



The Influence of Learning Models on Students' Floor Exercise Learning Outcomes and Body Fitness

Ni Putu Diah Yeni Rahayu ^{*1}, I Gusti Lanang Agung Parwata ², I Ketut Iwan Swadesi³

^{1,2,3} Sport Education Study Programs, Sports Education Master's Program, Universitas Pendidikan Ganesha, Bali, Indonesia

Article Info

Article History :

Received : January 2024

Revised : March 2024

Accepted : March 2024

Keywords:

Body Flexibility ,
Gymnastics,
Problem Based Learning,

Abstract

Physical Education, Sports and Health are important components of overall education. The goal is to develop various aspects of the individual, including physical fitness, motor skills, critical thinking skills, social skills, argumentative skills, emotional stability, moral integrity, healthy lifestyles, and awareness of the importance of a clean environment. Learning gymnastics is one of the physical education materials for sports and health that experiences many obstacles. Not yet optimal and very limited facilities and infrastructure are the causes of less effective physical education learning, especially floor exercise. Gymnastics is one of the PJOK materials that must be provided in schools, especially elementary schools. Currently, many types of exercise have emerged, such as morning exercise, physical fitness exercise, and other educational exercises, each exercise has its own movement characteristics. Learning gymnastics for elementary school children is a tool to achieve comprehensive development which includes mental, physical, social and emotional. Gymnastics learning, especially artistic gymnastics, is the material in PJOK learning that faces the most obstacles, including facilities and infrastructure for learning purposes which are expensive, the risk of injury is quite high, and is considered scary for the majority of students, therefore as a teacher you must try to make learning The gymnastics is packaged in an interesting way so that students will like it and so that students are no longer afraid of taking part in gymnastics lessons.



*Corresponding email :
diah.yeni@student.undiksha.ac

INTRODUCTION

The role of Physical Education, Sports and Health (PJOK) in producing superior human resources is very important in the education curriculum in Indonesia. The curriculum in this country always experiences dynamic changes according to the times. The results of the study show that in the PJOK subject, the curriculum content is not only limited to developing movement skills and physical health, but also emphasizes the development of critical, creative thinking skills and the ability to collaborate. Teachers have an important role and moral responsibility to develop so they are able to implement and follow developments in educational technology (Swadesi & Kanca, 2022)

Learning gymnastics is one of the physical education materials for sports and health that experiences many obstacles. Not yet optimal and very limited facilities and infrastructure are the causes of less effective physical education learning, especially floor exercise. Gymnastics is one of the PJOK materials that must be provided in schools, especially elementary schools. Currently, many types of exercise have emerged, such as morning exercise, physical fitness exercise, and other educational exercises, each exercise has its own movement characteristics. Learning gymnastics for elementary school children is a tool to achieve comprehensive development which includes mental, physical, social and emotional. Gymnastics learning, especially artistic gymnastics, is the material in PJOK learning that faces the most obstacles, including facilities and infrastructure for learning purposes which are expensive, the risk of injury is quite high, and is considered scary for the majority of students, therefore as a teacher you must try to make learning The gymnastics is packaged in an interesting way so that

students will like it and so that students are no longer afraid of taking part in gymnastics lessons. Another learning model is problem-based learning (Problem-Based Learning, PBL). The problem-based learning model (Problem-Based Learning, PBL) is a way of learning by exposing students to a problem/problem to be solved or resolved conceptually as an open problem in learning (Hotimah, 2020). Problem-Based Learning (PBL) is a learning method that is triggered by problems, which encourages students to learn and work cooperatively in groups to obtain solutions, think critically and analyze, and be able to determine and use appropriate learning resources (Hotimah, 2020). Use of a problem-based learning model (Problem-Based Learning, PBL). Research conducted by Parwata showed significant results on learning outcomes (Parwata, 2021). In increasing self-development, teachers must also be able to utilize various teaching methods, one of which is the problem-based learning model (Problem-Based Learning, PBL) (Sugihartono, 2019). The factors that influence floor exercise learning outcomes are diagnostic tests regarding body flexibility in students. (Sugarwanto, 2020) States that the influence of body flexibility in developing achievement is also very significant in developing Body flexibility is the body's ability to move joints and muscles with an optimal range of motion. The benefits of body flexibility for humans are very important and cover various aspects of health and well-being. Body flexibility is also very important for children and has many special benefits that support their growth and development. In maintaining flexibility in students, it is important to ensure that the exercises are appropriate to their age and development. Activities that involve body movements such as playing, running, jumping, and naturally stretching muscles can help students maintain good flexibility.

