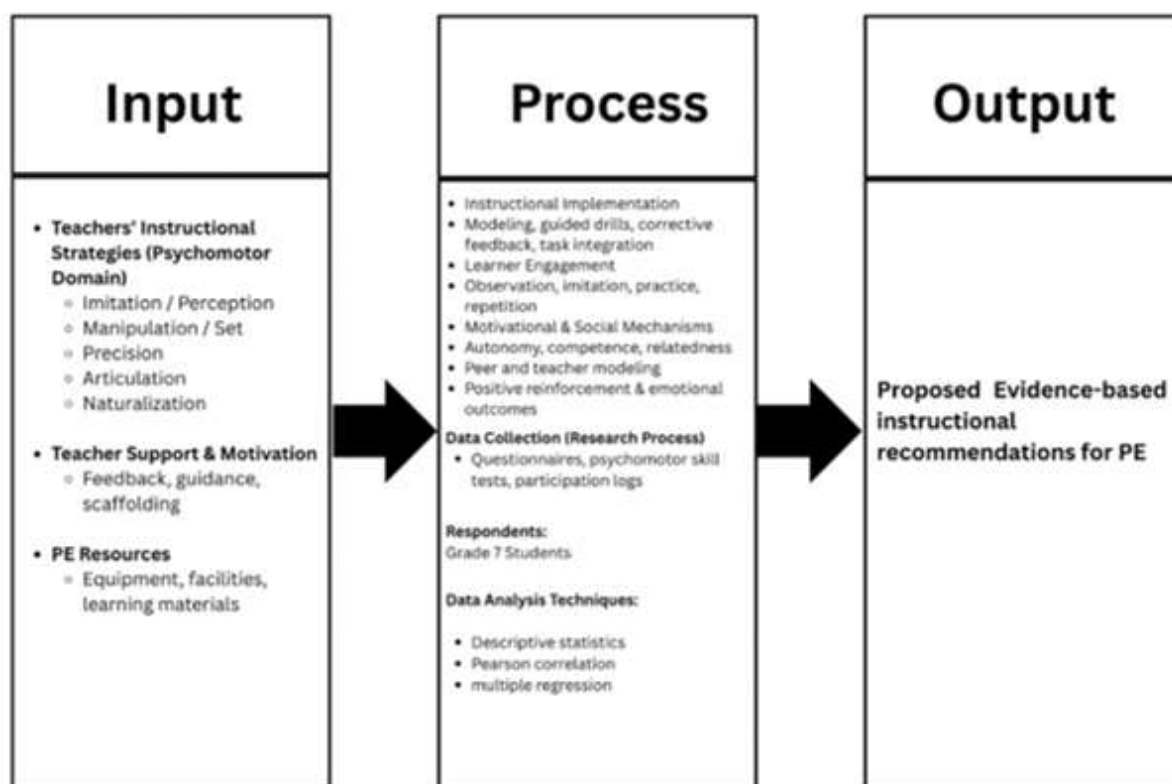


Figure 1. Research Paradigm

Figure 1 presented the conceptual framework of the study using the Input–Process–Output (IPO) Model, which illustrated the systematic flow of how the investigation on psychomotor skills and participation in Physical Education among Grade 7 learners was conducted. The conceptual framework of this study was illustrated through an Input–Process–Output (IPO) model, which provided a systematic overview of the study's essential components by highlighting the key variables, instructional and motivational processes, and the expected outcomes aligned with the research objectives. The IPO model served as a structured guide demonstrating how the study's inputs were applied through instructional and research processes to generate meaningful outputs relevant to enhancing psychomotor skill development and active participation in Physical Education (PE) among Grade 7 learners.

The Input component consisted of the independent variables that formed the foundation of the study. These included teachers' instructional strategies aligned with the psychomotor domain taxonomy—specifically imitation/perception, manipulation/set, precision, articulation, and naturalization—which were expected to guide learners progressively from basic skill observation to automatic execution of complex motor tasks. Additionally, teacher support and motivation, including feedback, guidance, and scaffolding, were considered as inputs that enhanced the effectiveness of instruction. The availability of PE resources, such as learning materials, equipment, and facilities, also contributed to creating an optimal learning environment that supported skill acquisition and participation.

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The Process component represented the instructional and research procedures that transformed the inputs into measurable outcomes. Instructional implementation involved structured teaching practices such as modeling, guided drills, corrective feedback, and task integration. Learner engagement was facilitated through observation, imitation, practice, and repetition of motor skills. Motivational and social mechanisms—including autonomy, competence, relatedness, peer modeling, and positive reinforcement—enhanced learner participation and motivation. Parallel to the instructional process, data collection was conducted using researcher-made questionnaires, psychomotor skill assessments, and participation logs administered to Grade 7 students. The collected data were analyzed using descriptive statistics, Pearson correlation, and multiple regression to examine the relationships between instructional strategies, psychomotor skills, and participation outcomes.

The Output component reflected the results of the study. These included the development of learners' psychomotor skills, measured in terms of movement competence (balance, agility, coordination) and motor coordination (hand–eye coordination, foot–eye coordination, reaction time), as well as active participation in PE activities, evaluated through frequency, duration, and type of engagement. Based on these empirical findings, the study generated evidence-based instructional recommendations that guided PE teachers in implementing psychomotor-domain strategies effectively, thereby promoting skill mastery, learner motivation, and sustained participation in Physical Education classes.

Research Design

This study employed a descriptive-correlational and predictive research design, suitable for examining existing relationships among variables without manipulating them. The descriptive component was used to determine the level of implementation of teachers' instructional strategies aligned with the psychomotor domain taxonomy specifically imitation/perception, manipulation/set, precision, articulation, and naturalization as assessed by Grade 7 learners. It also described the learners' levels of psychomotor skills, including movement competence (balance, agility, coordination) and motor coordination (hand–eye coordination, foot–eye coordination, and reaction time), as well as the extent of their participation in Physical Education (PE) activities in terms of frequency, duration, and type of activities engaged in. This component provided a comprehensive profile of instructional practices, skill proficiency, and participation patterns among the respondents.

The correlational component explored whether significant relationships exist between psychomotor-domain instructional strategies and learners' psychomotor skill development, between instructional strategies and PE participation, and between psychomotor skills and participation. In addition, a predictive analysis was incorporated to determine which specific levels of psychomotor-domain teaching strategies significantly predict learners' psychomotor skills and participation outcomes. This allowed the study not only to establish associations but also to identify instructional factors that contribute meaningfully to skill development and active engagement in PE.

This design is appropriate for studying adolescents in a natural school setting because it allows the observation of authentic instructional practices and learner performance without experimental manipulation. It captures natural variations in teaching strategies, motor competence, and participation behaviors within regular PE classes. Descriptive-correlational approaches have been widely used in educational and motor learning research to examine the relationships between instructional quality, motor development, and student engagement. Furthermore, this design is non-invasive and ethically appropriate for research involving minors, as it does not alter classroom instruction or impose experimental conditions.

By using this design, the study systematically describes the implementation of psychomotor-domain instructional strategies and learners' motor skill levels while testing the relationships among instructional practices, psychomotor development, and participation behaviors. It also determines the predictive value of specific instructional strategy levels in enhancing skill mastery and engagement. The findings aim to provide evidence-based insights that can guide Physical Education teachers in strengthening psychomotor instruction and promoting active participation among Grade 7 learners.

Research Instrument

This study employed a descriptive–correlational and predictive research design to examine the relationship between psychomotor-domain instructional strategies, learners' psychomotor skills, and participation in Physical Education among Grade 7 students. The descriptive component was used to determine the level of implementation of teachers' instructional strategies aligned with the psychomotor domain taxonomy, as well as the level of learners' psychomotor skills and their extent of participation in PE activities.

The correlational component examined the significant relationships between psychomotor-domain instructional strategies and learners' psychomotor skills, instructional strategies and learners' participation, and psychomotor skills and participation in PE activities. In addition, the predictive component utilized multiple regression analysis to identify which instructional strategies significantly predict learners' psychomotor skill development and participation outcomes.

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This research design was considered appropriate because it enabled the researcher to examine naturally occurring instructional practices and learner behaviors in actual Physical Education classroom settings without manipulating variables, while also providing descriptive, relational, and predictive evidence relevant to the study.

Data Gathering

Prior to the conduct of the study, formal approval was secured from the School Principal of Las Piñas National High School and the Schools Division Office of Las Piñas. Written parental consent and student assent were obtained to ensure compliance with ethical standards, particularly voluntary participation, confidentiality, and the protection of minors.

Data collection was conducted during the students' scheduled Physical Education (PE) classes to ensure that respondents were assessed within the actual instructional setting of the study. Before administering the research instrument, the researcher provided a brief orientation regarding the purpose of the study, which aimed to examine the implementation of psychomotor-domain instructional strategies and learners' psychomotor skill development and participation in Physical Education activities. The respondents were informed that their participation was voluntary, their responses would remain confidential, and there were no right or wrong answers.

The data-gathering procedure consisted of four major components aligned with the research instrument. First, the learners completed the profile section, which included information such as age, sex, section, and PE teacher. Second, the respondents assessed their teachers' instructional strategies aligned with the psychomotor domain taxonomy in terms of imitation/perception, manipulation/set, precision, articulation, and naturalization using a structured 4-point Likert scale. Third, the learners evaluated their psychomotor skills in terms of movement competence, including balance, agility, and coordination, as well as motor coordination involving hand-eye coordination, foot-eye coordination, and reaction time. Lastly, the respondents rated their participation in Physical Education activities in terms of frequency, duration, and type of activities engaged in.

The questionnaire was completed within approximately 10–15 minutes under the supervision of the researcher to ensure proper understanding of the instructions. The researcher remained available to clarify questions when necessary while ensuring that responses were not influenced. After completion, all questionnaires were immediately collected and checked for completeness. No identifying information was written on the questionnaires to maintain the anonymity of the respondents. All gathered data were securely stored and prepared for statistical analysis.

This structured and classroom-based data gathering procedure ensured that the responses accurately reflected learners' perceptions of teachers' instructional strategies, psychomotor skills, and participation in Physical Education within their actual learning environment.

Statistical Treatment

The data collected in this study were analyzed using both descriptive and inferential statistical methods consistent with the descriptive–correlational and predictive research design. Descriptive statistics were employed to summarize the demographic profile of the respondents in terms of age, sex, and section using frequency counts and percentages. Weighted mean and standard deviation were computed to determine the level of implementation of psychomotor-domain instructional strategies—specifically imitation, manipulation, precision, articulation, and naturalization—as well as the level of learners' psychomotor skills in terms of movement competence (balance, agility, coordination) and motor coordination (hand-eye coordination, foot-eye coordination, reaction time). These measures were also used to describe the extent of learners' participation in Physical Education activities in terms of frequency, duration, and type of activities engaged in. The descriptive results provided a clear overview of instructional practices, motor proficiency levels, and participation patterns among Grade 7 learners.

