



Assessment of The Learning Outcomes of Physical Education in Children with Intellectual Disabilities

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Abstract: Adaptive physical education is a type of physical education geared toward children with special needs, such as intellectual disabilities. Of course, there must be an assessment in learning to see if the results taught from the cognitive, affective, and psychomotor perspectives were achieved. The goal of this research was to learn more about how physical education learning outcomes were assessed in schools for students with intellectual disabilities in Semarang. The research method used was descriptive. This method aims to describe the events and circumstances that occurred. The research approach used was qualitative. Data were gathered through observation, interviews, and documentation. The informant for this study was a Semarang-based special school teacher (SLB) who teaches physical education classes. The findings revealed that teachers had difficulty making assessments for mentally retarded students even though the assessment was still conducted as it should. It was determined that the teacher conducted a cognitive, affective, and psychomotor assessment of physical education learning and modified the assessment indicators to find appropriate standards. Meanwhile, the assessment was carried out based on the students' abilities.

Keywords: assessment of learning outcomes, physical education, intellectual disability

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INTRODUCTION

The key to acquiring knowledge is education. Formal and non-formal education both are sources of knowledge. Education is critical because everything a person does require knowledge, and the world appears to be blind without it. To become a useful human being for the community, efforts to update capabilities should be made as soon as possible. Physical education is one of the educations taken by students from elementary to high school. It is one of the educations taken by students from elementary to high school (Hastuti et al., 2021).

Physical education is essentially an education that is delivered through the process of physical activity to achieve holistic changes in an individual's mental, emotional, and physical well-being (Taufan et al., 2018). Physical education is an activity that includes basic movements, dance, and aquatics and is used to improve fitness and motor skills in individuals and teams (Winnick & Porretta, 2016). Physical education has become one of the subjects taught in schools from elementary to high school. Students can develop their socialism, emotional, and cognitive skills through physical education. When physical education can handle students with special needs or who are referred to as adaptive, it is said to be complete. In Russia, adaptive physical education began in 1995 with the establishment of an adaptive physical education department and methods (Evseev, 2018). This start is a significant fact that is widely acknowledged both nationally and internationally (Evseev, 2018). As a result, adaptive physical education may be a viable option for students with intellectual disabilities.

Children with mental disorders, also known as mentally retarded, are children who have intellectual abilities below the standard, namely an IQ of 70, as well as limitations in thinking, attention, and memory (Saputra & Febriyanto, 2019; Kauffman & Hallahan, 2011; Muhtar & Lengkana, 2019). In general, education is provided not only to students who have perfect thinking patterns but also to children with intellectual disabilities who have the same right to a complete education. According to the literature review, mentally retarded children have the same rights as other children when it comes to meeting their needs and maximizing their capabilities in terms of services and education (Phytanza et al., 2018). Based on the previous research, efforts must be made to improve the abilities of children with mental disorders so that these limitations do not impede their psychomotor and cognitive development (Phytanza et al., 2018).

These efforts are performed through adaptive physical education which is prepared by educators in a good, systematic manner and pays attention to important aspects of learning. Kauffman and Hallahan (2011) stated that inaccuracies in services will negatively impact the development of children with intellectual

disabilities if learning patterns for children with intellectual disabilities are not considered and arranged inappropriately. Therefore, physical education and special sports for children with intellectual disabilities must include synergies and concepts of science, as well as character development. Besides, it is critical to pay attention to these factors so that better learning patterns can be achieved for children with intellectual disabilities to emerge (Burhaein, 2017). Of course, based on the above description, teachers, trainers, and educators must pay attention to these factors for physical education learning to have a positive and optimal effect. The positive effect of movement diversity in adaptive physical education can improve and develop natural motor functions, as well as develop positive personality traits and increase children's social opportunities (Wieczorek et al., 2018). Thus, physical education learning is becoming increasingly important in the development of students with disabilities. However, the reality is not as sweet as it appears as there are issues that need to be addressed in learning physical education with intellectual disabilities in Semarang City's special schools.

