International Journal of
Disabilities Sports and Health Sciences
e-ISSN: 2645-9094

RESEARCH ARTICLE

Comparison of Physical Fitness of Students between Sport Education Model and Conventional at Junior High School 3 Lembang

Shela Ginanjar*[1], Samsudin Samsudin[2] and Taufik Rihatno[1]

[1]Universitas Negeri Jakarta, Sports Science Faculty, Department of Physical Education, Health and Recreation, Jakarta / Indonesia
[2]Universitas Negeri Jakarta, Program Study Doctoral of Physical Education, Jakarta / Indonesia
*Corresponding author: shelaginanjar@unj.ac.id

Abstract
The aim of this study was to see the differences in learning outcomes of students who study using the sports education model and compare it with conventional learning in terms of physical fitness.at Junior High School 3 Lembang. This study used experimental design with randomized control group pretest-posttest design. The population of this study was 7 classes with a total of 280 students, which determined using random techniques. Sampling using Random Technique from the 7 classes, so that class 7C and 7D with each class numbering 40 students determined as samples. A Balke Test was employed as the instrument in hope that this test could describe students' fitness. Findings shows that the physical fitness at the experimental group obtains P Values -21.292 with Sig. 0.000 and the control group obtains a P Values -0.678 with Sig. 0.502. This means that there was an increase in physical fitness in the experimental group that learned using the sports education model, while in the control group doesn't. The difference result using independent t Test towards physical fitness obtains P Values 16.619 with Sig. 0.000. The Conclusion is the sports education model in experimental group has better towards physical fitness than in the control group. Thus, it can be recommended completing this study of using the sports education model in terms of such aspects as strength, endurance, agility, speed, and balance for further research and it is expected that teachers be able to apply their creativity when using the sports education model.

Keywords
Sports Education Model, Conventional, Physical Educatin, Physical Fitness

INTRODUCTION

At this time, teachers are required in physical education learning to present creative learning by combining it with learning models that they understand (Ginanjar et al., 2024) to meet the students' needs for development and growth. However, it is found that students of Junior High School 3 Lembang still uses a conventional model, a teacher-centered, when learning physical fitness. This learning has somehow been slowly abandoned (Ginanjar et al., 2023) because it leads to students' passive behaviors which may impact to reduce students' activity in the classroom. If this situation continues, a negative impact on students' physical fitness might seem to appear. It can be seen that students who have low levels of physical fitness usually get tired easily when doing physical activities. If this is allowed by physical education teachers, then students will be lazy to exercise and will give rise to several problems related to low levels of fitness.

Increased risk of obesity due to lack of movement (Chen et al., 2024; Zhou et al., 2024). Increased risk of heart disease, diabetes and hypertension (Moreno-Díaz et al., 2024; Pati et al., 2025). Potential to cause mental problems such as anxiety, depression, stress and other mental disorders (Haapala et al., 2024) because students interact less socially and get less entertainment such

Received: 12 September 2024 ; **Revised** ; 26 January 2025 ; **Accepted:** 14 March 2025; **Published:** 25 April 2025

How to cite this article: Ginanjar, S., Samsudin, S., and Rihatno, T. (2025).Comparison of Physical Fitness of Students between Sport Education Model and Conventional at Junior High School 3 Lembang. *Int J Disabil Sports Health Sci*;8(2):170-181.https://doi.org/10.33438/ijdshs.1549146

as pleasure and joy when students learn physical education (Kumari et al., 2024). Furthermore, another problem comes to rise in physical education learning at Junior High School 3 Lembang regarding fitness material when the teacher asks the male and female students to run for 20 minutes in turns. This approach is clearly ineffective because the students become passive for 20 minutes. Hence, a new breakthrough is needed in physical education learning particularly on fitness material for Junior High School 3 Lembang, which can benefit students' physical fitness development (Xu et al., 2023).

Basically, the problems that occur can be solved by the teacher himself when he has a high level of creativity and is able to solve existing problems. Several things can be done by physical education teachers such as Modifying the equipment used as a means of learning (Adank et al., 2024). Developing learning media that can attract interest and increase student learning motivation (Nanda et al., 2024). Making improvements to the classroom arrangement such as arranging formations when studying or modifying class rules during learning (Astuti et al., 2024). Using a learning model that is appropriate to the material presented to students. The use of this learning model is very crucial because if the teacher is able to master it properly, then creativity and good planning will arise, planned and right on target (Pill et al., 2024). The mastery of physical education teachers on learning models is also seen as being able to support the exploration of appropriate learning styles and systems when they teach in the classroom.

Sports education learning model could be the solution for physical education teachers in order to provide this fitness material. Conceptually, students have equal and balanced learning opportunities in this sports education learning model. Their activities are focused on six main components: seasons, team affiliations, official competitions and training, records, celebrations and peak events (Ginanjar et al., 2019). Physical education teachers Junior High School 3 Lembang also need to align the basic fitness aspects to anachieve. Using model-based learning, it is however important to know that the sports education model needs harmonizing since it is usually applied in games like football, basketball, and volleyball. This sports education model applying harmonized content can therefore motivate students' learning in physical education

Research on sports education models in physical fitness material is still limited in number. The main advantage of sports education model compared to conventional model is characterized by the existence of six main components: seasons, team affiliations, official competitions and training, recordings, celebrations, and peak events (André & Hastie, 2017; Farias et al., 2017; A. Ginanjar et al., 2019). Having an in-depth understanding, physical education teachers would likely to achieve the desired results applying this model (Bessa et al., 2021; Harvey et al., 2020). This model implementation can be adjusted to the needs of physical education teachers, concerning student fitness in this sense (Blagus et al., 2023; Tendinha et al., 2021).

