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Increasing Enthusiasm For Learning Volleyball Through A Game-Based Learning Approach With The Target Point Challenge Technique

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ABSTRACT

Volleyball learning in schools frequently encounters challenges related to students' low enthusiasm, motivation, and active participation during the learning process. These conditions often result in less effective learning experiences and hinder the optimal development of students' basic volleyball skills. Therefore, innovative and student-centered learning approaches are needed to create a more engaging and meaningful learning environment. This study aimed to determine the effectiveness of the Game-Based Learning (GBL) approach through the Target Point Challenge technique in improving volleyball learning enthusiasm among Grade X students at SMA Negeri 15 Surabaya. This study employed Classroom Action Research (CAR) using the Kemmis and McTaggart model, consisting of four stages: planning, action, observation, and reflection. The research was conducted in two cycles. Data were collected through observation, documentation, student reflection questionnaires, activity observation sheets, and teacher reflection journals. Data analysis was carried out using qualitative descriptive analysis and simple quantitative analysis based on percentage calculations. The findings revealed that the implementation of the Game-Based Learning approach through the Target Point Challenge technique significantly improved students' learning enthusiasm and volleyball skills. Students' learning enthusiasm increased from 80% in Cycle I to 90% in Cycle II. Furthermore, the average score of students' basic volleyball skills improved from 85 in Cycle I to 89 in Cycle II. Students became more active, confident, collaborative, and willing to participate in volleyball learning activities. In conclusion, the Game-Based Learning approach through the Target Point Challenge technique effectively created a more active, enjoyable, and student-centered learning atmosphere. This approach proved successful in enhancing students' enthusiasm, participation, and basic volleyball skills, making it a valuable instructional strategy for Physical Education, Sports, and Health (PJOK) learning.

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INTRODUCTION

The paradigm of modern education has shifted significantly from teacher-centered instruction toward student-centered learning, emphasizing students as active participants in the educational process rather than passive recipients of knowledge. This transformation aims to develop learners' cognitive, affective, psychomotor, and social competencies through meaningful learning experiences that encourage active participation, creativity, collaboration, and critical thinking (Hattie, 2023; UNESCO, 2024). Within this framework, teachers function as facilitators who create engaging learning environments that allow students to construct knowledge through direct experiences and interaction with their peers. In Physical Education, Sports, and Health (PJOK), student engagement is a crucial determinant of learning success because the subject requires active physical participation, communication, cooperation, and skill execution (Casey & Goodyear, 2019; Kirk, 2021). Learning enthusiasm, often characterized by students' interest, motivation, attention, and willingness to participate actively, plays a central role in determining the effectiveness of physical education instruction (Ntoumanis et al., 2021). Students who demonstrate high enthusiasm tend to participate more actively, practice skills more frequently, and achieve better learning outcomes compared to students with low enthusiasm.

However, various studies have reported that many students remain passive during volleyball lessons, particularly when learning activities rely heavily on repetitive technical drills and teacher-dominated instruction (Harvey et al., 2020; Miller et al., 2022). In many schools, volleyball learning is still focused primarily on the mechanical repetition of passing, serving, and receiving techniques without providing meaningful game situations that stimulate students' curiosity and enjoyment. Consequently, students often experience boredom, reduced confidence, and declining participation rates during learning activities (Light & Harvey, 2017; Wang et al., 2021).

These challenges were also observed among Grade X students at SMA Negeri 15 Surabaya. Preliminary observations indicated that students frequently showed low enthusiasm during volleyball learning sessions, characterized by limited participation, reluctance to engage in practice activities, lack of collaboration, and reduced attention to instructional tasks. Such conditions potentially hinder the development of fundamental volleyball skills, teamwork abilities, and positive attitudes toward physical education. Therefore, innovative instructional approaches are required to create a more engaging and meaningful learning environment that can foster students' enthusiasm and participation.

