

Teaching Strategies Employed In Physical Education And The Development Of Skill-Related Fitness Among College Students In Batangas Province

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Publication Date: July 23, 2026

DOI: 10.5281/zenodo.21502830

Abstract

This study determined the teaching strategies employed in Physical Education and the development of skill-related fitness among college students in Batangas Province. Specifically, it sought information on the extent of utilization of teaching strategies employed in the development of skill-related fitness relative to circuit training exercises, game-based learning, and rhythmic activities. In addition, it also identified the level of development of skill-related fitness among college students as assessed by PE teachers in terms of agility, balance, coordination, power, speed, and reaction time.

Moreover, it sought to find the relationship between the extent of utilization of teaching strategies and the level of development of skill-related fitness. It also identified the challenges encountered by PE teachers in implementing various teaching strategies to develop skill-related fitness. Lastly, the study prepared fitness training activities to develop the skill-related fitness among college students so that they could achieve overall fitness.

The study used a descriptive research design involving 102 PE teachers from colleges and universities in Batangas Province. Data were collected through a researcher-made questionnaire and unstructured interviews, and analyzed using weighted mean, composite mean, frequency, ranking, and Pearson's r correlation coefficient.

The study found that circuit training exercises and game-based learning were highly utilized, while rhythmic activities were moderately utilized. Also, students showed high development in agility, balance, coordination, power, and speed, but only moderate development in reaction time. Aside from that, a significant relationship was identified between the extent of utilization of teaching strategies and the level of development of skill-related fitness. PE teachers also encountered challenges, especially large class sizes that limit the use of individualized assessment and feedback. As a result, fitness training activities were developed to further enhance students' skill-related fitness and promote overall health.

Keywords: *Teaching Strategies, Skill-Related Fitness, Physical Education, and Fitness Training Activities*

INTRODUCTION

Physical Education (PE) is an academic discipline that promotes physical fitness and well-being through structured physical activities and sports. It greatly improves mental and social health by including the growth of motor abilities, physical conditioning, and the creation of an active lifestyle. It also teaches students the importance of physical activity and how it affects their general well-being.

The World Health Organization (WHO) highlighted the importance of PE in promoting global health and wellness. According to a 2021 report, WHO advocates physical education as an essential component in schools to combat global health issues, including obesity, heart disease, and mental health problems (WHO, 2021). Additionally, according to a 2020 UNESCO report, physical education provides numerous benefits, such as promoting physical and mental health, fostering social inclusion, and improving academic performance (UNESCO, 2020).

In relation to that, Article 14, Section 19 of the 1987 Philippine Constitution, mandates that the state shall promote physical education and sports programs in schools. Wherein, it encourages fostering self-discipline, teamwork, and excellence to help develop a healthy and alert citizenry. Also, this constitutional provision ensures that the role of PE in national development is recognized at the highest level of governance. Therefore, it is necessary to have constant support in all schools, especially in college, to further improve and strengthen the teaching and learning of PE among the students.

However, according to a 2024 World Health Organization (WHO) report, nearly one-third (31%) of adults worldwide, approximately 1.8 billion people did not meet the recommended levels of physical activity in 2022. This marks a 5% increase since 2010, signaling a concerning upward trend. If this trajectory continues, global inactivity rates are projected to rise to 35% by 2030, jeopardizing efforts to reduce non-communicable diseases (NCDs) such as heart disease, diabetes, and certain cancers.

Additionally, despite the availability of PE programs, a growing number of Filipinos, including college students, are not achieving ideal fitness levels. The study of Campoamor-Olegario et al. (2025) examined the physical activity levels and health behaviors of 2,620 Filipino tertiary students and found that many students exhibited low physical activity, increased sedentary behavior, excessive screen time, and lack of motivation signaling a continued trend of poor engagement in structured physical activity among college students.

Aside from that, a nationwide survey among Filipino college students revealed poor performance in skill-related fitness tests. It is because physical education programs primarily emphasize health-related fitness components like cardiovascular endurance and flexibility, while neglecting skill-related fitness components such as agility, speed, coordination, power, balance, and reaction time. Thus, this imbalance limits students' ability to perform a wide range of physical activities efficiently and confidently (Wang et al. 2024).

Moreover, in the local context of Batangas Province, Physical Education teachers faced challenges when implementing strategies to develop students' skill-related fitness. Research of Katigbak et al. (2023) involving PE instructors in Batangas revealed that many educators encounter professional and instructional challenges, including limited preparation, moderate confidence in strategy application, and restricted access to ongoing professional development, which can affect their ability to implement diverse teaching methods effectively.

Given the rising concerns over physical inactivity and its associated health risks among college students in the Philippines, it is imperative to explore teaching strategies to enhance the

students' skill-related fitness and their engagement in physical education. This study was grounded on the belief that useful teaching strategies play a vital role in improving the skill-related fitness of college students, which is essential for their holistic development and overall fitness. Therefore, this study aimed to fill this gap by exploring the teaching strategies employed in Physical Education and their usefulness on the development of skill-related fitness among college students, providing practical recommendations, and proposing fitness training activities to improve Physical Education instruction and student outcomes.

RESEARCH QUESTIONS

This study aimed to determine the teaching strategies employed in Physical Education and their utilization in the development of skill-related fitness among college students in Batangas Province.

Specifically, the study sought to answer the following questions:

1. What is the extent of the utilization of teaching strategies employed in the development of skill-related fitness as assessed by the PE teachers relative to:
 - 1.1 Circuit training exercises;
 - 1.2 Game-based learning; and
 - 1.3 Rhythmic activities?
2. What is the level of development of skill-related fitness among college students as assessed by the respondents in terms of:
 - 2.1 Agility;
 - 2.2 Balance;
 - 2.3 Coordination;
 - 2.4 Power;
 - 2.5 Speed; and
 - 2.6 Reaction time?
3. Is there any significant relationship between the assessment on the extent of utilization of teaching strategies and on the level of development of skill-related fitness?
4. What are the challenges encountered by the Physical Education teachers in implementing various teaching strategies?
5. Based on the results, what fitness training activities may be proposed?

HYPOTHESIS OF THE STUDY

The study was premised on the null hypothesis that there is no significant relationship between the assessment on the extent of utilization of teaching strategies and on the level of development of skill-related fitness among college students.

METHODOLOGY

This study utilized a descriptive research design, as it was the most appropriate method for analyzing the research problem. The study combined quantitative data, which was gathered through survey questionnaires, and qualitative data, which was obtained through unstructured interviews.

