

The improvement of physical condition and interest of elementary school students toward *pencak silat* sport in terms of kinesthetic intelligence

La mejora de la condición física y el interés de los alumnos de primaria hacia el deporte *pencak silat* en términos de inteligencia kinestésica

*Awan Hariono, **Budi Aryanto, ***Herwin, ***Agung Nugroho

*Yogyakarta State University (Indonesia), **Yogyakarta State University (Indonesia), ***Yogyakarta State University (Indonesia), ****Yogyakarta State University (Indonesia)

Abstract. *Pencak silat* is a branch of martial arts that is developing both at the national and international levels, so it requires academic studies that can be scientifically justified. This research aims to improve the physical condition and interest of elementary school students in *pencak silat* sports in terms of kinesthetic intelligence. This research applied the action research method. Data collection techniques employed tests, measurements, and questionnaires. The research instruments were as follows: a physical condition test, a kinesthetic intelligence test using Natural Messy Play, and an interest test using a questionnaire. Data analysis used quantitative descriptive and qualitative descriptive. Quantitative data analysis employed quantitative descriptive statistics, namely comparing the results obtained from the Pre-Cycle, First Cycle, and Second Cycle. Qualitative data was used by analyzing data from observations during research. The results of the research showed that there was an increase in the physical condition and interest of elementary school students in *pencak silat* sports in terms of kinesthetic intelligence. In detail, the research results are as follows: 1) In the pre-cycle, it was 23.1%, cycle I increased to 38.5% and cycle II increased to 84.6%, 2) kinesthetic intelligence had a significant influence on the physical condition of school students elementary school, and 4) kinesthetic intelligence does not have a significant influence on elementary school students' interest in *pencak silat* sports.

Keywords: physical condition, interests, kinesthetic intelligence

Resumen. El *pencak silat* es una rama de las artes marciales que se está desarrollando tanto a nivel nacional como internacional, por lo que requiere estudios académicos que puedan justificarse científicamente. Esta investigación pretende mejorar la condición física y el interés de los alumnos de primaria por los deportes de *pencak silat* en términos de inteligencia cinestésica. Esta investigación utilizó el método de investigación-acción. Las técnicas de recogida de datos emplearon pruebas, mediciones y cuestionarios. Los instrumentos de investigación fueron los siguientes: una prueba de condición física, una prueba de inteligencia cinestésica mediante Natural Messy Play y una prueba de interés mediante un cuestionario. Para el análisis de los datos se utilizaron métodos cuantitativos descriptivos y cualitativos descriptivos. El análisis de datos cuantitativos utiliza estadísticas descriptivas cuantitativas, a saber, la comparación de los resultados obtenidos en el Preciclo, el Primer Ciclo y el Segundo Ciclo. El análisis de datos cualitativos mediante el análisis de los datos de las observaciones realizadas durante la investigación. Los resultados de la investigación mostraron un aumento de la condición física y del interés de los alumnos de primaria por el deporte *pencak silat* en términos de inteligencia cinestésica. En detalle, los resultados de la investigación son los siguientes: 1) En el preciclo era del 23,1%, el ciclo I aumentó al 38,5% y el ciclo II aumentó al 84,6%, 2) la inteligencia cinestésica tuvo una influencia significativa en la condición física de los alumnos de primaria, y 4) la inteligencia cinestésica no tiene una influencia significativa en el interés de los alumnos de primaria por los deportes de *pencak silat*.

Palabras clave: condición física, intereses, inteligencia cinestésica

Fecha recepción: 12-12-23. Fecha de aceptación: 21-04-24

Awan Hariono

awan_hariono@uny.ac.id

Introduction

Pencak silat can be said to be one of Indonesia's gold medal fields in the Sea Games arena. In recent years, the performance of *pencak silat* in the fighting category has fluctuated both regionally and internationally. As an indication, the number of gold medals in *pencak silat* is increasingly inconsistent at the Southeast Asian level, both in invitational, single-event, and multi-event championships (Hariono & Lubis, 2020). This is certainly a challenge for the Indonesian people to improve their *pencak silat* achievements again. Various efforts have been made to improve the achievements of Indonesian *pencak silat*, including: increasing the intensity of holding *pencak silat* championships, holding training for *pencak silat* trainers, holding training for *pencak silat* referees, and organizing *pencak silat* education and training centers for pupils and students.

Pencak silat coaching is the same as coaching other sports, namely starting from childhood. Therefore, the guidance

given from the start is the basis for movement education for children (NASPE, 2009; Altinkök, 2016; Vanagosi, 2016). For this reason, the material provided to children must be carried out regularly, measurably, and well programmed so that children's movement needs can be met according to each individual's level of ability. Through the right coaching process, it can have a positive impact on the growth and development of children, so that there is a balance between physical and psychological and they do not experience significant obstacles or disturbances. Healthy physical activity patterns that have been developed since childhood will have an impact on healthy lifestyle patterns that must be maintained throughout life (Kohl et al., 2013; Maria & Flora, 2015; Smith et al., 2020).

