Ngadiman-Traditional Sports

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TRADITIONAL SPORTS-BASED LEARNING: INNOVATIVE LEARNING METHOD TO IMPROVE FUNDAMENTAL MOVEMENT SKILLS AND LEARNING MOTIVATION

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Abstract
This research aims to create new models in physical education learning that are suitable for use and can develop children's fundamental movement skills. Research and Development (R&D) is the research approach used, and it consists of the following steps: 1) potential and problems, 2) data collection, 3) product concept, 4) design validation, 5) design revision, 6) product experiments, 7) product revision, 8) sample use, 9) product revision and feasibility evaluation, and 10) final product. The research sample consisted of 68 students. The testing instrument, a questionnaire, included expert-validated claims, and the results were analyzed and translated into product evaluation requirements. The results of this study get a final grade of 91.12% or the category of "Very Good". From the results of the effectiveness test, it is known that there is a significant effect of the game being developed on the improvement of children's fundamental motor skills (p=0.000) and learning motivation (p=0.001). Thus it can be concluded that the product developed is very feasible to use and has proven effective in increasing children's fundamental movement skills and learning motivation.

Keywords: *Traditional Sport-Based, Learning Method, Learning Innovation, Fundamental Movement Skills, Learning Motivation.*

Introduction

Childhood is a crucial phase of play in the formation of the body's motion system (motor system) (lai et al., 2014). During the children's form, the physical evolution of the child, manful and feminine grows speedily (Burhaein, Tarigan, et al., 2021; Dedi, 2019; Mumpuniarti et al., 2021). Their muscles, intrepidities, and skeletal forms lead inn to maturity. Stirring talents dispatch ranging from big muscleman repositioning's diminished muscles, and coordination (Brian et al., 2014; S. Purwanto & Burhaein, 2021). Learning fundamental drive talents is one aspect of physical evolution. The Main Drive The activation of massive muscleman assemblies is ordered by talents, who are usually classified as object control and locomotor talents (Phytanza, Purwanta, Hermanto, Burhaein, & Demirci, 2021; Vlahov et al., 2014). Aim coordination abilities include carrying, intercepting, or projecting objects like tossing, communicable propulsion motioning underhanded roll, and hitting (Irawan & Prayoto, 2021; Prasetya, 2021; Sibarani & Manurung, 2021). Locomotor talents accommodate run propulsion hopping, saltation galloping, and sliding (S. W. Logan et al., 2012; Phytanza, Purwanta, Hermanto, Burhaein, & Lourenço, 2021).

Fundamental movement skills are the construction pieces for the composite drive progressions requisite for a cooking stove of fun and unpaid actions including area amusements and unionized fun (Lubans et al., 2010). They can be divided into two categories: locomotor abilities (ls) and goal coordination abilities (ac) (os). Ls involve the body's fluid coordination as it moves in one direction or another and includes skills such as riding, galloping, propulsion jumping, saltation, and sideways skipping (Engel et al., 2018; Nanda et al., 2021; Purwanto, Nopembri, et al., 2021). Os requires the efficient control of another aim much as a bat or ball and includes continuing pa into adolescence and adulthood. New ground points out that children birth the developmental potency to original near key drive talents by 6 daysprings aged during strong-arm breeding long-arm agility (pa), and sport (Burhaein, Demirci, et al., 2021; Phytanza, Burhaein, Lourenço, et al., 2021). A recent taxonomic analysis by logan et al. Establish relations between key drive talents and pain early buttoned up to former puerility in cross-sectional studies (Jannah et al., 2021; Ngadiman et al., 2021; Van Capelle et al., 2017). Samuel W.

Logan et al. (2015) suggested low to lead relations between key drive talents potency and strong-arm agility in early puerility (r = 0.16 to 0.48; r2= 3–23%, 4 studies), low to high-pitched relations in middle to late puerility (r = 0.24 to 0.55; r2= 6–30%, 7 studies), and low to moderate relations in adolescence (r = 0.14 to 0.35; r2= 2–12. 3%, 2 studies).

Many sports and physical activities depend on fundamental movement skills. Higher levels of Fundamental Movement Skills are correlated with a lower BMI in terms of fitness (veldman et al., 2016), improved cardiorespiratory fitness (okely et al., 2004), as well as enhanced cognitive development and physical activity (s. W. Logan et al., 2012), social development and language skills (best, 2010; jan et al., 2008; leonard & hill, 2014), Furthermore, children with impaired Fundamental Movement Skills are on likely to have low self-esteem and anxiety. Based on Kamaludin et al. (2020) the level of fundamental motor skills in Jombor Lor Sleman Yogyakarta elementary school children is classified as "very low" by 8%, "low" by 36%, "moderate" by 32%, "high" by 8%, and " very high 16%. The above research shows the level of fundamental motor skills of elementary school children has a high low percentage. This was reinforced by a preliminary study conducted on 33 students in grades iv, v, vi at mersi state elementary school 02, Banyumas. Observations were made by test instruments from Astikasari et al. (2021); Febrianta et al. (2021); Tirtayasa et al. (2020), namely running 40 meters, throwing catches for tennis balls, dodging run, standing broad jump, and standing one foot. Using the norms of motor skills assessment according to (Phytanza, Burhaein, & Pavlovic, 2021; P. Purwanto, Lumintuarso, et al., 2021; Putra et al., 2021). The results show the level of Fundamental Movement Skills of children classified as "very poor" by 3%, "less" by 30.3%, "moderate" by 33.3%, "good" by 27.3%, and "very good" by 6, 1%.