To examine the relationships among the study variables, the Pearson Product–Moment Correlation Coefficient (r) was utilized to determine the strength and direction of the relationships between psychomotor-domain instructional strategies and learners' psychomotor skills, between instructional strategies and participation in PE, and between psychomotor skills and participation. This analysis established whether significant associations exist among the independent and dependent variables. Furthermore, multiple regression analysis was conducted to determine which specific levels of psychomotor-domain instructional strategies significantly predict learners' psychomotor skill development and participation in Physical Education. This procedure identified the relative contribution of each instructional strategy level in explaining variations in motor competence and engagement outcomes. All statistical tests were performed at the 0.05 level of significance. The combined use of descriptive, correlational, and regression analyses ensured a comprehensive and evidence-based evaluation of how psychomotor-domain instructional strategies are associated with and predict learners' psychomotor skills and participation in Physical Education among Grade 7 students.

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IV. RESULTS

This chapter presents the result of the study through tables that includes the interpretation, implications and related citations.

Level of implementation of teachers' instructional strategies aligned with the psychomotor domain taxonomy, as assessed by the learners

Table 1. imitation/perception.

Indicators	Mean	VI
1. My PE teacher clearly demonstrates the skill before asking us to try it.	3.78	SA
2. My PE teacher points out what to look for in the demonstration (body position, timing, direction).	3.67	SA
3. My PE teacher uses simple cues that help me notice key parts of the movement.	3.20	A
4. My PE teacher checks if we understand what the skill should look like before practice starts.	3.60	SA
5. My PE teacher allows me to watch a classmate's correct performance to better understand the skill.	3.22	A
6. My PE teacher breaks the skill into parts so I can see each step clearly.	3.58	SA
7. My PE teacher uses clear signals (counting, clapping, whistle) to help me time my movement.	3.63	SA
8. My PE teacher reminds us to observe safety and space awareness while watching demonstrations.	3.62	SA
9. My PE teacher repeats the demonstration when many of us are confused.	3.61	SA
10. My PE teacher asks questions that help me describe the movement before doing it.	3.22	A
General Assessment	3.51	SA

Legend:
3.25 – 4.00 Strongly Agree (SA)
1.75 – 2.49 Disagree (D)
2.50 – 3.24 Agree (A)
1.00 – 1.74 Strongly (SD)

Table 1 presents the level of implementation of teachers' instructional strategies aligned with the psychomotor domain taxonomy in terms of imitation/perception, as assessed by the learners, obtained an overall mean of 3.51, interpreted as Strongly Agree (SA).

This indicates that learners generally perceive their Physical Education teachers as highly effective in applying instructional strategies that support the development of basic psychomotor skills, particularly at the imitation and perception stage.

Among the indicators, the highest-rated item was "My PE teacher clearly demonstrates the skill before asking us to try it" (M = 3.78, SA), suggesting that demonstration remains the most dominant and effective instructional approach in PE classes. Other strongly rated practices include the use of cues and timing signals (M = 3.63), reminders on safety and space awareness (M = 3.62), repetition of demonstrations when confusion arises (M = 3.61), and breaking skills into manageable steps (M = 3.58), all of which reinforce structured and guided learning experiences.

However, slightly lower but still positive ratings were observed in indicators involving the use of cues to highlight key movement parts (M = 3.20, A), allowing learners to observe classmates' performance (M = 3.22, A), and asking learners to describe movements before performing them (M = 3.22, A), suggesting that these more reflective and interactive strategies are less frequently practiced.

These findings imply that teachers are highly competent in delivering demonstration-based instruction, which is essential in the psychomotor domain, particularly for beginners who rely heavily on observation and imitation. The strong emphasis on modeling and step-by-step instruction aligns with the foundational principles of psychomotor learning, where learners first acquire skills through observation before actual performance.

However, the slightly lower ratings in observation-based peer learning and questioning strategies indicate a need to further enhance learner engagement in higher-order thinking within psychomotor instruction. This suggests that while students are well-supported in observing and imitating skills, there is still room to improve strategies that encourage deeper understanding, analysis, and verbalization of movements.

In terms of implications, the results suggest that teachers should continue to strengthen their use of demonstrations and structured skill breakdowns, as these are highly effective in facilitating psychomotor learning. At the same time, there is a need to incorporate more interactive strategies such as guided questioning, peer observation, and reflective discussions to deepen learners' understanding of movement execution. For learners, the findings indicate strong support in developing basic motor skills, although additional opportunities for active reflection may further enhance their learning outcomes. For curriculum planners and

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school administrators, the results highlight the importance of providing training and instructional support that enhances teachers' ability to integrate both demonstration and learner-centered strategies in Physical Education.

Recent studies support these findings. Stander and Mostert (2023) emphasized that effective psychomotor learning in Physical Education is highly dependent on clear demonstrations, structured modeling, and guided observation, which significantly improve skill acquisition at the imitation level.

Similarly, UNESCO (2024) highlighted that combining demonstration with feedback and observation-based learning enhances student engagement and motor skill development.

Furthermore, Lee and Kim (2023) found that while students perform better when teachers use step-by-step demonstrations and visual cues, learning outcomes are further improved when learners are encouraged to analyze and verbalize observed movements.

These studies reinforce the present findings, confirming that while demonstration is highly effective, integrating reflective and interactive strategies can further enhance psychomotor learning outcomes.

Table 2. manipulation/set;

Indicators	Mean	VI
1. My PE teacher guides us through practice with step by step instructions while we perform the skill.	3.64	SA
2. My PE teacher provides practice tasks that move from easy to harder.	3.20	A
3. My PE teacher corrects my form while I am practicing, not only after the activity.	3.21	A
4. My PE teacher encourages proper warm up and readiness before skill practice.	3.22	A
5. My PE teacher gives enough time for repeated practice to improve my performance.	3.56	SA
6. My PE teacher uses drills that help me control the movement (speed, force, direction).	3.23	A
7. My PE teacher helps me adjust when I cannot do the skill by suggesting a simpler version.	3.20	A
8. My PE teacher uses partner or group practice so I can try the skill with support.	3.62	SA
9. My PE teacher gives reminders about correct posture and alignment during practice.	3.61	SA
10. My PE teacher encourages me to keep trying even when I make mistakes.	3.61	SA
General Assessment	3.41	SA

Legend:
3.25 – 4.00 Strongly Agree (SA)
1.75 – 2.49 Disagree (D)

2.50 – 3.24 Agree (A)
1.00 – 1.74 Strongly (SD)

Table 2 presents the level of implementation of teachers' instructional strategies aligned with the psychomotor domain taxonomy in terms of manipulation/set, as assessed by the learners, obtained a general mean of 3.41, interpreted as Strongly Agree (SA).

This indicates that learners generally perceive their Physical Education teachers as effectively facilitating skill practice and supporting the development of more controlled and refined movement execution. Among the indicators, the highest-rated items include "My PE teacher guides us through practice with step-by-step instructions while we perform the skill" (M = 3.64, SA), "My PE teacher uses partner or group practice so I can try the skill with support" (M = 3.62, SA), "My PE teacher gives reminders about correct posture and alignment during practice" (M = 3.61, SA), and "My PE teacher encourages me to keep trying even when I make mistakes" (M = 3.61, SA). These results suggest that teachers strongly emphasize guided practice, collaborative learning, and continuous encouragement, which are essential components in developing psychomotor proficiency at the manipulation stage. In addition, learners also strongly agreed that they are given sufficient time for repeated practice to improve performance (M = 3.56, SA), highlighting the importance of repetition in skill mastery.

On the other hand, several indicators were rated as Agree (A), including the provision of progressive tasks from easy to difficult (M = 3.20), correction of form during practice (M = 3.21), encouragement of proper warm-up and readiness (M = 3.22), use of drills for movement control such as speed, force, and direction (M = 3.23), and providing simpler versions of skills for struggling learners (M = 3.20).

These results indicate that while these instructional strategies are present, they are less consistently implemented compared to step-by-step guidance and group-based practice. This suggests that learners may experience fewer opportunities for differentiated instruction and real-time corrective feedback during skill execution.

The findings imply that teachers are generally effective in supporting psychomotor development at the manipulation/set level, particularly in providing structured guidance, repetition, and collaborative practice. These strategies are crucial as this stage involves refining and controlling movements through practice and feedback.

However, the lower-rated indicators suggest a need to further strengthen differentiated instruction, immediate corrective feedback, and progressive skill sequencing to better support learners with varying skill levels. Enhancing these areas may lead to improved motor control, better skill retention, and more individualized learning experiences in Physical Education.

Recent studies support these findings. According to Kirk (2023), effective psychomotor development at the manipulation stage requires sustained practice, immediate feedback, and progressive skill difficulty to ensure motor control and accuracy.

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Similarly, UNESCO (2024) emphasizes that physical education programs should integrate structured practice, peer-assisted learning, and corrective feedback to enhance skill acquisition and student engagement.

Furthermore, Hopper and Butler (2023) found that learners demonstrate higher motor skill improvement when teachers provide consistent guided practice and opportunities for repeated performance, particularly when combined with supportive peer interactions. These studies reinforce the present findings, highlighting that while guided and collaborative practice is effectively implemented, further enhancement of adaptive instruction and real-time correction can strengthen psychomotor learning outcomes.

Table 3. precision;

Indicators	Mean	VI
1. My PE teacher gives specific feedback about what I did correctly and what to improve.	3.62	SA
2. My PE teacher uses clear performance criteria (accuracy, control, timing) when checking our skills.	3.22	A
3. My PE teacher asks us to repeat the skill until we can perform it with fewer errors.	3.56	SA
4. My PE teacher focuses on consistency, not only completing the task once.	3.56	SA
5. My PE teacher helps me refine small details of the movement (hand placement, footwork, follow through).	3.20	A
6. My PE teacher provides activities that require accuracy (targeting, staying on a line, exact counts).	3.57	SA
7. My PE teacher corrects unsafe or inefficient technique immediately.	3.59	SA
8. My PE teacher uses practice checks (short tests, stations) to monitor improvement in skill accuracy.	3.62	SA
9. My PE teacher encourages self-checking (I can tell when my movement is correct).	3.61	SA
10. My PE teacher gives opportunities to practice under slight pressure (time limit, scoring) to improve accuracy.	3.64	SA
General Assessment	3.52	SA

Legend:
3.25 – 4.00 Strongly Agree (SA)
1.75 – 2.49 Disagree (D)
2.50 – 3.24 Agree (A)
1.00 – 1.74 Strongly (SD)

Table 3 presents the level of implementation of teachers' instructional strategies aligned with the psychomotor domain taxonomy in terms of precision, as assessed by the learners, obtained a general mean of 3.52, interpreted as Strongly Agree (SA). This indicates that learners strongly perceive their Physical Education teachers as effectively facilitating skill refinement, accuracy, and controlled performance during practice activities. Among the indicators, the highest-rated item was "My PE teacher gives opportunities to practice under slight pressure (time limit, scoring) to improve accuracy" (M = 3.64, SA), followed by "My PE teacher gives specific feedback about what I did correctly and what to improve" (M = 3.62, SA) and "My PE teacher uses practice checks (short tests, stations) to monitor improvement in skill accuracy" (M = 3.62, SA).