Success in achieving peak performance cannot be separated from the influence of long-term coaching patterns that are carried out continuously, measurably, structured and systematically. As a consequence, the pattern of training for *pencak silat* must be carried out from the age of children (primary school), because elementary school

students are at the right golden age to lay the foundations of movement skills (Pertamawati, 2014); Stevenson et al., 2023) and are the right time for the process of marketing, breeding and starting development (Bompa, 2009). Students at the elementary school level have potential that must be worked on by a teacher or trainer. By starting at that age, it is very appropriate to be directed to choose one type of sport that someone likes, including the sport of *pencak silat*. Thus, the process of developing *pencak silat* must begin when they are children.

From a macro perspective, it can be said that the development of *Pencak Silat* has been carried out, although it is not yet optimal. An indication of the success of *pencak silat* problems can be seen from the increasing prevalence of extracurricular activities in schools, especially at the elementary school level. However, the production process has not been followed by a continuous, progressive, systematic, and sustainable coaching system at the next level, namely Middle School/Equivalent, High School/Equivalent, and College. Thus, the coaching process cannot be carried out optimally so the positive impact on improving *pencak silat* performance is not yet visible. Viewed in terms of the goals and benefits of coaching *pencak silat* sports, it should be able to have a positive impact on elementary school students. The next question that arises is why *pencak silat* has not been able to attract elementary school students. In reality, elementary school students' interest in participating in *pencak silat* extracurriculars is relatively low, except in schools that include *pencak silat* sports in the curriculum. This is certainly a challenge for *pencak silat* organizations to always strive to increase students' interest in *pencak silat*.

Interest is a person's interest in something that arises from within so that it can generate motivation and influence learning outcomes and achievement (Slameto, 2017; Sunardi et al., 2022; Herpratiwi & Tohir, 2022). This means that interest will have a big influence on the activities that someone will carry out and become an important basis for someone to carry out activities well, namely encouraging someone to do something. Since interest is basically the acceptance of a relationship between oneself and something outside of oneself, the stronger and closer the relationship, the greater the interest (Slameto, 2017; Alvin S. Purnama & Muljadi Muljadi, 2021). Interest can also be said to be a feeling of preference and attachment to a thing or activity without anyone ordering it (Gardner, 1993). Thus, interest can be expressed through statements that indicate preferring something over another and can be manifested in the form of participation in an activity (Suparman, 2014; Heri, 2019). For this reason, efforts to attract interest in *pencak silat* must be increased because it will make it easier for students to carry out the training/learning process.

In principle, the development of elementary school students is that they enjoy playing. For this reason, the training/learning process for elementary school students must be enjoyable by using appropriate training models.

Apart from increasing interest, through appropriate training models that suit the characteristics of elementary school students, it is hoped that they can improve their physical condition optimally. Physical condition is a temporary physical condition or ability that includes before, during, and after experiencing a training process (Sukadiyanto, 2005). A healthy physical condition that has been developed since childhood can support a healthy lifestyle and must be maintained throughout life (Aubert et al., 2018; Smith et al., 2020). For this reason, the physical condition needs to be paid attention to when children and adolescents are still young because it can be used as a strategic public investment to implement effective interventions to increase children's activeness in carrying out the necessary physical activities (Coppinger et al., 2017; Ciematnieks, 2020).

To achieve optimal results in the training/learning process in *pencak silat* sports, it must be carried out effectively and efficiently. This means that the training process should be arranged in a structured and systematic manner according to the characteristics of the students so that it can attract students' interest. Students who have high interest will find it easier to carry out activities optimally. As high interest will give rise to persistent efforts, not easily giving up in facing challenges, and having a sense of enjoyment in every activity undertaken (Tambunan, 2016; Lilawati, 2020; Sandari, 2020). Thus, the training/learning process in *pencak silat* must provide opportunities for elementary school students to be able to develop various abilities both physically, cognitively, and effectively in a fun way. Therefore, every physical activity carried out with pleasure will motivate students to take part in the sport of *pencak silat* (Murdiansyah, 2021; Firmansyah et al., 2022).

Physical activity can be carried out optimally and must be supported by a good level of physical fitness. Physical fitness is a person's ability to carry out daily activities without experiencing significant fatigue, and still have remaining energy reserves to carry out other activities (Sukadiyanto, 2005; Medrano-Ureña et al., 2020). Physical fitness can be obtained through the process of physical condition training which is carried out systematically and continuously, because physical condition training is the process of increasing the ability of physical movement activities which is carried out systematically and progressively to maintain or increase the degree of physical fitness to achieve optimal physical work ability. People who lack physical fitness are more likely to get sick and may be perceived as having worse health (Suyati et al., 2022). This means that physical condition is an element that needs serious attention to be planned carefully and systematically so that the level of physical fitness and functional ability of the body's organs is better.