Seeing the potential of the traditional game *boy-boyan*, *dul-dulan*, *pecah piring*, and *sintren*, a modified model of the four games was made. This modification aims to be able to create a new game mode that has the elements forming the fundamental motor skills of children. Other skills that can potentially be developed in the game are the close motor skill, which is when throwing into tile shards at the beginning of the game, and open motor skills when it can hit the tile shards then start the game. According to freitas et al. (2018) explains that 1) closed motor skills are the skills of motion with stimuli occurring in a stable environment and movements arising from within oneself, such as throwing, running, climbing. 2) open motor skills are movement skills that occur in changing environments that adjust to the stimulus in their environment, for example playing badminton, soccer. Modification is done by combining and modifying the tools and rules of the game from the two games, to produce a game that can correct the flaws in the previous game.

Methods

Research Methods

This study employs a modified Research and Development (R & D) research process (Sugiyono, 2016). The following are the research and development steps:

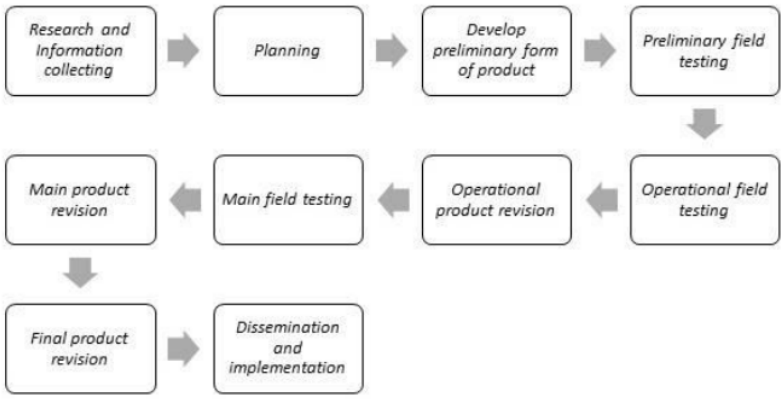

Figure 1. Research Methods.

Participants

The population in this study included 3 schools in Banyumas totaling 359 students. This study uses a simple random sampling technique, to get a sample of elementary school students in grade I, II, III, totaling 121 students, samples taken are students aged 6-9 years, male and female in Elementary School (n = 121, age = 7.8 ± 1.2 years, height = 134.2 ± 3.2 cm, weight = 28.3 ± 6.3 kg).

Procedures

This stage is the stage of designing a draft product design that matches the potential and existing problems.

Next, make the rules of the game and supporting infrastructure for games that are suitable for children aged 6-9 years. The results obtained are used as a reference to determine product design. The preparation of a draft product design consists of several stages.

Table 1. Research Procedure.

No	Stage	Detail
1	Designing Success Indicators for Design	The first step is to compile an indicator of the success of the design carried out by the author, assisted by a validator to set standards
2	Determine Game Design	Making this game design includes game rules, facilities, and infrastructure needed starting from the tools and materials, the shape of the playing field. This design is made so that it can be played easily and fun and has the potential to improve the fundamental motor skills of children aged 6-9 years.
3	Writing Game Rules and Design Drawing Illustrations	The next step is writing the rules of the game and illustrating the design drawings. Writing the rules of the game is made in a language that is easily understood by readers. Image illustrations are used to clarify the rules and facilities and infrastructure needed. Image illustrations created using Corel Draw X6 software.
4	Stage 1 Validation	The product design in the form of a traditional game that will be developed is assessed by the validator to get the value and input. The feasibility assessment was obtained from 3 experts, namely: Game Expert, Educational Expert, Growth, and Development Expert.
5	Design Revision	The revision is based on the results of an expert feasibility assessment on the initial product to produce a better product next.
6	Stage 2 Validation	The steps in the second validation stage are assessed by game experts, education experts, and growth and development experts on the revised products
7	Trial of Small-Scale Products	The product trial phase is carried out after the product has received a feasibility assessment by game, education, and growth and development experts that the product being developed is feasible to be tested in the field. The trials included evaluating traditional games by the teacher. The instrument was used in the form of an assessment questionnaire for students and elementary school PE teachers. The technique of collecting data through questionnaires after students and elementary school PE teachers observe or play games.
8	Product Revision	Revisions were made based on input and assessment when limited trials were conducted.
9	The final product	The result is a traditional game that is suitable as a game for children aged 6-9 years that has the potential to develop children's fundamental movement skills.