Conceptually, it cannot be denied that in this sports education model, students must play an active role according to agreement with their teammates, for example managers, coaches and scoring. Student activity during learning creates positive motivation and indirectly increases collaboration among students (Alvi & Gillies, 2023). Teachers must also be able to provide good direction during physical education lessons using the sports education model. Apropriate instructions and responsibilities shoul be given to students for choosing the warm-ups, types of exercises and cool-downs that suit them for practice. Obviously, this is very interesting as students will be actively and creatively involved during physical education learning on fitness material. This role is crucial due to the competitive nature of this sports education learning model especially regarding the teacher's knowledge and experience while guiding students to achieve learning goals and outcomes (Kao, 2019; Liao et al., 2023). This really needs to be conveyed by teachers to students so that the need for physical fitness development can be met.

MATERIALS AND METHODS

Participant

This research follows ethical standards and received approval from the Ethics Committee of Universitas Negeri Jakarta No.515 /UN39.14/ PT.01.05/VI/2024 on June 10, 2024. Participants are provided informed consent, with the volunteer form covering research details, risks, benefits, confidentiality, and participant rights. The research is strictly adhered to the ethical principles of the

Declaration of Helsinki, prioritizing participant's rights and well-being in design, procedures, and confidentiality measures. The characteristics of the participants are as follows.

Table 1. Characteristics of the research subjects

Variables	Experimental		Control	
	Male Mean ± SD	Female Mean ± SD	Male Mean ± SD	Female Mean ± SD
Age (years)	13±0.0	13±0.0	13±0.0	13±0.0
Height (cm)	1.45±0.13	1.40±0.14	1.44±0.15	1.41±0.15
Weight (kg)	38.85±3.07	36.55±3.69	40.90±2.85	36.80±3.43
BMI (kg/m^2)	19.07±4.23	19.21±3.86	20.41±4.68	19.00±4.04

Based on Table 1, the author divided the students at Junior High School 3 Lembang into male and female in each group. There were 20 male and female students in each group. For the Age category, the mean was 13, standard deviation 0.00. For the Height category in the male experimental group, the mean was 1.45, standard deviation 0.13 and for women, the mean was 1.40, standard deviation 0.14. Meanwhile, for the male Control group, the mean was 1.44, standard deviation 0.15 and for women, the mean was 1.41, standard deviation 0.15. For the Weight category in the male experimental group, the mean was 38.85, standard deviation 3.07 and for women, the mean was 36.55, standard deviation 3.69. Meanwhile, for the male Control group, the mean was 40.90, standard deviation 2.85 and for women, the mean was 36.80, standard deviation 3.43. For the Body Mass Index category in the male experimental group, the mean was 19.07 (Normal), standard deviation 4.23 and for women the mean was 19.21 (Normal), standard deviation 3.86. Meanwhile, for the male control group, the mean was 20.41 (Normal), standard deviation 4.68 and for women the mean was 19.00 (Normal), standard deviation 4.04.

The age stated in the questionnaire was filled in by the research participants and the author only needs to include it. But, the other components were measured by the author before the research was conducted. Height was measured using a meter and weight was measured using an electric scale. After that, the author calculated the BMI of the research participants manually, so that the research would be balanced.

In addition, students at Junior High School 3 Lembang level have several unique characteristics because they are in a transition period from children to adolescents. During this period, students usually have a high curiosity about things that are new to them and begin to develop their abilities to be able to achieve as high as possible. However, during this period, physical education teachers at school also need to be aware because several problems often arise, such as;

Body Mass Index imbalance (Moreno-Díaz et al., 2024). Being in an unstable period so that mental problems are often found (Yan et al., 2024)such as being depressed, isolated or inferior due to various factors such as appearance and family economic conditions (Zhong et al., 2024). Uncontrolled emotional reactions (Haapala et al., 2024). So that the active role of physical education teachers is needed (Li, 2025) to direct students to activities that are beneficial for the growth and development of students.

Design

In this study using a randomized control group pretest-posttest design (Creswell, 2018), as can be seen in table 2. The population of this study was 7 classes with a total of 280 students, which were determined using random techniques (Creswell, 2018). Sampling using Random Technique from the 7 classes, so that class 7C and 7D with each class numbering 40 students were determined as research samples. To determine the experimental and control group, it was also determined using Random Technique.

Table 2. The Experimental research design (Creswell, 2018)

Class	Pretest	Treatment	Posttest
Eksperiment	O1	X1	O3
Control	O2	X1	O4

A Balke Test was used as the instrument, in the hope that this test can describe students' fitness before and after this research was carried out. A different learning model would be implemented for physical education learning process with this physical fitness material. Class 7C would learn using the sports education model, while class 7D used the conventional model at Junior High School 3 Lembang. The learning lesson described in the table 3.

Table 3. Physical education learning lesson using the sports education and conventional model

The Sports Education Model	Lesson
• Introduction to Physical Fitness • Explanation of Assessment Criteria • Identifying Coach for each Team • Team Selection and Team Name • Explanation of the rules for Student • Pretest Physical Fitness using Balke Test.	**1**
• Students warm up. • Physical fitness training in the team (push-up, sit up, squat jumps, jump rope 10 minutes and running for 10 minutes) • Games related to physical fitness in the team	**2-4**
• Students warm up in groups. • Physical fitness training within the team (push-up, sit up, squat jumps, jump rope 10 minutes and running for 10 minutes) • Regular Season (3 vs 3) team physical fitness competition (Best 3 taken).	**5-7**
• Students warm up in groups. • Preparation of the entire team for the final match. • Competition between teams (push-up, sit up, squat jumps, jump rope 10 minutes and running for 10 minutes)	**8-10**
• Strengthening the concept of sports education model in the context of physical fitness. • Awards and celebration. • Posttest Physical Fitness	**11**
Conventional Model	**Lesson**
• Introduction to Physical Fitness • Pretest Physical Fitness	**1**
• Physical fitness exercises according to the teacher's instructions (push-up, sit up, squat jumps, jump rope for 10 minutes and running for 10 minutes)	**2-4**
• Physical fitness exercises according to the teacher's instructions, for example (push-up, sit up, squat jumps, jump rope for 10 minutes and running for 10 minutes)	**5-7**
• Physical fitness exercises according to the teacher's instructions, for example (push-up, sit up, squat jumps, jump rope for 10 minutes and running for 10 minutes)	**8-10**
• Strengthening the concept of physical fitness. • Posttest Physical Fitness using Balke Test.	**11**