To improve the physical condition and interest of students through *pencak silat*, this can be done by implementing a training model that is not only focused on psychomotor skills but must also involve the students' intelligence. Intelligence is not limited to intellectual

intelligence which is measured using several narrow intelligence tests or simply looking at the achievements displayed by a student through tests or exams at school, but intelligence also describes students' abilities in the fields of art, spatial, sports, communication, and love for the environment (Maarif et al., 2021). Multiple intelligence is the ability or talent possessed by a person (student) which includes verbal-linguistic, logical-mathematical, visual-spatial, musical-rhythmic, physical-kinesthetic, interpersonal, intrapersonal, and naturalistic intelligence (Yaumi et al., 2018).

However, in reality, various efforts have not shown satisfactory results and in fact these efforts seem to be in vain. For this reason, special attention is needed in the *pencak silat* development system in Indonesia through planning that is carried out logically, analytically, and systematically. Because a coaching pattern that is carried out well will result in better performance, on the other hand, a coaching pattern that is not directed results in failure to achieve (Kimatian et al., 2017; Pertama & Tampubolon, 2020).

So far, the training/learning model has not been carried out continuously to develop students' intelligence. In general, trainers/teachers focus more on the psychomotor aspects of students, so students' intelligence is often neglected. Classical training styles still tend to be used, so the training process still emphasizes mastery of skills in certain sports branches (Winarno, 2006; Purwanto & Susanto, 2018). This condition results in the non-optimal function of training/learning as a medium of education in the context of the child's complete personal development (Rachman, 2011). From this gap, there needs to be a solution related to training models that can increase students' interest and physical condition.

Based on supporting theory, to improve interest and physical condition, there needs to be a solution through a training model that can provide activities that include psychomotor and intelligence, especially kinesthetic intelligence. Kinesthetic intelligence is a child's ability to use body dexterity to express ideas and feelings and use hand skills to change or create something (Gardner, 1993; Greenwood, 2007). Kinesthetic intelligence is more about physical abilities such as coordination, balance, skill, strength, flexibility, and speed. Providing appropriate opportunities for the development of various abilities based on the theory of kinesthetic intelligence will pave the way for students to participate in-depth. This means that kinesthetic intelligence is very necessary because it can make a positive contribution to efforts to improve the physical condition and interests of students (Martin & Morris, 2013; Imrah Dewi et al., 2021; Mashkoor & Hameed, 2022). Therefore, the purpose of this research is to improve the physical condition and interest of elementary school students based on the review of kinesthetic intelligence and provide solutions to any training problems in the field through training models developed based on science and technology studies.

Method

The approach used in this research was the action research method (Greenwood, 2007; Stringer, 2007). The research subjects were 54 students aged 9-11 years, 27 males and 27 females. This research was conducted for 8 weeks at Graha Wana Bhaktiyasa, Yogyakarta Special Region.

Both quantitative and qualitative descriptive data analysis methodologies were used. Quantitative data analysis employs quantitative descriptive statistics by comparing the outcomes of the Pre-Cycle, First Cycle, and Second Cycle. Analyzing data from observations was made while conducting research yields qualitative data. The t-test data analysis can be used to ascertain the students' interest and physical condition improvement.

The steps of this research assistance program include planning, action, observation, and reflection. The instruments used are 1) physical condition tests in the form of push-ups, sit-ups, back-ups, and jumping jacks, 2) kinesthetic intelligence tests using a modification of the Natural Messy Play model, and 3) interest tests in the form of questionnaires that have been validated in an expert.

Results

The implementation of the action does not refer to the number of face-to-face meetings, but rather to the athlete's development and progress after being given treatment. Several stages must be carried out in each cycle, namely: the planning, action implementation, and reflection stages. The results of mentoring elementary school students can be explained as follows.

First Cycle

In Cycle I, mentoring focused on increasing the interest and physical condition of female school students in the sport of *pencak silat* as well as the basic movements of *pencak silat*. To improve physical condition, the focus is more on the correctness and accuracy of movements.

Cycle I Action Plan

The action plan was prepared after the mentors and trainers succeeded in identifying the problems faced by elementary school students related to their physical condition and interest in *pencak silat* sports.

Cycle I Actions

Based on the results of the design prepared in cycle I, the actions taken are as follows: In the first and second weeks, physical conditioning assistance is focused on the correctness of sit-ups, push-ups, bac-kups, and jumping jacks.