One instructional approach that has gained considerable attention in contemporary physical education research is Game-Based Learning (GBL). GBL integrates game elements, challenges, rewards, and interactive experiences into educational activities to enhance student engagement and motivation (Prensky, 2016; Plass et al., 2020). Unlike traditional instructional models that focus on isolated skill practice, GBL encourages students to learn through contextualized game situations, allowing them to develop both technical competencies and higher-order thinking skills simultaneously. Research in educational psychology has consistently demonstrated that game-based learning enhances intrinsic motivation, student engagement, enjoyment, and academic

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achievement (Deterding et al., 2019; Boyle et al., 2021). Within physical education settings, GBL provides opportunities for students to experience authentic game situations while developing tactical understanding, decision-making skills, and cooperative behaviors (Harvey & Jarrett, 2018; Tan et al., 2022). The incorporation of challenge-based activities and immediate feedback mechanisms further contributes to students' willingness to participate actively in learning tasks.

In volleyball education, game-oriented pedagogies such as Teaching Games for Understanding (TGfU), Sport Education Model, and Game-Based Learning have demonstrated positive effects on students' skill acquisition, motivation, and participation (Metzler, 2021; Casey et al., 2020). Studies conducted by Hamdani (2024) reported that TGfU significantly increased students' participation and engagement during volleyball learning activities. Similarly, Andriansyah (2025) found that game-based instructional approaches improved both volleyball technical performance and learning motivation among secondary school students. Recent studies also indicate that challenge-based game activities encourage students to become more actively involved in learning processes because they create opportunities for competition, collaboration, achievement, and self-improvement (Domínguez et al., 2021; Sánchez-Miguel et al., 2023). Students are generally more motivated when learning activities include clear goals, scoring systems, rewards, and opportunities for teamwork. Such elements help create enjoyable learning environments that support long-term engagement and positive learning experiences.

One specific implementation of GBL is the Target Point Challenge technique. This technique combines volleyball skill execution with point-based challenges where students or teams earn scores by successfully achieving predetermined targets. Through this activity, students not only practice volleyball techniques but also engage in strategic thinking, communication, teamwork, and problem-solving. The challenge structure creates a dynamic and competitive learning atmosphere that encourages continuous participation and effort. Consequently, the Target Point Challenge technique has strong theoretical potential to increase students' learning enthusiasm while simultaneously supporting skill development.

Although previous studies have extensively examined game-based learning, several limitations remain evident in the existing literature. First, most studies have primarily focused on improving technical performance, motor skills, tactical understanding, and physical fitness outcomes rather than specifically investigating learning enthusiasm as a primary outcome variable (Casey et al., 2020; Harvey et al., 2020). Student enthusiasm represents an important affective dimension that directly influences learning engagement and educational effectiveness but remains underexplored in volleyball learning research. Second, existing research has largely concentrated on broad game-based instructional models such as TGfU, Sport Education, and gamification approaches. Limited attention has been given to specific challenge-based learning techniques that integrate scoring systems and target achievement mechanisms within volleyball instruction (Tan et al., 2022; Sánchez-Miguel et al., 2023). Consequently, empirical evidence regarding the effectiveness of the

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Target Point Challenge technique remains scarce. Third, studies examining the application of challenge-based game learning in Indonesian secondary schools are still limited, particularly among Grade X students in senior high school settings. Educational contexts, student characteristics, and learning environments may influence the effectiveness of instructional interventions, making contextualized investigations necessary (Kirk, 2021; Casey & Goodyear, 2019). Therefore, this study addresses an important gap by focusing specifically on the role of the Target Point Challenge technique within a Game-Based Learning framework as a strategy to improve students' enthusiasm for learning volleyball. This focus contributes to both theoretical and practical knowledge regarding innovative student-centered instructional approaches in physical education.

Based on the identified problems and research gaps, this study aims to investigate the implementation of Game-Based Learning through the Target Point Challenge technique in improving volleyball learning enthusiasm among Grade X students at SMA Negeri 15 Surabaya. The novelty of this research lies in three aspects. First, unlike previous studies that predominantly focused on technical skill improvement, this study emphasizes learning enthusiasm as the primary outcome variable. Second, the study introduces the Target Point Challenge technique as a specific challenge-based instructional innovation within volleyball learning. Third, the research provides empirical evidence regarding the effectiveness of this technique in the context of Indonesian senior high school physical education.