The quantitative data provided measurable and objective information, while the qualitative data enriched the findings through the respondents' experiences, opinions, and explanations. Thus, the combination of these approaches helped strengthen the results and provided clearer and more reliable conclusions.

SUBJECT OF THE STUDY

The research involved PE teachers from different colleges and universities within Batangas Province only. The participants were PE teachers currently teaching Physical Education. Through the use of Raosoft's stratified random sampling technique, 102 respondents were determined out of 137 PE teachers.

During the conduct of the study, accessibility and institutional permission constraints restricted the inclusion of all colleges and universities within Batangas Province. Several institutions were either unavailable during the data collection period or unable to provide approval within the study time frame. Moreover, coordinating participation across all colleges and universities was not feasible within the allotted research schedule. Thus, only those that were accessible and had granted formal permission were included in the study.

DATA GATHERING INSTRUMENTS

The researcher utilized a questionnaire and unstructured interview as the main instruments for data gathering. The researcher-made questionnaire was developed and divided into three parts: the extent of utilization of teaching strategies, the level of development of skill-related fitness among college students as assessed by the respondents, and the challenges encountered by Physical Education teachers in implementing various activities to develop skill-related fitness. Furthermore, an unstructured interview consisting of five main questions with corresponding follow-up questions was conducted to obtain deeper insights, clarify responses, and provide a more comprehensive understanding of the data collected.

DATA GATHERING PROCEDURE

The researcher prepared a letter for the validation of the questionnaire, which was approved by the Dean of the Graduate School and the research adviser. The researcher also requested permission from the Dean of each school to distribute the questionnaire. After seeking permission, some agreements and suggestions were made regarding the distribution of the questionnaire.

The researcher also sought approval from the respondents and asked them to answer the questionnaire with honesty. Also, the questionnaires were given face-to-face or online (through Google Forms), depending on what was easier for the participants.

Subsequently, the researcher collected the completed questionnaires and invited the selected respondents to participate in the unstructured interviews. After all the data had been gathered, the researcher tallied and tabulated the responses collected. Then, the data were subjected to appropriate statistical tests for analysis.

DATA ANALYSIS PLAN

To analyze and understand the data, the following statistical tools were used.

Weighted Mean. This was used to determine the average assessment or response of the respondents based on the given scale, wherein the highest value represented the most favorable response and the lowest value represented the least favorable response.

Composite Mean. This tool was utilized in determining the overall responses and it includes the verbal interpretation of the data.

Frequency. This method was used to determine the number of respondents with the same challenges encountered in developing skill-related fitness among college students.

Ranking. This refers to the process of transforming data in which numerical or ordinal values are replaced according to their corresponding ranks after the data have been arranged in order.

Pearson's r Product-Moment Correlation Coefficient. This was used to test for the significant relationship between the assessments on the extent of utilization of teaching strategies and on the level of development of skill-related fitness.

RESULTS

1. Extent of Utilization of Teaching Strategies Employed in the Development of Skill-Related Fitness.

To understand the development of skill-related fitness among college students, it is essential to first identify the teaching strategies used by PE teachers. Tables 1 to 3 show the various teaching strategies which PE teachers utilized in developing the skill-related fitness of college students.

1.1.Circuit Training Exercises. Table 1 presents the results of the assessment on the utilization of circuit training exercises as teaching strategy in the development of students' skill-related fitness.

The results indicate that the extent of the utilization of teaching strategies in the development of skill-related fitness relative to circuit training exercises was high, as evidenced by the composite mean of 3.53, which was verbally interpreted as highly utilized. This implies that circuit training exercises were consistently and effectively implemented by physical education teachers, contributing significantly to the development of students' skill-related fitness components. This finding was supported by the study of Hari and Jesintha, who revealed that circuit training significantly improved agility, balance, coordination, speed, reaction time, and power among school students.

Table 1: Extent of Utilization of Circuit Training Exercises in the Development of Skill-Related Fitness

PE teachers utilize...	WM	VI	Rank
1. ladder drills focusing on agility and movement competence.	3.66	HU	2
2. cone drills (e.g., shuttle runs or zigzag runs) aimed at reaction time and coordination.	3.75	HU	1
3. medicine ball throws or jump squats designed for explosive power.	3.39	MU	9
4. jump rope or speed step stations emphasizing speed and timing.	3.40	MU	8
5. balance-focused activities (e.g., single-leg stands) intended for balance control and stability.	3.58	HU	4
6. coordination drills (e.g., ball control and catching tasks) address hand-eye coordination.	3.64	HU	3
7. agility hurdles focusing on quick footwork and coordination.	3.34	MU	10
8. target-based drills (e.g., beanbag toss, ball throwing at targets) in circuit training activities aimed at accuracy and reaction time.	3.50	HU	7
9. quick-feet reaction drills (e.g., reacting to visual or auditory cues) to enhance students' speed and reaction time.	3.53	HU	5
10 relay-style circuits activities designed for teamwork, speed, and coordination.	3.51	HU	6
Composite Mean	3.53	HU	

Legend: 3.50-4.00- Highly Utilized (HU); 2.50-3.49- Moderately Utilized (MU); 1.50-2.49- Slightly Utilized (SU); 1.00-1.49- Least Utilized (LU)

1.2.Game-Based Learning. Table 2 shows the results on the utilization of game-based learning as a teaching strategy in developing students' skill-related fitness.

It can be seen in the result that the extent of utilization of teaching strategies in the development of skill-related fitness, particularly to game-based learning was highly utilized by the respondents, as indicated with a composite mean of 3.50. This implies that game-based learning strategies were frequently and effectively applied by the respondents, facilitating the development of students' skill-related fitness through engaging and interactive activities. This finding is supported by the study of Camacho-Sanchez et al., who revealed that game-based learning in physical education classes significantly enhanced students' movement competence and motor skill development.