Data Collection

Data collection in this study consisted of several stages as follows:

1. Validation Data Collection Phase-1

Data retrieval is done by submitting product designs in the form of videos and product design drafts to each expert validator. After the product design is observed by the experts, the next step is to submit the feasibility test instrument that has been prepared. The results obtained will be used as a reference in revising the product design.

2. Validation Data Collection Phase-2

This stage is carried out after an improvement in product design is based on the advice of experts in the phase-1 validation test. Retrieval of data using the same feasibility test instrument as stage-1 validation accompanied by revised product design results. At this stage, expert validators will decide whether or not the product design is appropriate. If the product design is not feasible, a revision must be carried out again.

3. Product Trial Data Collection By PE Elementary School Students and Teachers

After the product design has been declared feasible by expert validators, the product can be tested on a small scale. Before data retrieval, students and teachers explained in advance the game tools used, and the rules of the game by way of demonstration. After that, the child is given the task to play traditional games alternately 10 minutes every 1

match. While waiting for their turn to play the child observes the game. One team consists of 5 children, so with a sample of 30 children, there are 3 matches.

When the children are playing, the teacher oversees observing the path game. Filling out the product assessment instrument questionnaire is carried out together with being guided.

Instruments

The instrument for measuring the feasibility of the developed model used expert validation sheets which measured the level of validity and reliability. The Fundamental Movement Skills were assessed using the valid and Test of Gross Motor Development-Third tion (TGMD-3) which includes 13 skills, including the locomotor skills category and the ball skills category (Webster & Ulrich, 2017). Although, Learning Motivation were assessed using STMSL test (Tuan et al., 2005).

Data Analysis

The data was analyzed quantitatively and qualitatively from the outcomes of filling out the questionnaire during product validation and research. Quantitative evidence in the form of Validator evaluation scores and test subjects for standard sports. The qualitative evidence from the validators and research subjects in the form of feedback, critiques, and recommendations. The inference drawn from the data review findings is used as a reference material to decide whether a product revision is required or the viabili of product implementation. The numerical results on the scores from filling out the validator questionnaire and the test subject questionnaire is processed for quantitative data analysis. The following formula was used to interpret the results.

$$P = \frac{\sum x}{\sum xi} \times 100\%$$

Information:
P = The percentage
∑x = Total number of responses in all things from all respondents
∑xi = Total perfect score for each object
100% = Consistent The percentage of the evaluation results is generated as a result of these estimates.

The percentage of calculated results is used as a guideline for evaluating product requirements. The scale is used to assess the product parameters, as seen in Table 2. For effective testing using the paired t-test formula was calculated with the help of SPSS.

Table 2. Conversion rating from presents.

No	Presented	Value	Category
1	81%-100%	A	Very good
2	61%-80%	B	Good
3	41%-60%	C	Simply good
4	21%-40%	D	Less good
5	0% - 20%	E	Very do less good

Results

Expert Validation Results

The expert validation phase consists of two stages, namely the first validation phase and the second validation stage.

This expert assessment is a descrip n of the quality of developed product drafts. For expert, validation results can be seen in Table 2 below.

Table 3. Expert validation results.

No	Stage	Expert	Presented
1	Phase I Validation	Game	80%
		Education	79%
		Growth and Development	80%
2	Phase II Validation	Game	95%
		Education	88%
		Growth and Development	90%

From table 3. above, it is known that the assessment of the game expert gets a value of 80% with a B grade and the category "Good", the assessment of the education expert gets a score of 79% with a B grade and the category "Good", and the assessment of the growth and development expert gets a score of 80 % with a value of B and the category "Good", Whereas in the second validation stage it is known that the assessment of the game experts in the second validation stage gets a value of 95% with a value of A and the category of "Very Good", an assessment of the education expert gets a value of 88% with a value of A and the category of "Very Good", and growth and development expert get a score of 90% with an A and the "Very Good" category. n overview of the results of expert validation can be seen in Figure 2.

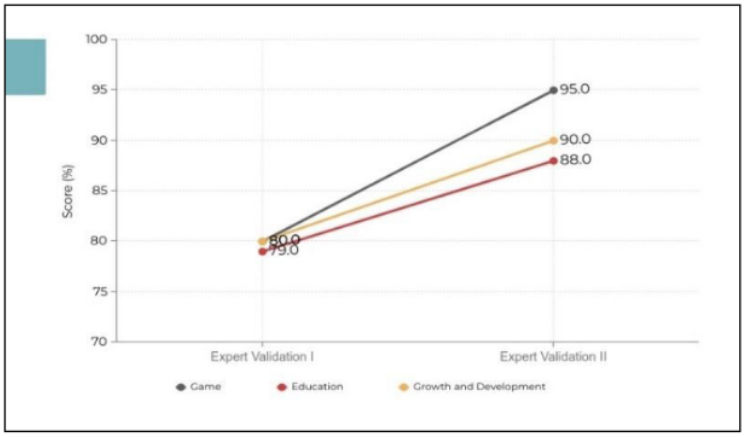

Figure 2. Overview of the results of expert validation in phase 1 and phase 2.