Theoretically, this study contributes to the growing body of literature on student-centered learning, game-based pedagogy, and motivational theories in physical education. Practically, the findings are expected to provide physical education teachers with an innovative instructional alternative capable of creating more active, enjoyable, and meaningful volleyball learning experiences. By promoting participation, collaboration, and motivation, the Target Point Challenge technique may help foster positive attitudes toward physical education while supporting the development of volleyball skills and lifelong engagement in physical activity.

In conclusion, the integration of Game-Based Learning through the Target Point Challenge technique represents a promising pedagogical strategy for addressing low student enthusiasm in volleyball learning. Given the limited empirical evidence available, particularly within Indonesian secondary education, further investigation is necessary to evaluate its effectiveness in creating engaging, student-centered learning environments that enhance enthusiasm, participation, and overall learning quality.

METHODS

This study employed a Classroom Action Research (CAR) design using the Kemmis and McTaggart cyclical model, which consists of four interconnected stages: planning, action, observation, and reflection. Classroom Action Research is widely recognized as an effective approach for improving educational practices because it enables teachers to systematically identify learning problems, implement instructional innovations, and evaluate their

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effectiveness in real classroom settings (Kemmis et al., 2018; Burns, 2020). Furthermore, CAR supports reflective teaching practices and continuous improvement of learning quality through iterative cycles of action and evaluation (Mertler, 2022).

The research was conducted at SMA Negeri 15 Surabaya during the 2025/2026 academic year. The participants consisted of Grade X students who were enrolled in Physical Education, Sports, and Health (PJOK) classes. The selection of participants was based on preliminary observations indicating relatively low enthusiasm and participation during volleyball learning activities. Previous studies have demonstrated that student engagement and enthusiasm are critical determinants of successful learning outcomes in physical education, particularly in team sports such as volleyball (Casey & Goodyear, 2019; Kirk, 2021).

The intervention implemented in this study was the application of a Game-Based Learning (GBL) approach through the Target Point Challenge technique. Game-Based Learning has been identified as an innovative pedagogical strategy capable of increasing student motivation, engagement, enjoyment, and active participation by integrating game elements into instructional activities (Plass et al., 2020; Boyle et al., 2021). In this study, students were divided into several groups and participated in challenge-oriented volleyball games designed to encourage cooperation, communication, strategic thinking, and technical skill development. The activities included Target Area Challenge, Combo Passing Challenge, and Survival Point Game, where students accumulated points by successfully achieving predetermined targets. Such challenge-based activities are believed to foster intrinsic motivation and enhance students' enthusiasm for learning through meaningful and enjoyable experiences (Domínguez et al., 2021; Sánchez-Miguel et al., 2023).

The research was conducted in two action cycles. During the planning stage, the researcher prepared teaching modules, learning scenarios, game rules, observation instruments, reflection questionnaires, and indicators of research success. The action stage involved implementing volleyball learning activities using the Game-Based Learning approach through the Target Point Challenge technique. Subsequently, observation was conducted simultaneously throughout the learning process to monitor student participation, interaction, confidence, teamwork, and enthusiasm. Finally, reflection was carried out at the end of each cycle to evaluate strengths, weaknesses, and necessary improvements for the subsequent cycle. This cyclical process is consistent with recommendations emphasizing reflective evaluation as a fundamental component of effective classroom action research (Stringer, 2021).

Data collection techniques included observation, documentation, student reflection questionnaires, student activity observation sheets, and teacher reflection journals. Observation was utilized to assess students' active involvement during learning activities, including their willingness to perform volleyball techniques, participation in group discussions, adherence to game rules, and collaborative behavior. Documentation, consisting of photographs and field notes, served as supporting evidence of the learning process. Student reflection questionnaires were administered to identify students' perceptions, motivation, and enthusiasm toward the implemented learning approach.