METHODS

This research is a quasi-experimental research with a 2x2 level treatment plan. The population of this study was all 88 grade IV students at SD 2 Penatih. The total sample in this study was 48 students selected using the ordinal pairing technique. The data collected in this research is in the form of floor exercise learning results. Data on floor exercise learning outcomes were collected through floor exercise learning outcomes tests. Before testing the hypothesis, the research data must meet the analysis requirements which include the normality of data distribution test, the homogeneity of variance test, the normality of data distribution test using Kolmogorov-Smirnov and Shapiro-Wilk statistics, while the homogeneity of variance test uses Levene statistics. Next, the data were analyzed descriptively and using two-way ANOVA and tested further using LSD to test the comparison of pairs of average values for each treatment group. All hypothesis testing was carried out at a significance level of 0.05 and with the help of the SPSS 22.0 for Windows program

Participants

The research sample was Class IV, totaling 88 students. This sampling system uses a total sample, namely a sampling technique where the number of samples is the same as the population (Sugiyono, 2017). The total population is less than 100. The entire population is used as the research sample. The research was conducted at SD Negeri 2 Penatih, Nagasari No 3, Penatih Daging Puri Village, East Denpasar District, Denpasar City, Bali. The research period will be carried out from October 21 2023 until completion.

Table 1. Sample Table

No	Class	Total
1	IV.A	44
2	IV.B	44
Total Amount		88

The research sample consisted of two classes, namely classes IV.A and IV.B as research samples and then given the V-sit and reach body flexibility test, then the test results were sorted according to their ranking, 27% from the top for high flexibility and 27% from below for low flexibility. The ordinal pairing process involves selecting research samples or grouping samples based on the results of initial body flexibility tests.

Materials and Apparatus

The data collection technique was used to describe the results of students' body flexibility results through the V-sit n reach test for the phase B age category, namely third and fourth grade elementary school levels. This test is an adaptation of the V-sit and reach test used in the Presidential Physical Fitness Test (TKJI, 2023). Flexibility measurements were carried out using the sit-to-toe test (Wiriawan, 2017). This test aims to determine the flexibility of the student's torso using a measuring instrument. The test is carried out by pushing both hands forward from a straight sitting position. The validity value of the V-Sit and Reach instrument is 0.379 (valid), validity decisions are based on the recount > rtable value with = 0.05. The reliability value is 0.701 (medium reliability). This assessment is used to assess achievement in floor exercise skills. Data is collected by giving performance tests to students.

Design or Data Analysis

Researchers applied the ANOVA (Analysis of Variance) test with two treatment lines with a 2x2 level. Data sorting will be carried out at two levels, namely high body flexibility and low body

flexibility. Before carrying out data analysis, there are several conditions that must be met, namely testing data normality and data homogeneity.

Procedures

Floor Exercise Learning Results between Students Who Learned with the PBL Model and the STAD Type Cooperative Learning Model.

The results of the study showed that there were differences in floor exercise learning outcomes between students who studied with the PBL learning model and students who studied with the STAD type cooperative learning model ($F = 5.051$; $p < 0.05$; $|\mu_{PBL} - \mu_{STAD}| = |\mu_i - \mu_j| > LSD$). Based on the results of descriptive statistical analysis, the average value of learning outcomes for the group of students who studied using the PBL learning model was 23.04 with a standard deviation of 6.125. Meanwhile, the group of students who studied using the STAD type cooperative learning model had an average score of 20.67 with a standard deviation of 5.036. It can be said that the PBL learning model is better than the STAD type cooperative learning model in achieving students' floor exercise learning outcomes.