Procedure

First, the author communicated with the physical education teacher team and the Principal of Junior High School 3 Lembang. Second, the author then asked the Dean of the Faculty of Sports Science, Universitas Negeri Jakarta to carry out research, prepare ethical consent and prepare research equipment. The consent must also be notified by parents that the students were involved in the research within the period from 16 June to 31 July 2024. The students involved must obtain consent from their parents as indicated by filling out the procedures of the Jakarta State University Ethics Committee completely. Third, the author determined the population of Junior High School 3 Lembang students and determined the sample using the simple random technique. Fourth, the author prepared the equipment for Balke Test implementation carried out after the briefing at the first meeting. Fifth, the author then carried out the treatment using the sports education model in the experimental group and the conventional model in

the control group. The treatment process was given twice a week. The experimental group was carried out on Tuesday and Thursday while the control group was on Wednesday and Friday. There would be 11 meetings to be carried out with duration of 90 minutes each. This arrangement was designed to keep participants focused on the material provided. Factors that interfere with the results of the physical fitness test could be minimized since there was no contact or communication among fellow treatment participants in each group. Sixth, the author processed and analyzed the data.

Data Collection

The first physical fitness data was obtained from students by conducting an initial test at the first meeting after the briefing. The test used was Balke, by running for 15 minutes. Five students were selected to do the running in each period for having a more accurate calculation of the distance traveled. The running was executed at Sinapeul field with a standard distance for running competitions was. The second physical fitness data was carried out at the 11th meeting after strengthening related to physical fitness in each class. It applied the same implementation as the first test. The author then continued to process the data having received the result of data collection.

Statistical Analysis

In this study the author used microsoft office-excel and IBM SPSS Statistics v.26 to process the data. To answer the hypothesis is done by using the Paired t-test and Independent t-test. As a data prerequisite test, a normality test was carried out using the Kolmogorov-Smirnov test and a homogeneity test using the Lavene test. the results can be seen in tabel 4.

Table 4. The result of normality and homogeneity

Group	**Kolmogorov-Smirnov Test**	**Sig.**
Pretest Experimental	0.086	0.200
Posttest Experimental	0.101	0.200
Pretest Control	0.086	0.124
Posttest Control	0.132	0.076
Group	**Lavene test**	**Sig.**
Experiment X Control	8.667	0.004

Table 4 shows the results of the Kolmogorov-Smirnov test in the experimental group pretest obtained Statistical Value 0.086, Sig. 0.200 and posttest obtained Statistical Value 0.101, Sig. 0.200. While in the control group pretest obtained Statistical Value 0.086, Sig. 0.124 and posttest obtained Statistical Value 0.132, Sig. 0.076. Because the Sig. value is more than 0.05, all data from the experimental and control groups are normally distributed. The results of the Lavene test of the experimental group and control group for the physical fitness variable obtained Statistical Value 8.667, Sig. 0.004. Because the significance value is less than 0.05, the physical fitness variables of the experimental and control groups are homogeneously distributed.

RESULTS

In this section, the results of the research that has been conducted will be explained.

Table 5. The result of balke test at junior high school 3 lembang

Variables	**Experimental**			**Control**		
	Male Mean ± SD	**Female Mean ± SD**	**Total**	**Male Mean ± SD**	**Female Mean ± SD**	**Total**
Result of Pretest	50960	46600	975560	40750	39550	80300
	2548±639.96	2330±402.10	2439±538.96	2038±544.56	1978±36.68	2008±541.19
Conversion of Pretest	793	743	1536	676	662	1338
	40±7.34	37±4.61	38*±6.18	34±6.24	33±6.31	33*±6.21
Result of Posttest	85630	77910	163540	2766.67	40210	81710
	4282±361.83	3896±256.20	4089±366.01	138.33±38.29	134.03±29.60	2043±507.76
Conversion of Posttest	1190	1102	2292	684	670	1354

	60±4.15	55±2.94	57*±4.20	34±6.59	33±5.09	34*±5.82

Table 5 shows that result at Experimental pretest male shows total score 50960, mean 2548 and standard deviation 639.96. For Convertion values shows that total 793, mean 40 and standard deviation 7.34. Meanwhile at Experimental pretest female shows total score 46600, mean 2330 and standard deviation 402.10. For Convertion values shows that total 743, mean 37 and standard deviation 4.61. Experimental pretest Total shows total score 975560, mean 2439 and standard deviation 538.96. For Convertion Total values shows that total 1536, mean 38 and standard deviation 6.18.

The result at Experimental posttest male shows total score 85630, mean 4282 and standard deviation 361.83. For Convertion values shows that total 1190, mean 60 and standard deviation 4.15. Meanwhile at Experimental posttest female shows total score 77910, mean 3896 and standard deviation 256.20. For Convertion values shows that total 1102, mean 55 and standard deviation 2.94. Experimental posttest Total shows total score 163540, mean 4089 and standard deviation 366.01. For Convertion Total values shows that total 2292, mean 57 and standard deviation 4.20.

The result at Control pretest male shows total score 40750, mean 2038 and standard deviation 544.56. For Convertion values shows that total 676, mean 34 and standard deviation 6.24. Meanwhile at Control pretest female shows total score 39550, mean 1978 and standard deviation 36.68. For Convertion values shows that total 662, mean 33 and standard deviation 6.31. Control pretest Total shows total score 80300, mean 2008 and standard deviation 541.19. For Convertion Total values shows that total 1338, mean 33 and standard deviation 6.21.

