



The Relationship Between Basic Locomotor Movement Ability and Learning Outcomes in Floor Gymnastics

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Abstract

Basic locomotor movement skills are part of fundamental movement skills (FMS), which develop in childhood and form an important foundation for mastering more complex specific motor skills. Basic movement skills that do not develop optimally will have a direct impact on children's ability to participate in more complex floor exercise activities. Therefore, in the context of physical education, especially floor gymnastics activities, the lack of readiness in basic locomotor skills has the potential to hinder the achievement of learning outcomes targeted by the curriculum. This study aims to determine the relationship between basic locomotor skills and learning outcomes in floor gymnastics activities. The method used in this study is a quantitative descriptive method with a correlational technique. The population in this study were students at Public Junior High School 40 Bandung, specifically those in grade VII, with a total of 290 students. The sample in this study used simple random sampling, with samples taken randomly by lottery, namely VII-A, which consisted of 32 students. The instrument used in this study to measure basic locomotor skills was the Test of Gross Motor Development (TGMD-2), while for learning outcomes in floor exercises, the researcher used assessments of knowledge, skills, and attitudes. The results of data analysis showed that the correlation coefficient of variable X with Y (r_{xy}) was 0.603, which was categorized as having a strong correlation level, namely in the range of 0.60-0.799. This value also indicated a positive relationship between basic locomotor skills and learning outcomes in floor exercises.

How to Cite

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INTRODUCTION

Physical Education and Sports is one of the compulsory subjects in the primary and secondary education curriculum (UU Sisdiknas, 2003). Furthermore, in the explanation of Article 37 paragraph 1, it is stated that the subject matter of Physical Education and Sports is intended to shape the character of students so that they are physically and spiritually healthy, and to foster a sense of sportsmanship. According to Sudarsinah in (Rizky Rahmadani et al., 2025), physical activities carried out in physical education have a positive impact on various aspects of students' lives, both physically, cognitively, and socially.

The objectives of Physical Education, Sports, and Health (PE) subjects. According to (Kurikulum, 2013), there are four competencies, namely: (1) spiritual attitude, (2) social attitude, (3) knowledge, and (4) skills. These competencies are achieved through intracurricular, cocurricular, and/or extracurricular learning processes. Meanwhile, the learning objectives of PE, in each aspect for each level and class, have been formulated in the basic competency formulation.

The objectives of physical education, sports, and health are as follows. According to (Merdeka Curriculum, 2024), which has been formulated in the form of learning outcomes (CP) as stipulated in the decision of the head of the book center number 032/H/KR/2024, they are as follows: (1) Develop, apply, and evaluate movement skills, concepts, and strategies that will become dispositions for participating in various physical activities with confidence, competence, and creativity. (2) Assist and support them in choosing a healthy and physically active lifestyle. (3) Building and applying social and emotional skills through a learning context that emphasizes the values of fair play, teamwork, and inclusivity; and (4) Instilling appreciation and developing a positive attitude toward lifelong physical activity as a means of improving overall quality of life.

One learning activity that can be used to achieve the PE learning objectives according to both the 2013 curriculum and the independent curriculum is floor gymnastics. In learning, floor exercises are not only physical activities, but also a means of character development, strengthening motor skills, and integrating educational values. This is in line with the opinion of (Tumaloto et al., 2024), Floor exercises emphasize body movements performed on the floor, which are very effective for training coordination and muscle strength. From a curriculum perspective, floor exercises play an important role in shaping the

overall competence of students, which includes cognitive aspects (knowledge of movement principles, basic techniques, and safety), affective aspects (confidence, discipline, cooperation, and sportsmanship), and psychomotor aspects (the ability to perform a series of movements such as forward rolls, backward rolls, and handstands correctly and efficiently). Mastery of floor gymnastics activities, especially at the elementary and junior high school levels, reflects the achievement of basic motor skills and the physical readiness of students to develop more complex skills.

Meanwhile, according to (Kurikulum Merdeka, 2024), the learning objectives of Phase D floor exercises have been implicitly formulated in the CP formulation, specifically in the movement skills element, which is that students analyze and refine their movement skills and transfer them to various movement situations. Students develop and demonstrate movement strategies that can be used to improve movement skill achievement. Students demonstrate and explain movement concepts that can be used to improve movement skill achievement.

Based on the PE teacher's guidebook for Grade VII, students are able to practice and analyze specific and functional movement skills in games and sports (balance, forward rolls, backward rolls, and floor gymnastics rolls). However, based on the author's thinking in the context of student-oriented learning, the author gives students freedom in learning according to their potential and creativity, so that the learning objectives for floor gymnastics activities can be formulated as follows: During and after learning, students will be able to: (1) Explain four simple movements in floor exercises. (2) Explain how to sequence/combine four simple movements in floor exercises. (3) Demonstrate confidence, discipline, cooperation, and responsibility in learning floor exercises. (4) Practice four simple movements in floor gymnastics activities. (5) Practice sequences/combinations of four simple movements in floor gymnastics activities.