The results of research on the influence of learning models on students' floor exercise learning outcomes are in line with the results found by Asriningsih., Sujana., and Darmawati (2021) in research who found that the PBL learning model can improve students' floor exercise learning outcomes. and has an impact on creating a pleasant learning atmosphere, so that it can increase interest in learning and influence learning outcomes. Muallimin., Kresnapati., and Ratimiasih (2022) found that there was an increase in the percentage between the pretest and posttest scores for the front roll on the first day, namely 69%, while the percentage increase between the pretest and posttest scores for the back roll

on the first day was 44%. Meanwhile, on the second day the percentage increase between the pretest and posttest scores for the front roll was 64% and the percentage increase between the pretest and posttest scores for the back roll was 45%. Wahyudi and Yuli Hartati (2015) found that there was a significant influence of the application of the problem-based learning model on the learning outcomes of bent-leg front rolls in physical education, sports and health learning in class IV students at SDN Sidomlangan, Kedungpring, Lamongan after being given a learning-based model. Orhan Akınoğlu and Ruhan Özkardeş Tandoğan (2007) show that the implementation of problem based learning has a positive influence on students' academic achievement and attitudes. Asriningsih., Sujana., Darmawati. 2021 shows that the PBL learning model can improve student learning outcomes. The implications of this research have an impact on creating a pleasant learning atmosphere, so that it can increase interest in learning and influence learning outcomes. Yunianti., Jaeng., Mustamin (2016) found that there were differences in the mathematics learning outcomes of students who studied with the PBL model and students who studied with the STAD type cooperative model. So in this case it can be concluded that the PBL model and the STAD type cooperative model have a significant effect on students' mathematics learning outcomes.

Although this research is consistent with the results of previous research, that the PBL learning model is superior to the STAD type cooperative learning model, there are questions that require further discussion regarding the achievement of learning outcomes. That is operationally empirical, why in achieving learning outcomes, the PBL learning model is better than the STAD type cooperative learning model. To provide an answer or discussion of this question, in

the PBL learning model, students are fully involved in the teaching and learning process in class, the teacher acts as a facilitator who directs and provides guidance to students on how to think and act correctly according to the real life context experienced by the participants. educate. Through learning by exposing students to contextual problems, students are challenged to submit ideas/opinions. So that various ideas/opinions emerge and students give each other reasons for the ideas/opinions proposed. This is in line with the opinion of Sanjaya (2011) who stated that the PBL model is a learning model with a constructivist approach with the main principle being that knowledge is not received passively, but is built actively by students. The application of the PBL model can help students to think in learning situations, learn to work together in groups to find solutions to real problems, link students' curiosity, analytical skills and initiative to the lesson material. Students who are more capable will help their friends who are less able to understand the material being studied, likewise, students who are less capable will not be insecure or reluctant to ask their friends who have more knowledge. The learning atmosphere in the morning is enough to support students to be more enthusiastic and more ready to learn.

In learning activities using the PBL model, there will be optimization of the involvement of physical experiences, social transmission experiences, and self-regulation. Students have the opportunity to think reflectively and carry out a self-learning process through self-directed learning, and students can carry out metacognition process exercises. The role of the teacher is only as a facilitator and moderator who gives responsibility to students to acquire the necessary concepts themselves through interaction with their group members. Learning using the PBL model which begins with presenting the

problem and continues with problem analysis by students in small groups until they discover facts, theories, concepts or principles from the material being studied to solve problems is a good vehicle for sharpening and training students' thinking abilities. This supports the achievement of better learning outcomes.

The application of the STAD type cooperative learning model is actually quite effective in improving student learning outcomes, but there is a tendency for students who have high abilities to work more alone in groups. Lack of communication with their group, while students who have low abilities, are less able to socialize and are reluctant to ask questions, just wait for answers from their group. Competition between students who have more or above average ability is seen trying to get the best score when given a test by the teacher which is carried out individually, while students with low ability are seen to be less active in groups, this is what causes the participants' learning outcomes to be achieved. students who learn with the cooperative learning model are lower than the PBL model.