The result of pretest at Control posttest male shows total score 2766.67, mean 138.33 and standard deviation 38.29. For Convertion values shows that total 684, mean 34 and standard deviation 6.59. Meanwhile at Control posttest female shows total score 40210, mean 134.03 and standard deviation 29.60. For Convertion values shows that total 670, mean 33 and standard deviation 5.09. Control posttest Total shows total score 81710, mean 2043 and standard deviation 507.76. For Convertion Total values shows that total 1354, mean 34 and standard deviation 5.82. For further data processing, the total mean value of the combined male and female from the experimental and control groups is used. To make it easier to describe the results, it can be seen in figure 1.

Figure 1. The Average result of physical fitness using balke test at junior high school 3 lembang

Figure 1 shows the average results of physical fitness using the Balke test at Junior High School 3 Lembang. It can be seen that the pretest experimental group obtained an average score of 38 and a posttest of 57. While the pretest control group obtained an average score of 33 and a posttest of 34.

Table 5 shows the results of the paired physical fitness test. In the experimental group, obtained P Values -21.292, Sig. 0.000 and the control group obtained P Values -0.678, Sig. 0.502. This means that there was an increase in physical fitness in the experimental group who learned using the sports education model while in the control group there was no increase in physical fitness. The results of the independent t-test of physical fitness obtained P Values 16.619, Sig. 0.000. This means

that physical education learning using the sports education model in the experimental group has a better effect on physical fitness than in the control group who learned using the conventional model.

Table 5. Paired and independent t test

Paired Test	P Values	Sig.
Experimental	-21.292	0.000
Control	-0.678	0.502
Independent t Test	**P Values**	**Sig.**
Experimental >< Control	16.619	0.000

DISCUSSION

Based on the results, the following will discuss the findings in this research.

There is an Influence of the Sports Education Model toward Physical Fitness Program

Physical education learning using this Sports Education model has several advantages, including that being characterized by 1) Season, 2) Recording, 3) Competition, 4) Affiliation, 5) Peak event and 6) Celebration (Siedentop, 1998). The learning process is fun and challenging for students so that aspects i.e. courage to retry, tenacity, sincerity and persistence would indirectly appear in students. This is a reflection students' positive attitudes formation. Using the Sports Education Model make students become more enthusiastic to get better result during the learning (Gutiérrez et al., 2020), having goal to enhance the achievement of superior physical education learning experiences.

In physical fitness material at Junior High School 3 Lembang, each student is given a responsibility for doing a series of physical activities such as walking, running, jumping, push ups and sit-ups, and other activities that are considerably capable of improving physical fitness by physical education teachers. Even though it only uses a simple game format in physical education learning with comprehensive physical fitness material (Putranto et al., 2023) and students have high levels of independence (Gutiérrez et al., 2020) than the usual conventional models since the learning is very competitive and important for students' physical fitness (Meesters et al., 2019). This make students can learn physical fitness simultanelously to promote students' physical activity (Cupeiro et al., 2020). While learning physical fitness material, students are usually reluctant to be actively involved because they are lazy to move and clean themselves after sweating. Having applied this sports education model, they feel joyful (Quiñonero-Martínez et al., 2023) to learn physical education on physical activity material. The use of sports education model will enable teachers to train students' physical activity abilities (Solihin et al., 2022) through a series of physical activities that generate high enthusiasm. The students feel is the result of physical fitness can increase students' interest in physical education learning itself.

The physical education learning using the sports education model will cause students to be more diligent for a try with high curiosity and to study seriously (Alvi & Gillies, 2023; Gambo & Shakir, 2023). Students are also accustomed to preparing their learning equipment independently, doing exercises that are in accordance with the needs of their group also tidying up their equipment with full responsibility. Every process that has been experienced equips students with important aspects in learning, namely the courage to retry, tenacity, sincerity and persistence, which become the goals of physical education learning are highly expected by physical education teachers (Boroughani et al., 2023; Zimmerman, 2000). This positive attitude of students does not appear suddenly, but is trained and made a habit during learning and is a reflection of a good learning planning from physical education teachers. This attitude is built because the students are motivated to learn more in terms of sports and develop responsibility so that learning in the classroom can be managed more effectively (Choi et al., 2021). Through this sports education model, students are directed to be able to achieve learning objectives optimally, in an easy, fast, and fun way regardless of reducing the pleasure of competing so that they learn with the absence of any psychological burden.

There is no Influence of Conventional Models toward Physical Fitness Program

During physical education learning using this conventional model at Junior High School 3

Lembang, the teacher's role in leading learning is very dominant. In addition, it usually applies a lecture with drilling or repetition stretegies as the method during the learning process. It drives boredom and less interest to the students. This situation can be seen during learning in which teachers play a more active role in preparing equipment and cleaning up the learning equipment used. This is also regarded as an ineffective and inefficient learning concept due to the lack of active involvement of students during physical education learning on physical fitness material because they are not used to being active in order to fulfill their physical fitness. Whereas in several studies, active involvement of students in physical fitness material (A. Ginanjar et al., 2021) is a must. It is very necessary to support the concept of health related to quality of life which is expected to last long in students. Another aspect to consider is the interaction during learning where students practically only interact with the teacher in this conventional model. This occurs because the learning tends to be authoritarian, centered on the physical education teacher so that students are not much involved and do not play an active role in physical activity (Hastie et al., 2017; Wallhead et al., 2021) which makes it very difficult to achieve the goals.