In Semarang, there are 8 special schools (SLB) consisting of SLB YPAC Semarang with 23 teachers, SLB Negeri Semarang with 111 teachers, SLB C Swadaya with 21 teachers, and SLB C Putra Mandiri with 4 teachers. teachers, SLB C Widya Bakti with 10 teachers, SLB C Pelita Ilmu with 7 teachers, SLB C Dharma Mulia with 2 teachers, and SLB Immanuel with 2 teachers. Based on the researcher's critical analysis through observation, it was found that teachers who teach adaptive physical education subjects are not purely physical education graduates, but only teachers who teach subjects other than physical education. This makes the way of presenting, planning, implementing, and evaluating adaptive physical learning certainly different from teachers who are truly physical education teachers. This problem is the basis that the competence of teachers in their fields affects the implementation, planning, assessment, and evaluation of physical education learning for students with intellectual disabilities.

This concern is reinforced by previous research which found that teachers are an important element in the educational process. Teachers are also required to be competent, qualified, knowledgeable, responsible, committed, and play an active role in providing a better learning process for their students (Asmarani et al., 2021). This is as stated in the Law of the Republic of Indonesia number 14 of 2005 which states that lecturers and teachers are professional educators who have the task of guiding, directing, training, teaching, evaluating, and assessing students from an early age through formal education from primary, secondary and tertiary education (Fitrianova, 2020).

Based on the description above, it can be further explained that in essence, teachers must have competence in the field they are engaged in to be able to transfer knowledge optimally with planning, and good learning assessment. Talking about learning, of course, is very closely related to assessment. Assessment is important to see if the learning that has been done by the teacher brings a good impact on students. The results of the literature review found that assessment is a series to analyze and interpret the planned and sustainable learning process so that it can become meaningful information (Budi, 2018).

Based on the problems that have been described, researchers were interested in examining the assessment of learning outcomes of physical education for students with intellectual disabilities considering that most of the physical conditions of children with intellectual disabilities are not much different from normal students. Research on the implementation of adaptive physical education assessments has certainly been replicated, such as research from Sari (2018) on the implementation of assessment of physical student outcomes for the deaf and research from Hastuti et al. (2017) regarding the implementation of student learning outcomes assessment in the field of physical education studies on deaf students in Pekan Baru SLB. The two studies focused more on children with hearing impairments. Besides, related research was also carried out by Priyanto (2016) regarding the implementation of adaptive physical education learning activities for mentally retarded children at the Bangunrejo 2 public elementary school, Yogyakarta City. Priyanto's research has little in common with this study, only differing in the time allocation, sample, and research location.

The purpose of this study has urgency so research needs to be done immediately considering that assessment is part of the learning component used to see progress. The success is expected to be an evaluation material to improve optimal and high-quality learning. The purpose of this study was to conduct research related to the assessment implementation of physical education learning outcomes in schools for students with intellectual disabilities in SLB Semarang City, Central Java. This study, some of which will be studied in more depth consist of the implementation of physical education learning assessments viewed from the cognitive, psychomotor, and affective aspects considering that each special school has a different way of assessing physical education learning.

METHODS

Research Approach and Design

This research method was descriptive. Descriptive research describes existing phenomena related to variables, symptoms, and circumstances rather than testing hypotheses (Taufan et al., 2018). The method employed was qualitative. The qualitative approach aims to examine, test, and evaluate participants' perspectives and a situation with a related and flexible pattern (Agarwal et al., 2020; Siyoto & Sodik, 2015). The purpose of this study was to look into how the assessment of physical education learning outcomes for students with intellectual disabilities is being implemented in SLB Semarang City. This study focuses on the affective, cognitive, and psychomotor aspects of special education.

Research Data Source

This study's data sources were divided into two categories: primary and secondary data sources. Using a predetermined instrument, primary data sources were obtained directly. The results of the interviews became the main source of information. Interviews were conducted with 41 teachers at the Semarang City Special School who are currently teaching physical education classes. Secondary data sources were also gathered from the media.