Design or Data Analysis

This study aims to analyze (1) the differences in floor exercise learning outcomes between students who follow the problem-based learning model and those who follow the STAD type cooperative learning model, (2) the influence of the interaction between the learning model and body flexibility on floor exercise learning outcomes, (3) differences in floor exercise learning outcomes between those who follow the problem-based learning model and those who follow the STAD type cooperative learning model for students who have high body flexibility, as well as (4) differences in floor exercise learning outcomes between those who follow the problem-based learning model and those who follow the model STAD

type cooperative learning for students who have low body flexibility. Based on analysis using two-way ANOVA, the results showed that the interactive influence of the learning model (problem based learning versus the STAD type cooperative model and body flexibility (high and low) had on learning outcomes, with a statistical value of $F = 61.570$ with a significance figure of 0.000 which is smaller than the limit hypothesis rejection 0.05 . The implication of this research is that to improve floor exercise learning outcomes, learning models and body flexibility interact significantly with each other. Based on univariate analysis, the source of the influence of the learning model on floor exercise learning outcomes in high body flexibility was obtained by the statistic $F = 53.895$ with a significance figure of 0.000 . This significance figure is smaller than 0.05 ($p < 0.05$). This means that there are differences in floor exercise learning outcomes between students who follow the PBL learning model and students who follow the STAD type cooperative learning model in students who have high body flexibility.

The results of the univariate analysis show that the source of the influence of the learning model on learning outcomes for low body flexibility is the statistic $F = 14.862$ with a significance figure of 0.001 . This significance figure is smaller than 0.05 ($p > 0.05$). Furthermore, the results of the LSD analysis show that the value $|\mu_i - \mu_j| > LSD$. This means that there are differences in floor exercise learning outcomes between students who follow the problem-based learning model (PBL) and students who follow the Student Teams Achievement Division (STAD) type cooperative learning model with low body flexibility. Based on the results of descriptive and univariate analysis, it is clear that for students with low body flexibility, the STAD type cooperative

learning model is better than the PBL learning model.

RESULT

Learning models (PBL and cooperative STAD type) and body flexibility (high and low) are essential in achieving floor exercise learning outcomes. This proposition can be described into four research conclusions which are answers to the four problems posed in this research. These conclusions are as follows.

1. There are differences in floor exercise learning outcomes between students who follow the problem-based learning model (PBL) and students who follow the Student Teams Achievement Division (STAD) type cooperative learning model. ($F = 5.051, p < 0.05$).
2. There is an interaction effect between the learning model and body flexibility on students' floor exercise learning outcomes. ($F = 61.570, P < 0.05$).
3. There are differences in floor exercise learning outcomes between students who follow the problem-based learning model (Problem-Based Learning, PBL) and students who follow the Student Teams Achievement Division (STAD) type cooperative learning model for students who have high body flexibility. ($F = 53.895 p < 0.05$).
4. There are differences in floor exercise learning outcomes between students who follow the problem-based learning model (Problem-Based Learning, PBL) and students who follow the Student Teams Achievement Division (STAD) type cooperative learning model for students who have low body flexibility. ($F = 14.862; p < 0.05$)

Table. 2 Recapitulation of Calculation Results of Students' Floor Gymnastics Learning Outcomes

Data Statistics	A1	A2	B1	B2	A1B1	A1B2	A2B1	A2B2
Mean	23,0	20,6	22,6	21,0	28,0	18,0	17,3	24,0
Median	22,5	20,5	21,00	21,5	27,0	17,5	18,0	24,0
Std. Deviation	6,12	5,03	6,46	4,75	3,86	3,14	3,22	4,28
Variance	37,5	25,3	41,7	22,6	14,9	9,90	10,4	18,3
Range	22	23	24	21	14	10	10	18
Minimum Score	13	11	11	13	21	13	11	16
Maximum Score	35	34	35	34	35	23	21	34
Amount	553	496	544	505	336	217	208	288