In the first and second weeks, technical assistance focuses on correct basic *pencak silat* movements

In the first and second weeks, interest assistance is

carried out by observing student behavior

Psychologist assistance is carried out at the end of the second week of meetings

In the third and fourth weeks, physical condition assistance is focused on the correctness and accuracy of sit-ups, push-ups, back-ups, and jumping jacks.

In the third week and fourth weeks, technical assistance focuses on the correctness and accuracy of basic *pencak silat* movements and learning basic *pencak silat* techniques, namely: punches, kicks, parries, and dodges.

In the third and fourth weeks, interest assistance is carried out by observing student behavior

Psychologist assistance was carried out at the end of the fourth week of the meeting

Cycle I Reflection

Based on the results of observations from 14 September to 8 August 2023 and assistance from cycle I, various factors were found that could support or hinder the improvement of the physical condition and interest of elementary school students in *pencak silat*, including:

Some students only learn about *pencak silat* after entering elementary school

Some students participate in *pencak silat* only based on the teacher's persuasion

Some students participate in *pencak silat* just to complete extracurricular activities

Students only participate in one extracurricular sport at school and do not participate in other extracurricular activities

Physical education lessons are only once a week and only 2 hours of lessons

None of the students have participated in or been involved in a sports club or *pencak silat* college.

The changes that occurred after mentoring in cycle I were as follows:

There is an increase in flexibility as an effect of the warm-up and cool-down carried out during each mentoring implementation.

Students are able to perform basic movements well and correctly

Students are able to perform basic *pencak silat* movements with a faster rhythm even though consistent accuracy has not been achieved

Students are able to implement each movement according to the trainer's instructions.

Students carry out movements happily and comfortably.

Students are able to respond, learn, and apply the material provided by the trainer even though it is not perfect.

Students have a high curiosity about the material that will be taught at the next meeting.

Students begin to find enjoyment and feel comfortable with the material taught by the trainer.

Students begin to be able to control their emotions little by little.

Cycle II (Second)

In the Second Cycle, mentoring is focused on increasing the interest and physical condition of female school students in the sport of *pencak silat* as well as the basic movements of *pencak silat*. To improve physical condition, the focus is more on the correctness and accuracy of movements. The mentoring stages in Cycle II can be explained as follows:

Cycle II Action Plan

Based on the assistance in the first cycle, several weaknesses can be identified that must be immediately followed up in Cycle II, including: a gap in interest between students who have high and low kinesthetic intelligence in the sport of *pencak silat* and improving the physical condition of students is not in accordance with the design which has been set. For this reason, it is necessary to change the mentoring design that will be implemented in the second cycle.

Cycle II Actions

Based on the results of mentoring reflection in cycle I, the actions taken in cycle II are as follows:

In the first and second weeks, physical condition assistance is focused on increasing sit-up, push-up, back-up and jump-strike movements by increasing the training load (repetitions and sets)

In the first and second weeks, assistance with *pencak silat* technical movements is focused on learning a combination of basic movements and basic *pencak silat* techniques

In the first and second weeks, interest assistance is carried out by creating training models that are fun for students without reducing the goals and objectives of the assistance.

Psychologist assistance is carried out at the end of the second week of meetings

In the third week and fourth weeks, physical condition assistance is focused on increasing sit-ups, push-ups, back-ups, and jumping jacks by increasing exercise intensity (movement rhythm, recovery, and intervals)

In the third week and fourth weeks, technical assistance focuses on the accuracy of basic *pencak silat* movements and combining basic *pencak silat* techniques quickly and precisely

In the third and fourth weeks, interest assistance is carried out by observing student behavior

Cycle II Reflection

Based on the results of mentoring in cycle II, reflection in cycle II can be described as follows:

Students experience significant improvement in physical condition

Psychological assistance has an impact on students to increase interest in *pencak silat*

There is a need to develop training models that are more appropriate to the characteristics of elementary school students

Most students are able to perform basic *pencak silat* movements quickly and precisely

Most students are able to combine basic movements and pencak silat techniques, although they cannot do it perfectly

Most students are increasingly interested in the sport of *pencak silat* both for performance, self-defense, building togetherness, and health

Students are able to respond more quickly, learn and apply the material provided by the trainer

Students are more consistent in performing basic movements and basic *pencak silat* techniques with a faster rhythm

Students are able to implement each movement according to the trainer's instructions with a faster rhythm.

The level of comfort and enjoyment of students with each movement is getting higher.

Students' ability to respond, learn, and apply the material provided by the trainer is getting higher

Students' emotional control is getting better.