Data Collection Techniques and Research Instruments

Data was collected using observation techniques to get a general picture of how the assessment of physical education learning outcomes was implemented by taking notes, listening, and recording everything from learning to infrastructure. Direct interviews with 41 teachers who are in charge of physical education subjects are the next data collection technique. The researcher acts as an instrument or party in the interview technique, conveying what is being questioned. Documentation is the last data collection technique. Using a tape recorder and camera, documentation was used to collect data that has been studied at SLB in Semarang City. Sari (2018) provided the instrument used in this study where the lattice can be written as follows:

Table 1. Research instrument lattice

Variable	Indicator	Sub-Indicator	Data Collection Technique			Data Source
			Observation	Interview	Documentation	
Assessment Implementation of Adaptive Physical Education Learning Outcomes for Students with Intellectual Disabilities	Cognitive	• Recognize				Principals and physical education teachers
		• Thinking				
		• Understand	√	√	√	
	Psychomotor	• Create				
		• Memorize				
		• Move	√	√	√	
	Affective	• Act				
		• Cooperation	√	√	√	
		•Socio-emotional skills				
		•Sports behaviour				
		• Self-concept				
		•Positive Attitude				

Data Validity Analysis Techniques

The validity of the data is the technique used for the examination in qualitative research. The purpose of the test is to disprove the claim that qualitative research is not scientific and that it is even used as an inseparable part of qualitative research. Triangulation techniques were used to check the data's validity. Triangulation is a technique for determining the validity of information derived from a set of data (Carter et al., 2014). If the process is achieved, the research results are considered to have high credibility. Triangulation in this study combines observational data with in-depth interviews to get the same answer from 45 informants or reaches a saturation point. Furthermore, the data analysis method employed was qualitative. The first step in the data analysis technique was to collect data, which was followed by data reduction to create a summary and grouping. The next step was to examine the data, and the final step was to conclude.

RESULT AND DISCUSSION

The results of the study were obtained from data that had been taken when conducting research related to the implementation of physical education learning assessments for students with intellectual disabilities at special schools in Semarang City which focused on affective, cognitive, and psychomotor

aspects. The results of the study were based on direct observation, interviews and documentation carried out in each school where the research was conducted. Researchers conducted research from April 5 to April 30, 2021. During this period, researchers carried out in-depth observations, interviews, and documentation. Researchers conducted interviews with several informants consisting of school principals and SLB teachers from SLB Widya Bhakti, SLB C Swadaya, and SLB C Dharma Mulia.

Assessment Results Based on Cognitive Aspects

According to a statement made by an SLB Widya Bhakti teacher, the following is how the assessment of physical education learning for students with intellectual disabilities is done from a cognitive standpoint:

"The implementation of cognitive assessments that have been given to students is still limited to the minimum passing grade (KKM) because students who take part in learning cannot be optimal while undergoing learning, especially students with moderate to severe types of mental retardation, it is very difficult." In line with the opinion of the informant from SLB Swadaya, the implementation of the assessment of learning outcomes of adaptive physical education for students with intellectual disabilities related to the implementation of cognitive assessment was also found to be very difficult. In this case, cognitive assessment is related to the student's psychomotor.

The physical education and health teacher at SLB Swadaya stated that: "Implementing the cognitive assessment of students is very difficult considering the level of thinking ability or IQ which is below standard. However, what is done to provide cognitive assessments is associated with psychomotor or student abilities. For example, when a child is asked what kind of volleyball game is it? Then students will demonstrate it even though it is not perfect. In other words, their attitude indicates that students can remember their movements so that they are used as a reference for assessment.