shows that the average gain value for floor exercise learning outcomes for PBL is 23.04 with a standard deviation of 6.125, while the average gain value for floor exercise learning outcomes for STAD is 20.67 with a standard deviation of 5.036. The average gain value for floor exercise learning outcomes for all body flexibility (n = 24) in the PBL group was 23.04 with a standard deviation of 6.125. The body flexibility group (n = 24) in the STAD group had an average gain in floor exercise learning outcomes of 20.67 with a standard deviation of 5.036. These results indicate that descriptively PBL is better as a learning facility for students in improving floor exercise learning outcomes. If we look at the comparison between types of body flexibility (n = 24), it appears that the group of students who have high body flexibility show floor exercise learning results with an average gain value = 22.67 with SD = 6.465 and the group of students who have this type low body flexibility has = 21.04 with SD = 4.759. These results indicate that descriptively the group of students who have high body flexibility show better floor exercise learning outcomes compared to the group of students who have low body flexibility. Furthermore, students who have high body flexibility

who take part in PBL learning have = 28.00 with SD = 3.861. And for students who have high body flexibility who take part in learning with STAD, it has = 17.33 with SD = 3.229. These results indicate that descriptive statistics show that students who have high body flexibility who take part in PBL are better than students who take part in the STAD learning model. Meanwhile, students who have low body flexibility who take part in learning using the PBL model have = 18.08 with SD = 3.147. And for students who have low body flexibility who take part in learning with STAD, it has = 24.00 with SD = 4.285. The results obtained indicate that descriptive statistics of students who have low body flexibility who follow STAD are better than students who follow the PBL learning model

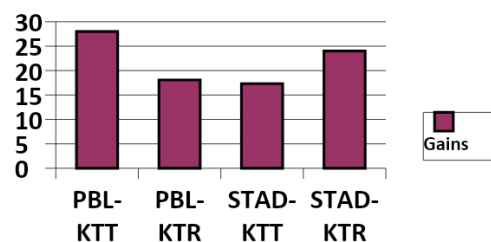


Fig. 1. floor exercise learning outcomes of students

Based on the figure, it can be seen that the average value of floor exercise learning outcomes for the PBL learning model group is greater than the STAD type cooperative learning model. The average value of PBL-KTT is greater than the average value of STAD-KTT. while the average value of PBL-KTR is smaller than the average value of STAD-KTR. This shows that in achieving floor exercise learning outcomes, students who study with the PBL learning model are relatively better than students who study with the STAD type cooperative learning model. However, the PBL learning model is more suitable for students who have high body flexibility, while the STAD

type cooperative learning model is suitable for students who have low body flexibility

DISCUSSION

In implementing the STAD type cooperative learning model, two or more individuals depend on each other to achieve a common reward. The basic elements of learning with the STAD model are that students in their groups must assume that they are living together and share responsibility, students must be responsible for everything in their group, and students will be asked to be individually responsible for the material handled in cooperative groups (Slavin in Sunilawati, et al. 2013). The STAD type cooperative learning model in its implementation really requires teacher determination, innovation and patience in designing learning so that students really become interested in participating in learning. With the characteristics of students who have low body flexibility, teachers are expected to be more patient in guiding them in physical activities related to movement, such as floor exercise material. The existence of a close relationship between the STAD type cooperative learning model and body flexibility supports the finding that for students who have low body flexibility, the average score for floor exercise learning outcomes that follow the STAD type cooperative learning model is better compared to students who follow the STAD type cooperative learning model. PBL.

CONCLUSION

The description above, the conclusions of this research are as follows. First, there are differences in floor exercise learning outcomes between students who follow the problem-based

learning model and students who follow the STAD type cooperative learning model ($F= 5.051, p<0.05$). Second, there is an interaction effect between the learning model and body flexibility on students' floor exercise learning outcomes. ($F= 61.570, P<0.05$). Third, there are differences in floor exercise learning outcomes between students who follow the problem-based learning model and students who follow the STAD type cooperative learning model in students who have high body flexibility. ($F = 53.895 p<0.05$), and fourth, There are differences in floor exercise learning outcomes between students who follow the problem-based learning model and students who follow the STAD type cooperative learning model for students who have low body flexibility. ($F= 14.862; p<0.05$)

ACKNOWLEDGEMENT

I would like to express my thanks to Prof. Dr. I Gusti Lanang Agung Parwata, S.Pd, M.Kes as supervisor I and Dr. I Ketut Iwan Swadesi, S.Pd., M.Or., as supervisor II who has patiently guided, directed and provided motivation so that the author was able to overcome various obstacles and challenges in studying and completing this thesis, along with all parties who have helped the author during education.

