

Profile Basic Locomotor Movement Skills in Students Elementary School Age 9-10 Years

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Abstract: Locomotor movement skills are movement skills that are often or even always performed by a person. During childhood, a child will start their locomotor activities through the family environment and then move on to the school environment through physical education. This study aims to measure the level of locomotor movement skills of students at the elementary school level. This study used a descriptive quantitative approach with a survey method. This study was attended by 46 students from elementary schools with the age of 9-10 years or grade 3 elementary school. The TGMD-2 instrument was used as a test instrument in this study. The results showed that locomotor movement skills were dominated by running skills. This result is proven by the number of students who obtained the maximum score of 31 students. In gallop skills, students experience obstacles with the acquisition of a minimum score of 19 students. Based on these results, students' locomotor movement skills obtained significant results in the run variable. Appropriate interventions still need to be carried out to improve locomotor skills in the gallop variable.

Keywords: fundamental movement skills, gallop, physical education, run

BACKGROUND

Learning given movement to a child, sometimes encounter various problem during the learning process the (Reeves et al., 2016). Problem the can caused by several influencing factors development motor child (Firdaus et al., 2023). Environmental factor family be one necessary factors noticed (Samodra et al., 2023). Environment family give role significant to a child when He first time studying movement (He et al., 2024). The role given by parents in stimulating ability motor child, be decider development motor child (Zorlular et al., 2024). Giving tool proper and appropriate play, trigger emergence activity move on someone child (Umami et al., 2020). Activity movement that occurs in a way continuity, providing impact positive to a child Good in realm fitness nor realm psychomotor (Moon et al., 2024; Salaj & Masnjak, 2022).

Psychomotor is one of developed aspects when learn activity education physical (Durden-Myers & Bartle, 2023). Apart from that, education the physical also has other roles in support ability cognitive and affective a child (Martínez et al., 2023; Méndez-Giménez et al., 2018). Development motor in education physical , happens when a child learn activity motion (Navarro-Patón et al., 2021). Level school base become A decider ability motor a child , because at the level the will get material special Where a child trained and developed ability motor (Andres, 2021; Barnett, Stodden, et al., 2016; Ekblom-Bak et al., 2018).

Skills motion base or fundamental movement skills, becoming A material existing tree in education physical level school base (Jefferson-Buchanan, 2022). Every level class, start from class 1 to 6th grade, student will learn Skills motion base the with various variations. Variations provided is through movements created by educational teachers physical, through learning media (Taufik et al., 2022), or through game sport (Ribas et al., 2023).

Learning Skills motion base students at level school basic , no always walk with good and effective (Duncombe & Preedy, 2018). At this stage , students more like play in freedom and doing exploration motion according to them want (Azlan et al., 2021). An attractive and innovative learning process is necessary given by education teachers physical so that students can follow the learning process in accordance specified flow (Minin et al., 2020).

The aim of this study For know level Skills base motion locomotor students at the level school base . Level school base is level Where student start learn Skills motion in a way gradually . They will start do exploration motion through environment school and environment social (Zeng et al., 2019). Exploration the movement carried out , will increase Skills motion from student the (Jeon & Jun, 2021). In line with matter these , skills increased movement need done measurements so you can is known development and creation as evaluation . With Thus, the educational process physical in his role increase Skills motion student mainly on movement locomotor , will experience development .

THEORETICAL STUDY

Learning Theory Fitts-Posner Motor

learning theory put forward by Paul Fitts and Michael Posner explains that when a student Study motor, ia will pass three phase Study (Schmidt & Lee, 2019). The first is phase cognitive, meaning in In this phase, the knowledge transfer process occurs visually and verbally. This process is stimulating student in think A movement based on what is received by his senses. The result of this thought process, will be created A movement yet perfect. Next, for perfect movement This occurs in phase association or fixation. In this phase, students will Study For do correct movement in accordance instruction from education teachers physical. When students Already know the right move, then will done movement repetition until student the become skilled. Then, the movement is over done in a way skilled will become automatic or become motion reflex. Student capable do movement the without think about return correct movement. This phase is called phase automation, phase peak or phase end in learn motion according to Paul Fitts and Michael Posner.