Based on the previous research, a person's cognitive skills refer to their ability to apply and analyze newly acquired knowledge (Aboalela & Khan, 2016). As a result, the cognitive abilities of children with intellectual disabilities are still being assessed, as learning requires an assessment to determine progress in understanding and application. The assessment is still carried out at the SLB following the existing curriculum, even though it has not been able to run optimally. Geisinger et al. (2011) stated that assessment guidelines for children with disabilities are critical in helping psychology develop concepts and implement more ethical, fair, and effective psychological assessment and testing that takes into account the characteristics of children with disabilities. According to previous research, cognitive assessment for children with disabilities is primarily done using virtual robot-based play media, as stated in "Using virtual robot mediated play activities to assess cognitive skills" (Encarnação et al., 2014). This effort is in contrast to SLB Indonesia's assessment of learning, which continues to rely on traditional methods based on the existing curriculum, even though the assessment has been modified by the teachers.

Assessment is an important part of the learning process (Aboalela & Khan, 2016; Mustafa & Masgumelar, 2022). Assessment of adaptive physical education from the cognitive aspect is a benchmark carried out by teachers for their students which aims to determine students' knowledge abilities. Another opinion explains that cognitive assessment is a process to use and acquire knowledge where students have carried out the process of recognizing, remembering, creating, thinking, and understanding learning obtained from educators (Sari, 2018). Therefore, the knowledge assessment certainly aims to measure the results or mastery of competencies in the cognitive aspect (Sari, 2018; Hidayat & Anggriawan, 2022).

The indicators that are arranged are inextricably linked to the assessment process. The implementation of the assessment of adaptive physical education learning outcomes in SLB Semarang City was carried out on the cognitive aspect, according to the findings of research using observation, interview, and documentation data collection techniques. Students must master knowledge competence to reflect scientific concepts, so knowledge assessment is an assessment that must be conducted by a physical education teacher on students and students to determine mastery of competence in cognitive aspects.

Even though the assessment indicators cannot be in line with the appropriate curriculum, the cognitive assessment of students with intellectual disabilities has been implemented. The teacher continues the assessment by modifying the cognitive assessment according to each student's abilities. Based on the findings of the interviews, it can be concluded that assessing physical education learning outcomes for students with intellectual disabilities, particularly from a cognitive standpoint, is a difficult task due to the condition of children with IQs below the average. In the end, the assessment in the cognitive aspect is still carried out based on the students' abilities.

Assessment Results Based on Affective Aspects

The SLB C Swadaya teacher gave the following statement: "From the attitude point of view, it has been acknowledged that the attitude of students with disabilities is very bad compared to normal students because they can say bad things where students with disabilities are free to say what they like. However, back again, when guided by the existing indicators, all the scores mostly are bad. Therefore, the assessment of the

affective aspect is carried out based on the character of each student. This statement is following informants from SLB C Dharma Mulia where the implementation of the assessment of physical education learning outcomes for students with intellectual disabilities, especially from the affective aspect of students, is adjusted to the abilities possessed by each child with intellectual disabilities. Dharma Mulia stated: "The assessment of the affective aspects of students is not much different from the assessment of the cognitive aspects of these students, because the nature and characteristics of students with intelligence abilities below the average are the same so that the assessment procedure is also not different".

Sports behavior skills and socio-emotional factors are associated with attitudes. Students must have a positive attitude because it demonstrates their level of commitment to learning, motivation, discipline, respect for friends and teachers, social relationships, and learning habits. This is consistent with the literature review, which states that social attitudes are required to form relationships with others in one's life. A social attitude is a pattern of behavior that is related to social life and social values such as environmental cooperation (Maulida et al., 2020). The awareness of a person to take real actions that are carried out continuously while still alive is referred to as attitude (Virani et al., 2016). For this reason, an assessment of attitudes in physical education learning is very necessary.

Based on the findings of the interviews, it can be concluded that the teacher provided an assessment of the affective aspects of each student's characteristics while implementing the assessment of children with intellectual disabilities. As a result, even if their attitudes do not match the curriculum's attitude assessment indicators, students can be said to have a positive attitude.