REFERENCES

- Asriningsih, N. I W.,Sujana. I.W., Darmawati, S.P. I.G.A. 2021. Pengaruh Model Pembelajaran PBL terhadap Hasil Belajar Senam Lantai Ditinjau dari Minat Belajar Peserta Didik. *Jurnal Mimbar Ilmu*. (26)2. 260-267
- Aka, B. A. (2009). Cerdas dan bugar dengan senam lantai. Grasindo.

- Akinoglu, O. & Tandogan, R. O. (2007). The Effects of Problem-based active learning in science education on students academic achievement, attitude and concept learning. *Eurasia Journal of Mathematic, Science & Technology Education*.3(1). 71-81. Tersedia pada: <http://www.ejmste.com/v3n1/EJMSTEv3n1Akinoglu.pdf>. Diakses pada tanggal 6 Desember 2023
- Hosnan. (2014). Pendekatan Saintifik dan Kontekstual dalam Pembelajaran abad 21. Bogor: Ghalia Indonesia..
- Huda, faktan amirul. (2017). Pengertian Dan langkah-langkah Model Pembelajaran Student Teams Achievement Divisions (STAD). Fakhan. <https://fatkhan.web.id/pengertian-dan-langkah-langkah-model-pembelajaran-student-teams-achievement-divisions-stad/>
- Kiabeni, Y. Y., Kanca, I. N., & Artanayasa, I. W. (2021). Pengaruh Model Pembelajaran PBL terhadap Hasil Belajar Senam Lantai Ditinjau dari Minat Belajar Peserta Didik. *Mimbar Ilmu*, 26(2), 260. <https://doi.org/10.23887/mi.v26i2.35626>
- Kresnapati, P., & Ratimiasih, Y. (2021). Penerapan Model Pembelajaran Problem Based Learning Untuk Meningkatkan Keterampilan Siswa Dalam Pembelajaran Rolldepan Dan Roll Belakang. *Stand: Journal Sports Teaching And Development*, 2(2), 128-133.
- Muhajir. (2022). Buku Panduan Guru Pendidikan Jasmani, Olahraga, dan Kesehatan untuk SD/MI Kelas VI.
- Mualimin., Kresnapati. P., Ratimiasih, Y. (2022). Penerapan Model Pembelajaran Problem Based Learning untuk Meningkatkan Keterampilan Siswa dalam Mengikuti Pembelajaran PJOK Roll Depan dan Roll Belakang. *Journal STAND: Sports and Development*. (2) 2. 128-133
- Mustafa, P. S., & Dwiyoogo, W. D. (2020). Kurikulum Pendidikan Jasmani, Olahraga, dan Kesehatan di Indonesia Abad 21. *JARTIKA Jurnal Riset Teknologi Dan Inovasi Pendidikan*, 3(2), 422–438. <https://doi.org/10.36765/jartika.v3i2.268>
- Martiani, (2018). “Pengaruh Penggunaan Metode Drill And Practice Dan Konsentrasi Terhadap Keterampilan Handstand Senam Ketangkasan.” *Altius: Jurnal Ilmu Olahraga Dan Kesehatan* 7(1)
- Muhlisin. A., W., & Lanang A, P. I.G. (2021). Pengaruh Model Pembelajaran Kooperatif Tipe Student Teams Achievement Division (STAD) Terhadap Hasil Belajar Passing Sepakbola. *Indonesia Journal of Sport & Tourism*. (3)2, 43-50
- Parwata, I. M. Y. (2021). Pengaruh Metode Problem Based Learning terhadap Peningkatan Hasil Belajar Pendidikan Jasmani Olahraga dan Kesehatan: Meta-Analysis. *Indonesian Journal of Educational Development*, 2(1), 1–9. <https://doi.org/10.5281/zenodo.4781835>
- Putra, R. (2013). *Desain Belajar Mengajar Kreatif berbasis Sains*. Jogjakarta: Diva Press (Anggota IKAPI)
- Pertiwi, E. S., Budi, D. R., Hodayat, R., Widanita, N., & Kusuma, I. J. (2021). Hubungan Kekuatan Otot Lengan, Kelentukan dan Keseimbangan Dengan Kemampuan Gerakan Senam