These results suggest that teachers strongly emphasize performance-based assessment, structured feedback, and accuracy-focused practice, which are essential in developing precision in psychomotor skills. Other strongly agreed indicators include encouraging self-checking of performance (M = 3.61), immediate correction of unsafe or inefficient techniques (M = 3.59), provision of accuracy-based activities such as targeting and exact counts (M = 3.57), and repetition of skills until errors are minimized (M = 3.56), all of which reinforce the importance of consistency and refinement in skill execution.

On the other hand, several indicators were rated as Agree (A), including the use of clear performance criteria such as accuracy, control, and timing (M = 3.22) and helping learners refine small movement details like hand placement and footwork (M = 3.20). These results indicate that while precision-oriented feedback and refinement strategies are present, they are less consistently emphasized compared to general feedback, repetition, and accuracy-based activities. This suggests that learners may receive fewer explicit instructional opportunities focused on breaking down and correcting fine motor details and standardized performance criteria.

The findings imply that teachers are highly effective in developing precision in psychomotor skills through feedback, repetition, monitoring, and performance-based activities. These strategies support learners in achieving accuracy, consistency, and improved control of movements, which are essential at this stage of psychomotor development. However, the slightly lower ratings in detailed movement refinement and explicit performance criteria suggest a need to strengthen instruction that focuses on micro-level corrections and clearer rubrics for skill evaluation. Enhancing these areas may further improve learners' ability to self-correct and achieve higher levels of accuracy in performance.

Recent literature supports these findings. According to Rink (2023), precision in physical education skills is best developed through structured feedback, repetition, and criterion-based assessment, which help learners refine motor execution over time.

Similarly, UNESCO (2024) highlights that effective psychomotor instruction should include immediate corrective feedback and opportunities for performance evaluation under controlled conditions to improve accuracy and consistency. In addition, Liu and Wang (2023) found that learners demonstrate higher levels of motor precision when teachers combine feedback-driven instruction with self-assessment and performance under mild pressure, reinforcing skill retention and refinement. These studies

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validate the present findings, emphasizing that while precision is effectively developed through feedback and practice-based strategies, further emphasis on detailed correction and explicit performance standards can enhance psychomotor learning outcomes.

Table 4. articulation

Indicators	Mean	VI
1. My PE teacher asks us to combine two or more skills in one sequence (for example, catch then pass).	3.66	SA
2. My PE teacher designs activities where I must adjust skills to different situations (space, speed, opponents).	3.22	A
3. My PE teacher uses game-like tasks that require decision making while moving.	3.20	A
4. My PE teacher encourages smooth transitions between movements (start, change direction, stop).	3.57	SA
5. My PE teacher teaches strategies on when and why to use certain skills during activities.	3.22	A
6. My PE teacher uses routines or combinations (dance steps, fitness circuits, sport sequences) to connect skills.	3.20	A
7. My PE teacher gives tasks that require teamwork and coordination of movements with others.	3.63	SA
8. My PE teacher encourages adapting technique based on feedback from results (missed target, slow reaction).	3.57	SA
9. My PE teacher gives opportunities to plan and execute a movement sequence with my group.	3.60	SA
10. My PE teacher assesses not only single skills but also combined performance during drills or games.	3.58	SA
General Assessment	3.45	SA

Legend:
3.25 – 4.00 Strongly Agree (SA)
1.75 – 2.49 Disagree (D)
2.50 – 3.24 Agree (A)
1.00 – 1.74 Strongly (SD)

Table 4 presents the level of implementation of teachers' instructional strategies aligned with the psychomotor domain taxonomy in terms of articulation, as assessed by the learners, obtained a general mean of 3.45, interpreted as Strongly Agree (SA). This indicates that learners strongly perceive their Physical Education teachers as effectively facilitating the integration and coordination of multiple skills into more complex and functional movement sequences.

Among the indicators, the highest-rated item was "My PE teacher asks us to combine two or more skills in one sequence (for example, catch then pass)" (M = 3.66, SA), followed by "My PE teacher gives tasks that require teamwork and coordination of movements with others" (M = 3.63, SA) and "My PE teacher encourages smooth transitions between movements (start, change direction, stop)" (M = 3.57, SA). These results suggest that teachers strongly emphasize skill integration, coordination, and fluid movement execution, which are essential characteristics of articulation in the psychomotor domain.

Learners also strongly agreed that they are given opportunities to plan and execute movement sequences with their group (M = 3.60), that combined performance is assessed during drills or games (M = 3.58), and that they are encouraged to adjust techniques based on feedback from outcomes (M = 3.57), all of which highlight the importance of applying skills in dynamic and realistic contexts.

On the other hand, several indicators were rated as Agree (A), including designing activities that require adjustment of skills to different situations such as space, speed, and opponents (M = 3.22), using game-like tasks that require decision-making while moving (M = 3.20), teaching strategies on when and why to use certain skills (M = 3.22), and using routines or combinations such as dance steps, fitness circuits, and sport sequences (M = 3.20). These results indicate that while articulation-based instructional strategies are present, they are less frequently emphasized in terms of contextual decision-making and structured strategy instruction. This suggests that learners have fewer opportunities to engage in higher-order application of movement skills that require tactical thinking and adaptive responses during physical activities.

The findings imply that teachers are generally effective in promoting articulation in psychomotor learning, particularly in developing learners' ability to combine movements, coordinate with peers, and perform smooth transitions. These practices are essential for advanced motor skill development, as they simulate real-game and real-life physical activity situations. However, the lower-rated indicators suggest a need to further strengthen instructional strategies that promote decision-making, tactical awareness, and adaptive skill application in varied contexts. Enhancing these areas may help learners not only perform movements but also understand when, why, and how to apply them effectively in different physical situations.

Recent studies support these findings. According to Crum and Light (2023), articulation in physical education is best developed through game-based learning and task-oriented activities that require learners to combine skills and make decisions in dynamic environments. Similarly, UNESCO (2024) emphasizes that advanced psychomotor learning should involve integrated movement patterns, tactical awareness, and cooperative activities to prepare learners for real-world physical challenges.

Furthermore, Hastie, et al (2023) found that learners demonstrate higher levels of skill integration and decision-making when teachers use small-sided games and movement combinations rather than isolated skill drills. These studies reinforce the present findings, indicating that while articulation is effectively supported through skill combinations and group activities, further emphasis on tactical instruction and decision-based learning can enhance psychomotor development outcomes.

Table 5. naturalization

Indicators	Mean	VI
1. My PE teacher encourages performing skills smoothly with little hesitation.	3.67	SA
2. My PE teacher provides enough practice, so the skill becomes easier and more automatic for me.	3.58	SA
3. My PE teacher uses activities where skills must be performed quickly while still controlled.	3.56	SA
4. My PE teacher challenges us to maintain correct form even when tired.	3.20	A
5. My PE teacher encourages applying learned skills to new activities (from drills to games or routines).	3.57	SA
6. My PE teacher encourages me to set personal goals to improve performance speed and consistency.	3.60	SA
7. My PE teacher promotes independent practice habits (self-correction, self-paced drills).	3.22	A
8. My PE teacher gives tasks that require reacting naturally to changing situations (opponents, ball movement, signals).	3.56	SA
9. My PE teacher recognizes improvement when skills look natural and efficient, not forced.	3.56	SA
10. My PE teacher encourages using correct skills outside class activities (intramurals, sports clubs, active play).	3.57	SA
General Assessment	3.51	SA

Legend:
3.25 – 4.00 Strongly Agree (SA)
1.75 – 2.49 Disagree (D)
2.50 – 3.24 Agree (A)
1.00 – 1.74 Strongly (SD)

Table 5 presents the level of implementation of teachers' instructional strategies aligned with the psychomotor domain taxonomy in terms of naturalization, as assessed by the learners, obtained a general mean of 3.51, interpreted as Strongly Agree (SA). This indicates that learners strongly perceive their Physical Education teachers as effectively supporting the development of automatic, smooth, and efficient performance of psychomotor skills, where movements become habitual and naturally executed.

Among the indicators, the highest-rated item was "My PE teacher encourages performing skills smoothly with little hesitation" (M = 3.67, SA), followed by "My PE teacher provides enough practice so the skill becomes easier and more automatic for me" (M = 3.58, SA) and "My PE teacher gives tasks that require reacting naturally to changing situations (opponents, ball movement, signals)" (M = 3.56, SA).

These results suggest that teachers strongly emphasize repeated practice, fluency of movement, and real-time application of skills in dynamic environments, all of which are essential characteristics of naturalization in the psychomotor domain. Learners also strongly agreed that teachers encourage goal setting for improved skills speed and consistency (M = 3.60), promote application of learned skills in new contexts such as games and routines (M = 3.57), and recognize when skills become natural and efficient rather than forced (M = 3.56), indicating strong support for skill mastery and automaticity.

On the other hand, several indicators were rated as Agree (A), including the encouragement to maintain correct form even when tired (M = 3.20) and the promotion of independent practice habits such as self-correction and self-paced drills (M = 3.22). These findings suggest that while learners experience strong guided instruction toward skill mastery, there is relatively less emphasis on sustained self-directed learning and performance consistency under fatigue. This implies that some aspects of long-term autonomy and endurance-based skill refinement are not as strongly emphasized compared to practice repetition and guided fluency development.

The findings imply that teachers are generally effective in facilitating naturalization of psychomotor skills, as learners are able to perform movements with increased smoothness, confidence, and reduced hesitation through consistent practice and application in varied contexts. This reflects successful progression toward the highest level of psychomotor learning, where skills become automatic and naturally executed in real-life or game situations.

However, the slightly lower ratings in independent practice and performance under fatigue suggest a need to further strengthen instructional strategies that promote self-regulated learning, endurance-based skill application, and long-term retention of correct form under physical stress. Enhancing these areas may help learners achieve greater mastery and consistency in real-world physical activities.

Recent literature supports these findings. According to Bailey et al. (2023), naturalization in physical education is achieved when learners engage in frequent, meaningful practice that leads to automatic and efficient skill execution across varied contexts.

Similarly, UNESCO (2024) emphasizes that advanced psychomotor learning should promote not only skill mastery but also adaptability, endurance, and independent application of movement skills beyond classroom settings.

Furthermore, Roberts and Fairclough (2023) found that learners demonstrate higher levels of automaticity and performance efficiency when teachers incorporate goal-setting, game-based practice, and progressive skill challenges, although sustained self-regulated practice further enhances long-term mastery. These studies reinforce the present findings, indicating that while naturalization is effectively supported through guided practice and varied activity exposure, further emphasis on independent practice and performance consistency under fatigue can strengthen overall psychomotor development.