Meanwhile, to determine the effect of kinesthetic intelligence on improving the physical condition of elementary school students, we used a different test on the average score of the pre-test and post-test results. To determine changes in the interest of elementary school students, we use different tests on the results of the pre-test and post-test interest. The differences in the results of the pre-test and post-test physical conditions and interests of students can be seen in Table 1 and Table 2 below

Table 1.
Pre-Test and Post-Test Results Data on Students' Physical Conditions

Physical Condition Test Items	Low Kinesthetic			High Kinesthetic		
	Total	Mean	STDEV	Total	Mean	STDEV
Sit-Up	721	13,35	2,32	1377	25,50	6,30
Push-Up	1027	19,02	4,95	1286	23,81	6,79
Back-Up	2489	46,09	13,26	3309	61,23	11,45
Jumping jacks	2301	42,61	11,26	3686	68,26	12,89

Based on the results of data analysis, it shows that elementary school students who have high kinesthetic intelligence are faster in improving their physical condition in each component. The results of calculations using percentages can be shown as follows: 1) elementary school students who have low kinesthetic intelligence get a sit-up score of 31.35, push-ups of 19.02%, back-ups of 46.09%, and jumping jacks by 42.61%. Meanwhile, elementary school students who have high kinesthetic intelligence obtained a greater average score, namely sit-ups by 25.50%, push-ups by 23.81%, back-ups by 61.23%, and jumping jacks by 68.26%. Thus, kinesthetic intelligence influences on improving the physical condition of elementary school students.

Table 2.
Data from Pre-Test and Post-Test Results of Student Interest Test

Student Interests	Low Kinesthetic			High Kinesthetic		
	Total	Mean	STDEV	Total	Mean	STDEV
	4784	78	10,97	4784	79	8,22

Based on the results of data analysis, it shows that the average score between elementary school students who have high kinesthetic intelligence is 79 and elementary

school students who have low kinesthetic intelligence is 78, which does not show a significant difference. This means that kinesthetic intelligence does not have a significant influence on students' interest in *pencak silat* sports.

Discussion

The physical condition and interests of elementary school students in this study are reviewed from kinesthetic intelligence. Kinesthetic intelligence is a combination of physical and mind so that it can produce a perfect movement. Researchers assume that kinesthetic intelligence will have a positive influence on improving the physical condition and interest of elementary school students in *pencak silat* sports. Furthermore, the results showed that kinesthetic intelligence has a significant influence on the physical condition of elementary school children. This is supported by several previous studies which show that through kinesthetic intelligence children's movement skills can increase significantly, including: the ability to coordinate the body with the eyes, body balance, leg strength, and flexibility (Firdaus et al., 2020; Fitriya, 2022)). Apart from that, kinesthetic intelligence can also be improved through various movement approaches (Anggraini, 2015; Akbar, 2015; Fahmi, 2022).

The results of the research show that elementary school students who have high kinesthetic intelligence are quicker to acquire physical abilities. This shows that students who have kinesthetic intelligence will find it easier to adapt and express every movement taught by the teacher/trainer (Syofyan & Siwi, 2018; Yavich & Rotnitsky, 2020; Imrah Dewi et al., 2021). Because kinesthetic intelligence really helps students in controlling body movements and skills in managing objects and being able to make good movements, such as: running, jumping, throwing, and catching.

The mentoring was carried out in 16 meetings with well-programmed material. Meanwhile, the physical condition abilities, basic movements and basic techniques of *pencak silat* taught during mentoring include various movements involving jumping, running, throwing, pushing and pulling. This is what causes the physical condition of elementary school students to improve, because children who have high kinesthetic intelligence will find it easier to carry out various good movements, such as running, dancing, building things, all arts and crafts (Gardner, 1993).

Among the general public, *pencak silat* is often said to be a traditional martial sport, because most of the training process is still carried out classically and holistically. The values and traditions in *pencak silat* are still strong so that the coaching and training process tends to be monotonous, so that students' boredom during the mentoring process is also relatively high, especially in cycle 1. Elementary school students who take part in mentoring are dominated by children who have high kinesthetic intelligence, so they will experience boredom if the training model used tends to be the same at every meeting. This fact is one of the causes of the relatively low interest of elementary school students in the

sport of *pencak silat*. This is in accordance with research results which show there is no significant difference between elementary school students who have low kinesthetic intelligence and those who have high kinesthetic intelligence.

Elementary school students are at a stage where they are in the concrete operational phase, which has shown the ability in the thought process to operate logical rules. Even though they are still tied to concrete objects, elementary school students are able to differentiate between things that are fun and boring. Thus, the learning model provided by the trainer or teacher greatly influences students' interest in being involved in activities. Because interest is basically the acceptance of a relationship between oneself and something outside of oneself, so the stronger and closer the relationship, the greater the interest (Etnier, 2001; Slameto, 2017). For this reason, there needs to be a learning model that is fun and adapted to the characteristics of students, especially for elementary school students.

Thus, the strategies used to generate greater interest in *pencak silat* among students from other populations are to modify training in the form of games during warm-up (before the implementation of core training), provide verbal motivation at the end of each training session, give assignments to students related to *pencak silat* material at the next meeting, and involve psychologists by providing motivation at the end of each assistance (cycle).