RESEARCH METHODS

Research Design

This research is study quantitative descriptive with method survey . Study done with taking test data locomotor For know level Skills motion base locomotor student school base . Result of test the mapped in excel for grouped and categorized based on the score obtained on the test the .

Research Participants

This research was attended by 46 students from school base with amount man is 22 students , and total Woman are 24 students . Average age sample the is 9-10 years or in grade 3 at school base .

Research Instruments

Instrument research used in measure pretest and posttest scores are instrument Test of Gross Motor Development -2 (TGMD-2) (Ulrich, 2000). However, in this study only using test items For measure the locomotor just. Test items were also carried out adjustment with choose 4 test items just of 6 test items from the instrument. Election the based on equality amount criteria motion is assessed, so can averaged in determine value.

Evaluation from this instrument is also carried out adjustment, becomes 1 for those who cannot do it criteria movement and 2 for those who can do it criteria motion. At first, use value 0 for those who cannot and 1 for those who can. Based on adjustment such, acquisition mark maximum from test the locomotor is 16.

No	Test	Criteria Skills	Test 1	Test 2	Score
	Items				
		1. Arms move opposite with legs, elbows bent .			
1	Run	2. Period short Where neither leg touch land .			
1		3. Narrow foot placement landing on the heel or toe (no flat).			
		4. Feet are not focus bent approx. 90 degrees (close with buttocks).			
		Skill Score			
	Gallop	1. Arms bent and lifted as high as waist moment take-off position .			
		2. One step to front with the front foot followed with One step with the			
2		hind legs to adjacent position or behind the front legs .			
		3. Period short Where neither leg touch land .			
		4. Maintain pattern rhythm during four gallops in a row sequentially .			
		Skill Score			
		1. Preparatory movements including bend second knee with second arm			
3	Horizontal	directed to behind body .			
3	Jump	2. Second arm directed straight forward right above head with power			
		maximum .			

 Table 1. TGMD-2 instruments

		3. Take off and landing use both feet together simultaneously .				
		4. Arms directed to lower when land .				
	1	Skill Score				
4	Slides	 Body facing to side so that shoulders parallel with a line on the ground. One step to side with the front foot followed with hind leg slide to something point on the side of the front leg . Make a minimum of four slides to the right . Do a minimum of four slides direction right . 				
Skill Score						

Research Procedures

Research data accumulated based on results test locomotors carried out to sample or student school base. Test locomotor done with involving 4 assessors expert namely education teachers physical possession experience teach dozens year. Implementation test locomotor divided into 4 posts, with 1 post for 1 test item. Test done 2 tries, and will done total accumulation for second experiments that have been done done.

RESULTS AND DISCUSSION

Skills Run

Test Skills motion basic run shows very good results . These results proven with amount students who earn mark maximum as many as 31 students from amount in total is 46 students . Average gain results the test is also sufficient Good with approach mark maximum namely 14.57.

Test Results	N	Na	Mean	elementary school	Min	Max
8	3					
9	1					
10	1					
11	1					
12	3	46	14.57	2.51	8	16
13	2					
14	2					
15	2					
16	31					

Table 2. Run Skills

Gallop Basic Movement Skills

Test results Skills basic gallop shows that gallop skills from student the classified Enough low . Statement the supported with many students who earn results test Far from mark maximum . Test results with the value 8 is as many as 19 students and a score of 10 is as many as 11 students . Averages shown from results the test is also sufficient Far from mark maximum namely 10.54.

Test Results	N	Na	Mean	elementary school	Min	Max
8	19					
9	0					
10	11					
11	1					
12	5	46	10.54	2.81	8	16
13	0					
14	4					
15	0					
16	6					

Table 3. Gallop Skills

Horizontal Jump Basic Movement Skills

On results test Skills motion basic horizontal jump, showing results test with pretty good value . These results be marked with amount students who earn minimum value up to mark maximum , experience distribution in a way equally . Majority student show results test with grade 12 as many as 12 students . Average of results test the is 12.48.

