

Petanque Game Modification Training to Enhance the Competence of Adaptive Physical Education Teachers

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Abstract

The limited variety of adaptive physical activities in Physical Education, Sports, and Health learning at Special Schools (SLB) has constrained teachers' ability to design instruction that aligns with the characteristics of students with intellectual disabilities. This community service program aimed to enhance teachers' competence through training on modifying petanque games. The method employed was service learning, an experiential community engagement approach that integrates service provision with hands-on practice. This approach enabled teachers not only to receive theoretical knowledge but also to actively engage in practice and reflection, thereby improving their applied competencies. The program was implemented through pre-implementation, implementation, and evaluation stages involving 10 PJOK teachers at SLB Negeri Surakarta. Evaluation was conducted using pretests and posttests to assess knowledge, while observations were used to evaluate practical skills. The results demonstrated an increase in teachers' knowledge ranging from 39% to 53%, as well as improved practical abilities in designing PJOK lessons through the modification of game rules, adaptation of equipment, and adjustment of fundamental techniques. The program strengthened teachers' pedagogical capacity and supported the sustainable development of adaptive physical education learning.

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INTRODUCTION

Students with intellectual disabilities are individuals who experience limitations in intellectual and adaptive functioning that are generally identified before the age of 18. These limitations include difficulties in logical thinking, problem-solving, communication, and social interaction ([American Psychiatric Association, 2013](#); [Schalock et al., 2021](#)). Such conditions directly affect various aspects of development, including motor

development. Children with intellectual disabilities tend to experience delays in acquiring fundamental movement skills such as running, jumping, and throwing ([Einarsson et al., 2015](#); [Kavanagh et al., 2023](#)). Consequently, they often participate less in daily physical activities, contributing to lower levels of physical fitness and an increased risk of physical health problems ([Shields et al., 2012](#); [Zhang et al., 2024](#)). Other consequences include reduced self-confidence and limited engagement in movement-based learning activities, highlighting the need for adaptive physical education approaches tailored to students' individual characteristics ([Dubey, 2024](#); [Lieberman et al., 2024](#)).

At SLB Negeri Surakarta, most students with intellectual disabilities have not achieved physical fitness levels appropriate to their age and developmental characteristics. This condition is influenced by limited opportunities and the low intensity of structured physical activities both at school and at home, resulting in suboptimal participation in the daily physical activity ([Kavanagh et al., 2023](#); [Zhang et al., 2024](#)). PJOK instruction is currently limited to once a week and has not been fully adapted to the abilities and needs of students with intellectual disabilities ([Lieberman et al., 2024](#)). This situation is inconsistent with the recommendations of the World Health Organization (WHO), which emphasize that children, including those with disabilities, should engage in at least 60 minutes of physical activity per day ([Bull et al., 2020](#); [World Health Organization, 2020](#)). Recent studies have also shown that low levels of physical activity among children with intellectual disabilities are associated with increased risks of obesity, metabolic disorders, and psychosocial problems, underscoring the need for systematic and sustainable efforts to enhance their participation in safe and appropriate physical activities ([Zhang et al., 2024](#)).

Within the special school context, PJOK teachers play a strategic role in providing physical activity stimulation that matches the characteristics of students with intellectual disabilities. However, teachers often face challenges such as maintaining students' attention, addressing limited concentration spans, and managing low tolerance for sustained physical activity ([Chew & Cerbin, 2021](#); [Jumao-as, 2025](#)). Furthermore, limited access to professional training in adaptive physical education often leads teachers to rely on less varied instructional methods that are not fully responsive to the individual needs of students with special educational needs ([Ekawati et al., 2023](#); [Montecino & Bernaldez, 2025](#); [Posso-pacheco et al., 2025](#)). These conditions highlight the necessity of developing innovative PJOK learning approaches that are simple, safe, and easily modified so that students with intellectual disabilities can actively, comfortably, and consistently participate in physical activities at school.

