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The Effect of Physical Education Learning Models on Students' Learning Behavior

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Keywords

Learning model, Motivation to learn, Learning behavior

Abstract

The purpose of this research is to prove the influence of learning models on students' learning behaviors. The research method used is quantitative research. The research sample consists of 30 people. Data analysis uses independent sample t-test. The test results prove that the learning model has a significant effect on students' learning behaviors, namely learning motivation and student attitudes. The average score before and after learning is significantly different and has experienced an increase.

Introduction

Traditionally, physical education teaching has focused on technological development, but the application of technology is often neglected. This makes students feel that physical education classes are monotonous, meaning they are less interested in learning, which impacts the quality of their learning. Traditional teaching often emphasizes descriptions and demonstrations of skills, with repetitive exercises to develop proficiency (Majid, 2014). Such teaching methods may not meet students' needs and fully address the concept of physical literacy (Slameto, 2021). Pedagogical thinking emphasizes that the focus of future development should be on the alignment between teaching and competition or community activities (Sardiman, 2017). Therefore, several academics have previously proposed that an extension of physical education classes is sports competition, because through sports competition, students can enjoy the joy of sports, improve their interpersonal communication skills,

experience the potential value of various sports, and develop independence (MD Sari & Nurrochmah, 2021) . (Tsalisafriana, 2024) promotes a sports education model that emphasizes the formation of "lifelong learners." “Core literacy” refers to the knowledge, attitudes, and skills that a person must possess to face future challenges and adapt to life today.

The curriculum structure in the field of fitness consists of two dimensions: the learning performance dimension and the behavioral dimension, the latter a combination of cognition, emotion, and skills (Mulyasa, 2022). The primary focus is to support students in learning how to develop actions, such as creating their own exercise plans and participating in outdoor activities, improving their motor skills and physical fitness, and demonstrating practical behaviors and attitudes, to achieve the goal of developing a lifelong interest in sports (Mustafa & Dwiyogo, 2020). The second focus is on learning content, which is divided into nine themes. Therefore, through the curriculum structure of learning performance and learning content, it is important to pay attention to aspects of student behavior and improve methods to create a positive social environment (Sari, 2021).

Teachers should focus on a student-centered and situational learning perspective, empowering students through team interactions to enhance their thinking and problem-solving skills in game situations (Candra et al., 2023). Because traditional physical education focuses on movement proficiency and repetitive operational skills, there is a substantial gap between the skills and knowledge acquired and actual sports competition. A sports education model can be used to support students in learning how to participate in competition, understanding the meaning of fair competition, and developing lifelong learning skills in real-life competition (Prasetyanto & Suherman, 2022). The focus is on translating movement into concrete actions and, most importantly, fostering positive social interactions. Through a sports education model, students can participate in sports, appreciate sports, and achieve the goal of competing at the national level.

One way to achieve this is by allowing students to take on more than one role, such as scorekeeper, referee, coach, etc. This allows them to achieve team goals in a democratic manner and enhances their development in all aspects and responsibilities (Yoda, 2017a). By taking on various roles in sports competitions, students can learn from a deeper, broader, and more positive sporting experience. Students can learn responsibility, adaptability, better skills, and decision-making, with the fundamental sporting experience gained becoming more complete and richer (Isra, 2025).

A crucial component of the sports education model is providing students with a variety of learning opportunities, allowing them to participate and enjoy the sense of accomplishment and excitement of the game, regardless of their role, under the principle of fair competition. Students are supported to understand the concepts of obedience and respect for others, thus reducing fear of sports for those with low skill levels and increasing their motivation and learning outcomes (Pujasmara et al., 2024). In education, motivation is one of the most important

factors for good outcomes, and students' willingness to participate stems from their level of motivation to learn (Legrain et al., 2021).

The ARCS motivation theory is divided into four elements: Attention, Relevance, Confidence, and Satisfaction (Ghorbel et al., 2025). This is a highly valued teaching strategy that emphasizes that learning strategies should not only consider students' characteristics and needs but also set goals according to students' needs (C. Wang et al., 2022). Appropriate teaching strategies can then be selected to achieve the set goals and can be changed and evaluated at any time to improve the quality of teaching so that students can generate and maintain motivation (Gao et al., 2025). However, in physical education, there are always students with lower or higher learning skills and motivation. Some students may start to hate or avoid physical education classes because they do not feel a sense of achievement. Therefore, the curriculum design of the physical education model needs to consider how to influence students with low levels of learning motivation.

(Montiel-Ruiz et al., 2023) highlighted that the physical education model has an engaging and diverse activity design, which enables students to achieve better outcomes in terms of cognition, emotion, and skills. Research on physical education teaching has found that students lack interest in physical education courses, have low motivation, and relatively low learning outcomes. Therefore, researchers should consider how to improve student learning motivation and learning outcomes and how to translate these into practical actions.