Teacher and Student Assessment Results

The results of the assessment by the teacher and students can be seen in Table 4.

Table 4. Teacher and Student Assessments.

No	Assessment	Scoring points	Presented (%)
1	Physical Education Teacher	Game	90
		Education	91
		Growth and Development	92
		Overall average	91
2	Students	Game	93
		Education	92
		Growth and Development	90
		Overall average	91.6

From the data in the table 4, it is known that the assessment of the physical education teacher from the aspect of games gets a value of 90% with an A grade and the category "Very Good", the assessment of the aspect of education gets a value of 91% with value A and the category "Very Good", and the assessment of the aspects of growth and development get a value of 92% with a value of A and the category "Very Good". Overall from the three aspects get an average value of 91% with a value of A and the category of "Very Good". For the assessment of students from the aspect of games get a value of 93% with a value of A and the category of "Very Good", assessment of the aspects of education get a value of 92% with a value of A and the category of "Very Good", and the assessment of the aspects of growth and development get a value of 90% with an A and a "Very Good" category. Overall from the three aspects get an average value of 91.6% with a value of A and the category of "Very Good".

Product Effectiveness Test

The results of the product effectiveness test can be seen in Table 5.

Table 5. Fundamental Movement Skill and Laearning Motivation Effectiveness Test Results.

Group	Fundamental Movement Skills		*P* Value	Learning Motivation		*P* Value
	Pretest (M ± SD)	Posttest (M ± SD)		Pretest (M ± SD)	Posttest (M ± SD)	
Control Group	44.5 ±1.9	45.3 ± 2.8	0.074	68.5 ±1.8	69.9 ± 2.7	0.081
Experiment Group	43.2 ± 2.2	58.6 ± 2.6	0.000	68.2 ± 2.1	81.6 ± 2.1	0.001

Table 5 shows that from the pretest and posttest results it can be seen that there were significant changes in the experimental group both from the results of the fundamental movement skills test ($p = 0.000$) and learning motivation ($p = 0.001$). whereas the control group did not have a significant impact on fundamental movement skills ($p = 0.074$) and learning motivation ($p = 0.081$).

Discussion

The aim of this study is to develop a new product in the form of a learning model based on traditional sports games that are useful for improving children's fundamental movement skills. With Research and Development research methods from Sugiyono, 2018) which are carried out with steps: 1) opportunity and problems; 2) data collection; 3) project concept; 4) design validation; 5) design revision; 6) product trials; 7) product revision; 8) sample use; 9) product revision and efficacy test; and 10) final product. Based on the evaluations of game experts, education experts, growth and development experts, and also evaluations from students and elementary school PE teachers. This final assessment was obtained by averaging the overall results of assessments from game experts, education experts, growth and development experts, as well as the results of small-scale product trials by students and elementary school PE teachers. The results are as follows: (95% + 88% + 90% + 91% + 91,6%): 5 = 91.12%. So that the results of 91.2% showed that the final game product developed had an "A" score in the "Very Good" category, thus it can be stated that this game was very suitable to be used as a game model to improve the basic movement skills of children aged 6-9 years.

The findings of this analysis are consistent with previous studies from Mahfud et al. (2020), The received value of 82 percent is declared true and appropriate for use. Based on the development's outcomes, it is possible to conclude: (1) Should be used as a guide to help students develop their motor skills. (2) The resulting model has a number of variants based on standard sports. (3) Since the instruction is packaged in the form of enjoyable play, this model can improve children's interest in participating. (4) Participate in the preservation of national culture, especially traditional sports. (5) Contribution to education, especially in sports. Other studies from Hasbi & Sukoco (2014) get the results of motor learning models with the modification of traditional games for upper-grade elementary schools that are responded to well and effectively. This is evidenced by the percentage on each quantitative data above 70% on a large scale. Student responses produce positive responses and can be used in learning. Meanwhile, research Widodo & Lumintuarso (2017) based on the assessment of material experts and physical education teachers can be concluded that the development of traditional game models that are arranged very well and effectively, so that game model are suitable for use in physical education learning for students. Other research, from Saleh et al. (2017) states that the traditional "boy-boyan" game model in learning can improve social development indicators such as initiatives to move with peers, join games, maintain roles in the play, resolve conflicts in playing, and reminding the traditional "boy-boy" game to the world of education in modern times.