One promising alternative for adaptive PJOK instruction is the game of petanque. The selection of this sport is based not only on its contribution to motor stimulation but also on its compatibility with the needs and abilities of special school students, particularly those with intellectual disabilities. In adaptive physical education, safety and ease of modification are essential considerations when selecting effective instructional media. Petanque is a French sport played by throwing metal balls (*boules*) toward a small wooden target ball known as the *cochonnet*. The game is characterized by simple rules, does not require extreme physical exertion, and can be played without specialized facilities. Therefore, petanque is accessible to individuals of various ages and physical conditions, including persons with disabilities ([Di Domenico et al., 2022](#)). Its flexibility allows for modifications to accommodate diverse learner needs. The game has the potential to positively stimulate motor development in children with intellectual disabilities because it combines elements of accuracy, motor coordination, strategy, and concentration ([Matheu, P., Villanova, A., Ingles, E., & De Bosscher, 2025](#)). The ease of modification and structured nature of the game make it possible to provide controlled, gradual, and success-oriented motor

stimulation, thereby increasing students' participation and confidence in adaptive PJOK learning.

Nevertheless, implementing petanque in special school settings requires careful adaptation. Modifications to game rules, equipment size and weight, activity duration, and the number of players must be adjusted according to students' abilities and conditions to ensure safety and active participation ([Dubey, 2024](#); [Mubarrak & Kafrawi, 2017](#)). Therefore, enhancing teachers' capacity through training is crucial to ensure that game modifications preserve the essential elements of petanque while making participation easier for students with intellectual disabilities.

Based on these conditions, a gap exists between the instructional needs of adaptive PJOK and teachers' ability to design engaging and adaptive physical activities for students with intellectual disabilities at SLB Negeri Surakarta. To address this issue, this community service program offered training based on a service-learning approach, which has been proven effective in improving practical skills, social empathy, and contextual understanding among participants ([Afandi et al., 2022](#); [Lieberman et al., 2024](#)). The program aimed to enhance teachers' competence in developing inclusive, enjoyable, and fitness-oriented PJOK learning experiences for students with intellectual disabilities.

METHODS

This community service program employed the service-learning method. Service learning is a community engagement approach that integrates service activities with experiential learning processes, in which both facilitators and community partners actively participate in implementing activities to address real-world community issues while simultaneously enhancing participants' practical skills and understanding ([Afandi et al., 2022](#); [Rusli et al., 2024](#)). This method was selected because it aligns with the objective of the program, namely improving teachers' competencies through training and direct practice, without involving iterative reflection cycles as commonly found in Participatory Action Research (PAR) or community asset mapping as emphasized in Asset-Based Community Development (ABCD).

The program was conducted at SLB Negeri Surakarta in May 2025 and involved 10 Physical Education, Sports, and Health (PJOK) teachers as participants. The implementation consisted of three main stages: pre-implementation, implementation, and evaluation. These stages were systematically designed to ensure the achievement of program objectives and to facilitate the measurement of program outcomes.

Program Stages

1) Pre-implementation

The pre-implementation stage began with field observations and structured interviews with PJOK teachers to identify the primary challenges encountered in teaching, particularly the low physical fitness levels of students with intellectual disabilities and the limited variety of adaptive physical activities available in instruction. Coordination was also conducted with school administrators to establish agreements regarding the implementation schedule, venue, and the availability of supporting facilities and equipment. Findings from this stage served as the basis for developing the training materials and designing petanque game modifications tailored to the characteristics of students with intellectual disabilities.

2) Implementation

The implementation stage consisted of socialization, training, and practical sessions on petanque game modification. The activities were attended by 10 teachers from SLB Negeri Surakarta. Training materials included an introduction to petanque, basic game rules,

fundamental throwing techniques, and principles of game modification to accommodate the abilities and needs of students with intellectual disabilities. The training was delivered through a combination of lectures, discussions, and hands-on practice conducted on the school grounds.

During this stage, participants were actively involved in using petanque equipment, including metal balls (*boules*) and the wooden target ball (*cochonnet*), while adapting game rules, throwing distances, and playing duration to suit students' needs. To assess the impact of the training on teachers' knowledge, pretests and posttests were also administered.

3) Evaluation

The evaluation stage was conducted to assess the achievement of the community service objectives. Evaluation focused on two primary aspects: knowledge and practical skills. Knowledge evaluation was carried out by comparing teachers' pretest and posttest scores based on four assessment items, as presented in Table 1.

Table 1 Knowledge assessment instrument

No.	Indicator	Cognitive Level	Question Type
1	Physical fitness learning models for students with intellectual disabilities	C2	Rating Scale
2	Physical fitness concepts for students with intellectual disabilities	C2	Rating Scale
3	Basic concepts of petanque for students with intellectual disabilities	C1	Rating Scale
4	Petanque game modification for students with intellectual disabilities	C3	Rating Scale

Practical skills were evaluated through direct observation of teachers' ability to implement modified petanque activities, including the appropriateness of game rules, equipment usage, and management of learning activities. The observers consisted of the researchers and research assistants. The practical assessment instrument is presented in Table 2.