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Additionally, teacher reflection journals were used to record instructional experiences and evaluate the effectiveness of each cycle, which aligns with previous recommendations regarding reflective teaching practices in physical education research (Harvey & Jarrett, 2018; Tan et al., 2022). Data analysis was conducted using qualitative descriptive analysis and simple quantitative analysis. Qualitative data obtained from observations, questionnaires, and reflection journals were analyzed through data reduction, categorization, interpretation, and conclusion drawing. Quantitative data were analyzed using percentage calculations to determine the level of student participation and learning enthusiasm. The success indicators of the study were achieved when at least 80% of students actively participated in volleyball learning activities and demonstrated increased enthusiasm toward learning. This criterion was established based on previous classroom action research studies emphasizing active participation and learning engagement as key indicators of successful educational interventions (Ntoumanis et al., 2021; Wang et al., 2021).

RESULTS AND DISCUSSION

Result

Improvement of Students' Learning Enthusiasm and Volleyball Skills

The improvement in students' learning enthusiasm and volleyball skill scores from Cycle I to Cycle II is presented in Table 1.

Table 1.
Improvement of Students' Learning Enthusiasm and Volleyball Skills

Cycle	Learning Enthusiasm (%)	Average Volleyball Skill Score
Cycle I	80%	85
Cycle II	90%	89

Table 1 shows that students' learning enthusiasm increased from 80% in Cycle I to 90% in Cycle II. This indicates a 10% improvement in students' active participation, motivation, and engagement during volleyball learning activities. Furthermore, the average volleyball skill score improved from 85 in Cycle I to 89 in Cycle II, indicating an increase of four points after the refinement of the learning activities.

To provide a clearer illustration of the improvement, the data are presented in Figure 1.

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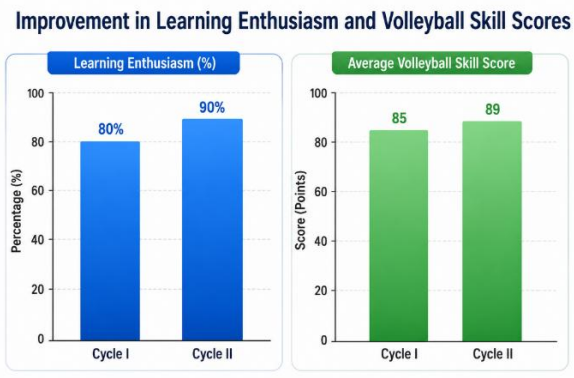

Figure 1.
Improvement in Learning Enthusiasm and Volleyball Skill Scores

The graphical representation demonstrates a consistent increase in both observed variables across the research cycles. The improvement suggests that the implementation of the Game-Based Learning approach successfully created a more engaging and enjoyable learning environment.

Results of Cycle I

During Cycle I, students began to adapt to the Game-Based Learning activities and the Target Point Challenge technique. Most students showed enthusiasm in participating in the games and were willing to engage in group activities. The challenge-based format encouraged students to perform passing techniques repeatedly while attempting to achieve the designated targets. However, classroom observations indicated that several students still lacked confidence when performing volleyball passing skills. Some students were hesitant to communicate with teammates and tended to rely on more skilled group members. In addition, a number of students were not yet fully familiar with the game rules and scoring system, which occasionally reduced the effectiveness of group collaboration. As a result, the percentage of learning enthusiasm reached 80%, while the average volleyball skill score was 85.

Results of Cycle II

Based on the reflection conducted after Cycle I, several improvements were implemented in Cycle II. The teacher provided clearer explanations of the game rules, increased encouragement and positive feedback, and modified the challenges to ensure that all students had equal opportunities to participate. Additional motivational strategies were also incorporated to increase students' confidence and involvement. The results of Cycle II demonstrated substantial improvement. Students appeared more enthusiastic, confident, and actively engaged in every learning activity. They participated more willingly in passing drills, communicated effectively within their groups, and showed greater persistence in completing the challenges. Students also demonstrated improved teamwork and sportsmanship during the learning process. Consequently, students' learning enthusiasm increased to 90%, exceeding the predetermined success indicator of 80%. The average volleyball skill score also improved to 89, indicating that the Target Point Challenge

technique not only enhanced students' enthusiasm but also contributed positively to the development of their basic volleyball skills.