Table 4. Horizontal Jump Skills

Test Results	Ν	Na	Mean	elementary school	Min	Max
8	5					
9	2					
10	4					
11	2					
12	12	46	12.48	2.58	8	16
13	6					
14	2					
15	4					
16	9					

Basic Slide Movement Skills

On the test Skills motion base slide obtain significant results, with amount mark maximum is sufficient Lots namely 23 students. These results show student the Enough skilled in do slide movement. Average results tests obtained is 13.76, enough high and close mark maximum.

Test Results	Ν	Na	Mean	elementary school	Min	Max
8	5					
9	0					
10	2					
11	0					
12	9	46	13.76	2.74	8	16
13	1					
14	6					
15	0					
16	23					

Test Skills motion base locomotors carried out with using the TGMD-2 instrument, obtain significant results . These results be marked with many approaching students or even reach mark maximum from existing assessment norms determined . In column results test , the

value displayed is based on minimum and maximum values from acquisition tests carried out . Acquisition mark maximum at most demonstrated by the skill run with total 31 students . Then sorted second is slide skills with total 23 students . Next with horizontal jump skills with total 9 students . Final is gallop skills with total 6 students .

Test results Skills locomotor For horizontal jump and gallop skills, demonstrated difference amount students who earn mark maximum No too Far. However, there is a gallop skill students who earn results test with The minimum score is 8 for 19 students. So, based on test locomotor that has carried out, students who follow test locomotor the not enough skilled in do gallop movement. On the side others, skills the run, slide and horizontal jump movements were successful done with well and skillfully by the students who take part test the.

Similar results with this research was also obtained through research by (van Stryp et al., 2022), with using the same instruments too. Research result the show occupy run skills position first , then followed by slide skills , horizontal jump and finally is a gallop. Research conducted by (Xia et al., 2022), obtain results similar with he showed Skills very good running from student school base with percentage 86% or master level. Skills good running was also demonstrated through study (Fu et al., 2022), proven with significant results from interventions carried out . Condition environment perceived by a person student when they enter the world of education , influence Skills the movement too (Barnett, Lai, et al., 2016). When students enter level school basic , them enter stages Where they do exploration to Skills the movement . At that time , they will tend do activity run and jump on the environment his school . This statement is supported through research conducted by (Ma et al., 2022), with the height ability running and jumping based on tests carried out on English and Chinese students .

CONCLUSIONS AND RECOMMENDATIONS

Skills motion locomotor demonstrated by students at level school base 9-10 years old, dominated by skills running. Result of test run, shows tall and skilled they in do activity motion run. However, on gallop skills, still need done intervention based on results test with he showed lowest value.

This research has a number of limitations, first is the one who measures Skills locomotor just. Second, quantity still sample few and necessary done addition samples in research furthermore. Third, the instrument used was an instrument in the 2000s. On research Next, researchers suggest that measurements Skills motion The base can be expanded Again. Researched samples can be carried out addition or No limited to class 3 only. Then, use the latest instruments so that research can be done further developing and varied.