Table 2 Practical skills assessment instrument

No	Aspect Assessment	Description	Score
1	Equipment modification	Adjustment of ball size and characteristics	1 – 4
2	Rule modification	Adaptation of rules to students' characteristics	1 – 4
3	Classroom management	Time management and safety procedures	1 – 4
4	Instruction delivery	Clarity of instructions and simplification of language	1 – 4
5	Learning reflection	Ability to evaluate and reflect on practice	1 – 4

$$\text{Final score} = \frac{\text{Total score}}{\text{Maximum score}} \times 100\% \quad \dots (1)$$

In addition, a follow-up monitoring plan was established to assess the sustainability of implementing the training outcomes in adaptive PJOK instruction for students with intellectual disabilities.

Measurement of Program Achievement

The level of program achievement was measured using both quantitative and qualitative indicators. Quantitative indicators included improvements in teachers' knowledge scores based on pretest and posttest results, with a minimum average increase of $\geq 30\%$ for each indicator. For practical performance, at least 80% of participants were expected to achieve a score of ≥ 70 . Qualitative indicators were obtained through observations of practical activities and teachers' reflections throughout the training. Changes in teachers' attitudes

toward adaptive PJOK instruction, increased confidence in modifying games, and readiness to implement petanque in teaching were considered indicators of success from social and cultural perspectives within the school environment. Overall, this implementation method was designed to ensure that the community service program not only enhanced teachers' theoretical competencies but also generated tangible and sustainable impacts on adaptive PJOK instructional practices for students with intellectual disabilities.

RESULTS AND DISCUSSION

The community service program was conducted on Tuesday, May 20, 2025, at SLB Negeri Surakarta and involved 10 teachers as participants. The primary focus of the activity was the socialization and training of modified petanque games as an adaptive PJOK learning medium for students with intellectual disabilities. The implementation followed the stages of the service-learning method, consisting of pre-implementation, implementation, and evaluation (Figure 1). This translation follows the conventions of international education and community service journals, using terminology commonly found in Scopus-indexed publications.

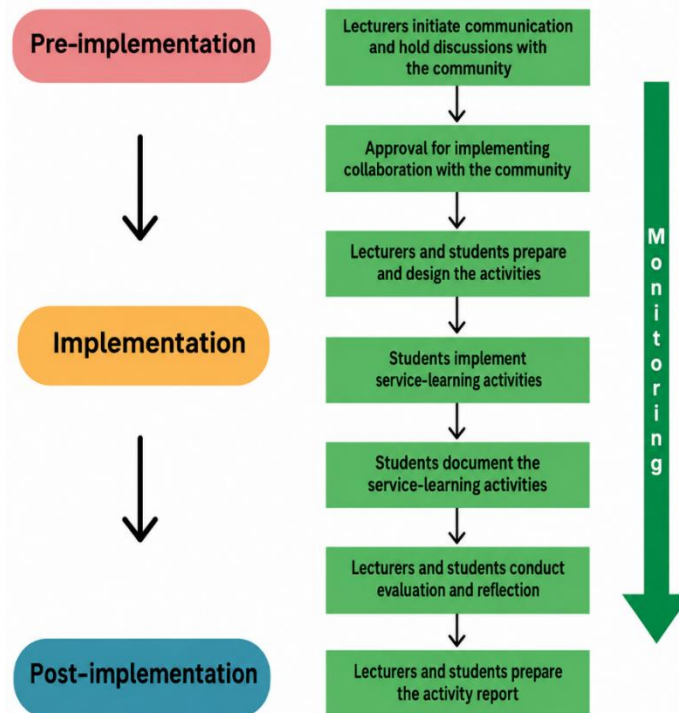


Figure 1 Flowchart of the service-learning method stages

During the socialization stage, teachers were provided with an understanding of the importance of adaptive Physical Education, Sports, and Health (PJOK) learning and the potential of petanque as a safe and easily modifiable instructional medium. Participants responded positively, as reflected in their active engagement during discussions and question-and-answer sessions (Figure 2). Such active participation represents an initial indicator of the success of the service-learning approach, which emphasizes participation and direct experience as key components of the learning process (Rusli et al., 2024).