Overall, the findings indicate that the implementation of Game-Based Learning through the Target Point Challenge technique effectively improved both learning enthusiasm and volleyball skill performance among Grade X students at SMA Negeri 15 Surabaya. The learning activities created an enjoyable, interactive, and student-centered learning environment that encouraged active participation and meaningful learning experiences.

Discussion

The findings of this study demonstrate that the implementation of the Game-Based Learning (GBL) approach through the Target Point Challenge technique successfully increased students' enthusiasm for learning volleyball among Grade X students at SMA Negeri 15 Surabaya. The increase in learning enthusiasm from 80% in Cycle I to 90% in Cycle II indicates that game-oriented learning can create a more engaging, interactive, and student-centered learning environment. This finding supports contemporary educational theories emphasizing that meaningful learning occurs when students actively participate in authentic and enjoyable learning experiences rather than merely receiving information passively (Casey & Goodyear, 2019; Kirk, 2021; Metzler, 2021).

The improvement in students' enthusiasm can be explained through the principles of Game-Based Learning, which integrate challenge, competition, feedback, collaboration, and achievement into instructional activities (Plass et al., 2020; Boyle et al., 2021). In traditional volleyball instruction, students are often exposed to repetitive technical drills that may reduce motivation and engagement over time (Harvey et al., 2020). Conversely, the Target Point Challenge technique transformed volleyball learning into a dynamic activity where students were encouraged to achieve specific targets, collect points, and cooperate with teammates. Such learning conditions stimulate curiosity and intrinsic motivation, which are essential determinants of active participation in physical education (Ntoumanis et al., 2021; Wang et al., 2021).

The increase in learning enthusiasm observed in this study is also consistent with the Self-Determination Theory proposed by Deci and Ryan, which emphasizes the importance of autonomy, competence, and relatedness in enhancing motivation (Ryan & Deci, 2020). Through the Target Point Challenge activities, students were given opportunities to make decisions, solve problems, and contribute to team success. These experiences strengthened their sense of competence and belonging, thereby increasing their willingness to participate actively in volleyball learning. Previous studies have similarly reported that game-based learning environments positively influence students' motivation, enjoyment, and engagement in physical education classes (Domínguez et al., 2021; Sánchez-Miguel et al., 2023; Tan et al., 2022).

During Cycle I, students began to demonstrate greater participation in volleyball activities, as evidenced by the achievement of 80% learning enthusiasm. Most students showed increased willingness to perform passing techniques and engage in group

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discussions. However, several challenges remained evident, including limited confidence, inadequate communication among team members, and unequal participation opportunities. Similar findings have been reported by Casey et al. (2020), who noted that students often require an adaptation period when introduced to innovative pedagogical models. The transition from teacher-centered instruction to student-centered game-based learning demands adjustments in students' behavioral patterns and learning habits.

The reflection process conducted after Cycle I played a crucial role in improving learning implementation during Cycle II. The teacher simplified game instructions, reorganized group composition, and provided additional encouragement to less confident students. These improvements contributed significantly to the increase in learning enthusiasm to 90%. The results indicate that reflective teaching practices are essential components of successful classroom action research because they enable continuous adaptation of instructional strategies according to students' needs (Mertler, 2022; Stringer, 2021). Furthermore, the achievement of 90% enthusiasm exceeded the predetermined success indicator of 80%, demonstrating the effectiveness of the intervention.

The findings also support Vygotsky's Social Constructivist Theory, which emphasizes that learning occurs through social interaction and collaborative activities (Vygotsky, 1978). The Target Point Challenge technique required students to communicate, negotiate strategies, and cooperate to achieve group goals. Such collaborative learning environments promote knowledge construction through peer interaction and shared experiences (Light & Harvey, 2017; Dyson et al., 2021). Students learned not only volleyball techniques but also interpersonal skills, teamwork, leadership, and collective problem-solving abilities. These competencies are increasingly recognized as important educational outcomes in twenty-first-century learning environments (UNESCO, 2024; OECD, 2023).