(Ma et al., 2025) found that the teaching characteristics of the sport education model, including formal competition, group relationships, and perceptual learning, were highly engaging for students (more than expected) and that students continued to maintain high levels of motivation after the season was over. Students' motivation to participate in sport and self-regulated learning behavior can be effectively enhanced.

Method

This research method uses a quantitative research type with a pretest posttest design. This design aims to prove the influence of learning models on student learning behavior. Student learning behavior in this study was measured using a scale of learning motivation and learning attitudes (Nurafiati et al., 2021). The learning model used an interactive model. The sample in this study was 30 high school students. Data collection techniques used were questionnaires, observations, interviews. Data analysis techniques used an independent sample t-test (Panuntun, 2020). Data processing in this study used SPSS v.26. The decision-making criteria for hypothesis testing are if the p value <0.05 then the hypothesis is accepted. Conversely, if the p value>0.05 then the hypothesis is rejected (Zheng et al., 2021).

Results and Discussion

Results

Physical Education Learning Motivation Scale to detect differences between students before and after the implementation of the sports education model. The results of the difference test for student learning motivation can be seen as follows:

Table 1. Learning Motivation

Stages	Average	T count	P value
Pretest	59.05	3,674	0.027
Posttest	64.86		

As shown in Table 1, the pre-test mean of the 30 students in this study was 59.05; the post-test mean was 64.86, and the dependent sample t-test was 3.674, $p < 0.05$. This indicates that students participating in the sports education model group had a significant level of learning motivation before and after the test, and the post-test mean was higher than the pre-test mean (Cwik & Singh, 2021). Therefore, after the implementation of the sports education model, learning motivation increased significantly (Arhesa et al., 2019).

The differences in students' attitudes towards learning in the before and after groups can be seen as follows:

Table 2. Differences in student attitudes

Stages	Average	T count	P value
Pretest	55.89	5,674	0.003
Posttest	61.71		

The test results for differences in student attitudes in learning showed a significant difference in attitudes before and after the learning process. These results indicate that the learning model improves students' learning behavior.

Discussion

The results of this study indicate that there are significant differences in learning motivation before and after the implementation of the sports education model. The sports education model adopts a seasonal approach that allows students to learn through competition, thereby increasing their desire to participate. The team-based approach can encourage students to develop decision-making skills and take responsibility for their learning, thereby increasing their learning motivation. Perlman (Yoda, 2017b) emphasized that the sports

education model can significantly increase unmotivated students' interest in physical education and satisfaction in interacting with their peers. The sports education model can increase students' motivation to learn, provide them with a sense of achievement and satisfaction in sports, and cultivate the habit of exercising after school. Therefore, if the teaching methods and design can be used well, and the curriculum can be tailored to students' needs, physical education classes will not be standard but interesting. The role of play in the sports education model is to provide students with learning goals so that they are sufficient to increase learning motivation. Clear goals can increase motivation to learn motor skills (Castelli et al., 2015).

The sports education model group performed significantly better than the traditional physical education group. Traditional physical education teaching methods are limited by the school curriculum, requiring frequent changes in sports, which can lead to learning difficulties for students. However, the sports education model was found to have a positive effect on students' learning motivation, competitive performance, and strategy implementation (Casey & Fernandez-Rio, 2019). The sports education model can enhance students' motivation to participate in sports and can more effectively induce group members' independent learning and teamwork. Therefore, the sports education model is very helpful in improving students' motivation in physical education (Hamsa et al., 2022).

Regarding cognitive learning, according to interview data, before the implementation of the sports education model, most students were unclear about the rules of the game, key actions, and referee signals. Some students did not understand the most basic rules, such as running, double dribbling, and the one-ball count. After the implementation of the sports education model, their understanding of the rules, key actions, and referee signals all improved. Students gradually shifted from passive to active participation (Herlina et al., 2017). The implementation of the sports education model therefore improved students' cognition and allowed them to gradually move from confusion to following the correct learning path. Everyone began discussing the game, learning the moves, helping teammates, and using peer support to encourage everyone to learn and grow together (Luo et al., 2020).

Similarly, after the implementation of traditional physical education instruction, most students experienced significant progress in their understanding of game rules, key actions, referee signals, and other relevant information. When comparing the cognitive learning effects of the sports education model and traditional physical education instruction, both groups showed clear growth in cognition. However, after the implementation of the subject, students in the sports education model group showed clear effects in cognitive knowledge, understanding, analysis, and application; the traditional physical education group only made significant progress in cognitive knowledge and understanding (Rudd et al., 2019).