Figure 2 Socialization activity

The implementation stage involved training on the fundamental techniques of petanque and strategies for modifying game rules, equipment, and duration to suit the characteristics of students with intellectual disabilities. Teachers not only received theoretical instruction but also participated in hands-on practice (Figure 3). This practice-based approach is consistent with the principles of adaptive physical education, which emphasize the importance of experiential learning and adapting activities to meet individual student needs ([Haegele et al., 2020](#); [Lieberman et al., 2024](#)).



Figure 3 Training and practice activities on petanque game modification

Impact of Teachers' Knowledge

The results of the knowledge assessment, measured through pretests and posttests, revealed improvements across all indicators (Table 3). The average increase ranged from 39% to 53%, with the greatest improvement observed in teachers' understanding of petanque and its modifications. These findings indicate that the training had a substantial impact on enhancing teachers' conceptual understanding.

Table 3 Pre-test and post-test scores

No.	Question	Mean Difference Between Posttest and Pretest Scores	Average Percentage Increase
1	On a scale of 1–10, how well do you understand instructional models for teaching physical fitness to students with intellectual disabilities?	3.9	39%
2	On a scale of 1–10, how well do you understand physical fitness for students with intellectual disabilities?	4.0	40%
3	On a scale of 1–10, how well do you understand petanque for students with intellectual disabilities?	5.3	53%
4	On a scale of 1–10, how well do you understand petanque game modifications for students with intellectual disabilities?	5.3	53%

The improvement in teachers' knowledge is an important factor in the implementation of adaptive physical education, as teachers' pedagogical competence directly influences instructional quality and student engagement ([Haegele et al., 2020](#); [Wilson et al., 2020](#)). With increased understanding of game modification, teachers are better equipped to design inclusive physical activities that address the needs of students with intellectual disabilities.

Impact on Practical Skills

The evaluation of practical skills showed that most teachers were able to successfully implement modified petanque activities, including adapting game rules and managing learning activities effectively (Figure 4). Of the 10 participants, 9 achieved scores of ≥ 70 , while only 1 participant scored below 70. These results indicate that the training enhanced not only cognitive understanding but also practical competencies. The average scores for each assessment aspect are presented in Table 4.

Table 4 Practical skills scores by assessment aspect

No	Assessment Aspect	Mean Score
1	Equipment modification	2.9
2	Rule modification	3.2
3	Classroom management	3.4
4	Instruction delivery	3.3
5	Learning reflection	3.5
	Average	3.2

Practice- and simulation-based approaches have been shown to be effective in improving teachers' readiness to implement adaptive instruction ([Holovchenko, 2025](#); [Landon-Hays et al., 2020](#)). When teachers gain direct experience in modifying physical activities, they become more confident in applying such practices in their classrooms.



Figure 4 Practical skills evaluation activity

Social Impact and Sustainability

This community service program not only improved teachers' knowledge and practical skills but also enhanced their readiness and confidence in designing more diverse and inclusive PJOK learning activities. Teachers who previously faced challenges in identifying appropriate adaptive physical activities now have access to an alternative game that is relatively safe, simple, and easily modified to accommodate the characteristics of students with intellectual disabilities. This improvement in competence demonstrates that practice-based training can strengthen teachers' pedagogical capacity in adaptive physical education ([Haegele et al., 2020](#); [Lieberman et al., 2024](#)).

These outcomes are particularly significant given that low levels of physical activity among children with intellectual disabilities may negatively affect their long-term physical fitness and health ([Bull et al., 2020](#); [Mubarrak & Kafrawi, 2017](#)). The availability of an adaptive and enjoyable game such as petanque creates greater opportunities for increasing students' participation in structured physical activities. Furthermore, the nature of the game, which does not require extreme physical abilities, aligns with World Health Organization recommendations regarding the importance of regular physical activity for all children, including those with disabilities ([Bull et al., 2020](#)). Beyond individual-level benefits, this program also contributed to social and cultural changes within the school environment, particularly by increasing teachers' awareness of the importance of student-centered adaptive PJOK instruction. The development of positive perceptions toward game modification indicates the potential for broader implementation of inclusive and sustainable adaptive learning models within special education settings.

Nevertheless, this program has certain limitations. The modified petanque activities have not yet been implemented directly and continuously with students with intellectual disabilities. Consequently, their impact on students' physical fitness could not be quantitatively measured. The limited duration of the program also posed challenges for long-term mentoring and support. Therefore, further monitoring and follow-up assistance are needed to evaluate the effectiveness of implementing modified petanque activities in PJOK instruction and to explore their potential as a sustainable adaptive learning model.