Level of learners' psychomotor skills

Table 6. movement competence (balance, agility, coordination); and

Indicators	Mean	VI
1. I can maintain balance while standing on one foot for several seconds.	3.64	SA
2. I can keep my balance while moving, such as walking on a line or changing direction.	3.22	A
3. I can quickly start, stop, and change direction during PE activities without losing control.	3.20	A
4. I can move my body smoothly in activities that require rhythm (steps, jumps, basic dance patterns).	3.22	A
5. I can coordinate my arms and legs together during running, jumping, or skipping.	3.22	A
6. I can follow movement sequences correctly after practice (for example, warm up patterns, drills).	3.22	A
7. I can control my body when landing from a jump (knees bent, stable posture).	3.21	A
8. I can keep proper posture and alignment during exercises (squats, lunges, planks).	3.56	SA
9. I can move efficiently in small spaces without bumping into others.	3.20	A
10. I can adjust my movement speed based on the activity requirements.	3.62	SA
General Assessment	3.33	SA

Legend:
3.25 – 4.00 Strongly Agree (SA)
1.75 – 2.49 Disagree (D)
2.50 – 3.24 Agree (A)
1.00 – 1.74 Strongly Disagree (SD)

Table 6 presents the level of learners' psychomotor skills in terms of movement competence (balance, agility, and coordination), as reflected in the table, obtained a general mean of 3.33, interpreted as Strongly Agree (SA). This indicates that learners generally perceive themselves as having a good level of movement competence, particularly in maintaining balance, coordinating body movements, and adjusting motion according to activity demands. Among the indicators, the highest-rated item was "I can maintain balance while standing on one foot for several seconds" (M = 3.64, SA), followed by "I can adjust my movement speed based on the activity requirements" (M = 3.62, SA) and "I can keep proper posture and alignment during exercises such as squats, lunges, and planks" (M = 3.56, SA). These results suggest that learners demonstrate strong fundamental stability, body control, and adaptability in movement execution, which are essential components of movement competence in Physical Education.

On the other hand, several indicators were rated as Agree (A), including maintaining balance while moving (M = 3.22), quickly starting, stopping, and changing direction (M = 3.20), performing rhythmic movements (M = 3.22), coordinating arms and legs during locomotor activities (M = 3.22), following movement sequences after practice (M = 3.22), controlling landing posture after jumps (M = 3.21), moving efficiently in small spaces (M = 3.20), and other related coordination tasks. These results indicate that while learners are capable of performing these movement skills, they are not yet fully confident or consistently proficient in more dynamic and complex coordination tasks, particularly those involving agility, spatial awareness, and multi-limb coordination under changing conditions.

The findings imply that learners possess a solid foundation in movement competence, especially in static balance, posture control, and speed adjustment. However, their slightly lower ratings in agility-based and coordination-heavy tasks suggest that these skills require further development through more targeted and progressive physical activities. This may indicate the need for increased exposure to drills that enhance dynamic balance, reaction time, spatial awareness, and coordinated movement in real-time situations. Strengthening these areas can help learners transition from basic movement execution to more refined and efficient physical performance.

Recent literature supports these findings. According to Lubans et al. (2023), movement competence in adolescents improves significantly when physical education programs emphasize structured practice in balance, coordination, and agility through varied and progressive activities.

Similarly, UNESCO (2024) highlights that foundational motor skills such as balance and postural control are essential for lifelong physical activity participation and should be developed alongside dynamic movement skills like agility and coordination.

Furthermore, Stodden et al. (2023) found that learners with higher movement competence tend to demonstrate better performance in physical activities when exposed to consistent skill-based training that integrates both static and dynamic movement challenges. These studies reinforce the present findings, indicating that while learners show strong foundational competence, further emphasis on agility and complex coordination tasks is necessary to enhance overall psychomotor development.

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Table 7. motor coordination (hand–eye coordination, foot–eye coordination, reaction time)

Indicators	Mean	VI
1. I can catch a thrown ball reliably at a safe distance.	3.62	SA
2. I can throw or pass an object toward a target with reasonable accuracy.	3.20	A
3. I can dribble or control a ball using my hands while moving.	3.29	A
4. I can kick a moving ball toward a target or teammate with control.	3.20	A
5. I can stop or trap a ball using my foot with control.	3.20	A
6. I can react quickly to signals (whistle, clap, teacher's call) during activities.	3.58	SA
7. I can respond quickly when a ball or object suddenly changes direction.	3.20	A
8. I can coordinate my movements with a partner (timing passes, synchronized actions).	3.57	SA
9. I can keep control of objects even when I feel pressure (time limit, opponent, scoring).	3.22	A
10. I can improve my performance after feedback by adjusting my coordination.	3.59	SA
General Assessment	3.37	SA

Legend:
 3.25 – 4.00 Strongly Agree (SA)
 1.75 – 2.49 Disagree (D)
 2.50 – 3.24 Agree (A)
 1.00 – 1.74 Strongly Disagree (SD)

Table 7 The level of learners' psychomotor skills in terms of motor coordination (hand–eye coordination, foot–eye coordination, and reaction time), as assessed in the table, obtained a general mean of 3.37, interpreted as Strongly Agree (SA). This indicates that learners generally perceive themselves as capable of coordinating movements effectively, particularly in activities that require visual tracking, timing, and responsive actions.

Among the indicators, the highest-rated item was "I can catch a thrown ball reliably at a safe distance" (M = 3.62, SA), followed by "I can improve my performance after feedback by adjusting my coordination" (M = 3.59, SA), "I can react quickly to signals such as whistle, clap, or teacher's call" (M = 3.58, SA), and "I can coordinate my movements with a partner (timing passes, synchronized actions)" (M = 3.57, SA). These results suggest that learners demonstrate strong abilities in basic hand–eye coordination, reaction time, and cooperative timing, which are essential components of motor coordination in Physical Education.

On the other hand, several indicators were rated as Agree (A), including throwing or passing objects toward a target with accuracy (M = 3.20), dribbling or controlling a ball while moving (M = 3.29), kicking a moving ball toward a target or teammate (M = 3.20), stopping or trapping a ball using the foot (M = 3.20), responding quickly to changes in ball direction (M = 3.20), and maintaining control under pressure such as time limits or opponents (M = 3.22). These results indicate that while learners are capable of performing these coordination skills, their proficiency is more moderate compared to basic catching and reaction-based tasks. This suggests that more complex coordination skills involving lower limbs, object control, and pressure situations are still developing and may require additional practice and reinforcement.

The findings imply that learners possess strong foundational motor coordination, particularly in reaction time and basic hand–eye coordination tasks. However, their slightly lower ratings in foot-based coordination and pressure-driven performance suggest the need for further development in sport-specific skills and dynamic movement control. Strengthening these areas through repetitive drills, game-based activities, and progressively challenging coordination tasks may enhance learners' overall motor efficiency and adaptability in various physical activities.

Recent literature supports these findings. According to Barnett et al. (2023), motor coordination in adolescents is strongly influenced by repeated exposure to object-control skills such as throwing, catching, and kicking, with higher proficiency emerging through structured practice and feedback. Similarly, UNESCO (2024) emphasizes that physical education programs should develop both upper and lower limb coordination alongside reaction skills to support lifelong physical activity competence.

Furthermore, Logan et al. (2023) found that learners improve significantly in motor coordination when engaged in game-based and partner-based activities that require timing, spatial awareness, and rapid response to changing conditions. These studies reinforce the present findings, indicating that while learners demonstrate strong basic coordination and reaction abilities, continued emphasis on complex object control and pressure-based tasks is essential for further psychomotor skill development.

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Extent of learners' participation in Physical Education activities

Table 8. frequency of participation;

Indicators	Mean	VI
1. I participate actively in PE activities during most class meetings.	3.67	SA
2. I join drills and practice tasks even when I am not confident at first.	3.22	A
3. I volunteer or respond when the teacher asks for participants in demonstrations or activities.	3.20	A
4. I participate even when the activity is physically challenging.	3.22	A
5. I participate even when the activity is not my favorite.	3.20	A
6. I participate in partner or group tasks instead of staying on the side.	3.61	SA
7. I follow instructions and take part immediately when activities begin.	3.60	SA
8. I participate consistently throughout the class, not only at the start.	3.60	SA
9. I take part in fitness activities (warm up, conditioning, cooldown) during PE.	3.59	SA
10. I participate in PE activities even when I worry about making mistakes.	3.63	SA
General Assessment	3.45	SA

Legend:
3.25 – 4.00 Strongly Agree (SA)
1.75 – 2.49 Disagree (D)
2.50 – 3.24 Agree (A)
1.00 – 1.74 Strongly Disagree (SD)

Table 8 reveals the findings that learners' frequency of participation in Physical Education (PE) activities is generally high, with a general assessment mean of 3.45 (Strongly Agree). This indicates that learners actively and consistently engage in PE activities during most class sessions.

Specifically, learners strongly agreed that they participate actively in PE classes (M = 3.67), engage in group and partner tasks (M = 3.61), respond immediately to instructions (M = 3.60), participate consistently throughout class activities (M = 3.60), and remain involved in fitness-related tasks such as warm-up and cooldown exercises (M = 3.59). They also reported continuing participation even when they are worried about making mistakes (M = 3.63), indicating strong engagement and willingness to learn despite challenges.

However, some indicators were rated as Agree, such as joining drills even when not confident (M = 3.22), participating in physically demanding tasks (M = 3.22), volunteering during demonstrations (M = 3.20), and participating in non-preferred activities (M = 3.20). This suggests that while learners are generally active, their participation may still be influenced by confidence level, task difficulty, and personal interest.

Overall, the results indicate that learners demonstrate a high frequency of participation in PE activities, particularly in structured and teacher-guided tasks. These findings are supported by recent literature emphasizing that consistent participation in Physical Education is strongly influenced by instructional quality and engagement strategies.

According to UNESCO (2024), quality Physical Education programs that promote inclusivity, structured activity, and skill development significantly increase student participation and engagement in physical activities, reinforcing the importance of active involvement in PE classes for physical literacy development. Similarly, recent research highlights that participation in PE is associated with improved engagement and motivation when students are exposed to supportive and structured learning environments that encourage continuous activity involvement.