Table 2: Extent of Utilization of Game-Based Learning in the Development of Skill-Related Fitness

PE teachers utilize...	WM	VI	Rank
1. tag games (e.g., freeze tag, tunnel tag) focusing on agility and quick reactions.	3.37	MU	10
2. relay races with obstacles emphasizing speed, power, and coordination.	3.50	HU	5
3. reaction-based games (e.g., “patintero” or “pitik-bulag”) designed for speed and reaction time.	3.41	MU	7
4. balance games (e.g., “piko” or “Chinese garter”) aimed at balance and agility.	3.43	MU	6
5. coordination games (e.g., “luksong tinik” or tumbang lata) intended for power, agility, and coordination.	3.38	MU	9
6. dodgeball-type games targeting speed, reaction time, and teamwork.	3.59	HU	3
7. small-sided team games (e.g., mini-basketball, modified soccer) focusing on agility and coordination.	3.71	HU	1
8. timed obstacle course (e.g., using cones, ladders, hoops, or mats) emphasizing speed, agility, and coordination under pressure.	3.67	HU	2
9. repetition-based games designed for accuracy, power, and consistency through repeated practice.	3.56	HU	4
10 partner or group games (e.g., “human knot” or “relay stick passes”) intended for balance, coordination, and teamwork.	3.40	MU	8
Composite Mean	3.50	HU	

Legend: 3.50-4.00- Highly Utilized (HU); 2.50-3.49- Moderately Utilized (MU); 1.50-2.49- Slightly Utilized (SU); 1.00-1.49- Least Utilized (LU)

1.3.Rhythmic Activities. Table 3 shows the results on the utilization of rhythmic activities as a teaching strategy in developing students' skill-related fitness.

It was indicated in the findings that the extent of utilization of teaching strategies employed in the development of skill-related fitness relative to rhythmic activities was moderately utilized by the PE teachers, as reflected by the composite mean of 3.49. This implies that rhythmic activities were applied to a moderate extent by PE teachers, suggesting that while they contributed to the development of students' skill-related fitness, they were not as consistently or extensively integrated into instruction compared to other teaching strategies. This finding was supported by the study of Bessa et al., who revealed that rhythmic and dance-based physical activities positively contributed to students' coordination, balance, agility, and motor competence. However, the study also noted that the integration of rhythmic activities in physical education programs often depends on teachers' preparedness, available resources, and curriculum emphasis.

Table 3: Extent of Utilization of Rhythmic Activities in the Development of Skill-Related Fitness

PE teachers utilize...	WM	VI	Rank
1. rhythmic warm-up routines (e.g., march and clap, rhythmic stretching) focusing on coordination and balance.	3.53	HU	4
2. aerobic dance routines (e.g., Zumba) designed for agility, speed, and coordination.	3.65	HU	1
3. rhythmic clapping or stepping games aimed at reaction time and timing accuracy.	3.38	MU	9
4. basic steps in folk or cultural dances emphasizing coordination and balance.	3.55	HU	3
5. beat-based movement drills (e.g., Tabata exercises) intended for reaction time, power, and agility.	3.61	HU	2
6. simple movement sequences to music (e.g., Towel exercises) focusing on coordination, power, and balance.	3.52	HU	5
7. partner or group rhythmic activities (e.g., mirror movement) designed for reaction time and teamwork.	3.27	MU	10
8. movement-to-music challenges aimed at agility, coordination, and creativity.	3.40	MU	8
9. rhythmic activities as cool-downs emphasizing students' balance and body control.	3.50	HU	6
10 improvisational rhythmic movement activities (e.g., students creating their own rhythm patterns) intended for coordination, power, and agility.	3.47	MU	7
Composite Mean	3.49	MU	

Legend: 3.50-4.00- Highly Utilized (HU); 2.50-3.49- Moderately Utilized (MU); 1.50-2.49- Slightly Utilized (SU); 1.00-1.49- Least Utilized (LU)

2. Assessment on the Level of Development of Skill-Related Fitness Among College Students.

To ensure that the students achieve the overall fitness, it is very important to know first their level of development in skill-related fitness. Tables 4 to 9 show the assessment of the PE teachers with regard to the level of development of the five components of skill-related fitness among their college students.

2.1. Development of Agility. Table 4 presents the results on the level of development of skill-related fitness among college students as assessed by Physical Education teachers in terms of agility.

It can be seen in the results that the level of development of skill-related fitness among college students, as assessed by the respondents in terms of agility was highly developed as indicated by the composite mean of 3.54. This implies that students demonstrated a high level of agility, indicating that the teaching strategies implemented were effective in enhancing their ability to move quickly and efficiently while maintaining control and coordination. This finding was supported in the study of Hammami et al., who found that agility-based training programs positively affected students' change-of-direction speed, balance, and motor coordination.

Table 4: Assessment on the Level of Development of Agility among College Students

Students are able to...	WM	VI	Rank
1. demonstrate quick direction changes during tag games or relays.	3.40	MD	9
2. quickly adjust body position when avoiding obstacles or opponents.	3.51	HD	6
3. perform shuttle runs or zigzag runs with controlled speed.	3.39	MD	10
4. show balance and control while transitioning between movements (e.g., running to stopping).	3.64	HD	3
5. react quickly and efficiently to external cues (e.g., whistle or signal) during agility drills.	3.50	HD	7
6. maintain coordination while moving through agility cone drills.	3.68	HD	1
7. execute rapid body turns and pivots with ease during physical activities.	3.45	MD	8
8. demonstrate fluid body movement when transitioning between offense and defense roles in games.	3.59	HD	4
9. maintain speed and control while performing dodging movements.	3.54	HD	5
10. show agility when performing footwork-based exercises (e.g., ladder drills, hopscotch variations).	3.67	HD	2
Composite Mean	3.54	HD	

Legend: 3.50-4.00- Highly Developed (HD); 2.50-3.49- Moderately Developed (MD); 1.50-2.49- Slightly Developed; 1.00-1.49- Least Developed

2.2.Development of Balance. Table 5 presents the results on the level of development of skill-related fitness among college students as assessed by Physical Education teachers in terms of balance.

The findings indicate that the level of development of skill-related fitness among college students, as assessed by the respondents in terms of balance was highly developed, as reflected by the composite mean of 3.53. This implies that students exhibited a strong ability to maintain stability and control in various movements, suggesting that the teaching strategies employed were effective in enhancing their overall balance. This finding was supported in the study of Giuriato et al., who found that balance training integrated into physical education programs positively affected students' neuromuscular coordination, body control, and movement efficiency.

