

Development of a Volleyball Service and Passing Technique Learning Model in Physical Education: A Literature Review

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Abstrak

Penelitian ini bertujuan untuk mengkaji perkembangan model pembelajaran teknik servis dan passing voli dalam konteks pendidikan jasmani di sekolah. Penelitian ini dilakukan melalui pendekatan tinjauan literatur terhadap berbagai publikasi nasional yang terindeks oleh SINTA dari tahun 2022 hingga 2025. Data diperoleh melalui pencarian sistematis di Google Scholar, DOAJ, dan portal jurnal nasional menggunakan kata kunci "model pembelajaran", "servis voli", dan "passing voli". Dari 174 artikel yang ditemukan, hanya 10 studi yang memenuhi kriteria inklusi. Hasil tinjauan menunjukkan bahwa model pembelajaran kooperatif, Project Based Learning (PjBL), dan pendekatan bermain merupakan strategi paling efektif dalam meningkatkan keterampilan servis dan passing pada siswa. Keunikan studi ini terletak pada sintesis berbagai pendekatan yang dapat diadaptasi ke dalam kurikulum Merdeka Belajar di Indonesia. Implikasi praktisnya adalah guru pendidikan jasmani disarankan untuk menggabungkan pendekatan kooperatif dan bermain dalam pembelajaran voli agar siswa menjadi lebih aktif, kolaboratif, dan termotivasi.

Kata kunci: Volleyball, model pembelajaran, servis, passing, pendidikan jasmani.

Abstract

This study aims to examine the development of volleyball serving and passing technique learning models in the context of physical education in schools. The study was conducted through a literature review approach of various national publications indexed by SINTA from 2022 to 2025. Data was obtained through a systematic search on Google Scholar, DOAJ, and national journal portals using the keywords "learning model", "volleyball serve", and "volleyball pass". Of the 174 articles found, only 10 studies met the inclusion criteria. The results of the review indicate that cooperative learning models, Project Based Learning (PjBL), and a play approach are the most effective strategies in improving serving and passing skills in students. The novelty of this study lies in the synthesis of various approaches that can be adapted to the Merdeka Belajar curriculum in Indonesia. The practical implication is that physical education teachers are advised to combine cooperative and play approaches in volleyball learning to make students more active, collaborative, and motivated.

Keywords: Volleyball, learning model, service, passing, physical education.

1. INTRODUCTION

Volleyball is a very popular team sport in Indonesia and has become an integral part of the physical education curriculum at various school levels, from elementary school to college (Ginting, 2022; Budi & Listiandi, 2021). This sport not only aims to improve students' physical fitness but also plays a crucial role in character building through values such as teamwork, sportsmanship, discipline, and responsibility (Gumati, 2019; Prasasti, 2024). In the volleyball learning process, mastery of basic techniques such as serving, underhand passing, overhand passing, smashing, and blocking are fundamental aspects that must be taught systematically and continuously (Dogho et al., 2021; Hary, 2019). Among these techniques, serving and passing occupy a very important position because they are the main keys to defending and building attacks in the game (Ginting, 2022; Walu et al., 2024).

However, in reality, the process of learning basic volleyball techniques in many schools still

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faces various obstacles. Based on the findings of Ilhamsyah et al. (2025), the learning methods used by teachers are generally still conventional or teacher centered, where the teacher is the sole source of information and students play a passive role in the learning process. This approach causes learning activities to tend to be monotonous and less challenging, resulting in low student motivation and active involvement (Ginting, 2022; Yeni, 2023). This condition has a direct impact on learning outcomes, especially in mastering basic techniques such as underhand passing and underhand serving, which require repeated practice, guidance, and constructive feedback from teachers and peers (Ari et al., 2021; Tapo, 2019). To address these issues, the Independent Curriculum, which has begun to be implemented in Indonesia, offers a new paradigm in education, including physical education. This curriculum emphasizes a student-centered learning approach, positioning students as active participants in designing, implementing, and evaluating their own learning process (Rahmi, 2025; Yunitaningrum, 2025). This approach aligns with the primary goal of physical education, which emphasizes not only final outcomes but also the learning process through real-life experiences, participation, and reflection on movement activities (Hartanto et al., 2025; Dinata, 2025).

Therefore, the implementation of the Independent Curriculum is not merely a curriculum change but also requires innovation in learning strategies that can effectively implement the principles of student-centered learning. Physical education teachers are required to use learning models that encourage active participation, creativity, and collaboration (Bakhtiar, 2020; Sahabuddin et al., 2020). In the context of volleyball, several models, such as cooperative learning, Project-Based Learning (PjBL), and game-based learning, have been proven effective in improving technical skills while fostering positive social attitudes (Abdurahman et al., 2025; Irfan & Dinata, 2025; Budi & Listiandi, 2021). In addition, modified game models such as KASVOL and Teaching Games for Understanding (TGfU) have also been shown to increase student motivation and contextual understanding of game situations (Amansyah & Hardinoto, 2025; Pambudi et al., 2024; Sebila et al., 2019). This literature review seeks to map the development of various models for teaching volleyball serving and passing techniques in the context of physical education, while also highlighting the latest research findings in Indonesia. The results are expected to serve as a basis for developing more effective, adaptive, and enjoyable learning strategies for students (Harahap, 2025; Harahap, 2026).