In relation, the condition at Junior High School 3 Lembang had an appropriate strategy is needed to achieve the physical activity the students need for making them inspired to learn independently. In a conventional model, an inherent guidance process is needed. Reinforcements in the form of positive feedback must be done more by teachers to strengthen students (Persico et al., 2023). Conventional models that prioritize the dominant role of teachers accompanied by repetitions in the learning process sometimes make students feel lazy and assume that the learning is not interesting for students. The impact on physical education teachers is that it is very difficult to apply an attitude of independence, creativity and the formation of a strong soul during physical education learning (Lim et al., 2023). Based on this view, the teacher's role that is too dominant does not necessarily make learning outcomes better because of the lack of planning and interaction among students during learning (Ojeda et al., 2019). If this process is allowed to continue, it will be very difficult for students to bring up and train the positive attitudes expected in physical education learning such as problem-solving skills, independence, tenacity, and responsibility. Thus, it still requires an inherent guidance process to make the students able to solve the problems they face.

The Sports Education Model Gives A Better Influence towards Physical Fitness than Conventional Model

Physical education learning on this physical fitness material at Junior High School 3 Lembang considered very suitable and provides a high opportunity for students to likely involved and improve their fitness levels. The physical education learning using this sports education model tends to train students to always be persistent and diligent during the learning process. They will always obey their teacher's orders when being given assignments to be completed on time (Sulz et al., 2024).

This is the initial attitude that occurs during learning which signiries students' active involvement. After they give rise to a high level of awareness, the students might not be objected for they are used to doing every task given by their teacher. Using the sports education learning model, students are given freedom and practice solving problems found in learning (Moreno-Díaz et al., 2024b). This is clearly not found in conventional models of physical education learning. The learning process is monotonous with many repetitions in an authoritarian style during physical fitness material. This happened because monotonous in their learning (Dervić et al., 2018), students who study physical fitness using this conventional model are required to find for themselves some of the learning materials needed without knowing and understanding their needs (Nuñez Enriquez & Oliver, 2021). Learning activities are more determined by the teacher's own thought process, which causes students to only carry out their learning without understanding the meaning contained in physical education learning itself (Murphy et al., 2021). Doing physical activities regularly, students' needs will be met if the learning uses the sports education model. This happens because well-designed and well-directed learning will make it easier for students to carry out every instruction and direction from the physical education teacher (Figueroa-Cavero et al., 2024; Gao & Tasnaina, 2024).

The physical fitness using the sports education model at Junior High School 3 Lembang can increase students' enthusiasm for learning. This condition can motivate them due to interesting

learning. If supported by the existence of tight competition with fellow team members and matches between teams, each student will compete to be the best (Liebendörfer et al., 2023; Park et al., 2023). Another interesting thing is that the more exciting learning that will take place following the match season and the peak event. Indeed, such condition is found to be inversely proportional for students who learn with conventional models. Students appear less enthusiastic to learn well, less than optimal in doing the movements instructed by the teacher and some students still look a little confused and need further explanation (Lan et al., 2020). This is because students are only given instructions being ignorant with the meaning and usefulness of the movement. It is compounded by teachers who are authoritarian and give instructions in a high tone. This makes some students anxious with and afraid of practicing wrong movements. When they learn by repetition in physical fitness material, students may come to frustration unconsciously, as they cannot integrate the concepts given. The teacher unfortunately does not guide students to solve problems either (Boshoff-Knoetze et al., 2023; Muljana et al., 2023).

Concerning student's viewpoints, physical education learning using conventional models, especially in physical fitness material, seems to be monotonous because they all work alone and there is no social interaction and cooperation among fellow students. It impacts a lack of critical thinking skills for problem solving, fear of taking risks and having low responsibility (Albani et al., 2023; Poitras et al., 2023). Physical education teachers to use learning models that can inspire students to be more enthusiastic about sports and physical activities, whether carried out at school through physical education programs or off school through physical activities and other sports activities. Physical education teachers can use the sports education model in this physical fitness material, which is for some students very much avoided. Physical education learning using the sports education model can motivate students to indirectly carry out scientific processes and be actively involved in intensive social interaction processes despite having some for reinforcement from the teacher (Al Mamun & Lawrie, 2023; Zheng et al., 2023). Physical education teachers can present growth enthusiastic to learn, explore, find the core of the problem and find solutions to problems. Using the sports education model, students are given the opportunity to gain knowledge through the process of observation and investigation, as well as the implementation of the knowledge that has been obtained in order to find solutions or answers independently (Rueda et al., 2023; Yang et al., 2023). When this process has emerged, the teacher must be aware and able to direct students and maintain student motivation while learning physical education (Heikkinen et al., 2023; Wu et al., 2023). Through this interesting physical education learning, it is hoped that it can develop students' abilities and be beneficial for their future, especially to improve their quality of life.

Conclusion

The sports education model at Junior High School 3 Lembang has been proven to have a better influence on student fitness levels. Meanwhile, physical education learning using conventional models does not have a significant influence on student fitness. So, it is recommended that teachers be able to master it, because students can obtain good physical fitness. To implement this, it requires a support from adequate infrastructure as well as full the schools and related parties in particular for physical education using this sports education learning model. Thus, it can for further research be recommended completing this study in using the sports education model related to other aspects such as strength, endurance, agility, speed, and balance. Also, the physical education teachers are expected to be able to apply their creativity when using the sports education model.

ACKNOWLEDMENT

The authors would like to thanks to all, especially to Universitas Negeri Jakarta, LPPM UNJ and the Faculty of Sports Science, Universitas Negeri Jakarta for supporting this publication.

Ethics Statement

The study protocol was approved by the Ethics Committee of the Universitas Negeri Jakarta No.515/UN39.14/PT.01.05/VI/2024 and dated on June 10, 2024.

Conflict Of Interest

The author declares that there is no conflict.

Author Contribution

Conception and design of the study, SG, S, TR; Data Collection, SG, TR; Data analysis and interpretation, SG, S, TR; Drafting the article and/or its critical revision, SG, S; Final approval of the version to be published, SG, S, TR. All authors have

read and agreed to the published version of the manuscript.