Assessment Results Based on Psychomotor Aspects

Researchers used observations, interviews, and documentation to determine how the assessment of physical education learning outcomes from a psychomotor perspective was implemented. Several perspectives on the implementation of learning outcome assessment are based on information provided by several informants. According to the SLB Swadaya teacher, the psychomotor aspect of the assessment of physical education learning for students with intellectual disabilities is tailored to the personality of each student. The following is a statement from SLB C Swadaya's teacher: "The main purpose of doing physical learning for children with intellectual disabilities is that children can have fun. What is expected is that children can move and exercise, especially moving their hands and feet because to do these movements, especially the fingers, children find difficult. Thus, the implementation of the assessment of physical education learning is of course very easy, but the important thing that must be noted here is that the children are actively moving."

An informant from SLB Dharma Mulia expressed the following viewpoint on the assessment implementation of physical education learning for children with intellectual disabilities, particularly from the psychomotor perspective, which was based on student activity. The teacher of SLB C Dharma Mulia believes that: "In its implementation, we as teachers provide an assessment based on the characteristics of each child. However, from the psychomotor aspect, the most important thing is that children can actively move together. It has become an indicator of the assessment of physical education."

Psychomotor assessment is frequently referred to as a test of a student's abilities. Individual quality and competence are inextricably linked to the students' abilities (Sari, 2018). According to Sudjana (2009), psychomotor skills are divided into six categories: reflex motion, basic movement skills, conceptual ability to distinguish auditory, motoric, physical abilities such as strength and accuracy, simple to complex skill movements, and expressive and interpretive abilities. Physical learning assessments for students with disabilities are implemented based on the results of interviews by observing whether students are actively moving following the teacher's instructions. This method becomes a form of teacher-led assessment, indicating that the form of cognitive assessment is closely linked to the form of psychomotor ability assessment.

Indicators of Assessment of Learning Outcomes from Cognitive, Affective, and Psychomotor aspects

Researchers have conducted observations, interviews, and documentation to determine the indicators used in the assessment of the implementation of physical learning. In this study, the opinions of the informants were obtained. The opinion of the SLB C Swadaya teacher explained that the assessment of physical education learning from the cognitive, affective, and psychomotor aspects cannot be directly carried out following what is in the curriculum, but must be adapted to the condition of students. The SLB C Swadaya teacher stated that:

"There are already guidelines for the assessment indicators from the curriculum. However, these indicators certainly cannot be directly applied because students' abilities are certainly different. For this reason, the indicators that I have applied have been modified, and adapted to each student's ability, even though the indicators are not directly written in the manual. The statement above is in line with a teacher informant from SLB C Dharma Mulia who stated that "As for the assessment indicators, they were taken from

existing textbooks. However, not all of these indicators serve as guidelines for conducting student assessments. As stated earlier, all forms of learning assessment for mentally retarded students are adjusted based on the abilities of each student.

The above statements are reinforced by the book quoted that the preparation of the assessment rubric can be modified for students with disabilities, for example, the rubric for the level of student performance ability is stated as "moving in a fast position can be modified into an effort to move from one position to another". Thus, modifying the assessment rubric to be simpler should be done so that students are better able to perform according to the rubric (Winnick & Porretta, 2016). According to the results of the cognitive, affective, and psychomotor aspects of adaptive physical education assessment, it is known that each aspect is assessed based on the ability of students with intellectual disabilities while taking into account the limitations that students have experienced. But on the other hand, it might be possible that the real assessment can be done with certain conditions or criteria.

CONCLUSION

Based on the findings and discussions regarding the assessment implementation of physical education learning outcomes for students with intellectual disabilities at SLB Semarang City, it can be concluded that the assessment of physical education learning in cognitive, affective, and psychomotor aspects has been implemented and carried out by the teacher where the assessment is done according to the abilities of each student. The findings of this study are obtained based on information gathered from researchers' observations, interviews, and documentation.