REFERENCE LIST

- Andres, A. (2021). How to Develop Professionally Important Soft-Skills for IT-Professionals by Means of Physical Education? Journal of Human Sport and Exercise, 16(3), 652– 661. <u>https://doi.org/10.14198/jhse.2021.163.14</u>
- Azlan, A., Ismail, N., Fauzi, NFM, & Talib, RA (2021). Playing traditional games vs. Freeplay during physical education lessons to improve physical activity: A comparison study. Pedagogy of Physical Culture and Sports, 25(3), 178–187. https://doi.org/10.15561/26649837.2021.0306
- Barnett, LM, Lai, SK, Veldman, SLC, Hardy, LL, Cliff, DP, Morgan, PJ, Zask, A., Lubans, DR, Shultz, SP, Ridgers, ND, Rush, E., Brown, HL, & Okely, A.D. (2016). Correlates of Gross Motor Competence in Children and Adolescents: A Systematic Review and Meta-Analysis. Sports Medicine (Auckland, NZ), 46(11), 1663–1688. https://doi.org/10.1007/S40279-016-0495-Z
- Barnett, L.M., Stodden, D., Cohen, KE, Smith, J.J., Lubans, D.R., Lenoir, M., Iivonen, S., Miller, A.D., Laukkanen, A., Dudley, D., Lander, N.J., Brown, H., & Morgan, P. J. (2016). Fundamental Movement Skills: An Important Focus. Journal of Teaching in Physical Education, 35(3), 219–225. <u>https://doi.org/10.1123/JTPE.2014-0209</u>
- Duncombe, R., & Preedy, P. (2018). MOVEMENT FOR LEARNING. In Early Childhood Education Redefined: Reflections and Recommendations on the Impact of Start Right (pp. 48–60). Taylor and Francis. <u>https://doi.org/10.4324/9781351213660-4</u>
- Durden-Myers, E., & Bartle, G. (2023). Physical-Literacy-Enriched Physical Education: A Capabilities Perspective. Children, 10(9). <u>https://doi.org/10.3390/children10091503</u>
- Ekblom-Bak, E., Ekblom, O., Andersson, G., Wallin, P., & Ekblom, B. (2018). Physical education and leisure-Time physical activity in youth is both important for adulthood activity, physical performance, and health. Journal of Physical Activity and Health, 15(9), 661–670. <u>https://doi.org/10.1123/jpah.2017-0083</u>
- Firdaus, K., Hartoto, S., Hariyanto, A., Subagya, I., & Mario, DT (2023). Evaluation of Several Factors that Affect the Learning Outcomes of Physical Education. International Journal of Human Movement and Sports Sciences, 11(1), 27–36. <u>https://doi.org/10.13189/saj.2023.110104</u>
- Fu, T., Zhang, D., Wang, W., Geng, H., Lv, Y., Shen, R., & Bu, T. (2022). Functional Training Focused on Motor Development Enhances Gross Motor, Physical Fitness, and Sensory Integration in 5–6-Year-Old Healthy Chinese Children. Frontiers in Pediatrics, 10, 936799. <u>https://doi.org/10.3389/FPED.2022.936799/BIBTEX</u>
- He, Y., Zhou, L., Liang, W., Liu, Q., Liu, W., & Wang, S. (2024). Individual, family, and environmental correlates of fundamental motor skills among school-aged children: a cross-sectional study in China. BMC Public Health, 24(1), 1–14. <u>https://doi.org/10.1186/S12889-024-17728-2/TABLES/3</u>
- Jefferson-Buchanan, R. (2022). Teaching Fundamental Movement Skills Through Play-Based Pedagogy. Journal of Physical Education, Recreation and Dance, 93(8), 28–33. https://doi.org/10.1080/07303084.2022.2108171

- Jeon, H., & Jun, S. (2021). Outdoor playground design development criteria for early childhood development: A delphi study from the perspective of fundamental movement skills and perceptual-motor skills. International Journal of Environmental Research and Public Health, 18(8). <u>https://doi.org/10.3390/ijerph18084159</u>
- Ma, J., Duncan, MJ, Chen, S.T., Eyre, E.L.J., & Cai, Y. (2022). Cross-cultural comparison of fundamental movement skills in 9- to 10-year-old children from England and China. European Physical Education Review, 28(2), 519–533. <u>https://doi.org/10.1177/1356336X211055585/ASSET/IMAGES/LARGE/10.1177_13 56336X211055585-FIG3.JPEG</u>
- Martínez, A.C., López, E.J.M., Suarez-Manzano, S., Loureiro, V.B., & Ariza, A.R. (2023). Integration of physical activity into the classroom and its physical and cognitiveacademic effects. A systematic review and educational practical guide. Retos, 49, 978– 992. <u>https://doi.org/10.47197/RETOS.V49.97957</u>
- Méndez-Giménez, A., García-Romero, C., & Cecchini-Estrada, J. A. (2018). 3x2 Achievement goals, friendship and affectivity in physical education: Age-gender differences. Revista Internacional de Medicina y Ciencias de La Actividad Fisica y Del Deporte, 18(72), 637–653. <u>https://doi.org/10.15366/rimcafd2018.72.003</u>
- Minin, MG, Frantcuzskaia, EO, Minich, AS, Smyshlyaev, KA, & Smyshlyaev, AV (2020). Export of higher education: Innovations in physical education practice. Vysshee Obrazovanie v Rossii, 29(6), 129–135. <u>https://doi.org/10.31992/0869-3617-2020-6-129-135</u>
- Moon, J., Webster, C.A., Stodden, D.F., Brian, A., Mulvey, K.L., Beets, M., Egan, C.A., McIntosh, LIF, Merica, C.B., & Russ, L. (2024). Systematic review and meta-analysis of physical activity interventions to increase elementary children's motor competence: a comprehensive school physical activity program perspective. BMC Public Health, 24(1), 1–16. <u>https://doi.org/10.1186/S12889-024-18145-1/FIGURES/1</u>
- Navarro-Patón, R., Martín-Ayala, J.L., González, M.M., Hernández, A., & Mecías-Calvo, M. (2021). Effect of a 6-week physical education intervention on motor competence in preschool children with developmental coordination disorder. Journal of Clinical Medicine, 10(9). <u>https://doi.org/10.3390/jcm10091936</u>
- Reeves, E., Miller, S., & Chavez, C. (2016). Movement and learning: Integrating physical activity into the classroom. Kappa Delta Pi Record, 52(3), 116–120. https://doi.org/10.1080/00228958.2016.1191898
- Ribas, J.P., Hernández-Moreno, J., Díaz-Díaz, R., Borges-Hernández, P.J., Ruiz-Omeñaca, J. V, & Jaqueira, A.R. (2023). How to understand sports and traditional games and how to apply it to physical education. On the "Goal of Game." Frontiers in Sports and Active Living, 5. <u>https://doi.org/10.3389/fspor.2023.1123340</u>
- Salaj, S., & Masnjak, M. (2022). Correlation of Motor Competence and Social-Emotional Wellbeing in Preschool Children. Frontiers in Psychology, 13. <u>https://doi.org/10.3389/FPSYG.2022.846520</u>