- Meroda. *Physical Activity Journal*, 2(2), 146.
<https://doi.org/10.20884/1.paju.2021.2.2.3797>
- Setiawati, K. S., Parwata, I. G. L. A., & Suratmin, S. (2020). Pengaruh Model Pembelajaran Dan Minat Belajar Terhadap Hasil Belajar Senam Lantai. *Jurnal Penjakora*, 7(1), 17.
<https://doi.org/10.23887/penjakora.v7i1.24444>
- Sunilawati. Ni. M., Dantes. N., Candiasa. I.M. (2013). Pengaruh Model Pembelajaran Kooperatif Tipe STAD Terhadap Hasil Belajar Matematika Ditinjau dari Kemampuan Numerik Siswa Kelas IV SD. *e-Journal Program Pascasarjana Universitas Pendidikan Ganesha*. Volume 3.
- Sanjaya, W. (2011). Strategi Pembelajaran berorientasi Standar Proses Pendidikan. Jakarta. Kencana Prenada Media Group.
- Suharti. (2016). Perkembangan Gerak : Kelentukan (Flexybility). In *Jurnal Pendidikan Olahraga dan Kesehatan Universitas Pendidikan Mataram*. *Jurnal Pendidikan Olahraga Dan Kesehatan "GELORA,"* 3(2), 519–525
- Susila, G. H. A., Setiawan, G. H., & Artha, I. K. A. (2019). Implementasi Model Pembelajaran Kooperatif Tipe Student Teams Achievement Division (Stad) Berlandasan Tat Twam Asi Untuk Meningkatkan Aktivitas Dan Hasil Belajar Teknik Dasar Passing Bola Voli. *Jurnal Penjakora*, 6(1), 1.
<https://doi.org/10.23887/penjakora.v6i1.17345>
- Swadesi, I. K. I., & Kanca, I. N. (2022). Evaluasi Implementasi Pembelajaran Daring Pendidikan Jasmani Olahraga Dan Kesehatan SMP Se-Bali. *Mimbar Ilmu*, 27(3), 453–459.
<https://doi.org/10.23887/mi.v27i3.55363>
- Sudiana. I.K. (2014). Peran Kebugaran Jasmani Bagi Tubuh. Seminar Nasional FMIPA UNDIKSHA IV
- Siregar. S. R., Pitnawati, Handayani. S.G., Astuti. Y. 2022. Hubungan Kekuatan Otot Lengan dan Kelentukan Tubuh dengan Kemampuan Rolling Depan Pada Pembelajaran Senam Lantai Kelas VII A di SMP Negeri 22 Padang. *Jurnal Pendidikan dan Olahraga*. (5)8. 129-134
- Trifayan. H. (2020). Tinjauan Kelentukan Tubuh Siswa Putra Kelas VIII SMP Negeri Kota Payakumbuh. *Jurnal Pendidikan dan Olahraga*. (3) 2. 18-22
- Wahyudi.N., Yuli Hartati. C.S. (2015). Penerapan Model Pembelajaran Berbasis Masalah Terhadap Hasil Belajar Roll Depan Kaki Tekuk dalam Pembelajaran Jasmani, Olahraga, dan Kesehatan. *Jurnal Pendidikan Olahraga dan Kesehatan* (03) 02. 380 - 386
- Yunianti. E., Jaeng,M., Mustamin. (2016). Pengaruh Model Pembelajaran dan Self efficacy terhadap Hasil Belajar Matematika Siswa SMA Negeri 1 Parigi. *e-Jurnal Mitra Sains*, (4) 1, 8-19.