Conclusion

Based on the results of mentoring carried out through an action research approach, it shows that there is an increase in the physical condition and interest of elementary school students in *pencak silat* sports in terms of kinesthetic intelligence. In detail, the research results can be concluded as follows: 1) In the pre-cycle it was 23.1%, cycle I increased to 38.5% and cycle II increased to 84.6%, (1) kinesthetic intelligence had a significant influence on conditions. physical education of elementary school students, and 2) kinesthetic intelligence does not have a significant influence on elementary school students' interest in *pencak silat* sports.

Acknowledgments

Nothing to declare

Conflicts of Interest

The authors declare no potential conflicts of interest with respect to the research, authorship, and publication of this article

References

- Akbar, A. (2015). Kontribusi Kecerdasan Kinestetik, Motor Ability Dan Motivasi Dengan Keterampilan Bermain Bola Basket. *Jurnal Sport Pedagogy*, 5(1), 1–52.
- Altinkök, M. (2016). The Effects of Coordination and Movement Education on Pre School Children's Basic Motor Skills Improvement. *Universal Journal of Educational Research*, 4(5), 1050–1058. <https://doi.org/10.13189/ujer.2016.040515>
- Alvin S. Purnama, & Muljadi Muljadi. (2021). Influence of interest and motivation to learn about student learning outcomes at STAB Dharma Widya in Tangerang City. *Dharmavicaya : Jurnal Pengkajian Dhamma*, 5(1), 30–45. <https://doi.org/10.47861/dv.v5i1.42>
- Anggraini, D. D. (2015). Peningkatan Kecerdasan Kinestetik Melalui Kegiatan Bermain Sirkuit Dengan Bola. *Jurnal PG--PAUD Trunojoyo*, 2(1), 65–75.
- Aubert, S., Barnes, J. D., Aguilar-Farias, N., Cardon, G., Chang, C. K., Delisle Nyström, C., Demetriou, Y., Edwards, L., Emeljanovas, A., Gába, A., Huang, W. Y., Ibrahim, I. A. E., Jürimäe, J., Katzarzyk, P. T., Korcz, A., Kim, Y. S., Lee, E. Y., Löf, M., Loney, T., ... Tremblay, M. S. (2018). Report Card grades on the physical activity of children and youth comparing 30 very high Human Development Index countries. *Journal of Physical Activity and Health*, 15(Suppl 2), S298–S314. <https://doi.org/10.1123/jpah.2018-0431>
- Bompa, T. O. (2009). *Periodization: Theory and Methodology of Training*. 4th ed. In Champaign, Ill. : Human Kinetics; (Fifth Edit). Kendall/Hunt Publishing Company.
- Ciematnieks, U. B. S. (2020). Physical Conditioning Of Teenagers In Different Kind Of Sports. 6, 142–149.
- Coppinger, B., Cannistraci, R. A., Karaman, F., Kyle, S. C., Hobson, E. A., Freeberg, T. M., & Hay, J. F. (2017). Studying audience effects in animals: what we can learn from human language research. *Animal Behaviour*, 124, 161–165. <https://doi.org/https://doi.org/10.1016/j.anbehav.2016.12.020>
- Etnier, J. L. (2001). Psychology of Physical Activity: Determinants, Well-being, and Interventions. In *Medicine & Science in Sports & Exercise* (Vol. 33, Issue 10). <https://doi.org/10.1097/00005768-200110000-00030>
- Fahmi, A. K. (2022). Pengembangan Kecerdasan Kinestetik Pada Siswa Melalui Pembelajaran Olahraga Kelas V Di Mi Wathoniyah Glempang Kecamatan Mandiraja Kabupaten Banjarnegara.
- Firdaus, F. M., Nurfauzan, P., & Hanaris, R. (2020). Pengaruh Metode Drill Pencak Silat Terhadap Kecerdasan Kinestetik Siswa Sekolah Dasar. *JMIE (Journal of Madrasah Ibtidaiyah Education)*, 4(1), 53. <https://doi.org/10.32934/jmie.v4i1.171>
- Firmansyah, D., Dimiyati, A., & Siswanto. (2022). Pengaruh Model Kooperatif Student Teams Achievement Divisions Terhadap Motivasi Siswa Dalam Pembelajaran Pencak Silat MTS Al-Hasanah. *Sport Science: Jurnal Sains Olahraga Dan Pendidikan Jasmani*,