Table 5: Assessment on the Level of Development of Balance among College Students

Students are able to...	WM	VI	Rank
1. maintain body stability while standing on one foot for extended periods.	3.42	MD	9
2. demonstrate control and steadiness during balancing poses (e.g., yoga or gymnastic exercises).	3.40	MD	10
3. walk smoothly and steadily on a straight line or narrow surface (e.g., balance beam or drawn line).	3.51	HD	5
4. perform single-leg balance exercises with minimal swaying or stepping down.	3.46	MD	7
5. maintain balance while transitioning from one movement to another (e.g., run to stop, jump to land).	3.57	HD	4
6. recover quickly from a loss of balance during dynamic activities.	3.50	HD	6
7. display balance when jumping and landing on one or both feet.	3.60	HD	3
8. show body control when performing rotational movements (e.g., turning, spinning).	3.45	MD	8
9. demonstrate postural stability during slow and controlled movements (e.g., lunges, squats).	3.72	HD	1
10. sustain balance during moving tasks such as hopping, skipping, or leaping.	3.63	HD	2
Composite Mean	3.53	HD	

Legend: 3.50-4.00- Highly Developed (HD); 2.50-3.49- Moderately Developed (MD); 1.50-2.49- Slightly Developed; 1.00-1.49- Least Developed

2.3.Development of Coordination. Table 6 presents the results on the level of development of skill-related fitness among college students as assessed by Physical Education teachers in terms of coordination.

It can be seen in the results that the level of development of skill-related fitness among college students as assessed by the respondents in terms of coordination was highly developed based on its composite mean of 3.52. This implies that students demonstrated a high level of coordination, indicating that the teaching strategies implemented were effective in improving their ability to perform smooth, accurate, and well-timed movements. This finding was supported by the study of Rodrigues et al., who found that movement-based and task-oriented teaching strategies positively influenced coordination and motor skill development among students.

Table 6: Assessment on the Level of Development of Coordination among College Students

Students are able to...	WM	VI	Rank
1. coordinate hand and eye movements effectively in catching and throwing tasks.	3.51	HD	6
2. perform multi-limb tasks (e.g., dribbling while moving) with fluidity and control.	3.50	HD	7
3. demonstrate accurate foot placement during ladder, cone, or step drills.	3.60	HD	3
4. juggle or handles equipment (e.g., ball, racket) with good rhythm and control.	3.39	MD	9
5. combine upper and lower body movements smoothly during dance, aerobics, or gymnastics.	3.62	HD	2
6. maintain movement precision in team sports (e.g., passing, dribbling, kicking).	3.65	HD	1
7. execute sequence-based activities (e.g., obstacle courses) with smooth transitions.	3.36	MD	10
8. adjust body movements effectively in response to visual or auditory cues.	3.42	MD	8
9. demonstrate timing and rhythm in movement-based games or exercises.	3.53	HD	5
10 perform physical tasks requiring both speed and accuracy with consistent results.	3.57	HD	4
Composite Mean	3.52	HD	

Legend: 3.50-4.00- Highly Developed (HD); 2.50-3.49- Moderately Developed (MD); 1.50-2.49- Slightly Developed; 1.00-1.49- Least Developed

2.4. Development of Power. Table 7 presents the results on the level of development of skill-related fitness among college students as assessed by Physical Education teachers in terms of power.

Based on the assessment, the level of development of skill-related fitness among college students as assessed by the respondents in terms of power was highly developed, as reflected by the composite mean of 3.51. This implies that students exhibited a high level of muscular power, suggesting that the teaching strategies employed were effective in enhancing their ability to exert force quickly and efficiently during physical activities. This finding was supported in the study of Moran et al., who concluded that physical education interventions emphasizing resistance and explosive movement activities significantly improved muscular power and functional performance among college students.

Table 7: Assessment on the Level of Development of Power among College Students

Students are able to...	WM	VI	Rank
1. generate strong force when performing vertical or standing long jumps.	3.61	HD	1
2. execute explosive starts during sprinting or running drills.	3.52	HD	5
3. demonstrate power in throwing activities (e.g., shot put, ball throw).	3.42	MD	8
4. display leg power when performing plyometric exercises (e.g., box jumps, squat jumps).	3.58	HD	3
5. perform powerful kicks in sports like soccer or martial arts with noticeable force.	3.37	MD	10
6. show upper body strength and power in push-off movements (e.g., push-ups, wall throws).	3.54	HD	4
7. demonstrate explosive lifting or pushing movements in dynamic strength tasks.	3.39	MD	9
8. display burst of energy and force during jumping combinations or multiple hops.	3.50	HD	6
9. combine speed and strength effectively when accelerating or launching into movement.	3.44	MD	7
10. maintain power and control throughout high-intensity, short-duration activities (e.g., sprint relays).	3.59	HD	2
Composite Mean	3.51	HD	

Legend: 3.50-4.00- Highly Developed (HD); 2.50-3.49- Moderately Developed (MD); 1.50-2.49- Slightly Developed; 1.00-1.49- Least Developed

2.5.Development of Speed. Table 8 presents the results on the level of development of skill-related fitness among college students as assessed by Physical Education teachers in terms of speed.

It can be seen from the table that the assessment of the respondents on the level of development of skill-related fitness among their college students in terms of speed was highly developed, as showed by the composite mean of 3.50. This implies that students demonstrated a high level of speed, indicating that they were able to perform movements and respond to stimuli quickly and efficiently. This finding was supported in the study of Haugen et al., who revealed that speed-oriented physical training significantly improves sprint performance, reaction ability, and movement efficiency among students and young athletes. The study also emphasized that repeated sprinting, agility drills, and explosive movement activities contribute greatly to the enhancement of speed-related fitness components.

Table 8: Assessment on the Level of Development of Speed among College Students

Students are able to...	WM	VI	Rank
1. accelerate quickly from a stationary position during running activities.	3.57	HD	3
2. maintain fast-paced movement during repeated sprint efforts with minimal fatigue.	3.43	MD	8
3. display consistent top speed during shuttle runs or relays.	3.37	MD	10
4. catch up quickly when trailing behind during tag or chasing games.	3.38	MD	9
5. move swiftly between stations or activities during circuit drills.	3.60	HD	2
6. perform rapid footwork in speed ladder or cone drills.	3.66	HD	1
7. demonstrate burst speed during gameplay situations (e.g., breaking away in basketball/soccer).	3.50	HD	5
8. react and move quickly after start signals in races or speed drills.	3.53	HD	4
9. cover short distances faster than most peers in running activities.	3.49	MD	6
10. complete short sprints (e.g., 20-40 meters) with fast reaction and execution.	3.47	MD	7
Composite Mean	3.50	HD	

Legend: 3.50-4.00- Highly Developed (HD); 2.50-3.49- Moderately Developed (MD); 1.50-2.49- Slightly Developed; 1.00-1.49- Least Developed

2.6. Development of Reaction Time. Table 9 presents the results on the level of development of skill-related fitness among college students as assessed by Physical Education teachers in terms of reaction time.