2. METHOD

This study used a systematic literature review (SLR) design. Data sources were obtained from the Google Scholar database, DOAJ, and national journal portals such as Garuda, with the following inclusion criteria:

1. Articles in Indonesian or English, published between 2022–2025.
2. Focus on the learning model of volleyball service and/or passing techniques.
3. The research subjects were elementary, middle school, or university students.
4. The article is peer-reviewed and available in full text (Rohendi, 2022; Ginting, 2022).

Exclusion criteria:

1. Opinion articles or non-scientific essays.
2. Research that does not use a particular learning model.
3. Studies that focus on other sports (Aha et al., 2026; Dogho et al., 2021).

The search results yielded 174 articles, and after title and abstract screening, 30 articles

remained. After a full content evaluation, only 10 articles met the final inclusion criteria, which is in line with the SLR procedure used in similar studies on play methods and volleyball passing skills (Rohendi, 2022; Abbas & Reflianto, 2019).

3. RESULT AND DISCUSSION

Result

Table 1. *Summary of Studies Related to Volleyball Service and Passing Learning Models*

No	Author & Year	Journal	Learning model	Key Results
1	Ilhamsyah et al. (2025)	<i>Journal of World Education</i>	Cooperative	Improving junior high school students' underhand passing skills.
2	Abdurahman et al. (2025)	<i>JOKER</i>	STAD type cooperative	Improve the learning outcomes of overhead passing.
3	Irfan & Dinata (2025)	<i>Didactic</i>	PjBL	Improving the learning outcomes of SMK students' lower passing.
4	Inscription (2024)	<i>Didactic</i>	Play approach	Improve motivation and accuracy of overhead passes.
5	Malinda et al. (2024)	<i>Sprinter</i>	Paired method	Effectively improve the learning outcomes of overhead passing.
6	Sukarno et al. (2024)	<i>JPJA UNJ</i>	Game model	Improve passing and teamwork skills.
7	Rohendi (2022)	<i>Journal of Physical and Outdoor Education</i>	Play approach	Effectively improve the learning outcomes of underhand passing.

These findings are also in line with validation studies of overhead passing and service learning models that emphasize structured, progressive practice tasks (Lahinda et al., 2022; Priono, 2024; Walu et al., 2024).

Discussion

Based on the results of the study, the cooperative learning model emerged as the most dominant and effective approach in improving basic volleyball technical skills, especially underhand and overhand passing skills (Ilhamsyah et al., 2025; Harahap, 2025). This model focuses on cooperation between students in small, heterogeneous groups, so that each student has the opportunity to help each other, discuss, and correct movement errors through direct feedback from peers and teachers (Ari et al., 2021; Yeni, 2023). This approach is in line with the principles of active learning and student-centered education, where students become the main subjects in the learning process, not merely passive recipients of information (Bakhtiar, 2020; Sahabuddin et al., 2020). In the context of sports skills, particularly volleyball, cooperative learning allows for the transfer of knowledge and motor skills between students. Students with better technical abilities can serve as models or peer tutors for their group mates, as seen in various cooperative and reciprocal teaching applications in volleyball (Ari et al., 2021; Abbas & Reflianto, 2019). This makes the learning process more natural and effective, as students learn through observation, discussion, and hands-on practice (Budi & Listiandi, 2021; Dogho et al., 2021). The social interactions that occur during the learning process also play a crucial role in strengthening students' intrinsic motivation to continue practicing and improving their movement techniques (Gumati, 2019; Prasasti, 2024).

Furthermore, the implementation of a cooperative learning model also has a positive impact on increasing students' self-efficacy, or confidence, in performing basic volleyball techniques. Through collaborative activities, students feel more comfortable trying, failing, and correcting mistakes without fear of negative evaluation (Harahap, 2025; Yunitaningrum, 2025). In an inclusive and supportive learning environment, every student has an equal opportunity to develop according to their potential (Sahabuddin et al., 2020; Bakhtiar, 2020). This social factor has been shown to significantly influence the achievement of more stable and lasting motor skills, as reflected in improved mastery percentages across cooperative learning cycles (Yeni, 2023; Undiksha, 2025).

In addition to the cooperative learning model, the Project-Based Learning (PjBL) approach has also been shown to positively contribute to improving physical education learning outcomes. This model encourages students to be more independent and responsible for their learning process and outcomes (Hartanto et al., 2025; Dinata, 2025). Applied to the volleyball context, PjBL allows students to design, implement, and evaluate projects related to volleyball, such as designing game strategies or developing basic technique training plans ("The application of a project-based learning (PjBL) model in volleyball was reported to increase movement coordination and fundamental motor skills" (Aliriad et al., 2025); Rahmi, 2025). This process fosters critical, creative, and reflective thinking skills, as students are required to solve problems that arise during project implementation (Irfan & Dinata, 2025; Harahap, 2026). Thus, PjBL focuses not only on mastering psychomotor aspects, but also cognitive and affective aspects that support holistic learning (Hartanto et al., 2025; Dinata, 2025).