Table 9. duration of participation

Indicators	Mean	VI
1. I remain engaged in the activity until the teacher tells us to stop.	3.61	SA
2. I keep participating even when I feel tired, as long as it is safe to continue.	3.23	A
3. I avoid sitting out unless I have a valid reason (injury, illness, teacher instruction).	3.56	SA
4. I continue practicing the skill during allotted practice time.	3.58	SA
5. I stay involved during game play or performance tasks, not just during waiting time.	3.60	SA
6. I use rest periods properly and return to the activity when it is time.	3.57	SA
7. I manage my effort so I can participate for the whole class period.	3.59	SA
8. I stay focused on the task during stations or rotations.	3.59	SA
9. I complete assigned repetitions or rounds during drills.	3.65	SA
10. I maintain participation from warm up to cooldown.	3.60	SA
General Assessment	3.56	SA

Legend:
3.25 – 4.00 Strongly Agree (SA)
1.75 – 2.49 Disagree (D)
2.50 – 3.24 Agree (A)
1.00 – 1.74 Strongly Disagree (SD)

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Table 9 presents the level of learners' psychomotor skills in terms of duration of participation, as presented in the table, obtained a general mean of 3.56, interpreted as Strongly Agree (SA). This indicates that learners generally demonstrate a high level of sustained engagement and active participation throughout Physical Education activities from warm-up to cooldown.

Among the indicators, the highest-rated item was "I complete assigned repetitions or rounds during drills" (M = 3.65, SA), followed by "I remain engaged in the activity until the teacher tells us to stop" (M = 3.61, SA), "I maintain participation from warm up to cooldown" (M = 3.60, SA), and "I stay involved during game play or performance tasks, not just during waiting time" (M = 3.60, SA). These results suggest that learners are highly committed to active participation and are able to sustain engagement throughout structured physical activities, which reflects strong endurance and task persistence in PE settings.

Other indicators also received strong agreement, including managing effort to participate for the whole class period (M = 3.59), staying focused during stations or rotations (M = 3.59), continuing practice during allotted time (M = 3.58), and using rest periods appropriately before rejoining activities (M = 3.57). These findings indicate that learners demonstrate good self-regulation, time management, and discipline in maintaining active involvement during Physical Education sessions.

However, one indicator was rated slightly lower but still positive: "I keep participating even when I feel tired, as long as it is safe to continue" (M = 3.23, A). This suggests that while learners are generally active, their persistence during physical fatigue is somewhat limited compared to other aspects of participation.

The findings imply that learners exhibit strong duration of participation in Physical Education activities, indicating high levels of engagement, responsibility, and willingness to complete assigned tasks. This sustained participation is essential for skill development, as consistent involvement enhances motor learning, endurance, and physical fitness.

However, the slightly lower rating related to participation under fatigue suggests the need to further develop learners' physical stamina and motivation strategies to encourage continued engagement even during challenging or tiring activities, provided safety is maintained. Enhancing this aspect may improve overall performance consistency and physical resilience.

Recent literature supports these findings. According to Fairclough and Stratton (2023), sustained participation in Physical Education is closely linked to improved physical fitness, skill acquisition, and positive attitudes toward physical activity, especially when learners are actively engaged throughout the lesson. Similarly, UNESCO (2024) emphasizes that continuous participation in structured physical activities enhances both motor skill development and lifelong physical activity habits. Furthermore, Sallis et al. (2023) found that students who consistently engage in moderate-to-vigorous physical activity during class time demonstrate higher levels of physical competence and endurance compared to those with intermittent participation. These studies reinforce the present findings, indicating that while learners show strong sustained engagement overall, further strategies to improve persistence during fatigue can further enhance psychomotor development and physical endurance.

Table 10. type of Physical Education activities engaged in

Indicators	Mean	VI
1. I participate in team sports activities during PE (for example, basketball, volleyball).	3.22	A
2. I participate in individual sports or skills activities during PE (for example, badminton, table games).	3.20	A
3. I participate in fitness and conditioning activities during PE (for example, circuits, bodyweight exercises).	3.20	A
4. I participate in dance or rhythm based activities during PE.	3.22	A
5. I participate in athletics related activities during PE (for example, running, jumping, throwing).	3.21	A
6. I participate in recreational games designed for fun and movement.	3.22	A
7. I participate in activities that require object control skills (throwing, catching, striking, kicking).	3.20	A
8. I participate in activities that emphasize balance and body control (basic gymnastics, stability tasks).	3.21	A
9. I participate in activities that involve cooperative challenges (relays, group tasks).	3.62	SA
10. I participate in new or unfamiliar PE activities when they are introduced.	3.56	SA
General Assessment	3.29	SA

Legend:
3.25 – 4.00 Strongly Agree (SA) ✓
1.75 – 2.49 Disagree (D)
2.50 – 3.24 Agree (A)
1.00 – 1.74 Strongly Disagree (SD)

Table 10 presents the level of learners' psychomotor skills in terms of type of Physical Education activities engaged in, as shown in the table, obtained a general mean of 3.29, interpreted as Strongly Agree (SA). This indicates that learners generally perceive themselves as actively participating in a wide variety of Physical Education activities, although the level of engagement varies across different types of tasks. Among the indicators, the highest-rated item was "I participate in activities that require cooperative challenges (relays, group tasks)" (M = 3.62, SA), followed by "I participate in new or unfamiliar PE activities when they are

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introduced" ($M = 3.56$, SA). These results suggest that learners are highly engaged in collaborative and exploratory physical activities, indicating openness to teamwork and adaptability to new learning experiences in Physical Education.

On the other hand, several indicators were rated as Agree (A), including participation in team sports such as basketball and volleyball ($M = 3.22$), individual sports or skill-based activities such as badminton and table games ($M = 3.20$), fitness and conditioning exercises ($M = 3.20$), dance or rhythm-based activities ($M = 3.22$), athletics-related activities such as running and jumping ($M = 3.21$), recreational games ($M = 3.22$), object control activities such as throwing and catching ($M = 3.20$), and balance and body control activities such as gymnastics and stability tasks ($M = 3.21$).

These results indicate that while learners do participate across various PE activity types, their engagement in these areas is relatively moderate compared to cooperative and new or unfamiliar activities. This suggests that structured, teacher-led, and familiar activity types may not be as strongly emphasized or may not generate the same level of participation enthusiasm.

The findings imply that learners are generally exposed to a diverse range of Physical Education activities, which is essential for developing well-rounded psychomotor skills. However, their strongest engagement is observed in cooperative and novel activities, indicating that social interaction and variety play a key role in sustaining participation. The relatively lower engagement in specific skill-based and fitness-oriented activities suggests the need to further enhance learner motivation and interest in these areas, possibly through more game-based approaches, varied instructional methods, and contextualized activity design. Strengthening engagement across all activity types may lead to more balanced psychomotor development.

Recent studies support these findings. According to Casey and Goodyear (2023), student engagement in Physical Education increases significantly when activities are varied, cooperative, and designed with student-centered approaches, particularly through game-based learning.

Similarly, UNESCO (2024) emphasizes that diverse physical activity exposure, including sports, fitness, dance, and recreational games, is essential for developing comprehensive motor skills and lifelong physical activity habits.

Furthermore, Siedentop and Hastie (2023) found that learners show higher motivation and sustained participation when PE programs include cooperative tasks and novel activity experiences, compared to repetitive skill drills alone. These studies reinforce the present findings, indicating that while learners engage in a variety of PE activities, cooperative and new experiences are the most influential in enhancing participation and psychomotor development.

Table 11. Significant relationship between teachers' psychomotor-domain teaching strategies and learners' psychomotor skills

Level of Learners' Psychomotor Skills	Level of Implementation of Teachers' Psychomotor-domain Teaching Strategies	R-value	N	P-value	Remarks	Decision
Movement Competence	Imitation/perception	0.513	220	0.000	Significant	Reject the Ho
	Manipulation/set	0.554	220	0.000	Significant	Reject the Ho
	Precision	0.594	220	0.000	Significant	Reject the Ho
	Articulation	0.586	220	0.000	Significant	Reject the Ho
	Naturalization	0.670	220	0.000	Significant	Reject the Ho

Table 11 presents the results reveal that there is a significant relationship between teachers' psychomotor-domain teaching strategies and learners' psychomotor skills across all levels of the psychomotor domain. Specifically, the correlation between movement competence and imitation/perception yielded an r -value of 0.513 ($p = 0.000$), indicating a moderate positive and significant relationship. This suggests that when teachers effectively demonstrate and guide basic skills, learners' foundational movement competence improves. Similarly, a higher correlation was observed between movement competence and manipulation/set ($r = 0.554$, $p = 0.000$), showing that structured practice and guided skill execution are strongly associated with improved learner performance in controlled movement tasks.

The relationship becomes stronger as the psychomotor skills progress to higher levels. Movement competence and precision showed an r -value of 0.594 ($p = 0.000$), while articulation recorded an r -value of 0.586 ($p = 0.000$). These results indicate that teachers' instructional strategies that emphasize feedback, accuracy, and skill integration significantly contribute to learners' ability to refine movements and perform coordinated actions. Most notably, the strongest relationship was found between movement competence and naturalization ($r = 0.670$, $p = 0.000$), which suggests a strong positive relationship. This implies that

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effective teaching strategies are highly associated with learners' ability to perform skills automatically, smoothly, and with efficiency over time.

Since all p-values are 0.000, which is lower than the 0.05 level of significance, all relationships are statistically significant. Therefore, the null hypothesis (Ho) is rejected, confirming that teachers' psychomotor-domain teaching strategies have a significant relationship with learners' psychomotor skill development.

These findings imply that effective instructional strategies—ranging from demonstration and guided practice to feedback, skill integration, and reinforcement—play a crucial role in enhancing learners' psychomotor development. The increasing strength of correlation from imitation/perception to naturalization also suggests that the more advanced the teaching strategy implementation, the higher the level of psychomotor skill mastery achieved by learners. This highlights the importance of consistent, structured, and progressive teaching approaches in Physical Education to ensure continuous skill improvement.

Recent studies support these findings. According to Rink (2023), effective physical education instruction significantly influences motor skill development, particularly when teaching progresses systematically from basic demonstration to advanced skill application.

Similarly, UNESCO (2024) emphasizes that quality PE instruction directly contributes to improved physical literacy and long-term motor competence among learners.

Furthermore, Liu, et al (2023) found that teacher-guided instruction, feedback, and structured practice have a strong positive correlation with students' psychomotor skill acquisition and performance consistency. These studies reinforce the present findings, confirming that well-implemented psychomotor teaching strategies are strongly associated with higher levels of learners' motor skill development.

Table 12. significant relationship between teachers' psychomotor-domain teaching strategies and learners' motor coordination skills

Level of Learners' Psychomotor Skills	Level of Implementation of Teachers' Psychomotor-domain Teaching Strategies	R-value	N	P-value	Remarks	Decision
Motor Coordination	Imitation/perception	0.386	220	0.000	Significant	Reject the Ho
	Manipulation/set	0.480	220	0.000	Significant	Reject the Ho
	Precision	0.484	220	0.000	Significant	Reject the Ho
	Articulation	0.442	220	0.000	Significant	Reject the Ho
	Naturalization	0.509	220	0.000	Significant	Reject the Ho

Table 12 presents the results show that there is a significant relationship between teachers' psychomotor-domain teaching strategies and learners' motor coordination skills across all levels of the psychomotor domain. Specifically, the correlation between motor coordination and imitation/perception obtained an r-value of 0.386 ($p = 0.000$), indicating a low to moderate positive but significant relationship.