From the results of the effectiveness test, the paired t-test with a p-value of 0,000 was obtained, so that it can be said that the game model developed has a significant effect on the increase in children's fundamental movement skills. These results reinforce the difference between the groups that are actively doing physical activities in the form of traditional sports that are developed with the control groups who are not doing physical activity programmed. The findings of this analysis are consistent with previous studies from (Duncan et al., 2018; Ilham et al., 2021; Malaja et al., 2010) which declares After correcting for previous levels of physical activity, gender, and BMI, hierarchical regression analysis reveals that the scale of the impact of basic movement abilities and physical exercise on energy consumption and physical activity strength was moderate (R2 adjustment between 0.06 and 0.15), with the effect becoming greater for high-intensity physical activity such as typical sports. In addition, analysis from Bolger et al. (2018); Cohen et al. (2014); Loprinzi et al. (2015); Webster & Ulrich (2017) states that these basic movement skills can be linked to children's growth and development, age, BMI, physical activity, and that this FMS can serve as a bridge between childhood and adolescence. Physical inactivity is well recognized as a multifaceted issue that can be attributed to a variety of psychological, social, and environmental causes (Burhaein, Demirci, et al., 2021; Demirci & Phytanza, 2021; Sukendro et al., 2021). However, there is a paucity of research on the long-term influence of physical influences, such as basic motor abilities and physical conditioning, as determinants of physical activity in late adolescence. This research shows the significance of developing basic movement skills and achieving a modest degree of physical fitness during early adolescence as predictors of physical activity participation in late adolescence. Schools and other cultural organizations, such as sports leagues, play an important part in exposing children and youth to various events that can promote and encourage the development of basic mobility skills as well as facilitate health-improving cardiovascular and muscular activity (Gaul & Issartel, 2016; Hardy et al., 2012; Ikeda & Aoyagi, 2009; Raisbeck & Diekfuss, 2015).

Conclusion

From the results of the study, it was found that the overall value of the final product was 91.12% and the category "Very Good", besides that from the results of the effectiveness test it was proven that the product developed influenced the children fundamental movement skills ($p = 0.000$) and learning motivation ($p=0.001$). Therefore, it can be concluded that the product developed is very appropriate and effective to develop children's fundamental movement skills and learning motivation.

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Conflict of Interests

Researchers said there was no conflict of interest in the study. Researchers said there was no conflict of interest in the study.

References

Astikasari, I. B., Rachman, H. A., Festiawan, R., Budi, D. R., & Asnaldi, A. (2021). The Game Model To Develop Motor Skills For Kindergarten Students. *Ann Trop Med & Public Health*, *24*(3), 1–6. https://doi.org/https://doi.org/10.36295/ASRO.2021.24315

Best, J. R. (2010). Effects of physical activity on children's executive function: Contributions of experimental research on aerobic exercise. *Developmental Review*, *30*(4), 331–351. https://doi.org/https://doi.org/10.1016/j.dr.2010.08.001

Bolger, L. E., Bolger, L. A., Neill, C. O., Coughlan, E., O'Brien, W., Lacey, S., & Burns, C. (2018). Age and sex differences in fundamental movement skills among a cohort of Irish school children. *Journal of Motor Learning and Development*, *6*(1), 81–100. https://doi.org/10.1123/jmld.2017-0003

Brian, A. S., Goodway, J. D., & Ohio, T. (2014). Perceived and Actual Motor Competence : Cross-Sectional Associations Across Childhood Relationship Between Motor Competence and Physical Activity : A Systematic Review Relationships Between Motor Competence and Physical Activity Change Across Childhood. *Kibes*, 2014.

Burhaein, E., Demirci, N., Lourenço, C. C. V., Németh, Z., & Phytanza, D. T. P. (2021). Coping with the COVID-19 pandemic: the role of physical activity. An international position statement. *International Sports Studies*, *43*(1), 52–70. https://doi.org/10.30819/iss.43-1.05

Burhaein, E., Tarigan, B., Budiana, D., Hendrayana, Y., Phytanza, D. T. P., Lourenço, C., Permana, D., & Nuruldani, G. (2021). Dimensions in The Learning Implementation and Strategies of Adapted Physical Education for Children with Special Needs during The COVID-19 Pandemic: A Literature Review & Grounded Theory. *Sport Science*, *15*(1), 189–201.

Cohen, K. E., Morgan, P. J., Plotnikoff, R. C., Callister, R., & Lubans, D. R. (2014). Fundamental movement skills and physical activity among children living in low-income communities: A cross-sectional study. *International Journal of Behavioral Nutrition and Physical Activity*, *11*(1). https://doi.org/10.1186/1479-5868-11-49

Dedi, S. (2019). Traditional Games Activities to Develop Fundamental Movement Skills of Elementary School Students. *Pendidikan Jasmani Olahraga*, *3*(1), 122–128. https://doi.org/10.17509/jpjo.v3i1.10461

Demirci, N., & Phytanza, P. D. T. (2021). Investigation of Obesity, Physical Activity and Sedentary Behaviors of Individuals with and Without Autism Spectrum Disorder during the Covid-19 Pandemic Process. *JUMORA: Jurnal Moderasi Olahraga*, *1*(02), 45–55. https://doi.org/10.53863/mor.v1i02.220