The findings indicated that the assessment of the respondents on the level of development of skill-related fitness among college students, particularly to reaction time was moderately developed, as reflected by its composite mean of 3.48. This implies that students had a moderate ability to respond quickly and effectively to stimuli during physical activities, suggesting that while the teaching strategies contributed to the development of reaction time, further emphasis or targeted activities may be needed to enhance this component of skill-related fitness. This finding was supported in the study of Santos et al., who concluded that physical education activities integrating perceptual and motor-response exercises contributed to improvements in students' reaction time and coordination. However, the study also noted that reaction time tends to develop gradually and may require more specialized drills compared to other skill-related fitness components.

Table 9: Assessment on the Level of Development of Reaction Time among College Students

Students are able to...	WM	VI	Rank
1. respond immediately to start signals (whistle) during races or timed activities.	3.62	HD	1
2. react quickly to changes in direction of the ball during games (e.g., volleyball, basketball).	3.57	HD	2
3. adjust movement instantly when dodging or avoiding oncoming players.	3.39	MD	8
4. respond rapidly to verbal commands during drills or activities.	3.35	MD	10
5. show immediate foot or hand movement in response to visual cues.	3.43	MD	7
6. execute counter-movements or defensive actions in sports without hesitation.	3.56	HD	3
7. change direction quickly upon sudden instruction during agility or speed drills.	3.50	HD	6
8. initiate movement immediately after catching or blocking a ball.	3.53	HD	4
9. display fast reflexes when reacting to a dropped object.	3.38	MD	9
10. respond without hesitation during game plays requiring quick decision-making (e.g., passing, shooting).	3.51	HD	5
Composite Mean	3.48	MD	

Legend: 3.50-4.00- Highly Developed (HD); 2.50-3.49- Moderately Developed (MD); 1.50-2.49- Slightly Developed; 1.00-1.49- Least Developed

3. **Relationship between the Extent of Utilization of Teaching Strategies and the Level of Development of Skill-Related Fitness.** Tables 10 to 12 show the relationship between the extent of utilization of teaching strategies and the level of development of skill-related fitness.

Table 10: Relationship between Circuit Training Exercises and the Level of Development of Skill-Related Fitness Among College Students

Legend: 0.05- Level of Significance

The results indicate that circuit training exercises have a moderate to strong significant relationship with all components of skill-related fitness. The strongest relationships are observed in agility ($r = 0.678$) and power ($r = 0.658$), suggesting that circuit-based activities are particularly effective in enhancing movement efficiency and muscular strength. Overall, the results suggest that circuit training is a highly effective strategy for developing core components of skill-related fitness, particularly those related to strength and movement control.

Table 11: Relationship between Game-Based Learning and the Level of Development of Skill-Related Fitness Among College Students

Variables	r-value	p-value	Decision on Ho	Conclusion
Agility	0.622	<0.001	Reject Ho	Significant
Balance	0.524	<0.001	Reject Ho	Significant
Power	0.586	<0.001	Reject Ho	Significant
Speed	0.571	<0.001	Reject Ho	Significant
Coordination	0.617	<0.001	Reject Ho	Significant
Reaction Time	0.391	<0.001	Reject Ho	Significant
Variables	r-value	p-value	Decision on Ho	Conclusion
Agility	0.678	<0.001	Reject Ho	Significant
Balance	0.470	<0.001	Reject Ho	Significant
Power	0.658	<0.001	Reject Ho	Significant
Speed	0.526	<0.001	Reject Ho	Significant
Coordination	0.505	<0.001	Reject Ho	Significant
Reaction Time	0.391	<0.001	Reject Ho	Significant

Legend: 0.05- Level of Significance

The findings reveal that game-based learning has a moderate to strong significant relationship with all components of skill-related fitness. Notably, stronger relationships are observed in agility ($r = 0.622$) and coordination ($r = 0.617$), indicating that game-based activities effectively promote dynamic movement and motor skill integration. Overall, the findings confirmed that game-based learning is a versatile and effective teaching strategy, particularly in promoting integrated physical and cognitive skill development.

Table 12: Relationship between Rhythmic Activities and the Level of Development of Skill-Related

Fitness Among College Students

Variables	r-value	p-value	Decision on Ho	Conclusion
Agility	0.606	<0.001	Reject Ho	Significant
Balance	0.639	<0.001	Reject Ho	Significant
Power	0.585	<0.001	Reject Ho	Significant
Speed	0.639	<0.001	Reject Ho	Significant
Coordination	0.654	<0.001	Reject Ho	Significant
Reaction Time	0.627	<0.001	Reject Ho	Significant

Legend: 0.05- Level of Significance

The results show that rhythmic activities have a moderate to strong significant relationship with all components of skill-related fitness. The strongest relationships are observed in coordination ($r = 0.654$), balance ($r = 0.639$), and speed ($r = 0.639$), indicating that rhythm-based movements are highly effective in enhancing body control and timing. Overall, rhythmic activities emerge as a highly effective strategy for developing coordination and timing-related fitness components, making them essential in comprehensive physical education programs.

4. Challenges Encountered by Physical Education Teachers in Implementing Various Teaching Strategies to Develop Skill-Related Fitness

To ensure that the students can achieve all the components of skill-related fitness, it is essential to first identify the challenges that PE teachers may encounter in the development of skill-related fitness. Table 13 shows the assessment on the challenges encountered by the PE teachers in implementing various teaching strategies to develop skill-related fitness among their college students.