This suggests that foundational instructional strategies such as demonstration, observation, and guided imitation contribute to the initial development of learners' coordination skills. A stronger relationship is observed between motor coordination and manipulation/set ($r = 0.480$, $p = 0.000$), indicating that structured practice, repetition, and guided performance are more strongly associated with improvements in coordination.

Further, motor coordination shows a similar level of relationship with precision ($r = 0.484$, $p = 0.000$) and articulation ($r = 0.442$, $p = 0.000$). These results suggest that as teachers implement more refined instructional strategies such as feedback, accuracy-focused tasks, and skill integration activities, learners' coordination skills also improve.

The strongest relationship was found between motor coordination and naturalization ($r = 0.509$, $p = 0.000$), indicating a moderate positive and significant relationship. This implies that when teachers effectively support repeated practice and real-life application of skills, learners are more likely to develop automatic and well-coordinated movements. Since all p-values are 0.000, which is less than the 0.05 level of significance, all relationships are statistically significant. Therefore, the null hypothesis (Ho) is rejected, confirming that teachers' psychomotor-domain teaching strategies are significantly related to learners' motor coordination skills across all psychomotor levels.

These findings imply that instructional strategies in Physical Education play an important role in developing learners' coordination skills, particularly when teaching progresses from basic observation to more complex and automatic skill execution.

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The increasing strength of correlation across psychomotor levels suggests that consistent exposure to structured practice, feedback, and varied movement activities enhances learners' ability to coordinate movements effectively in different physical contexts.

Recent studies support these findings. According to Logan et al. (2023), teacher-led physical education instruction significantly improves children's motor coordination, especially when lessons include structured practice and feedback. Similarly, Stodden et al. (2023) emphasize that motor coordination development is strongly influenced by the quality of instruction and frequency of skill practice in PE settings.

Furthermore, UNESCO (2024) highlights that effective physical education teaching strategies enhance physical literacy by improving coordination, control, and movement efficiency among learners. These studies reinforce the present findings, confirming that well-implemented psychomotor teaching strategies are significantly associated with improved motor coordination skills in learners.

Table 13. Significant relationship between teachers' psychomotor-domain teaching strategies and learners' participation in Physical Education activities

Learners' Participation in Physical Education Activities	Level of Implementation of Teachers' Psychomotor-domain Teaching Strategies	R-value	N	P-value	Remarks	Decision
Frequency of Participation	Imitation/perception	0.494	220	0.000	Significant	Reject the Ho
	Manipulation/set	0.473	220	0.000	Significant	Reject the Ho
	Precision	0.522	220	0.000	Significant	Reject the Ho
	Articulation	0.546	220	0.000	Significant	Reject the Ho
	Naturalization	0.587	220	0.000	Significant	Reject the Ho

Table 13 The results indicate that there is a significant relationship between teachers' psychomotor-domain teaching strategies and learners' participation in Physical Education activities across all levels of the psychomotor domain. Specifically, the correlation between frequency of participation and imitation/perception yielded an r-value of 0.494 ($p = 0.000$), indicating a moderate positive and significant relationship. This suggests that when teachers effectively demonstrate skills and guide learners through observation-based instruction, learners are more likely to actively participate in PE activities.

A slightly lower but still significant relationship was found between participation and manipulation/set ($r = 0.473$, $p = 0.000$), indicating that structured practice, guided drills, and repeated performance also contribute to sustained learner engagement. Meanwhile, a stronger relationship was observed between participation and precision ($r = 0.522$, $p = 0.000$), suggesting that feedback-driven instruction, accuracy-based activities, and performance monitoring encourage learners to participate more consistently in PE tasks.

The relationship becomes even stronger at higher psychomotor levels. Participation and articulation obtained an r-value of 0.546 ($p = 0.000$), indicating that when learners are engaged in integrated and cooperative movement activities, their frequency of participation increases. The strongest relationship was found between participation and naturalization ($r = 0.587$, $p = 0.000$), which shows a strong positive and significant relationship. This implies that when teachers provide opportunities for repeated practice, real-life application, and skill mastery, learners are more likely to develop habitual and sustained participation in Physical Education activities.

Since all p-values are 0.000, which is lower than the 0.05 level of significance, all relationships are statistically significant. Therefore, the null hypothesis (H_0) is rejected, confirming that teachers' psychomotor-domain teaching strategies have a significant relationship with learners' participation in Physical Education activities.

These findings imply that effective instructional strategies not only enhance psychomotor skill development but also directly influence learners' engagement and willingness to participate in PE activities. The increasing strength of correlation from imitation/perception to naturalization suggests that as teaching strategies become more advanced and skill-focused, learners become more motivated and consistently engaged in physical activities. This highlights the importance of structured, progressive, and meaningful PE instruction in promoting active participation among learners.

Recent literature supports these findings. According to Crum and Light (2023), student participation in Physical Education is strongly influenced by teaching approaches that emphasize engagement, skill progression, and meaningful movement experiences. Similarly, UNESCO (2024) highlights that quality PE instruction significantly increases student participation by promoting enjoyment, competence, and confidence in physical activities. Furthermore, Fairclough and Stratton (2023) found that

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structured and supportive PE teaching strategies lead to higher levels of student engagement and sustained participation in physical activities. These studies reinforce the present findings, confirming that well-implemented psychomotor-domain teaching strategies are significantly associated with increased learner participation in Physical Education.

Table 14 Significant relationship between teachers' psychomotor-domain teaching strategies and learners' duration of participation in Physical Education activities

Learners' Participation in Physical Education Activities	Level of Implementation of Teachers' Psychomotor-domain Teaching Strategies	R-value	N	P-value	Remarks	Decision
Duration of Participation	Imitation/perception	0.555	220	0.000	Significant	Reject the Ho
	Manipulation/set	0.550	220	0.000	Significant	Reject the Ho
	Precision	0.578	220	0.000	Significant	Reject the Ho
	Articulation	0.547	220	0.000	Significant	Reject the Ho
	Naturalization	0.568	220	0.000	Significant	Reject the Ho

Table 14 presents the results that there is a significant relationship between teachers' psychomotor-domain teaching strategies and learners' duration of participation in Physical Education activities across all levels of the psychomotor domain. Specifically, the correlation between duration of participation and imitation/perception obtained an r-value of 0.555 ($p = 0.000$), indicating a moderate positive and significant relationship. This suggests that when teachers effectively demonstrate skills and guide learners through observation-based instruction, students tend to sustain their participation for longer periods during PE activities.

A similar level of relationship was found between duration of participation and manipulation/set ($r = 0.550$, $p = 0.000$), indicating that structured practice, guided drills, and repetitive skill execution contribute to learners' ability to remain engaged throughout the activity duration. Slightly stronger relationships were observed between duration of participation and precision ($r = 0.578$, $p = 0.000$), showing that feedback-oriented instruction, accuracy-based tasks, and performance monitoring encourage learners to persist longer in physical activities as they strive for improvement.

Furthermore, significant positive relationships were also found between duration of participation and articulation ($r = 0.547$, $p = 0.000$) as well as naturalization ($r = 0.568$, $p = 0.000$). These results suggest that when learners are engaged in integrated skill activities and given opportunities for repeated practice leading to automatic performance, they are more likely to sustain their involvement from warm-up to the end of the session. The strongest relationship was observed in precision and naturalization levels, indicating that as learners develop more accurate and automatic movement skills, their ability to maintain participation also improves.

Since all p-values are 0.000, which is lower than the 0.05 level of significance, all relationships are statistically significant. Therefore, the null hypothesis (H_0) is rejected, confirming that teachers' psychomotor-domain teaching strategies have a significant relationship with learners' duration of participation in Physical Education activities.

These findings imply that effective instructional strategies not only enhance skill development but also play a crucial role in sustaining learners' engagement throughout PE sessions. The results further suggest that as teaching strategies become more structured, feedback-rich, and skill-integrated, learners are more likely to remain active and committed for longer periods. This highlights the importance of well-designed PE instruction in promoting both skill mastery and sustained physical activity engagement.

Recent studies support these findings. According to Sallis et al. (2023), sustained participation in physical activity is strongly influenced by the quality of instruction and the level of student engagement during PE lessons. Similarly, UNESCO (2024) emphasizes that effective physical education teaching promotes not only skill acquisition but also longer participation time, which is essential for improving physical fitness and motor competence. Furthermore, Fairclough and Stratton (2023) found that structured, engaging, and feedback-based PE instruction significantly increases the duration of student participation in physical activities. These studies reinforce the present findings, confirming that psychomotor-domain teaching strategies are significantly associated with learners' sustained participation in Physical Education.

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Table 15 significant relationship between teachers' psychomotor-domain teaching strategies and the type of Physical Education (PE) activities engaged in by learners

Learners' Participation in Physical Education Activities	Level of Implementation of Teachers' Psychomotor-domain Teaching Strategies	R-value	N	P-value	Remarks	Decision
Type of Physical Education Activities Engaged in	Imitation/perception	0.495	220	0.000	Significant	Reject the Ho
	Manipulation/set	0.550	220	0.000	Significant	Reject the Ho
	Precision	0.526	220	0.000	Significant	Reject the Ho
	Articulation	0.483	220	0.000	Significant	Reject the Ho
	Naturalization	0.563	220	0.000	Significant	Reject the Ho

The results show that there is a significant relationship between teachers' psychomotor-domain teaching strategies and the type of Physical Education (PE) activities engaged in by learners across all levels of the psychomotor domain. Specifically, the correlation between activity engagement and imitation/perception yielded an r-value of 0.495 ($p = 0.000$), indicating a moderate positive and significant relationship. This suggests that when teachers effectively demonstrate skills and guide learners through observation-based instruction, students are more likely to participate in a variety of PE activities.

A slightly stronger relationship was observed between activity engagement and manipulation/set ($r = 0.550$, $p = 0.000$), indicating that structured practice, guided drills, and repeated skill execution are strongly associated with learners' willingness to engage in different types of PE activities. Similarly, a moderate positive relationship was found between engagement and precision ($r = 0.526$, $p = 0.000$), suggesting that feedback-oriented instruction and accuracy-based tasks encourage learners to participate in a broader range of physical activities.

Furthermore, the relationship between activity engagement and articulation ($r = 0.483$, $p = 0.000$) indicates that integrated skill activities, teamwork, and coordinated movement tasks also contribute to learners' engagement in various PE activities, although to a slightly lesser extent compared to other domains. The strongest relationship was found between activity engagement and naturalization ($r = 0.563$, $p = 0.000$), indicating a strong positive and significant relationship. This implies that when learners develop automatic and efficient movement skills through repeated practice and real-life application, they are more likely to engage in diverse Physical Education activities such as sports, fitness tasks, recreational games, and movement-based challenges.