Duncan, M. J., Eyre, E. L. J., & Oxford, S. W. (2018). The effects of 10-week integrated neuromuscular training on fundamental movement skills and physical self-efficacy in 6–7-year-old children. *Journal of Strength and Conditioning Research*, *32*(12), 3348–3356. https://doi.org/10.1519/jsc.0000000000001859

Engel, A. C., Broderick, C. R., van Doorn, N., Hardy, L. L., & Parmenter, B. J. (2018). Exploring the Relationship Between Fundamental Motor Skill Interventions and Physical Activity Levels in Children: A Systematic Review and Meta-analysis. *Sports Medicine*, *48*(8), 1845–1857. https://doi.org/10.1007/s40279-018-0923-3

Febrianta, Y., Sukoco, P., Sugiyanto, F. X., & Festiawan, R. (2021). The Effectiveness of the Development of Rhythmic Activity Model of the Barongan Dance Modification for Physical Education Learning In Primary School. *Ann Trop Med & Public Health*, *24*(3). https://doi.org/https://doi.org/10.36295/ASRO.2021.24305

Freitas, D. L., Lausen, B., Maia, J. A., Gouveia, R., Antunes, A. M., Thomis, M., Lefevre, J., & Malina, R. M. (2018). Skeletal maturation, fundamental motor skills, and motor performance in preschool children. *Scandinavian Journal of Medicine and Science in Sports*, *28*(11), 2358–2368. https://doi.org/10.1111/sms.13233

Gaul, D., & Issartel, J. (2016). Fine motor skill proficiency in typically developing children: On or off the maturation track? *Human Movement Science*, *46*, 78–85. https://doi.org/10.1016/j.humov.2015.12.011

Hardy, L. L., Reinten-Reynolds, T., Espinel, P., Zask, A., & Okely, A. D. (2012). Prevalence and correlates of low fundamental movement skill competency in children. *Pediatrics*, *130*(2). https://doi.org/10.1542/peds.2012-0345

Hasbi, & Sukoco, P. (2014). Jurnal Keolahragaan, Volume 2 – Nomor 1, 2014. *Jurnal Keolahragaan*, *2*(1), 46–58.

Ikeda, T., & Aoyagi, O. (2009). Relationships between Gender Difference in Motor Performance and Age, Movement Skills and Physical Fitness among 3- to 6-year-old Japanese Children based on Effect Size Calculated by Meta-analysis. *School Health*, *5*, 9–23. https://doi.org/10.20812/jash.SH-2009_031

Ilham, M., Iqroni, D., Karakauki, M., Ali, S. K. S., Kristiyanto, A., Nasrulloh, A., Pratama, K. W., Festiawan, R., Burhaein, E., & Phytanza, D. T. P. (2021). EFFECTS OF RESISTANCE BAND EXERCISE ON STUDENT'S FREESTYLE SWIMMING SKILLS. *Sport Science*, *15*(1).

Irawan, Y. F., & Prayoto, I. (2021). Survey of Basic Technical Skill for Futsal Male Student High School. *JUMORA: Jurnal Moderasi Olahraga*, *1*(2), 105–114. https://doi.org/10.53863/mor.v1i02.246

Jannah, A. M., Kushartanti, B. W., Rahman, A., Burhaein, E., & Phytanza, D. T. P. (2021). Development of Hockey Game-Basef Recovery Model. *Sport Science*, *15*(1).

Kalaja, S., Jaakkola, T., Liukkonen, J., & Watt, A. (2010). Role of Gender, Enjoyment, Perceived Competence, and Fundamental Movement Skills as Correlates of the Physical Activity Engagement of Finnish Physical Education Students. *Scandinavian Sport Studies Forum*, *1*(1), 69–87.

Kamaludin, Ngadiman, Festiawan, R., Kusuma, I. J., & Febriani, A. R. (2020). Pengembangan Permainan Pecah Piring Sintren : Pemanfaatan Olahraga Tradisional Pada Pembelajaran untuk Meningkatkan Kemampuan Motorik Kasar Anak. *TEGAR: Journal of Teaching Physical Education in Elementary SchoolJournal of Teaching Physical Education in Elementary School*, *3*(5), 37–45.