Table 13: Challenges Encountered by PE Teachers in the Development of Skill-Related Fitness

PE teachers encountered...	WM	VI	Rank
1. lack of equipment that limits the effective development of students' skill-related fitness.	3.41	Agree	2
2. limited PE class time that reduces the use of varied teaching strategies to improve student's skill-related fitness.	3.25	Agree	6
3. large class sizes that make it difficult to provide individualized assessments and feedback to students.	3.47	Agree	1
4. low student motivation or interest in participating in skill-related fitness activities.	3.15	Agree	10
5. lack of training or professional development that affects the use of effective teaching strategies.	3.20	Agree	8

6. inadequate facilities or space that hinder the proper execution of skill-related fitness exercises.	3.16	Agree	9
7. challenges in ensuring student safety during skill-related fitness activities.	3.27	Agree	5
8. difficulties in designing inclusive activities for students with varying fitness levels and abilities.	3.29	Agree	4
9. difficulty in accurately assessing student's skill-related fitness due to differences in activities and assessment standards.	3.24	Agree	7
10. challenges in managing students with existing health conditions that limit the range of activities that can be implemented.	3.35	Agree	3
Composite Mean	3.28	Agree	

Legend: 3.50-4.00- Strongly Agree; 2.50-3.49- Agree; 1.50-2.49- Disagree; 1.00-1.49- Strongly Disagree

It can be seen in the table that the respondents all agreed that they encountered challenges in implementing various teaching strategies to develop the skill-related fitness of the students. The findings indicated that it gained a composite mean of 3.28 and was verbally interpreted as agree. This implies that PE teachers commonly encountered challenges in the development of students' skill-related fitness, highlighting the need for additional support, resources, and training to enhance the effective delivery of instruction. This finding was supported in the study of Daum and Buschner, who concluded that teachers' access to training, equipment, and curriculum support significantly influences the successful implementation of physical education strategies.

5. PROPOSED FITNESS TRAINING ACTIVITIES

Based on the findings, results, and analysis of this study, fitness training activities were proposed, and may be considered and implemented to develop and improve the teaching strategies employed by Physical Education teachers in developing the skill-related fitness among college students. The lowest-rated items in the assessment were the basis for making the activities, particularly in the utilization of teaching strategies in terms of circuit training exercises, game-based learning, and rhythmic activities. Additionally, it provided fitness training activities to develop all components of skill-related fitness, including agility, balance, coordination, power, speed, and reaction time.

CIRCUIT-TRAINING EXERCISES

Activity 1: "Quick Step Hurdle Challenge"

Objectives:

1. To improve agility and coordination through hurdle movements.
2. To develop lower-body power and quick foot reaction
3. To enhance balance while performing dynamic movements.

Directions:

1. Set up 5-8 low hurdles in a straight line.
2. Students start behind the first hurdle.
3. On the signal, students perform quick two-foot or alternating jumps over the hurdle.
4. After the last hurdle, jog back to the starting point.
5. Repeat for 3-5 rounds with 1 minute rest between rounds.

Rubrics (Performance Criteria)

Criteria	Excellent (20 points)	Good (15 points)	Fair (10 points)	Needs Improvement (5 points)
Agility & Speed	Moves quickly with smooth transitions	Slight delay in movement	Slow but completes the activity	Unable to maintain pace
Coordination	Consistent and controlled jumps	Minor balance errors	Frequent imbalance	Cannot coordinate movements
Technique	Proper landing and jumping form	Minor errors in form	Needs improvement in form	Incorrect execution



Students perform quick jumps over hurdles, showing speed, coordination, and explosive lower-body power.



Students move rapidly through each hurdle, improving balance, agility, and fast foot reaction.

AGILITY

Activity 2: "Cone Zigzag Speed Run"

Objectives:

1. To enhance agility and directional change in speed.
2. To improve body control while running at different angles.
3. To develop cardiovascular endurance, and footwork.

Directions:

1. Arrange 6-10 cones in zigzag pattern (1-2 meters apart).
2. Students start at the first cone.
3. On the signal, students sprint and weave through the cones without touching them.
4. At the last cone, the students will jog back to the start.
5. Perform 3-4 sets with short rest intervals.

Rubrics (Performance Criteria)

Criteria	Excellent (20 points)	Good (15 points)	Fair (10 points)	Needs Improvement (5 points)
Agility	Quick and smooth direction changes	Minor hesitation	Noticeable delays	Cannot change direction properly
Speed	Fast and controlled movement	Slight inconsistent speed	Moderate speed	Very slow movement
Control	No cones touched	1-2 cones touched	Frequent cone contact	Loss of Balance or control



Students sprint and weave through cones in a zigzag pattern, showing agility, speed, and precise footwork.



Students change direction quickly while maintaining balance and control, improving coordination and endurance.

Activity 3: “Multi-Point Shuttle Sprint”

Objectives:

1. To improve speed, endurance, and reaction time
2. To develop anaerobic capacity through repeated sprinting.
3. To enhance acceleration and deceleration control.

Directions:

1. Mark 3-5 lines (or cones) at 5-10 meter intervals.
2. Students start at the middle line.
3. On the signal, sprint to one end line, touch it, then sprint back to the middle.
4. Continue to the opposite end line and return to the middle.
5. Complete 3-5 rounds depending on the fitness level of the students.

Rubrics (Performance Criteria)

Criteria	Excellent (20 points)	Good (15 points)	Fair (10 points)	Needs Improvement (5 points)
Speed and Endurance	Maintains high speed throughout the sprint	Slight fatigue but consistent	Noticeable slowing down	Unable to complete the sets
Reaction Time	Start immediately on signals	Minor delay in start	Slow reaction	No response to signal
Form and Control	Proper sprint and stop control	Minor breakdown for	Frequent imbalance	Unsafe or incorrect movement



Students sprint quickly between markers, changing direction with speed, control, and strong acceleration.



Students push their limits through repeated shuttle runs, building endurance and reacting fast to every signal.

GAME-BASED LEARNING

Activity 1: “Base Escape Challenge”

Objectives:

1. Develop students’ agility in changing direction quickly.
2. Improve reaction time to unexpected movements.
3. Enhance enjoyment and engagement through game-based learning.

Directions:

1. Divide the class into two teams.
2. Each team has a designated home base on opposite sides of the playing area.
3. Each team will assign 1 player as the “base guardian” wherein he will stay within or near the base area, and his role is to prevent opponents from entering or capturing the base.
4. At the start signal, players must attempt to reach the opposite.
5. A player is tagged when touched by an opponent while outside their base.
6. Tagged players must go to a “jail/base holding area” of the opposing team.
7. Teammates can rescue tagged players by reaching the jail area safely and escorting them back to their home base without being tagged.
8. Guardians may tag or block opponents who attempt to enter their base area.
9. The game continues for a set time or until all players of a team are captured.
10. The winning team is the one with the most players safely reaching or returning to their base at the end of the game.