Since all p-values are 0.000, which is lower than the 0.05 level of significance, all relationships are statistically significant. Therefore, the null hypothesis (H_0) is rejected, confirming that teachers' psychomotor-domain teaching strategies have a significant relationship with the types of Physical Education activities engaged in by learners.

These findings imply that effective instructional strategies not only enhance psychomotor skill development but also influence the variety and richness of learners' participation in PE activities. The results further suggest that as teaching strategies progress from basic demonstration to advanced skill mastery, learners become more confident and willing to engage in different types of physical activities. This highlights the importance of varied, progressive, and skill-integrated PE instruction in promoting diverse physical activity participation among learners.

Recent studies support these findings. According to Casey and Goodyear (2023), student engagement in a wide range of Physical Education activities increases when teaching approaches are varied, student-centered, and game-based. Similarly, UNESCO (2024) emphasizes that exposure to diverse physical activities is essential for developing physical literacy and lifelong participation in sports and fitness activities. Furthermore, Hastie and Wallhead (2023) found that learners are more likely to participate in multiple types of physical activities when PE instruction includes progressive skill development, cooperative tasks, and real-game scenarios. These studies reinforce the present findings, confirming that psychomotor-domain teaching strategies are significantly associated with the variety of Physical Education activities engaged in by learners.

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Table 16. Significant relationship between learners' psychomotor skills and their participation in Physical Education activities

Level of Learners' Psychomotor Skills	Learners' Participation in Physical Education Activities	R-value	N	P-value	Remarks	Decision
Movement Competence	Frequency of Participation	0.762	220	0.000	Significant	Reject the Ho
	Duration of Participation	0.764	220	0.000	Significant	Reject the Ho
	Type of Physical Education Activities Engaged in	0.729	220	0.000	Significant	Reject the Ho

Table 16 presents the results which indicate that there is a significant relationship between learners' psychomotor skills and their participation in Physical Education (PE) activities across all indicators. Specifically, movement competence shows a strong positive and significant relationship with frequency of participation ($r = 0.762$, $p = 0.000$), suggesting that learners with higher levels of balance, agility, and coordination tend to participate more often in PE activities. This implies that improved motor skills encourage learners to become more actively and consistently involved in physical tasks.

A similarly strong relationship was found between movement competence and duration of participation ($r = 0.764$, $p = 0.000$), indicating that learners who demonstrate better movement skills are more likely to sustain their engagement throughout PE sessions. This suggests that competence in physical skills contributes to greater endurance, confidence, and willingness to remain active from start to finish of class activities. Likewise, a strong positive relationship was observed between movement competence and the type of PE activities engaged in ($r = 0.729$, $p = 0.000$), showing that learners with higher psychomotor skills tend to participate in a wider variety of physical activities such as sports, fitness exercises, and recreational games.

Since all p-values are 0.000, which is lower than the 0.05 level of significance, all relationships are statistically significant. Therefore, the null hypothesis (Ho) is rejected, confirming that learners' psychomotor skills are significantly related to their participation in Physical Education activities.

These findings imply that psychomotor skill development plays a crucial role in shaping learners' engagement in Physical Education. As learners improve their movement competence, they become more confident, more active, and more willing to participate in different types of physical activities for longer durations and with greater frequency. This highlights the importance of strengthening foundational motor skills in PE instruction to promote sustained and varied participation among learners.

Recent studies support these findings. According to Stodden et al. (2023), motor competence is a strong predictor of physical activity participation, with higher skill levels leading to increased engagement and sustained involvement in physical activities. Similarly, Barnett et al. (2023) emphasize that learners with better movement competence are more likely to participate in diverse physical activities and maintain longer participation time. Furthermore, UNESCO (2024) highlights that developing psychomotor skills is essential for promoting lifelong physical activity and physical literacy among students. These studies reinforce the present findings, confirming that learners' psychomotor skills are strongly and significantly associated with their participation in Physical Education activities.

Table 17. Significant relationship between learners' motor coordination skills and their participation in Physical Education (PE) activities

Level of Learners' Psychomotor Skills	Learners' Participation in Physical Education Activities	R-value	N	P-value	Remarks	Decision
Motor Coordination	Frequency of Participation	0.774	220	0.000	Significant	Reject the Ho
	Duration of Participation	0.733	220	0.000	Significant	Reject the Ho
	Type of Physical Education Activities Engaged in	0.728	220	0.000	Significant	Reject the Ho

Table 17 presents the results which reveal that there is a significant relationship between learners' motor coordination skills and their participation in Physical Education (PE) activities across all indicators. Specifically, motor coordination shows a strong positive relationship with frequency of participation ($r = 0.774$, $p = 0.000$), indicating that learners who demonstrate higher levels of hand-eye coordination, foot-eye coordination, and reaction time tend to participate more frequently in PE activities. This suggests that better coordination enhances learners' confidence and willingness to engage actively in physical tasks.

A strong positive relationship was also found between motor coordination and duration of participation ($r = 0.733$, $p = 0.000$), indicating that learners with better coordination skills are more likely to sustain their involvement throughout PE sessions. This

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implies that efficient motor control allows learners to remain active for longer periods without easily disengaging from physical activities. Likewise, motor coordination showed a strong relationship with the type of PE activities engaged in ($r = 0.728$, $p = 0.000$), suggesting that learners with higher coordination skills tend to participate in a wider range of activities such as sports, fitness drills, object-control tasks, and game-based activities.

Since all p-values are 0.000, which is lower than the 0.05 level of significance, all relationships are statistically significant. Therefore, the null hypothesis (H_0) is rejected, confirming that learners' motor coordination is significantly related to their participation in Physical Education activities.

These findings imply that motor coordination plays a vital role in determining how frequently, how long, and in what types of activities learners participate in PE. As coordination skills improve, learners become more capable of handling complex movements, responding to game situations, and engaging in various physical tasks with greater ease and confidence. This highlights the importance of developing coordination skills through structured and progressive PE instruction to maximize student participation and engagement.

Recent studies support these findings. According to Logan et al. (2023), motor coordination is a key predictor of physical activity participation, with higher coordination skills associated with increased engagement in both structured and unstructured physical activities.

Similarly, Stodden et al. (2023) emphasize that improvements in coordination and motor competence lead to greater physical activity participation and longer activity duration among learners.

Furthermore, UNESCO (2024) highlights that developing coordination skills is essential for promoting active participation and lifelong engagement in physical education and sports. These studies reinforce the present findings, confirming that motor coordination is strongly and significantly associated with learners' participation in Physical Education activities.

Table 18. psychomotor-domain teaching strategy levels significantly predict learners' psychomotor skills and participation

Coefficients ^a							
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Remarks	Decision
	B	Std. Error	Beta				
1 (Constant)	.982	.221		4.434	.000		
Imitation/perception	-.082	.093	-.077	-.881	.380	Not Significant	Accept the H_0
Manipulation/set	.172	.097	.160	1.782	.076	Not Significant	Accept the H_0
Precision	.192	.107	.181	1.791	.075	Not Significant	Accept the H_0
Articulation	.023	.098	.024	.235	.814	Not Significant	Accept the H_0
Naturalization	.412	.086	.413	4.817	.000	Significant	Reject the H_0

a. Dependent Variable: Level of Learners' Psychomotor Skills

Table 18 presents the results of the regression analysis reveal that among the psychomotor-domain teaching strategy levels, only naturalization significantly predicts learners' psychomotor skills, while imitation/perception, manipulation/set, precision, and articulation do not show significant predictive effects.

Specifically, naturalization obtained a positive and significant standardized beta coefficient ($\beta = 0.413$, $t = 4.817$, $p = 0.000$), indicating that it is the strongest predictor among all teaching strategy levels. This means that when teachers emphasize advanced instructional strategies such as repeated practice, automatic skill execution, real-life application, and fluent performance of movements, learners' psychomotor skills significantly improve. This highlights that higher-order psychomotor instruction has a meaningful and direct impact on learners' skill development.

In contrast, imitation/perception ($\beta = -0.077$, $p = 0.380$), manipulation/set ($\beta = 0.160$, $p = 0.076$), precision ($\beta = 0.181$, $p = 0.075$), and articulation ($\beta = 0.024$, $p = 0.814$) were found to be not statistically significant predictors of learners' psychomotor skills. Although these variables showed positive or minimal effects in some cases, their p-values are all greater than the 0.05 level of significance, indicating that they do not independently contribute to predicting psychomotor skill levels when combined with other variables in the model.

The constant value ($B = 0.982$, $p = 0.000$) indicates the baseline level of learners' psychomotor skills when all predictor variables are held constant.

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Since only naturalization is significant, the null hypothesis is partially rejected and partially accepted, depending on the variable. Specifically, the model shows that only naturalization has a significant predictive influence, while the other teaching strategy levels do not significantly predict learners' psychomotor skills.

These findings imply that while all psychomotor-domain teaching strategies are important in instruction, it is the highest level—naturalization—that most strongly drives actual skill development and mastery among learners. This suggests that learners achieve higher psychomotor competence when instruction focuses on automaticity, fluency, and real-world application of skills rather than only basic demonstration or guided practice stages. Therefore, teachers should emphasize sustained practice, mastery learning, and real-life performance tasks to effectively enhance learners' psychomotor development.

Recent literature supports these findings. According to Rink (2023), long-term motor skill development in Physical Education is most strongly influenced by mastery-level learning experiences that promote automatic and efficient movement execution.

Similarly, UNESCO (2024) emphasizes that higher-order psychomotor learning outcomes are achieved when learners engage in repeated, meaningful, and context-based physical activities that lead to skill naturalization.

Furthermore, Stodden et al. (2023) found that while foundational instruction is important, sustained practice leading to skill automaticity is the strongest predictor of motor competence and physical literacy. These studies reinforce the present findings, confirming that naturalization is the most significant predictor of learners' psychomotor skills among the teaching strategy levels.

Table 19. Regression analysis among the psychomotor-domain teaching strategy levels

Coefficients ^a							
		Unstandardized Coefficients		Standardized Coefficients			
Model		B	Std. Error	Beta	t	Sig.	Remarks
1	(Constant)	.895	.212		4.219	.000	
	Imitation/perception	.113	.089	.109	1.271	.205	Not Significant
	Manipulation/set	.133	.092	.128	1.443	.151	Not Significant
	Precision	.157	.103	.153	1.532	.127	Not Significant
	Articulation	.026	.094	.028	.281	.779	Not Significant
	Naturalization	.318	.082	.327	3.872	.000	Significant

a. Dependent Variable: Learners' Participation in Physical Education Activities

Table 19 shows the regression analysis among the psychomotor-domain teaching strategy levels, only naturalization significantly predicts learners' participation in Physical Education (PE) activities, while imitation/perception, manipulation/set, precision, and articulation do not show significant predictive influence.