REFERENCES

Adank, A. M., Van Kann, D. H. H., Borghouts, L. B., Kremers, S. P. J., & Vos, S. B. (**2024**). That's what I like! Fostering enjoyment in primary physical education. *European Physical Education Review*, *30*(2), 283–301. [CrossRef]

Al Mamun, M. A., & Lawrie, G. (**2023**). Student-content interactions: Exploring behavioural engagement with self-regulated inquiry-based online learning modules. *Smart Learning Environments*, *10*(1). [CrossRef]

Albani, A., Ambrosini, F., Mancini, G., Passini, S., & Biolcati, R. (**2023**). Trait Emotional Intelligence and Self-regulated Learning in University Students during the COVID-19 pandemic: the mediation role of Intolerance of Uncertainty and COVID-19 Perceived Stress. *Personality and Individual Differences*, *203*. [CrossRef]

Alvi, E., & Gillies, R. M. (**2023**). Self-regulated learning (SRL) perspectives and strategies of Australian primary school students: a qualitative exploration at different year levels. *Educational Review*, *75*(4), 680–702. [CrossRef]

André, M. H., & Hastie, P. (**2017**). Sport educatıon ın a hıgher educatıon physıcal actıvıty course. *European Journal of Physical Education and Sport Science*, *3*(6), 22–35. [CrossRef]

Astuti, Y., Erianti, Amsari, D., & Sari, D. N. (**2024**). The Effect of Sports Modifications and Mini Games to improve students' physical fitness in the Adaptive Physical Education Course El efecto de las modificaciones deportivas y los minijuegos para mejorar la condición física de los estudiantes del curso de Educación Física Adaptativa. *Retos*, *51*, 519–525. [CrossRef]

Bessa, C., Hastie, P., Rosado, A., & Mesquita, I. (**2021**). Sport education and traditional teaching: Influence on students' empowerment and self-confidence in high school physical education classes. *Sustainability*, *13*(2), 1–14. [CrossRef]

Blagus, R., Jurak, G., Starc, G., Leskošek, B., & Leskošek, L. (**2023**). Centile Reference Curves of the SLOfit Physical Fitness Tests for School-Aged Children and Adolescents. *Journal of Strength and Conditioning Research*, *37*(2), 328–336. [Pubmed] [CrossRef]

Boroughani, T., Xodabande, I., & Karimpour, S. (**2023**). Self-regulated learning with mobile devices for university students: exploring the impacts on academic vocabulary development. *Discover Education*, *2*(1). [CrossRef]

Boshoff-Knoetze, A., Duminy, L., & Du Toit, Y. (**2023**). Examining the effect of self-regulation failure on academic achievement in emergency remote teaching and learning versus face-to-face. *Journal of Applied Research in Higher Education*, *15*(2), 342–354. [CrossRef]

Chen, J., Bai, Y., & Ni, W. (**2024**). Reasons and promotion strategies of physical activity constraints in obese/overweight children and adolescents. In *Sports Medicine and Health Science* (Vol. 6, Issue 1, pp. 25–36). [Pubmed] [CrossRef]

Choi, S. M., Sum, K. W. R., Leung, F. L. E., Wallhead, T., Morgan, K., Milton, D., Ha, S. C. A., & Sit, H. P. C. (**2021**). Effect of sport education on students' perceived physical literacy, motivation, and physical activity levels in university required physical education: a cluster-randomized trial. *Higher Education*, *81*(6), 1137–1155. [CrossRef]

Creswell, W. J. (**2018**). *Research Design Qualitative, Quantitative, and Mixed Methods Approaches* (4th ed., Vol. 4). SAGE Publication, Inc.

Cupeiro, R., Rojo-Tirado, M. A., Cadenas-Sanchez, C., Artero, E. G., Peinado, A. B., Labayen, I., Dorado, C., Arias-Palencia, N. M., Moliner-Urdiales, D., Vidal-Conti, J., Conde-Caveda, J., Mora-Gonzalez, J., Vicente-Rodríguez, G., & Benito, P. J. (**2020**). The relative age effect on physical fitness in preschool children. *Journal of Sports Sciences*, *38*(13), 1506–1515. [CrossRef]

Dervić, D., Glamočić, D. S., Gazibegović-Busuladžić, A., & Mešić, V. (**2018**). Teachıng physıcs wıth sımulatıons: teacher-centered versus student-centered approaches. *Journal of Baltic Science Eduation*, *17*(2), 288–299. [CrossRef]

Farias, C., Hastie, P. A., & Mesquita, I. (**2017**). Towards a more equitable and inclusive learning environment in Sport Education: results of an action research-based intervention. *Sport, Education and Society*, *22*(4), 460–476. [CrossRef]

Figueroa-Cavero, F., Hernández-Valencia, S. E., & Pegueros-Pérez, A. (**2024**). Intervention with A Multi-Component Exercise Program in Managing Fatigue Perception in Individuals Who Experienced COVID-19: A Quasi-Experimental Study. International Journal of Active & Healthy Aging, 2(2), 76–85. [CrossRef]

Gambo, Y., & Shakir, M. Z. (**2023**). Evaluating students' experiences in self-regulated smart learning environment. *Education and Information Technologies*, *28*(1), 547–580. [Pubmed] [CrossRef]

Gao, Y., & Tasnaina, N. (**2024**). The Development of a Management Model on An Integration of Physical Education, Health Education, and Medical Practice for Sustainable Students' Health Development. *International Journal of Sociologies and Anthropologies Science Reviews*, *4*(1), 305–322. [CrossRef]

Ginanjar, A., Mubarok, M. Z., & Mudzakir, D. O. (**2021**). College students' motivation after teaching using sport education season. *International Journal of Human Movement and Sports Sciences*, *9*(4), 1–7. [CrossRef]