Safety Rule: No pushing, pulling, or rough contact allowed

Rubric (Performance Assessment)

Criteria	Excellent (10 points)	Good (8 points)	Fair (5 points)	Needs Improvement (3 points)
Agility	Moves quickly and avoids tags effectively	Occasionally avoids tags	Often gets tagged	Rarely avoids being tagged
Strategy	Consistently uses smart decisions (timing, routes, rescue)	Uses some strategy	Limited strategic thinking	No clear strategy use
Teamwork	Actively rescues and communicates with team	Sometimes supports teammates	Rarely assists others	Does not cooperate
Participation	Fully engaged throughout the game	Mostly engaged	Inconsistent participation	Minimal participation



Players from both teams sprint across the area to reach the opposite base while avoiding the base guardian who tries to tag them.



A teammate rescues a tagged player from the jail by reaching the holding area safely and escorting them back to their home base without being tagged.

COORDINATION

Activity 2: “Fitness Orienteering Quest”

Objectives:

1. Develop students’ speed, agility, and endurance through continuous movements.
2. Enhance decision-making and map-reading skills in physical activity setting.
3. Improve coordination and smooth transitions between different movement tasks.
4. Promote teamwork, strategy, and time management through game-based learning.

Directions:

1. Divide the class into teams (5-8 members each).
2. Provide each team with a map of the playing area showing possible station locations.
3. Stations are not arranged in sequence, and teams may choose any route.
4. At the start signal, teams must:
 - Navigate the area using a map
 - Locate all stations (hidden or spread out)
 - Complete the required physical task at each station before moving to the next.
5. Teams must complete all stations before returning to the finish line.
6. The activity is timed, and the team that completes all stations correctly in the shortest time wins.

Game Twist: Since stations are not in order, teams must decide the fastest route, encouraging exploration and strategy.

Safety Rule: Move safely, avoid collisions, and perform exercises with proper form before proceeding.

Example Fitness Stations

- **Station 1: Agility Ladder Zone**
Perform quick in-and-out footwork patterns.
- **Station 2: Zigzag Cone Run**
Sprint through cones in zigzag pattern.
- **Station 3: Shuttle Run Station**
Run back and forth between two marked lines.
- **Station 4: Jump Power Zone**
Perform 10 squat jumps or vertical jumps.
- **Station 5: Balance Challenge**
Hold a single-leg balance for 15-20 seconds per leg.

Criteria	Excellent (20 points)	Good (15 points)	Fair (10 points)	Needs Improvement (5 points)
Speed/Time	Fastest completion with accuracy	Slight delay	Slow completion	Did not finish all stations
Navigation Skills	Efficient route planning, no confusion	Minor errors in navigation	Frequent confusion	Unable to follow map

Task Execution	All exercises were performed correctly	Minor errors	Several mistakes	Incorrect execution
Teamwork	Strong communication and coordination	Good teamwork	Limited cooperation	No teamwork observed
Strategy	Uses effective route and decisions	Some planning evident	Poor planning	No strategy used

Rubric (Performance Assessment)



POWER

Activity 3: “Power Kick Target Challenge”

Objectives:

1. Develop lower-body muscular power through controlled kicking movements.
2. Improve accuracy and force application when striking a target.
3. Enhance engagement and motivation through game-based learning.

Directions:

1. Divide the class into small groups or teams.
2. Set up a wall or open field with target zones (you may use cones, chalk circles, or marked boxes with points).
3. Each student takes turns performing a power kick toward the target using a ball.
4. Points are awarded based on where the ball lands or hits:
 - High-value zone= higher points
 - Medium zone= moderate points
 - Outer zone= low points
5. Each student gets a fixed number of attempts (e.g., 3-5 kicks).
6. The team with the highest total score wins.

Optional Rule: Bonus round for weak foot kicks or distance kicks.

Safety Rule: Ensure enough spacing between players and no kicking while others are retrieving the ball.

Rubrics (Performance Assessment)

Criteria	Excellent (10 points)	Good (8 points)	Fair (5 points)	Needs Improvement (3 points)
Power	Strong, controlled kicking force	Good power with slight inconsistency	Moderate power only	Very weak kicks
Accuracy	Consistently hits target zones	Mostly accurate	Sometimes accurate	No response to signal
Technique	Proper Kicking form maintained	Minor errors in form	Inconsistent technique	Poor or unsafe form



Students take turns performing powerful kicks, aiming at target zones to score points with accuracy and control.



Teams compete to earn the highest score as players combine strength, precision, and focus on every kick.

RHYTHMIC ACTIVITIES

Activity 1: "FOLLOW AFTER ME"

Objectives:

1. Improve reaction time and responsiveness to visual cues.
2. Enhance coordination and synchronization with a partner.
3. Develop rhythm awareness and body control through mirrored movements.

Directions:

1. Pair students as Leader and Follower.
2. Play upbeat rhythmic music with a steady beat.
3. The Leader performs continuous rhythmic movements (e.g., arm swings, steps, turns).
4. The Follower must mirror the movements in real time as accurately and quickly as possible.
5. After 2-3 minutes, switch roles.
6. Increase difficulty by adding faster music or complex movements.

Rubrics (Performance Criteria)

Criteria	Excellent (20 points)	Good (15 points)	Fair (10 points)	Needs Improvement (5 points)
Reaction Time	Responds instantly to partner's movements	Responds with minimal delay	Occasionally delayed response	Slow inconsistent reactions
Synchronization	Perfectly mirrors movements in real time	Mostly synchronized with minor errors	Sometimes out of sync	Rarely matches partner's movements
Rhythmic Accuracy	Always in time with music	Mostly in time with occasional lapses	Sometimes follows rhythm	Does not follow rhythm consistently
Coordination and Control	Movements are smooth and controlled	Mostly controlled with a slight imbalance	Some awkward uneven movements	Poor control and uncontrolled actions



BALANCE

Activity 2: “Balance in Rhythm Flow”

Objectives:

1. Develop balance and postural control while moving in rhythm.
2. Improve coordination and smooth transitions between poses.
3. Enhance concentration and body awareness through rhythmic sequencing.

Directions:

1. Play a slow to moderate tempo instrumental music with a clear beat.
2. Students will perform a guided balance sequence created by the PE teacher.
3. Each sequence includes a combination of:
 - Single-leg balance (e.g., tree pose or any yoga poses)
 - Forward/ side stretching pose
 - Controlled lunge hold
 - Gymnastic-inspired stance (e.g., arabesque or star pose)
4. Each pose must be held for 4-8 counts following the beat of the music.
5. Students must transition smoothly from one pose to another without losing balance.
6. To increase difficulty, the teacher may: change music tempo, add longer holds, and include directional changes (turns or pivots).