- Samodra, YTJ, Suryadi, D., Wati, IDP, Supriatna, E., Santika, IGPNA, Suganda, MA, & Dewi, PCP (2023). Analysis of gross motor analysis of elementary school students: A comparative study of students in hill and coastal areas. Pedagogy of Physical Culture and Sports, 27(2), 139–145. <u>https://doi.org/10.15561/26649837.2023.0206</u>
- Schmidt, R.A., & Lee, T.D. (2019). Motor Learning and Performance: From Principles to Application (6th ed.). Human Kinetics.
- Taufik, MS, Ridlo, AF, Solahuddin, S., Iskandar, T., & Taroreh, BS (2022). Application of YouTube-Based Virtual Blended Learning as a Learning Media for Fundamental Movement Skills in Elementary Schools during the Covid Pandemic 19. Annals of Applied Sport Science, 10(1). <u>https://doi.org/10.52547/aassjournal.1020</u>
- Ulrich, D. A. (2000). Test of Gross Motor Development: Second Edition (2nd ed.). Pro-Ed: An International Publisher.
- Umami, YS, Suparno, & Hakim, L. (2020). The development of "paper toys" learning media to stimulate children's fine motor skills. ACM International Conference Proceedings Series, 250–255. <u>https://doi.org/10.1145/3416797.3416818</u>
- van Stryp, O., Duncan, M. J., & Africa, E. (2022). Fundamental movement skills proficiency among neurotypical grade one children in Cape Town, South Africa. Sport Sciences for Health, 18(3), 933–938. <u>https://doi.org/10.1007/S11332-021-00877-X/FIGURES/3</u>
- Xia, X., Chao, L., Nan, C., Yin, X., Zheng, H., & Zhang, S. (2022). Fundamental motor skills of kindergarten children in different environments and ethnic groups in Northwest China. BMC Pediatrics, 22(1), 1–10. <u>https://doi.org/10.1186/S12887-022-03497-</u> <u>7/TABLES/4</u>
- Zeng, N., Johnson, S.L., Boles, R.E., & Bellows, L.L. (2019). Socio-ecological correlates of fundamental movement skills in young children. Journal of Sport and Health Science, 8(2), 122–129. <u>https://doi.org/10.1016/J.JSHS.2019.01.001</u>
- Zorlular, R., Akkaya, K. U., & Elbasan, B. (2024). The relationship between home environment affordances and motor development and sensory processing skills in premature infants. Infant Behavior and Development, 75, 101944. <u>https://doi.org/10.1016/J.INFBEH.2024.101944</u>