In addition to enhancing enthusiasm, the implementation of the Target Point Challenge technique also improved students' volleyball skills. The average skill score increased from 85 in Cycle I to 89 in Cycle II. This improvement suggests that game-based learning does not merely increase enjoyment but also contributes positively to motor skill acquisition and technical performance. According to motor learning theory, meaningful practice embedded within authentic game situations promotes better skill retention and transfer than isolated technical drills (Schmidt et al., 2019; Magill & Anderson, 2021). Through repeated participation in challenge-based games, students continuously practiced underhand passing, overhead passing, movement coordination, and tactical decision-making.

The increase in volleyball skill performance is consistent with previous empirical studies demonstrating the effectiveness of game-based pedagogies in sports education. Research by Andriansyah (2025) reported that game-oriented volleyball instruction significantly improved students' technical performance and learning

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motivation. Similarly, Hamdani (2024) found that game-based approaches enhanced student participation and engagement in physical education. International studies have likewise shown that Game-Based Learning and Teaching Games for Understanding (TGfU) positively affect tactical awareness, decision-making skills, and technical execution in volleyball and other team sports (Harvey & Jarrett, 2018; Miller et al., 2022; González-Víllora et al., 2023).

Another important finding is the positive impact of the intervention on classroom climate. Students appeared more enthusiastic, confident, and comfortable participating in learning activities. The learning environment became more enjoyable because students experienced learning as a process of exploration and challenge rather than mere instruction. Previous research has indicated that positive classroom climates contribute significantly to students' motivation, engagement, and academic achievement (Hattie, 2023; Koka et al., 2020). When students perceive learning activities as enjoyable and meaningful, they are more likely to invest effort and persist in overcoming difficulties.

Furthermore, the competitive yet supportive nature of the Target Point Challenge technique fostered healthy competition among students. Competition, when appropriately designed, can function as a motivational tool that encourages students to improve their performance while maintaining positive social relationships (Siedentop et al., 2020; Hastie et al., 2021). The point-based system provided immediate feedback and tangible goals, enabling students to monitor their progress and celebrate achievements. Such conditions are known to enhance self-efficacy and learning persistence (Bandura, 2021; Ryan & Deci, 2020).

Overall, the findings indicate that the Game-Based Learning approach through the Target Point Challenge technique effectively improves students' learning enthusiasm, volleyball skills, confidence, cooperation, and active participation. The approach successfully transformed volleyball learning into a meaningful, enjoyable, and student-centered experience. Therefore, this technique can serve as an innovative instructional alternative for physical education teachers seeking to improve the quality of volleyball instruction and foster greater student engagement. The results reinforce growing evidence from both SINTA and Scopus-indexed studies that game-based pedagogies represent effective strategies for promoting holistic learning outcomes in physical education settings.

CONCLUSION

Based on the findings of this classroom action research, it can be concluded that the implementation of the Game-Based Learning (GBL) approach through the Target Point Challenge technique effectively improved students' enthusiasm for learning volleyball among Grade X students at SMA Negeri 15 Surabaya. Empirically, the percentage of students' learning enthusiasm increased from 80% in Cycle I to 90% in Cycle II, indicating a substantial improvement in students' motivation, participation,

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confidence, and engagement during the learning process. In addition, the average score of students' basic volleyball skills improved from 85 in Cycle I to 89 in Cycle II, demonstrating that the intervention not only enhanced affective aspects of learning but also contributed positively to technical skill development.

Conceptually, the Target Point Challenge technique successfully transformed volleyball learning into a more active, enjoyable, interactive, and student-centered experience. Through challenge-based game activities, students became more willing to participate, more confident in performing volleyball techniques, and more capable of collaborating, communicating, and demonstrating sportsmanship within their groups. The findings confirm that meaningful learning experiences are more effectively achieved when students are directly involved in practical and engaging activities rather than passive instructional processes.

Furthermore, this study highlights the important role of teachers as facilitators who create innovative learning environments that foster both skill acquisition and character development. Despite its positive outcomes, this research was limited to one class and a relatively short implementation period. Therefore, future studies are recommended to involve larger samples, longer intervention durations, and various game-based learning models to obtain broader and more comprehensive findings in Physical Education, Sports, and Health (PJOK) learning.

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study will contribute to the development of innovative PJOK learning practices and enhance the quality of volleyball instruction in schools.

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