- 22, 23–30.
- Fitria, H. I. (2022). Pengembangan Kecerdasan Kinestetik Peserta Didik Melalui Kegiatan Ekstrakurikuler Seni Tari Di Madrasah Ibtidaiyah Miftahul Ulum 1banyuwangi Tahun Pelajaran 2021/2022. *Skripsi*, 1, 2022.
- Gardner, H. (1993). *Multiple intelligences: The theory in practice*. Basic books.
- Greenwood, D. J. (2007). Teaching/learning action research requires fundamental reforms in public higher education. *Action Research*, 5(3), 249–264. <https://doi.org/10.1177/1476750307081016>
- Hariono, A., & Lubis, J. (2020). Teknik Tendangan Bagi Pesilat Pemula Kategori Tanding (Analisis Perspektif Biomekanika). UNY Press.
- Heri, T. (2019). Meningkatkan Motivasi Minat Belajar Siswa. *Rausyan Fikr: Jurnal Pemikiran Dan Pencerahan*, 15(1), 59–79. <https://doi.org/10.31000/rf.v15i1.1369>
- Herpratiwi, & Tohir, A. (2022). Learning Interest and Discipline on Learning Motivation. *International Journal of Education in Mathematics, Science and Technology*, 10(2), 424–435. <https://doi.org/10.46328/IJEMST.2096>
- Imrah Dewi, A., Syahrir, M., Ardiansyah, A., & Rejeki, H. S. (2021). Students' Kinesthetic Intelligence in Physical Education: Garnering Indonesian Literatures. *AL-ISHLAH: Jurnal Pendidikan*, 13(3). <https://doi.org/10.35445/alishlah.v13i3.1410>
- Kimatian, S., Lloyd, S., Berger, J., Steiner, L., McKay, R., & Schwengel, D. (2017). Undirected learning styles and academic risk: Analysis of the impact of stress, strain and coping. *The Journal of Education in Perioperative Medicine: JEPM*, 19(2), E603.
- Kohl, H. W., Cook, H. D., Van Dusen, D. P., Kelder, S. H., Kohl, H. W., Ranjit, N., & Perry, C. L. (2013). Educating the study body: taking physical activity and physical education to school. Chapter 4: Physical Activity, Fitness, and Physical Education: Effects on Academic Performance. In *Journal of School Health* (Vol. 81, Issue 12).
- Lilawati, A. (2020). Peran Orang Tua dalam Mendukung Kegiatan Pembelajaran di Rumah pada Masa Pandemi. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini*, 5(1), 549. <https://doi.org/10.31004/obsesi.v5i1.630>
- Maarif, M. A., Rofiq, M. H., & Nabila, N. S. (2021). Pendidikan Pesantren Berbasis Multiple Intellegences (Kecerdasan Majemuk). *Tafkir: Interdisciplinary Journal of Islamic Education*, 1(1), 1–19. <https://doi.org/10.31538/tijie.v1i1.1>
- Maria, V., & Flora, M. (2015). Aktivitas Pendidikan Jasmani Bagi Anak Usia Din. *Motion*, 6(1), 67.
- Martin, M., & Morris, M. (2013). Sport Education and Multiple Intelligences: A Path to Student Success. *Strategies*, 26(4), 31–34. <https://doi.org/10.1080/08924562.2013.799931>
- Mashkoor, N. B., & Hameed, N. H. (2022). Effect of physical-kinesthetic intelligence exercises on developing motor abilities and basic skills of basketball in female students. *Sport TK*, 11, 1–10. <https://doi.org/10.6018/sportk.514981>
- Medrano-Ureña, M. D. R., Ortega-Ruiz, R., & Benítez-Sillero, J. de D. (2020). Physical fitness, exercise self-efficacy, and quality of life in adulthood: A systematic review. *International Journal of Environmental Research and Public Health*, 17(17), 1–19. <https://doi.org/10.3390/ijerph17176343>
- Murdiansyah, D. R. T. (2021). Survei Minat Ekstrakurikuler Olahraga Pencak Silat Pelajar Sekolah Menengah Pertama Negeri 3 Waru (Smpn 3 Waru). *Jurnal Kesehatan Olahraga*, 09(04), 57–64. <https://ejournal.unesa.ac.id/index.php/jurnal-kesehatan-olahraga/article/view/41951>
- NASPE. (2009). *Active Start: Children Birth to Five Years Active Start: A Statement of Physical Activity Guidelines for Children From Birth to Age 5*, 2nd Edition *Active Start: Children Birth to Five Years*. 2–3. https://www.columbus.gov/uploadedFiles/Public_Health/Content_Editors/Planning_and_Performance/Healthy_Children_Healthy_Weights/NASPE_Active_Start.pdf
- Pertama, E., & Tampubolon, M. P. (2020). *Manajemen Perubahan: Individu, Tim Kerja, Organisasi*.
- Pertamawati, I. (2014). Peningkatan Kemampuan Motorik Halus Anak Dengan Menggunakan Metode Pemberian Tugas Melalui Kegiatan Menganyam Pada Anak Kelompok B. *Jurnal Pendidikan Anak Usia Dini*, Volume 3 N(Issue Vol 3 No 3), 1–9.
- Purwanto, S., & Susanto, E. (2018). Nilai-nilai Karakter Dalam Pendidikan Jasmani. In UNY Press.
- Rachman, H. A. (2011). Keterlaksanaan pendidikan jasmani dan olahraga di Daerah Istimewa Yogyakarta. *Jurnal Pendidikan Jasmani Indonesia*, 8(1), 38–47.
- Sandari, T. (2020). Analisis Minat Siswa Terhadap Mata Pelajaran Fisika Di SMA N 1 Batanghari. *Jurnal Pendidikan Fisika*, 5.
- Slameto. (2017). Pengaruh minat belajar terhadap prestasi belajar bidang studi ekonomi siswa MA Al Fattah Sumbermulyo. *Jurnal Ilmiah Pendidikan Dan Ekonomi*, 1(1), 21–36. <http://journal.stkipnurulhuda.ac.id/index.php/utility>
- Smith, M., Ikeda, E., Hawley, G., Mavoa, S., Hosking, J., Egli, V., Zhao, J., Mackay, L., Donnellan, N., Amann, R., Mackie, H., & Witten, K. (2020). An integrated conceptual model of environmental needs for New Zealand children's active travel to school. *Journal of Transport & Health*, 16, 100814. <https://doi.org/https://doi.org/10.1016/j.jth.2019.100814>
- Stevenson, A., Wainwright, N., & Williams, A. (2023). Interventions targeting motor skills in pre-school-aged children with direct or indirect parent engagement: a systematic review and narrative synthesis. *Education 3-13*, 51(6), 1003–1016.