Regarding behavioral learning, before the implementation of the sports education model, students generally participated passively in, or refused to participate in, physical education classes. The unfocused teaching methods and existing educational policies led to students

developing more negative attitudes and unwillingness to try new things. After the implementation of the sports education model, teamwork and role-playing helped students actively participate in physical education classes. They felt their understanding had improved and were more interested in watching matches, eager to see what tactics were used and what decisions the referees made (Saefullah, 2020).

The results of this study indicate that there are significant differences in affective learning before and after the implementation of the sports education model. The sports education model has an important process in the form of roles that are expected to be followed by students with low skill levels to also be able to participate in sports in different team roles. According to quantitative statistical analysis, there is no significant difference in the effects of traditional physical education before and after on affective learning. The main reason is that traditional physical education methods focus more on skill learning and achieving learning objectives through practice. In other words, students are more passive in learning, with the teacher being the center to explain and demonstrate movements, so students do not learn how to think and apply what they have learned. When comparing the affective learning effects between the sports education model and the traditional physical education model, the sports education model group is significantly better than the traditional group. This is because the sports education model has relatively complete and rich features such as team groups, role divisions, competition seasons, award ceremonies, etc., but traditional physical education focuses more on standardized movement skills training so students do not enjoy the learning process (Sujarwo et al., 2020).

Students' understanding of the teaching materials was quite unclear before the implementation, but after the implementation, they all improved and were able to better understand the rules, tactics, referee signals, and other related information. The sports education model emphasizes team learning, communication and interaction among peers, and establishing a classroom atmosphere, while the teacher shifts from being a leader to a guide. Students also need to begin to think about tactics and problem-solving strategies, and understand their own roles and responsibilities. Therefore, the sports education model significantly helps students improve their cognitive learning. According to qualitative data, the cognitive learning effects of traditional physical education also showed significant improvements (Swadesi & Kanca, 2019). This may be due to the previous physical education method's emphasis on skill design or school curriculum, resulting in the neglect of cognitive knowledge in teaching. In this study, the course time was increased due to experimental needs. In the long-term teaching, teachers and students were also given more practice and teaching time, and a competition mode was added at the end, allowing students to participate in competitions. When comparing the cognitive learning effectiveness of the sports education model and the traditional physical education model, both groups showed clear progress after the implementation compared to before, so there was no significant difference in cognitive learning effects (Bachtiar et al., 2021). The only difference lies in the system; The physical education model has a complete season, while the traditional physical education model

includes each lesson. In terms of behavioral learning effects, students are relatively passive before implementation, and if there are no exams, they will not take the initiative to practice. The physical education model encourages teamwork and peer support, as well as clear roles and responsibilities, which in turn encourages students to want to learn more, increasing the number of after-school sports activities and practical actions for sports planning (Muharram et al., 2023).

The sports education model can help students produce significant behavioral changes. In contrast, there is no clear change in behavioral learning effects from traditional physical education instruction. This teaching method can lead to students lacking thinking skills, application skills, and motivation. Therefore, behavioral changes in students in the sports education model group were significantly better than those in the traditional physical education group (Vorlíček et al., 2024).

After implementing the sports education model, students develop good exercise habits. Most will exercise together after school or during holidays, and learning motivation can be effectively enhanced. Most teachers agree on adopting various teaching strategies, but in the field of education, most teachers still take a teacher-centered approach and adopt didactic methods that emphasize repeated practice. The teaching characteristics of the sports education model, such as team groups, competitive seasons, sports seasons, etc., are more engaging for students and will leave them with a high level of interest after the course ends. The team aspect of the sports education model allows students more space for discussion and thinking. Therefore, it is understandable that the behavioral effects of the sports education model are better than those of traditional physical education teaching (Ma et al., 2025).

The sports education model is more popular among students than traditional physical education instruction, and is also more comprehensive and rich, encouraging students to fall in love with physical education classes (Vorlíček et al., 2024). Most students believe that studying the same project for a long time can make them more proficient in a particular sport, but a small number of students think the time is too long. In the past, physical education teaching made students think physical education classes were boring and meaningless, which resulted in them not wanting to participate in the course. Students found physical education classes more interesting than seasonal classes, with more specific learning objectives, and they were more motivated to work hard. Traditional physical education teaching neglected the aspect of 'seasonal comparison' (Destriani, 2021).

The team-based approach is particularly helpful for students with low motivation or skill levels. Teaching in a team-based format can convey course information more quickly and foster motivation within the group through peer relationships. This allows students with low motivation to participate in training, competitions, tactical discussions, and other activities. The sports education model utilizes the team-based approach to foster teamwork and team spirit, fostering mutual respect, support, and growth (Gao et al., 2025). As the competitive season progresses, students gradually realize the importance of teamwork and no longer focus solely

on winning and competing individually. The arrival of the competitive season excites students, and various skill drills, tactical discussions, tactical drills, and other activities are introduced throughout the season to prepare for the final competition.