Rubrics (Performance Assessment)

Criteria	Excellent (20 points)	Good (15 points)	Fair (10 points)	Needs Improvement (5 points)
Balance and Stability	Holds pose steadily without wobbling	Minor loss of balance	Occasional instability	Frequently loses balance
Rhythmic Timing	Perfectly follows Music counts	Mostly follows rhythm	Sometimes offbeat	Does not follow the rhythm
Body Control	Smooth controlled transitions	Mostly controlled movements	Some shaky transitions	Lack of control movements
Focus and Posture	Excellent posture and full focus	Good posture with minor lapses	Average posture and focus	Poor posture and easily distracted



Students move in rhythm as they hold balance poses and stretch with control, following the beat of the music.



Students transition smoothly from one pose to another, maintaining balance and focus with every move.

REACTION TIME

Activity 3: “Move on the Beat Command”

Objectives:

1. Enhance reaction time to auditory and verbal commands during physical activities.
2. Improve coordination between listening, decision-making, and movement.
3. Develop rhythm awareness while performing structured physical responses.

Directions:

1. Play rhythmic or beat-based music (fast or moderate tempo).
2. The teacher gives verbal commands that match specific movements, such as:
 - “Clap”- students will clap in rhythm
 - “Step”- students will perform side steps to the beat
 - “Jump”- students perform small jumps on the beat.
 - “Freeze”- students stop and hold position
3. Students must execute the correct movement immediately in rhythm with the music.
4. Mix commands randomly and increase speed over time.
5. Add challenge by combining two commands (e.g., clap+step).

Rubrics (Performance Assessment)

Criteria	Excellent (20 points)	Good (15 points)	Fair (10 points)	Needs Improvement (5 points)
Reaction Speed	Instantly responds to commands	Quick response with a slight delay	Moderate response time	Slow or delayed response
Rhythmic Execution	Always in sync with the music beat	Mostly in sync	Sometimes offbeat	Not aligned with the rhythm
Accuracy	Always performs the correct command	Minor errors in execution	Occasional mistakes	Frequently incorrect responses
Coordination	Smooth transitions between actions	Mostly smooth transitions	Some awkward movements	Poor coordination and confusion



Students move in sync with the beat by clapping, stepping, and jumping, demonstrating coordination, timing, and responsiveness to verbal commands.

DISCUSSIONS

The findings revealed that the extent of utilization of teaching strategies employed in the development of skill-related fitness as assessed by Physical Education teachers were highly utilized particularly in circuit training exercises (composite mean= 3.53) and game-based learning (composite mean= 3.50). However, the extent of utilization of rhythmic activities was revealed to be moderately utilized by the respondents as reflected by its composite mean of 3.49.

On the other hand, this study found out that among the six components of skill-related fitness, only five were considered as highly developed among college students as assessed by the respondents. These were the agility (3.54), balance (3.53), coordination (3.52), power (3.51), and speed (3.50). However, the level of development of reaction time among college students was moderately developed as indicated by its composite mean of 3.48.

In addition, the findings also revealed that there was a significant relationship between the extent of utilization of teaching strategies and the development of skill-related fitness among college students.

Likewise, the respondents all agreed that they encountered challenges in implementing various teaching strategies specifically when it comes to large class sizes, lack of equipment, and managing students with existing health conditions.

Comparison to Existing Studies

These findings align with recent studies emphasizing that active and student-centered teaching strategies in Physical Education improve students' engagement, participation, and physical development (Ulep, 2024; Lacambra, 2026). Existing research also revealed that structured and interactive instructional approaches positively influence physical fitness, motivation, teamwork, and learning experiences among students (BMC Public Health, 2026; Zhang, 2026). Moreover, the significant relationship between teaching strategies and skill-related fitness supports studies showing that effective instructional methods enhance students' physical performance and active participation (Psychology of Sport and Exercise, 2020; Breed et al., 2024). Likewise, the challenges encountered by the respondents, such as large class sizes and insufficient resources, echo recent studies identifying limited facilities, equipment, and

institutional support as barriers to the effective implementation of Physical Education programs as well as the development of skill-related fitness.

Implications for Practice and Policy

The findings suggest that Physical Education teachers should continue using circuit training and game-based learning to improve students' skill-related fitness. Teachers may also incorporate more activities that enhance reaction time. Schools and educational institutions should provide adequate facilities, equipment, and manageable class sizes, while supporting teacher training and professional development to ensure effective Physical Education instruction and holistic student development.

Study Limitations

The study was limited by its reliance on survey questionnaires and unstructured interviews, which may have introduced subjectivity in the responses. It also focused only on selected teaching strategies and skill-related fitness components within a specific group of respondents, limiting the generalizability of the findings. Additionally, factors such as students' motivation, lifestyle, health conditions, and school resources were not extensively examined.

CONCLUSIONS

Based on the findings, the following conclusions are drawn:

1. The assessment showed that circuit training exercises and game-based learning were highly utilized, while rhythmic activities was moderately utilized.
2. The assessment on agility, balance, coordination, power, and speed were highly developed, while reaction time was moderately developed.
3. There was a significant relationship between the assessment on the extent of utilization of teaching strategies and on the level of development of skill-related fitness.
4. PE teachers agreed that they encountered challenges in developing skill-related fitness, particularly with a large class size, lack of equipment, and in managing students with existing health conditions that makes it difficult to provide individualized assessments and feedback to students.
5. Fitness training activities are much needed for the enhancement and the development of all the components of skill-related fitness among college students.

RECOMMENDATIONS

In the light of the findings and conclusions of this study, the following recommendations are hereby endorsed:

1. The prepared fitness training activities may be reviewed by the authorities before its utilization by the PE teachers to enhance all the components of skill-related fitness of their students.
2. PE teachers may consider the lowest utilization of teaching strategies in circuit training exercises, game-based learning, and rhythmic activities for them to have an idea of what they need to improve.
3. PE teachers may also consider the components of skill-related fitness that shows the lowest level of development to identify which specific areas require greater focus and improvement.
4. Head of Physical Education Department or College Deans may consider the challenges encountered by PE teachers in developing skill-related fitness among their students, so that these challenges may be addressed and the teaching and learning of PE will be effective and meaningful.
5. Further studies may be conducted using the other kinds of physical fitness, specifically health-related fitness, to further compare and strengthen the study.

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