Ginanjar, A., Suherman, A., Juliantine, T., & Hidayat, Y. (**2019**). Sports orientation during learning team or individual sports using a sport education model. *Cakrawala Pendidikan*, *38*(2), 377–386. [CrossRef]

Ginanjar, S., Rihatno, T., & Widyawan, D. (**2023**). The sport educatıon models on physıcal actıvıty of jumpıng rope performance ın elementary school. *JUARA : Jurnal Olahraga*, *8*(3), 521–530. [CrossRef]

Ginanjar, S., Samsudin, Resmana, D., & Anugrah, S. M. (**2024**). Comparing project-based learning with conventional models: Enhancing students' enjoyment of physical education. *Edu Sportivo Indonesian Journal of Physical Education*, *5*(1), 64–81. [CrossRef]

Gutiérrez, D., Segovia, Y., García-López, L. M., & Sánchez-Mora, D. (**2020**). Evaluation of a program to expand use of sport education model: Teachers' perception and experience. *Journal of Human Sport and Exercise*, *15*(Proc2), 348–354. [CrossRef]

Haapala, E. A., Leppänen, M. H., Skog, H., Lubans, D. R., Viitasalo, A., Lintu, N., Jalanko, P., Määttä, S., & Lakka, T. A. (**2024**). Childhood Physical Fitness as a Predictor of Cognition and Mental Health in Adolescence: The PANIC Study. *Sports Medicine*. [CrossRef]

Harvey, S., Pill, S., Hastie, P., & Wallhead, T. (**2020**). Physical education teachers' perceptions of the successes, constraints, and possibilities associated with implementing the sport education model. *Physical Education and Sport Pedagogy*, *25*(5), 555–566. [CrossRef]

Hastie, P. A., Ward, J. K., & Brock, S. J. (**2017**). Effect of graded competition on student opportunities for participation and success rates during a season of Sport Education. *Physical Education and Sport Pedagogy*, *22*(3), 316–327. [CrossRef]

Heikkinen, S., Saqr, M., Malmberg, J., & Tedre, M. (**2023**). Supporting self-regulated learning with learning analytics interventions – a systematic literature review. *Education and Information Technologies*, *28*(3), 3059–3088. [CrossRef]

Kao, C. C. (**2019**). Development of team cohesion and sustained collaboration skills with the sport education model. *Sustainability (Switzerland)*, *11*(8). [CrossRef]

Kumari, R., Nath, B., Singh, Y., & Mallick, R. (**2024**). Health-related physical fitness, physical activity and its correlates among school going adolescents in hilly state in north India: a cross sectional survey. *BMC Public Health*, *24*(1). [Pubmed] [CrossRef]

Lan, P. S., Liu, M. C., & Baranwal, D. (**2020**). Applying contracts and online communities to promote student self-regulation in English learning at the primary-school level. *Interactive Learning Environments*, 1–12. [CrossRef]

Li, X. Y. (**2025**). The relationship between quality of sports friendships and mental health in Chinese junior high school students: the bidirectional chain mediating effects of sport motivation and exercise adherence. *BMC Public Health*, *6;25(1), 52.* [Pubmed] [CrossRef]

Liao, C. C., Hsu, C. H., Kuo, K. P., Luo, Y. J., & Kao, C. C. (**2023**). Ability of the Sport Education Model to Promote Healthy Lifestyles in University Students: A Randomized Controlled Trial. *International Journal of Environmental Research and Public Health*, *20*(3). [CrossRef]

Liebendörfer, M., Kempen, L., & Schukajlow, S. (**2023**). First-year university students' self-regulated learning during the COVID-19 pandemic: a qualitative longitudinal study. *ZDM - Mathematics Education*, *55*(1), 119–131. [Pubmed] [CrossRef]

Lim, L., Bannert, M., van der Graaf, J., Singh, S., Fan, Y., Surendrannair, S., Rakovic, M., Molenaar, I., Moore, J., & Gašević, D. (**2023**). Effects of real-time analytics-based personalized scaffolds on students' self-regulated learning. *Computers in Human Behavior*, *139*. [CrossRef]

Meesters, J., Conijn, D., Vermeulen, H. M., & Vliet Vlieland, T. P. M. (**2019**). Physical activity during hospitalization: Activities and preferences of adults versus older adults. *Physiotherapy Theory and Practice*, *35*(10), 975–985. [Pubmed] [CrossRef]

Moreno-Díaz, M. I., Vaquero-Solís, M., Tapia-Serrano, M. Á., & Sánchez-Miguel, P. A. (**2024**). Physical Activity, Body Composition, Physical Fitness, and Body Dissatisfaction in Physical Education of Extremadura Adolescents: An Exploratory Study. *Children*, *11*(1), 83. [Pubmed] [CrossRef]

Muljana, P. S., Dabas, C. S., & Luo, T. (**2023**). Examining the relationships among self-regulated learning, homework timeliness, and course achievement: a context of female students learning quantitative topics. *Journal of Research on Technology in Education*, *55*(2), 143–162. [CrossRef]

Murphy, L., Eduljee, N. B., & Croteau, K. (**2021**). Teacher-Centered versus Student-Centered Teaching. *Journal of Effective Teaching in Higher Education*, *4*(1), 18–39. [CrossRef]

Nanda, F. A., Hartati, H., & Syamsuramel, S. (**2024**). Development of Web-Based Media for Sports Physical Tests. *Proceedings of the International Seminar of Sportand Exercise Science (ISSES 2024)*, 4–13. [CrossRef]

Nuñez Enriquez, O., & Oliver, K. L. (**2021**). 'The collision of two worlds': when a teacher-centered facilitator meets a student-centered pedagogy. *Sport, Education and Society*, *26*(5), 459–470. [CrossRef]

Ojeda, D. M. D. , Puente-Maxera, F. , Méndez-Giménez, A. , & Mahedero-Navarrete, P. M. (**2019**). Initial experience with the Sport Education model in primary school first-grade. Students and teachers' perceptions. *Federación Española de Asociaciones de Docentes de Educación Física (FEADEF)*, *36*(2), 203–210. [CrossRef]