REFERENCES

- Aboalela, R., & Khan, J. (2016, November). Model of learning assessment to measure student learning: inferring of concept state of cognitive skill level in concept space. In *2016 3rd International Conference on Soft Computing & Machine Intelligence (ISCMCI)* (pp. 189-195). IEEE
- Agarwal, S., Lenka, U., Singh, K., Agrawal, V., & Agrawal, A. M. (2020). A qualitative approach towards crucial factors for sustainable development of women social entrepreneurship: Indian cases. *Journal of Cleaner Production*, 274, 123135
- Asmarani, A., Sukarno, S., & El Widdah, M. (2021). The Relationship of Professional Competence with Teacher Work Productivity in Madrasah Aliyah. *Nidhomul Haq: Jurnal Manajemen Pendidikan Islam*, 6(2), 220-235.
- Borghouts, L. B., Slingerland, M., & Haerens, L. (2017). Assessment quality and practices in secondary PE in the Netherlands. *Physical Education and Sport Pedagogy*, 22(5), 473-489.
- Budi, V. (2018). Penyusunan Instrumen Berbasis Proses Kelompok Kerja Guru Pendidikan Jasmani Sekolah Dasar. *Prosiding Seminar Nasional Pendidikan Olahraga* (p. 502). Medan: Digital Library
- Burhaein, E. (2017). Aktivitas Fisik Olahraga untuk Pertumbuhan dan Perkembangan Siswa SD. *Indonesian Journal of Primary Education*, 1(1), 51-58.
- Carter, N., Bryant-Lukosius, D., & Alba DiCenso, R. N. (2014, September). The use of triangulation in qualitative research. In *Oncology nursing forum* (Vol. 41, No. 5, p. 545). Oncology Nursing Society.
- Encarnaçãõ, P., Alvarez, L., Rios, A., Maya, C., Adams, K., & Cook, A. (2014). Using virtual robot-mediated play activities to assess cognitive skills. *Disability and Rehabilitation: Assistive technology*, 9(3), 231-241.
- Evseev, S. (2018). Adaptive physical education and adaptive sports within the mental health-care system. *International Journal of Culture and Mental Health*, 11(1), 109-112.
- Fitrianova, N. (2020). Studi Korelasi Kompetensi Pedagogik dan Kompetensi Profesional Guru dengan Pengelolaan Kelas di MIN 2 Ponorogo. *Southeast Asian Journal of Islamic Education Management*, 1(1), 51-59. <https://doi.org/10.21154/sajiem.v1i1.7>
- Geisinger, K. F., Kriegsman, K., Taliaferro, G., Schultz, I. Z., Hamilton, R. H., Heller, T., ... & Smith, D. (2011). Guidelines for Assessment of and Intervention with Persons with Disabilities.
- Hastuti, T. A., Jatmika, H. M., Pratama, K. W., & Yudhistira, D. (2021). The Level of Understanding of Pedagogical Competence of Physical Education, Health and Recreation Students of Sports Science Faculty. *Teoriâ Ta Metodika Fizičnogo Vihovannâ*, 21(4), 310-316.