CONCLUSION

This community service program, implemented through petanque game modification training, positioned teachers as key actors in the development of adaptive Physical Education, Sports, and Health instruction. The training contributed to improving teachers' ability to design physical activities that align with the characteristics of students with intellectual disabilities, particularly in promoting physical fitness, motor coordination, and

student engagement. Regarding knowledge outcomes, the average score increase ranged from $0.39 \leq x \leq 0.53$, while in the practical skills assessment, more than 80% of participants achieved scores above 70. These results indicate the successful achievement of the program objectives.

Through the service-learning approach, teachers gained direct experience in modifying the rules, equipment, and implementation of petanque games, enabling them to apply these adaptations safely and effectively within special education contexts. This process not only strengthened teachers' understanding but also enhanced their practical competencies. Consequently, the partner institution benefited from improved teacher capacity to adapt petanque activities according to the needs of students with intellectual disabilities and to support students' active participation in learning.

As a follow-up effort, direct and sustained implementation of modified petanque activities with students with intellectual disabilities is needed to quantitatively assess their impact on physical fitness improvement. Continuous monitoring and mentoring are also necessary to ensure the sustainability of petanque-based adaptations in PJOK instruction. Furthermore, this training model has the potential to be replicated and expanded in other special schools as an innovative, inclusive, and sustainable approach to adaptive physical education.

CONFLICTS OF INTEREST

The authors declare that there is no conflict of interest.

AUTHOR CONTRIBUTIONS

Conceptualization: FFE and TWR; Methodology: FFE, TWR, and I; Program implementation: BS, DWK, BW, and MES; Data collection and analysis: KJD and AMA; Original draft preparation: KJD; Manuscript review and editing: FFE, TWR, and KJD; Supervision: FFE and TWR. All authors have read and approved the final published version of the manuscript.

AI DISCLOSURE STATEMENT

The authors declare that this research was prepared, researched, written, and edited without the aid of artificial intelligence (AI) techniques.

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REFERENCES

Afandi, A., Laily, N., Wahyudi, N., Umam, M. H., Kambau, R. A., Rahman, S. A., Sudirman, M., Jamilah, Kadir, N. A., Junaid, S., Nur, S., Parmitasari, R. D. A., Nurdianah, Wahid, M., & Wahyudi, J. (2022). *Metodologi pengabdian masyarakat*. Direktorat Pendidikan Tinggi Keagamaan Islam Direktorat Jenderal Pendidikan Islam Kementerian Agama RI.