Lai, S. K., Costigan, S. A., Morgan, P. J., Lubans, D. R., Stodden, D. F., Salmon, J., & Barnett, L. M. (2014). Do school-based interventions focusing on physical activity, fitness, or fundamental movement skill competency produce a sustained impact in these outcomes in children and adolescents? A systematic review of follow-up studies. *Sports Medicine*, *44*(1), 67–79. https://doi.org/10.1007/s40279-013-0099-9

Leonard, H. C., & Hill, E. L. (2014). Review: The impact of motor development on typical and a typical social cognition and language: a systematic review. *Child and Adolescent Mental Health*, *19*(3), 163–170. https://doi.org/10.1111/camh.12055

Logan, S. W., Robinson, L. E., Wilson, A. E., & Lucas, W. A. (2012). Getting the fundamentals of movement: A meta-analysis of the effectiveness of motor skill interventions in children. *Child: Care, Health and Development*, *38*(3), 305–315. https://doi.org/10.1111/j.1365-2214.2011.01307.x

Logan, Samuel W., Kipling Webster, E., Getchell, N., Pfeiffer, K. A., & Robinson, L. E. (2015). Relationship Between Fundamental Motor Skill Competence and Physical Activity During Childhood and Adolescence: A Systematic Review. *Kinesiology Review*, *4*(4), 416–426. https://doi.org/10.1123/kr.2013-0012

Loprinzi, P. D., Davis, R. E., & Fu, Y. C. (2015). Early motor skill competence as a mediator of child and adult physical activity. *Preventive Medicine Reports*, *2*, 833–838. https://doi.org/10.1016/j.pmedr.2015.09.015

Lubans, D. R., Morgan, P. J., Cliff, D. P., Barnett, L. M., & Okely, A. D. (2010). Fundamental movement skills in children and adolescents: Review of associated health benefits. *Sports Medicine*, *40*(12), 1019–1035. https://doi.org/10.2165/11536850-000000000-00000

Mahfud, I., Fahrizqi, E. B., Olahraga, P., Teknokrat, U., Ratu, L., Bandar, K., Olahraga, P., Teknokrat, U., Ratu, L., & Bandar, K. (2020). PENGEMBANGAN MODEL LATIHAN KETERAMPILAN MOTORIK MELALUI OLAHRAGA TRADISIONAL UNTUK SISWA SEKOLAH DASAR. *SPORT SCIENCE AND EDUCATION JOURNAL*, *1*(1), 31–37.

Mumpuniarti, M., Burhaein, E., & Phytanza, D. T. P. (2021). Phenomenology Study on The Measurement and Availability of Psychosocial Instruments Based on Video Observations in The Unified Sports Program for Children With Intellectual Disabilities in Indonesia. *Sport Science*, *15*(1), 48–56. http://www.sposci.com/PDFS/BR1501/04 CL 07 MM.pdf

Nanda, F. A., Novriansyah, N., Nugroho, M. D., Fajaruddin, S., Utama, M. B. R., Burhaein, E., & Phytanza, D. T. P. (2021). Psychological Skills of Basketball Athletes by Perspektive Gender: Study Indonesian Athletes in Asian Games XVIII. *Sport Science*, *15*(1).

Ngadiman, N., Festiawan, R., Wahono, B. S., Purnamasari, A. D., Burhaein, E., & Phytanza, D. T. P. (2021). The Motor Skills Test for New Students of Physical Education Program. *Sport Science*, *15*(1).

Phytanza, D. T. P., Burhaein, E., Lourenço, C. C. V., Irawan, Y. F., Sutopo, W. G., & Saleh, M. (2021). Profile of Physical Condition of Indonesia Intellectually Disabled Badminton Athletes during The COVID-19 Pandemic. *Sport Science*, *15*(1).

Phytanza, D. T. P., Burhaein, E., & Pavlovic, R. (2021). Gross Motor Skills Levels in Children with Autism Spectrum Disorder during the COVID-19 Pandemic. *International Journal of Human Movement and Sports Sciences*, *9*(4), 738–745. https://doi.org/10.13189/saj.2021.090418

Phytanza, D. T. P., Mumpuniarti, M., Burhaein, E., Demirci, N., Parmadi, M., & Azizah, A. R. (2021). Floortime Approach: Can It Improve The Learning Outcomes of Side-Rolling Exercises for Autism Spectrum Disorder Students? *Sport Science*, *15*(1), 141–151.

Phytanza, D. T. P., Mumpuniarti, M., Burhaein, E., Lourenço, C. C. V., Widodo, P., & Widiyono, I. P. (2021). Level Of Physical Activity of Students With Autism Spectrum Disordes during The COVID-19 Pandemic. *Sport Science*, *15*(1), 152–157.

Piek, J. P., Dawson, L., Smith, L. M., & Gasson, N. (2008). The role of early fine and gross motor development on later motor and cognitive ability. *Human Movement Science*, *27*(5), 668–681. https://doi.org/10.1016/j.humov.2007.11.002

Prasetya, M. R. A. (2021). Comparison Of Achievement Sport Systems Between Indonesia And China. *JUMORA: Jurnal Moderasi Olahraga*, *1*(2), 56–62. https://doi.org/10.53863/mor.v1i02.213

Purwanto, P., Lumintuarso, R., & Burhaein, E. (2021). Impact of Running Techniques through the Sprint Ability in Athletes during the COVID-19 Pandemic. *International Journal of Human Movement and Sports Sciences*, *9*(4), 717–724. https://doi.org/10.13189/saj.2021.090416