Students said that in the past, they often played alone without teamwork, but in the pre-season they found that this was no longer possible. Students gradually discovered that participating in class as a team created a more enjoyable and relaxed atmosphere, boosting motivation and team cohesion (C. Wang et al., 2022). When the sports education model was implemented, some students were still reluctant and unenthusiastic; even the warm-up exercises were quiet and lacked communication. As a result, students were unmotivated to learn and found the class boring. If teamwork could make students realize that they were important, contributing, and working towards the course, it could increase their sense of belonging and cohesion, positively impacting learning (Al-Amien et al., 2021).

The results of this study indicate that there are significant differences in affective learning before and after the implementation of the sports education model. The sports education model has an important process in the form of roles that are expected to be followed by students with low skill levels to also be able to participate in sports in different team roles. According to quantitative statistical analysis, there is no significant difference in the effects of traditional physical education before and after on affective learning. The main reason is that traditional physical education methods focus more on skill learning and achieving learning objectives through practice (Pangesti et al., 2021). In other words, students are more passive in learning, with the teacher being central to explaining and demonstrating movements, so students do not learn how to think and apply what they have learned. When comparing the affective learning effects between the sports education model and the traditional physical education model, the sports education model group significantly performed better than the traditional group. This is because the sports education model has relatively complete and rich features such as team groups, role divisions, competition seasons, award ceremonies, etc., but traditional physical education focuses on standard movement skills training so students do not enjoy learning (Xie, 2021).

Students' cognitive abilities were quite unclear before the implementation, but after the implementation, they all experienced improvements and were able to better understand game rules, tactics, referee signals, and other relevant information. The sports education model emphasizes team learning, communication and interaction among peers, and the creation of a classroom atmosphere, while the teacher shifts from a leader to a guide (Xie, 2021) . Students also need to begin thinking about tactics and problem-solving strategies, and understand their own roles and responsibilities. Therefore, the sports education model helps students improve their cognitive learning. According to qualitative data, the cognitive learning effects of traditional physical education also showed significant improvements. This may be due to the fact that previous physical education methods focused more on skill design or school curriculum, resulting in the neglect of cognitive knowledge in teaching (Ghorbel et al., 2025). In this study, the course time was increased due to experimental needs. In long-term teaching, teachers and

students were also given more practice and teaching time, and a competition mode was added at the end, allowing students to participate in competitions. When comparing the cognitive learning effectiveness of the sports education model and the traditional physical education model, both groups showed obvious progress after implementation compared to before implementation, so there was no particular difference in cognitive learning effects (Xu et al., 2023) . The only difference lies in the system; the sports education model has a complete season while the traditional physical education model holds each lesson (Swadesi & Kanca, 2020).

In terms of behavioral learning effects, students were relatively passive before the implementation, and if there were no exams, they would not take the initiative to practice (Ngandhika et al., 2018). The sports education model encourages teamwork and peer support, and there are clear roles and responsibilities, which in turn encourages students to seek out more information and increase the number of after-school sports and practical actions for sports planning (Wang & Wang, 2024) . The sports education model can help students produce significant behavioral changes. In contrast, there is no obvious change in the behavioral learning effects of traditional physical education teaching (Abidin & Murtadlo, 2020). This teaching mode will cause students to lack thinking skills, application skills, and motivation. Therefore, the behavioral changes of students in the sports education model group were significantly better than those in the traditional physical education group (Montiel-Ruiz et al., 2023).

Conclusion

The learning model a teacher uses will significantly influence student learning behavior, specifically motivation and attitudes toward learning. Interactive learning models can improve student motivation and attitudes toward learning. The results of this study provide information to all teachers that when carrying out learning activities, they are expected to use interactive learning models that can attract students' interest in learning. This research was only conducted on physical education learning, namely sports learning, so it cannot be generalized to all other subject learning

Author Contributor

This article was written by Five individuals, S.N, A.S.H, A.S, B.V, and S.S who have read and approved the published version of this manuscript. MS.N, A.S.H, A.S, B.V, and S.S. designed the study and analyzed the data, while S.N, A.S.H, A.S, B.V, and S.S, performed the laboratory work. S.N, A.S.H, A.S, B.V, and S.S, wrote the manuscript. They drafted the original manuscript, prepared the introduction, results, discussion, methodology, and conclusion. M S.N, A.S.H, A.S, B.V, and S.S also contributed ideas to the research process, data processing, translation into

English, review, and editing. All members of the research team collaborated at every stage until this article was completed

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