The application of PjBL in volleyball learning also aligns with the demands of the

Independent Curriculum, which emphasizes the importance of developing competencies and character through authentic learning experiences. In project activities, students are encouraged to relate sports skills to real-life situations, such as how team play strategies can be linked to leadership, communication, and cooperation skills in a social context (Rahmi, 2025; Pambudi et al., 2024). Thus, sports learning is no longer viewed solely as a physical activity, but rather as a vehicle for developing soft skills essential for 21st-century life (Hartanto et al., 2025; Yunitaningrum, 2025).

Furthermore, game-based learning has become a significant trend in modern physical education. This approach is based on the assumption that games can increase student interest and engagement due to their fun, competitive, and challenging nature (Gumati, 2019; Amansyah & Hardinoto, 2025). Through this playful approach, students not only practice basic technical skills such as underhand passing and serving, but also learn about teamwork, sportsmanship, and communication within a team (Prasasti, 2024; Pambudi et al., 2024). The use of modified games and mini-volleyball formats is also reported to enhance agility, physical fitness, and down-passing performance (Abbas & Reflianto, 2019; Sebila et al., 2019). Thus, learning activities become more meaningful because students experience learning directly through a realistic game context (Rohendi, 2022; Sukarno et al., 2024).

A playful approach also contributes to students' emotional and character development, particularly in managing stress and maintaining a positive attitude during competition. Through play, students learn to handle winning and losing situations with sportsmanship and understand the importance of teamwork over individual ability (Prasasti, 2024; Gumati, 2019). This aligns with the goals of physical education, which foster honesty, resilience, and discipline (Harahap, 2025; Yunitaningrum, 2025). Physical education teachers play a crucial role in designing games that are not only fun but also contain social learning values, for example through TGFU-based or modified game designs that demand decision making and cooperation (Pambudi et al., 2024; Sebila et al., 2019).

Overall, the study results indicate that a combination of cooperative and play-based approaches provides the most optimal results in developing basic volleyball technical skills. This approach combines collaborative, competitive, and recreational elements within a comprehensive learning framework (Ilhamsyah et al., 2025; Sukarno et al., 2024). Through group work, students learn to communicate and cooperate, while through play, they learn to apply the techniques they have learned in real-life situations (Rohendi, 2022; Aha et al., 2026). Empirical evidence from paired drills, circuit training, and structured practice models also supports the effectiveness of collaborative and game-like training in improving passing, service, and spike techniques (Ardiansyah & Mulyana, 2023; Tapo, 2019; Akhmad & Mesnan, 2019).

These findings support Vygotsky's social learning theory, which emphasizes the importance of social interaction as a key factor in developing students' motor and cognitive skills. In this context, learning through group work and play provides a zone of proximal development, enabling students to learn more effectively with the support of peers and teachers (Ari et al., 2021; Abbas & Reflianto, 2019). The scaffolding process that occurs during social interactions helps students shift from dependence to independence in mastering basic volleyball techniques (Harahap, 2025; Ilhamsyah et al., 2025). Furthermore, the implementation of this innovative learning model also has direct implications for improving the quality of physical education instruction in schools. Teachers need strong pedagogical competencies to select and integrate various approaches according to student characteristics,

infrastructure, and learning objectives (Bakhtiar, 2020; Budi & Listiandi, 2021). In this context, integrating cooperative learning models, PjBL, and play-based approaches can be a solution to overcome student boredom and increase active participation in sports activities (Rohendi, 2022; Gumati, 2019). The availability of validated, feasible models for passing and service such as STAD, NHT, TGFU, and various modified or project-based designs also provides practical guidance for teachers in planning effective lessons (Sahabuddin et al., 2020; Undiksha, 2025; Walu et al., 2024).

Thus, physical education learning oriented towards collaboration, projects, and play activities is not only effective in improving sports technical skills, but also relevant to the 21st-century educational paradigm that emphasizes critical thinking, communication, collaboration, and creativity (4C) skills (Hartanto et al., 2025; Rahmi, 2025). The practical implication of the results of this study is that physical education teachers need to design learning that integrates elements of group work, projects, and games so that students can learn in a fun, meaningful, and sustainable way (Yunitaningrum, 2025; Dinata, 2025).

4. CONCLUSION

This study concludes that the development of volleyball serving and passing technique learning models in the context of physical education in Indonesia shows a positive trend. Various studies have shown that cooperative models, Project-Based Learning (PjBL), and play-based approaches consistently have a significant impact on improving basic skills, motivation, and collaboration among students. Through the implementation of these models, the learning process becomes more active, participatory, and student-centered, thus creating a fun and meaningful learning environment.

Furthermore, the combination of cooperative and playful approaches can foster the values of sportsmanship, cooperation, and responsibility, which are essential components of character education through sports activities. Therefore, physical education teachers are advised to combine several innovative learning approaches to make volleyball learning more interactive, contextual, and aligned with the spirit of the Independent Curriculum, which emphasizes freedom of learning and the holistic development of students' potential.

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