Park, E., Ifenthaler, D., & Clariana, R. B. (**2023**). Adaptive or adapted to: Sequence and reflexive thematic analysis to understand learners' self-regulated learning in an adaptive learning analytics dashboard. *British Journal of Educational Technology*, *54*(1), 98–125. [CrossRef]

Pati, S., Menon, J., Rehman, T., Agrawal, R., Kshatri, J., Palo, S. K., Janakiram, C., Mitra, S., Sreedevi, A., & Anand, T. (**2025**). Developing and assessing the "MultiLife" intervention: a mobile health-based lifestyle toolkit for cardiometabolic multimorbidity in diabetes and hypertension management – a type 1 hybrid effectiveness-implementation trial protocol. *BMC Public Health*, *25*(1). [CrossRef]

Persico, D., Passarelli, M., Manganello, F., Gewerc Barujel, A., & Rodríguez Groba, A. (**2023**). The participatory dimension of teachers' self-regulated professional learning about learning design: beliefs versus behaviours. *Professional Development in Education*, *49*(2), 340–352. [CrossRef]

Pill, S., SueSee, B., & Davies, M. (**2024**). The Spectrum of Teaching Styles and models-based practice for physical education. *European Physical Education*
regulated learning in network-based tutors. *Interactive Learning Environments*, *31*(4), 2490–2511. [CrossRef]

Putranto, J. S., Heriyanto, J., Kenny, Achmad, S., & Kurniawan, A. (**2023**). Implementation of virtual reality technology for sports education and training: Systematic literature review. *Procedia Computer Science*, *216*, 293–300. [CrossRef]

Quiñonero-Martínez, A. L., Cifo-Izquierdo, M. I., Sánchez-Alcaraz Martínez, B. J., & Gómez-Mármol, A. (**2023**). Effect of the hybridization of social and personal responsibility model and sport education model on physical fitness status and physical activity practice. *Frontiers in Psychology*, *14*. [CrossRef]

Rueda, M. R., Moyano, S., & Rico-Picó, J. (**2023**). Attention: The grounds of self-regulated cognition. *Wiley Interdisciplinary Reviews: Cognitive Science*, *14*(1). [CrossRef]

Siedentop, D. (**1998**). What is Sport Education and How Does it Work? *Journal of Physical Education, Recreation & Dance*, *69*(4), 18–20. [CrossRef]

Solihin, A. O., Ginanjar, A., & Budiman, A. (**2022**). The Involvement of Preservice Teachers in Delivering of Sport Education. *Kinestetik : Jurnal Ilmiah Pendidikan Jasmani*, *6*(1), 60–69. [CrossRef]

Sulz, L., Robinson, D. B., Morrison, H., Read, J., Johnson, A., Johnston, L., & Frail, K. (**2024**). A scoping review of K–12 health education in Canada: understanding school stakeholders' perceptions. *Curriculum Studies in Health and Physical Education*. [CrossRef]

Tendinha, R., Alves, M. D., Freitas, T., Appleton, G., Gonçalves, L., Ihle, A., Gouveia, É. R., & Marques, A. (**2021**). Impact of sports education model in physical education on students' motivation: A systematic review. *Children*, *8*(7). [Pubmed] [CrossRef]

Wallhead, T. L., Hastie, P. A., Harvey, S., & Pill, S. (**2021**). Academics' perspectives on the future of sport education. *Physical Education and Sport Pedagogy*, *26*(5), 533–548. [CrossRef]

Wu, W. L., Hsu, Y., Yang, Q. F., Chen, J. J., & Jong, M. S. Y. (**2023**). Effects of the self-regulated strategy within the context of spherical video-based virtual reality on students' learning performances in an art history class. *Interactive Learning Environments*, *31*(4), 2244–2267. [CrossRef]

Xu, Z., Zhao, Y., Liew, J., Zhou, X., & Kogut, A. (**2023**). Synthesizing research evidence on self-regulated learning and academic achievement in online and blended learning environments: A scoping review. In *Educational Research Review* (Vol. 39). Elsevier Ltd. [CrossRef]

Yan, H.-M., Huang, P., Chen, R., & Wang, Y.-C. (**2024**). The relationship between physical activity and mental health of middle school students: the chain mediating role of negative emotions and self-efficacy. *Frontiers in Psychology*, *15*. [CrossRef]

Review, *30*(1), 142–155. [CrossRef]

Poitras, E. G., Doleck, T., Huang, L., Dias, L., & Lajoie, S. P. (**2023**). Time-driven modeling of student self-

Yang, Y., Wen, Y., & Song, Y. (**2023**). A Systematic Review of Technology-Enhanced Self-Regulated Language Learning. *Technology & Society*, *26*(1), 31–44. [CrossRef]

Zheng, J., Xing, W., Huang, X., Li, S., Chen, G., & Xie, C. (**2023**). The role of self-regulated learning on science and design knowledge gains in engineering projects. *Interactive Learning Environments*, *31*(1), 87–99. [CrossRef]

Zhong, B., Sun, H. C., Wang, G., Junwen, S., Tang, S., Gao, Y., Chen, H., Lu, T. C., & Yan, J. (**2024**). Physical activity on the mental health of children and adolescents during COVID-19 pandemic-induced school closures-A systematic review. *PLoS ONE*, *19*(6 June). [CrossRef]

Zhou, X., Li, J., & Jiang, X. (**2024**). Effects of different types of exercise intensity on improving health-related physical fitness in children and adolescents: a systematic review. *Scientific Reports*, *14*(1). [CrossRef]

Zimmerman, B. P. (**2000**). Attaıning self-regulatıon a socıal cognıtıve. In *Handbook of Self-Regulation* (pp. 13–38).