- Hastuti, T., Sari, M., & Yulianti, M. (2017). Pelaksanaan penilaian hasil belajar siswa dalam bidang studi penjas pada siswa tunarungu SLB se Kota Pekanbaru. *Perspektif Pendidikan dan Keguruan*, 8(02), 45-49.
- Hidayat, T., & Anggriawan, F. I. (2022). *Kartu Pengukuran Kompetensi Siswa SD pada Pembelajaran PJOK*. Penerbit NEM.
- Hindrasti, N. E. K., Amelia, T., & Nofiana, M. (2020). Analisis Kebutuhan dalam Pengembangan Asesmen Autentik Keterampilan Abad ke-21 untuk Mahasiswa Pendidikan Biologi. *Pedagogi Hayati*, 4(2), 79–86. <https://doi.org/10.31629/ph.v4i2.2638>
- Juanda, A. (2022). Classroom Management: How Important is Authentic Assessment of 21st Century Skills in Biology Education Students? *Jurnal Penelitian Pendidikan IPA*, 8(1), 188-194.
- Kauffman, J. M., & Hallahan, D. P. (2011). *An introduction: Into exceptional learners special education*. Boston: Allyn & Bacon.
- Leirhaug, P. E., & MacPhail, A. (2015). 'It's the other assessment that is the key': three Norwegian physical education teachers' engagement (or not) with assessment for learning. *Sport, education and society*, 20(5), 624-640.
- Maulida, I., Dibia, I. K., & Astawan, I. G. (2020). The Development of Social Attitude Assessment Instrument and Social Studies Learning Outcomes Grade IV on Theme of Indahnya Keragaman di Negeriku. *Indonesian Journal of Educational Research and Review*, 3(2), 12-18.
- Muhtar, T., & Lengkana, A. S. (2019). *Pendidikan jasmani dan olahraga adaptif*. UPI Sumedang Press.
- Mustafa, P. S., & Masgumelar, N. K. (2022). Pengembangan Instrumen Penilaian Sikap, Pengetahuan, dan Keterampilan dalam Pendidikan Jasmani. *Biomatika: Jurnal Ilmiah Fakultas Keguruan Dan Ilmu Pendidikan*, 8(1), 31–49. <https://doi.org/10.35569/biormatika.v8i1.1093>
- Phytanza, D. T. P., Burhaein, E., & Ghautama, W. S. (2018). Life skill dimension based on Unified Sports soccer program in physical education of intellectual disability. *Yaşam Becerileri Psikoloji Dergisi*, 2(4), 199-205.
- Priyanto, T. (2016). *Pelaksanaan Kegiatan Pembelajaran Pendidikan Jasmani Adaptif Anak Tunarungu di SD Negeri Bangunrejo 2 Kota Yogyakarta* [Thesis, Universitas Negeri Yogyakarta].
- Saputra, V. H., & Febriyanto, E. (2019). Media Pembelajaran Berbasis Multimedia Untuk Anak Tuna Grahita. *Mathema: Jurnal Pendidikan Matematika*, 1(1), 15-23.
- Sari, M. (2018). Proses Pelaksanaan Penilaian Hasil Pembelajaran Pendidikan Jasmani Anak Tuna Rungu di SMALB Negeri Pembina Pekanbaru. *Journal Sport Area*, 3(1), 42-54.
- Siyoto, S., & Sodik, A. (2015). *Dasar metodologi penelitian*. yogyakarta: Literasi Media Publishing
- Sudjana, N. (2009). *Penilaian Hasil Proses Belajar Mengajar*. Bandung: Remaja Rosdakarya
- Taufan, J., Ardisal, A., Damri, D., & Arise, A. (2018). Pelaksanaan Pembelajaran Pendidikan Jasmani Adaptif bagi Anak dengan Hambatan Fisik dan Motorik. *Jurnal Pendidikan Kebutuhan Khusus*, 2(2), 19-24.
- Tolgfors, B. (2018). Different versions of assessment for learning in the subject of physical education. *Physical Education and Sport Pedagogy*, 23(3), 311-327.
- Virani, I. A. D., Riastini, I. P. N., & Suarjana, I. M. (2016). Deskripsi sikap sosial pada siswa kelas 4 SDN Panarukan Kecamatan Buleleng Kabupaten Buleleng. *E-Journal PGSD Universitas Pendidikan Ganesha*, 4(1). <https://ejournal.undiksha.ac.id/index.php/JJPGSD/article/view/7699/5251>
- Vu, T. T., & Dall'Alba, G. (2014). Authentic Assessment for Student Learning: An Ontological Conceptualisation. *Educational Philosophy and Theory*, 46(7).
- Wieczorek, M., Sadziak, A., & Karásková, V. (2018). *Emotions related to physical education lessons in students with intellectual disabilities*.
- Winnick, J. P., & Porretta, D. L. (2016). *Adapted physical education and sport*. Human Kinetics.