- American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders. *Diagnostic and Statistical Manual of Mental Disorders*. <https://doi.org/10.1176/appi.books.9780890425596>
- Bull, F. C., Al-Ansari, S. S., Biddle, S., Borodulin, K., Buman, M. P., Cardon, G., Carty, C., Chaput, J. P., Chastin, S., Chou, R., Dempsey, P. C., Dipietro, L., Ekelund, U., Firth, J., Friedenreich, C. M., Garcia, L., Gichu, M., Jago, R., Katzmarzyk, P. T., Willumsen, J. F. (2020). World health organization 2020 guidelines on physical activity and sedentary behaviour. *British Journal of Sports Medicine*, 54(24), 1451–1462. <https://doi.org/10.1136/bjsports-2020-102955>
- Chew, S. L., & Cerbin, W. J. (2021). The cognitive challenges of effective teaching. *The Journal of Economic Education*, 52(1), 17–40. <https://doi.org/10.1080/00220485.2020.1845266>
- Di Domenico, F., D’isanto, T., Altavilla, G., D’Elia, F., & Raiola, G. (2022). Inclusive physical activity to promote the participation of people with disabilities: A preliminary study. *International Journal of Statistics in Medical Research*, 11, 12–18. <https://doi.org/10.6000/1929-6029.2022.11.02>
- Dubey, A. (2024). Inclusive physical education: Strategies for creating an accessible and supportive learning environment. *Innovations in Sports Science*, 1(2), 1–5. <https://doi.org/10.36676/iss.v1.i2.7>
- Einarsson, I. Ó., Ólafsson, Á., Hinriksdóttir, G., Jóhannsson, E., Daly, D., & Arngrímsson, S. Á. (2015). Differences in physical activity among youth with and without intellectual disability. *Med Sci Sports Exerc*, 47(2), 411–418. <https://doi.org/10.1249/MSS.0000000000000412>
- Ekawati, F. F., Rahayu, T. W., & Satyawan, B., Ismaryati, I., Kardiyanto, D. W., & Wijanarko, B. (2023). Sosialisasi pembelajaran pjok inklusif pada guru sekolah menengah pertama kota surakarta sebagai upaya peningkatan profesionalisme dalam mengajar. *Bubungan Tinggi: Jurnal Pengabdian Masyarakat*, 5(3), 1261-1270..
- Haegele, Justin A, Wilson, Wesley J, Zhu, Xihe, Bueche, Justin J, Brady, Ellie, & Li, Chunxiao. (2020). Barriers and facilitators to inclusion in integrated physical education: Adapted physical educators’ perspectives. *European Physical Education Review*, 27(2), 297–311. <https://doi.org/10.1177/1356336X20944429>
- Holovchenko, M. (2025). Methods of teaching and preparing higher education institutions to ensure students’ readiness to implement new methods in schools. *Scientific Journal of National Pedagogical Dragomanov University.*, 5, 38–43. [https://doi.org/https://doi.org/10.31392/udu-nc.series15.2025.05k\(191\).07](https://doi.org/https://doi.org/10.31392/udu-nc.series15.2025.05k(191).07)
- Jumao-as, J. G. (2025). Teacher's classroom management strategies for effective student engagement: Problems and interventions. *Journal*, 13(4), 1–19. <https://doi.org/g9wgt4>.
- Kavanagh, H., Issartel, J., Meegan, S., & Manninen, M. (2023). Exploring the motor skill proficiency barrier among children with intellectual disabilities: Analysis at a behavioural component level. *PloS one*, 18(11), e0288413. <https://doi.org/10.1371/journal.pone.0288413>
- Landon-Hays, M., Peterson-Ahmad, M. B., & Frazier, A. D. (2020). Learning to teach: How a Simulated learning environment can connect theory to practice in general and special education educator preparation programs. *Education Sciences*, 10(7), 184.
- Lieberman, L. J., Houston-Wilson, C., & Grenier, M. (2024). *Strategies for inclusion: Physical education for everyone*. Human Kinetics.
- Matheu, P., Villanova, A., Ingles, E., & De Bosscher, V. (2025). Sports success, studies level and dual career support services in 15 nations. In *30th FIEP World Congress* (pp. 201-205). Inde publicaciones.
- Montecino, J. M. K., & Bernaldez, C. G. (2025). Lived experiences of physical education

- teachers handling students with special needs. *Journal of Interdisciplinary Perspectives*, 3(6), 618-627.
- Mubarrak, M. A., & Kafrawi, F. R. (2017). Analisis tingkat kebugaran anak tunagrahita ringan di sdlb dharma wanita sidoarjo. *Jurnal Kesehatan Olahraga*, 05(01), 84–89.
- Posso-pacheco, R. J., Maqueira-caraballo, G., & Martí, R. (2025). *Curricular adaptations in physical education: A global study on the inclusion of students with specific educational needs*. 9(2), 1–12.
- Rusli, T. S., Boari, Y., Amelia, D., Rahayu, D., Setiaji, B., Suhadarliyah, Syarfina, Ansar, Syahrudin, Amiruddin, & Yuniwati, I. (2024). *Pengantar metodologi pengabdian masyarakat*. Yayasan Penerbit Muhammad Zaini.
- Schalock, R. L., Luckasson, R., & Tassé, M. J. (2021). *Intellectual disability: Definition, diagnosis, classification, and systems of supports (12th ed.)*. American Association on Intellectual and Developmental Disabilities.
- Shields, N., Synnot, A. J., & Barr, M. (2012). Perceived barriers and facilitators to physical activity for children with disability: a systematic review. *British Journal of Sports Medicine*, 46(14), 989 LP – 997. <https://doi.org/10.1136/bjsports-2011-090236>
- Wilson, W. J., Theriot, E. A., Haeghele, J. A., Wilson, W. J., Theriot, E. A., & Attempting, J. A. H. (2020). Attempting inclusive practice : Perspectives of physical educators and adapted physical educators educators and adapted physical educators. *Curriculum Studies in Health and Physical Education*, 11(3), 187-203. <https://doi.org/10.1080/25742981.2020.1806721>
- World Health Organization. (2020). *Who guidelines on physical activity and sedentary behaviour*. WHO Press.
- Zhang, L., Wang, D., & Wu, X. (2024). Association between fundamental movement skills and accelerometer-measured physical activity in orphan children with severe intellectual disabilities. *BMC pediatrics*, 24(1), 841.

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