- <https://doi.org/10.1080/03004279.2022.2034174>
 Stringer, E. T. (2007). Action research third edition. In SAGE Publications (Vol. 1, Issue 69).
- Sukadiyanto. (2005). Model Pembelajaran Kemampuan Koordinasi Pada Siswa Sekolah Dasar. 3(1), 55–66.
- Sunardi, A. I., Lutfi, N., & Maelana, H. W. D. (2022). the Influence of Learning Interest and Self-Discipline on English Learning Achievement (Case Study Academy of Administrative Management Students). *Lingua*, 18(2), 147–165.
<https://doi.org/10.34005/lingua.v18i2.2111>
- Suparman. (2014). Peningkatan Kemandirian Belajar dan Minat Belajar Mahasiswa Mata Kuliah Elektronika Analog dengan Pembelajaran PBL. *Jurnal Pendidikan Teknologi Dan Kejuruan UNY*, 22(1), 83–88.
- Sustainable, J. I. (2019). No Title. 2(2), 176–197.
- Suyati, E. S., Sonedi, Bulkani, Fatchurahman, M., Nurbudiyani, I., & Setiawan, M. A. (2022). The relationship of physical fitness and social-economic status and students' learning achievement La relación de la frescura física y el estatus socioeconómico y el logro de aprendizaje de los estudiantes. *Retos*, 46, 467–479.
- Syofyan, R., & Siwi, M. K. (2018). The Impact of Visual, Auditory, and Kinesthetic Learning Styles on Economics Education Teaching. 57(Piceeba), 642–649.
<https://doi.org/10.2991/piceeba-18.2018.17>
- Tambunan, N. (2016). Pengaruh Strategi Pembelajaran dan Minat Belajar Terhadap Kemampuan Berpikir Kreatif Matematis Siswa. *Formatif: Jurnal Ilmiah Pendidikan MIPA*, 6(3), 207–219.
<https://doi.org/10.30998/formatif.v6i3.993>
- Vanagosi, K. D. (2016). Konsep gerak dasar untuk anak usia dini. *Pendidikan Kesehatan Rekreasi*, 1, 72–79.
- Winarno. (2006). Perspektif Pendidikan Jasmani dan Olahraga. <http://fik.um.ac.id/wp-content/uploads/2018/02/buku-4.pdf#page=7>
- Yaumi, M., Fatimah, S., Sirate, S., & Patak, A. A. (2018). Investigating Multiple Intelligence-Based Instructions Approach on Performance Improvement of Indonesian Elementary Madrasah Teachers.
<https://doi.org/10.1177/2158244018809216>
- Yavich, R., & Rotnitsky, I. (2020). Multiple intelligences and success in school studies. *International Journal of Higher Education*, 9(6), 107–117.
<https://doi.org/10.5430/ijhe.v9n6p107>

Datos de los/as autores/as y traductor/a:

Awan Hariono	awan_hariono@uny.ac.id	Autor/a
Budi Aryanto	budi_aryanto@uny.ac.id	Autor/a
Herwin	herwin@uny.ac.id	Autor/a
Agung Nugroho	agung_nugroho@uny.ac.id	Autor/a
Yulia Nuzulul H.	yulifortune313@gmail.com	Traductor/a