Purwanto, P., Nopembri, S., Burhaein, E., & Phytanza, D. T. P. (2021). Evaluation of The Venue Management Program of The National Sports Week (PON) XVII of Riau Province, Indonesia. *Sport Science*, *15*(1), 86–96. http://www.sposci.com/PDFS/BR1501/04 CL 13 PP.pdf

Purwanto, S., & Burhaein, E. (2021). The Sports Development Program at the Indonesia Karate Sport Federation (FORKI) in The DIY Province of Indonesia. *Sport Science*, *15*(1), 77–85. http://www.sposci.com/PDFS/BR1501/04 CL 12 SP.pdf

Putra, Y. M., Purwanto, S., & Burhaein, E. (2021). Effect of Limb Muscle Power Training with Leaps on Athlete's Speed during the COVID-19 Pandemic. *International Journal of Human Movement and Sports Sciences*, *9*(3), 461–465. https://doi.org/10.13189/saj.2021.090310

Raisbeck, L. D., & Diekfuss, J. A. (2015). Fine and gross motor skills: The effects on skill-focused dual-tasks. *Human Movement Science*, *43*, 146–154. https://doi.org/10.1016/j.humov.2015.08.007

Saleh, Y. T., Nugraha, M. F., & Nurfitriani, M. (2017). Model Permainan Tradisional "Boy-boyan" untuk Meningkatkan Perkembangan Sosial Anak SD. *Pendidikan Dan Pembelajaran Sekolah Dasar*, *1*(2b), 127–138.

Sibarani, M. A., & Manurung, J. S. R. (2021). Difference in The Influence of Practice Regulating Passes and Regulating The Game Against The Accuracy of Passing in Junior Football Players. *JUMORA: Jurnal Moderasi Olahraga*, *1*(2), 75–83. https://doi.org/10.53863/mor.v1i02.227

Sugiyono. (2012). Metode Penelitian Kuantitatif, Kualitatif dan R & D.Bandung:Alfabeta. *Metode Penelitian Kuantitatif, Kualitatif Dan R & D.Bandung:Alfabeta*. https://doi.org/10.1017/CBO9781107415324.004

Sugiyono. (2016). Metodologi Penelitian Kuantitatif, Kualitatif, dan R&D. In *CV Alfabeta*. https://doi.org/https://doi.org/10.3929/ethz-b-000238666

Sukendro, S., Karakauki, M., Ali, S. K. S., Kristiyanto, A., Pratama, K. W., Nasrulloh, A., Festiawan, R., Burhaein, E., & Phytanza, D. T. P. (2021). THE RELATIONSHIP BETWEEN NUTRITIONAL STATUS AND PHYSICAL HEALTH LEVELS OF STUDENTS AT THE MODERN ISLAMIC BOARDING SCHOOL. *Sport Science*, *15*(1).

Tirtayasa, P. K. R., Santika, I. G. P. N. A., Subekti, M., Adiatmika, I. P. G., & Festiawan, R. (2020). Barrier Jump Training to Leg Muscle Explosive Power. *Journal of Physical Education, Sport, Health and Recreation*, *9*(3), 173–177. https://doi.org/https://doi.org/10.15294/active.v9i3.41145

Tuan, H. L., Chin, C. C., & Shieh, S. H. (2005). The development of a questionnaire to measure students' motivation towards science learning. *International Journal of Science Education*, *27*(6), 639–654. https://doi.org/10.1080/0950069042000323737

Van Capelle, A., Broderick, C. R., van Doorn, N., E.Ward, R., & Parmenter, B. J. (2017). Interventions to improve fundamental motor skills in pre-school aged children: A systematic review and meta-analysis. *Journal of Science and Medicine in Sport*, *20*(7), 658–666. https://doi.org/10.1016/j.jsams.2016.11.008

Veldman, S. L. C., Jones, R. A., & Okely, A. D. (2016). Efficacy of gross motor skill interventions in young children: an updated systematic review. *BMJ Open Sport & Exercise Medicine*, *2*(1), e000067. https://doi.org/10.1136/bmjsem-

2015-000067
Vlahov, E., Baghurst, T. M., & Mwavita, M. (2014). Preschool motor development predicting high school health-related physical fitness: A prospective study. *Perceptual and Motor Skills*, *119*(1), 279–291. https://doi.org/10.2466/10.25.PMS.119c16z8
Webster, E. K., & Ulrich, D. A. (2017). Evaluation of the psychometric properties of the Test of Gross Motor Development-third edition. *Journal of Motor Learning and Development*, *5*(1), 45–58. https://doi.org/10.1123/jmld.2016-0003
Widodo, P., & Lumintuarso, R. (2017). Pengembangan model permainan tradisional untuk membangun karakter pada siswa SD kelas atas. *Jurnal Keolahragaan*, *5*(2), 183–193. https://doi.org/10.21831/jk.v5i2.7215

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