Specifically, naturalization obtained a positive and significant standardized beta coefficient ($\beta = 0.327$, $t = 3.872$, $p = 0.000$), indicating that it is the only significant predictor of learners' participation in PE activities. This means that when teachers emphasize higher-level psychomotor instruction such as automatic skill execution, repeated practice, real-life application, and fluent performance, learners are more likely to actively participate in PE activities. This suggests that mastery-oriented instruction strongly encourages consistent engagement, sustained involvement, and active participation in various physical tasks.

In contrast, imitation/perception ($\beta = 0.109$, $p = 0.205$), manipulation/set ($\beta = 0.128$, $p = 0.151$), precision ($\beta = 0.153$, $p = 0.127$), and articulation ($\beta = 0.028$, $p = 0.779$) were found to be not statistically significant predictors of learners' participation. Although these variables show positive beta values, their p-values are all greater than 0.05, indicating that they do not significantly influence learners' participation when considered together in the regression model.

The constant value ($B = 0.895$, $p = 0.000$) represents the baseline level of learners' participation in PE activities when all teaching strategy variables are held constant.

Since only naturalization is statistically significant, the null hypothesis is partially rejected and partially accepted, confirming that only the highest level of psychomotor instruction significantly predicts learners' participation in Physical Education activities.

These findings imply that while all psychomotor-domain teaching strategies contribute to instruction, it is the naturalization stage that most strongly influences learners' active participation. This suggests that learners are more motivated and engaged when they experience skill mastery, automatic movement execution, and meaningful application of learned skills in real or game-

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like situations. Therefore, teachers should emphasize mastery-based learning, repetitive practice, and authentic physical activity experiences to enhance learner participation in PE. Recent literature supports these findings. According to Casey and Goodyear (2023), student engagement in Physical Education is highest when instruction focuses on meaningful learning experiences and skill mastery rather than isolated skill practice. Similarly, UNESCO (2024) emphasizes that long-term participation in physical activity is strongly influenced by learners' sense of competence and mastery in movement skills. Furthermore, Sallis et al. (2023) found that students are more likely to participate actively in physical activities when they achieve confidence and automaticity in motor skills through consistent practice and application. These studies reinforce the present findings, confirming that naturalization is the most significant predictor of learners' participation in Physical Education activities.

INSTRUCTIONAL RECOMMENDATIONS TO STRENGTHEN PSYCHOMOTOR SKILL DEVELOPMENT AND LEARNER PARTICIPATION IN PHYSICAL EDUCATION

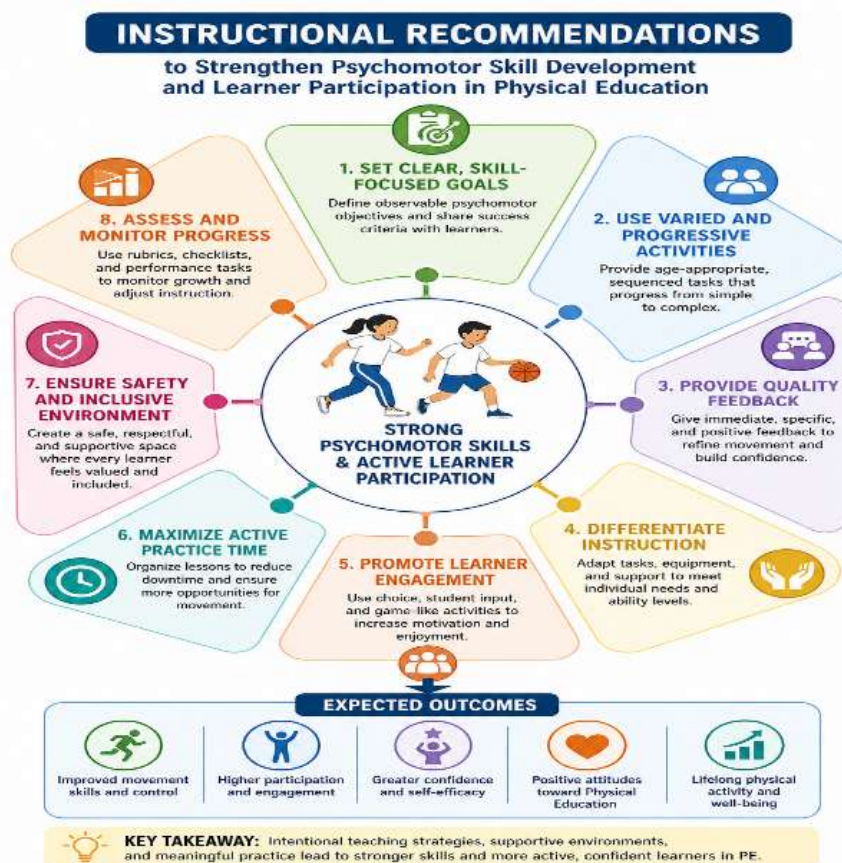
Rationale

The instructional recommendations presented in the diagram are designed to enhance psychomotor skill development and increase learner participation in Physical Education by promoting structured, inclusive, and engaging teaching practices. Psychomotor skills—such as coordination, balance, agility, and movement control—are best developed through consistent practice, clear guidance, and meaningful activity experiences. Therefore, the recommendations emphasize the importance of setting clear skill-focused goals, which help learners understand expected performance outcomes and track their own progress.

In addition, the use of varied and progressive activities supports skill acquisition by allowing learners to move from simple to more complex movements at an appropriate pace, ensuring readiness and reducing frustration. Providing timely and constructive feedback further strengthens learning by helping students correct errors, refine techniques, and build confidence in their physical abilities.

Differentiated instruction and inclusive practices ensure that learners of varying abilities can participate actively and meaningfully, fostering equity in Physical Education settings. Likewise, maximizing active practice time and promoting learner engagement through enjoyable and game-based activities increase motivation and sustained participation.

Safety and continuous assessment are also essential components, as they create a supportive learning environment while allowing teachers to monitor progress and adjust instruction accordingly. Collectively, these strategies contribute to improved motor skill competence, higher participation rates, and the development of positive attitudes toward lifelong physical activity.



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This chapter presents the summary of findings, conclusion and recommendations on the mapping psychomotor-domain instructional strategies to learners' psychomotor skill development and PE participation among grade 7 students.

1. The study revealed that Physical Education teachers consistently implement psychomotor-domain instructional strategies at a high level across all stages of skill development. Instruction at the early levels is commonly supported through clear demonstrations, visual modeling, and guided observation to help learners understand movement patterns. As instruction progresses, teachers frequently use structured practice, step-by-step drills, and close supervision to support skill acquisition. For higher-level skills, learners are provided with opportunities for refinement, integration of complex movement sequences, and repeated practice until movements become more automatic and performance becomes more fluent and natural in actual Physical Education activities.
2. The learners demonstrated strong psychomotor skill development and active engagement in Physical Education. Their movement competence is evident through their ability to maintain balance, perform coordinated body movements, and execute physical tasks with control and stability. Likewise, their motor coordination is reflected in their ability to synchronize hand and eye movements, control foot-based activities, and respond quickly to physical cues. In terms of participation, learners consistently engage in PE activities, remain active throughout class sessions, and participate in a variety of physical activities such as fitness exercises, games, and skill-based tasks, showing sustained involvement in Physical Education lessons.
3. The findings further showed that psychomotor-domain instructional strategies are meaningfully connected with learners' psychomotor skill development. Instructional approaches such as teacher modeling, guided practice, corrective feedback, repetition, and progressive skill scaffolding were found to support learners' improvement in movement accuracy, coordination, and overall performance. This indicates that when teachers effectively structure learning experiences based on psychomotor progression, learners are more likely to develop stronger physical skills in Physical Education.
4. The study also found that psychomotor-domain instructional strategies are closely associated with learners' participation in Physical Education activities. Instructional practices that promote active engagement—such as collaborative group activities, game-based learning, skill stations, and performance-based tasks—encourage learners to participate more consistently and for longer durations. Higher-level instructional strategies that emphasize skill integration and real-game application further strengthen learners' willingness and confidence to engage in various Physical Education activities.
5. In addition, learners' psychomotor skills were found to be strongly linked with their participation in Physical Education. Students with better movement competence and motor coordination tend to participate more actively, sustain involvement for longer periods, and engage in a wider range of physical activities. This suggests that skill proficiency enhances confidence, which in turn encourages more active and consistent participation in Physical Education classes.
6. Finally, the predictive analysis indicated that among the psychomotor-domain instructional strategies, those that focus on mastery and internalization of skills—particularly naturalization-oriented instruction—play the most significant role in shaping learners' psychomotor performance and participation. This includes instructional practices that emphasize automatic execution of skills, real-game application, independent performance, and minimal teacher intervention, allowing learners to demonstrate higher levels of competence and sustained engagement in Physical Education activities.

Based on the findings of the study, the following conclusions were drawn:

1. Teachers demonstrate a high level of implementation of psychomotor-domain teaching strategies in Physical Education.
2. Learners exhibit strong psychomotor skills in terms of movement competence, motor coordination, and participation in Physical Education activities.
3. Teachers' instructional strategies have a significant positive relationship with learners' psychomotor skill development.
4. Learners' psychomotor skills are significantly related to their participation in Physical Education activities.
5. Naturalization is the most significant instructional level influencing both learners' psychomotor skills and participation.
6. Effective Physical Education instruction enhances both skill development and sustained learner participation.

Based on the findings and conclusions of the study, the following recommendations are offered:

1. Physical Education teachers should strengthen instruction that supports learners' progression toward naturalization by consistently applying mastery learning, repetitive practice, and real-life or game-based application of skills to develop automatic and efficient movement performance.
2. Teachers should ensure a well-structured and progressive sequence of instruction aligned with the psychomotor domain taxonomy, moving systematically from imitation/perception to manipulation/set, precision, articulation, and naturalization to support continuous skill development among learners.

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3. Physical Education activities should be enriched through varied, engaging, and developmentally appropriate drills and exercises designed to enhance movement competence, particularly balance, agility, coordination, reaction time, and overall motor coordination.
4. Teachers are encouraged to promote sustained and meaningful learner participation by integrating cooperative learning strategies, team-based games, rotational skill stations, and other interactive Physical Education activities that increase engagement and motivation.
5. Teachers should consistently provide timely, specific, and constructive feedback during Physical Education activities, while also encouraging self-assessment and peer assessment to help learners monitor and improve their psychomotor performance.
6. School administrators should support the continuous professional development of Physical Education teachers through training programs focused on psychomotor-domain instruction, innovative teaching strategies, game-based learning, and learner-centered pedagogies.
7. Curriculum planners and school implementers should further strengthen Physical Education programs by aligning them with the psychomotor domain framework, ensuring that lessons are structured, skill-progressive, and designed to maximize both psychomotor development and active learner participation.

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