To achieve the learning objectives of floor gymnastics activities, we often encounter problems that are not technical in nature, but multidimensional. Based on the results of research conducted by (Meikahani et al., 2021), it can be seen that the obstacles in learning floor gymnastics are 41.08%. Learning activities can be carried out well if learning is carried out with the support of other supporting aspects. Related to these aspects are the teacher aspect, which accounts for 16.86%, students, which accounts

for 42.15%, facilities and infrastructure, which accounts for 30.39%, curriculum, which accounts for 6.53%, and the environment, which accounts for 17.64%. These five aspects are closely related in supporting floor gymnastics learning at the elementary school level.

The above explanation shows that the biggest obstacle lies in the students. This aspect includes the learning process of basic locomotor, non-locomotor, and manipulative motor skills. One factor believed to influence this is basic locomotor skills, namely skills such as walking, running, and jumping, which are important foundations for performing more difficult floor exercises (Payne & Isaacs, 2017).

Basic locomotor movement skills are part of fundamental movement skills (FMS), which develop in childhood and form the foundation for mastering more complex specific motor skills. According to (Haywood & Getchell, 2017), FMS that do not develop optimally will have a direct impact on children's ability to participate in more structured physical activities, such as floor exercises. Therefore, in the context of physical education, the lack of readiness in basic locomotor skills has the potential to hinder the achievement of learning outcomes targeted by the curriculum.

Previous studies have shown a significant relationship between basic motor skills and success in learning complex physical activities. For example, a study by (Logan et al., 2012), concluded that basic locomotor skills are an important predictor of mastery of advanced motor skills in sports activities. Therefore, this study aims to determine the relationship between basic locomotor skills and learning outcomes in floor exercises.

Previous studies have focused on the relationship between basic motor skills and success in learning complex physical activities. However, these studies have not specifically examined advanced motor skills in sports activities, particularly in learning floor exercises. This research is important so that teachers can develop learning strategies that are more responsive to students' physical readiness and optimize the process of motor skill internalization within the framework of holistic and development-oriented physical education.

METHOD

The method used in this study is a quantitative descriptive method with correlational techniques. According to (Creswell, 2016), the

design of this study is a correlational design used to describe and measure the degree of correlation or relationship between two or more variables, or several sets of scores. In this study, the problem to be investigated is to determine the relationship between basic locomotor skills and learning outcomes in floor exercises.

In this study, there are two variables to be examined, namely variable (X) basic locomotor movement ability, which is the independent variable, and variable (Y) learning outcomes in floor exercises, which is the dependent variable.

The population in this study was students at Public Junior High School 40 Bandung, specifically those in grade VII, totaling 290 students. The sample in this study used simple random sampling, with samples taken randomly using a lottery system, namely VII-A, which consisted of 32 students.

Instruments used in this study To test basic locomotor skills, researchers used The Test of Gross Motor Development (TGMD-2) with sub-tests for running, galloping, hopping, leaping, horizontal jumping, and sliding (Gallahue & Ozmun, 1994,). Meanwhile, according to (Syarifudin & Mikro, 2021), the learning outcomes for floor exercises are as follows: (1) Attitude assessment is conducted through observation using self-assessment journals or peer assessment. (2) Knowledge assessment is conducted using a written test consisting of 20 multiple-choice questions. (3) Skill assessment is conducted using an assessment rubric.

The data analysis technique used in this study is simple correlation analysis using the Pearson Product Moment method (Aldy Purnomo, 2016). The purpose of this analysis is to answer research questions, test hypotheses, and draw conclusions relevant to the research objectives. All results are presented objectively and accompanied by interpretations that support understanding of the phenomenon under study.

RESULTS AND DISCUSSION

Based on the results of the study, researchers found various data that were processed, analyzed, and concluded. The following can be seen in **Table 1** regarding the results of the frequency distribution test of basic locomotor movement abilities.

As shown in **Table 1** above, the TGMD-2 data results from 32 students in the sample obtained a mean = 84.97, standard deviation = 11.62, minimum value = 50, and maximum value = 99. From the 32 students in the research samp-

le, data on the frequency of basic locomotor movements can be obtained, with the interval class (50-58) consisting of 1 person with a frequency percentage of 3%, (59-67) consisting of 2 people with a percentage of 6%, (68-76) 4 students with a frequency percentage of (13%), (77-85) 8 students with a frequency percentage of (22%), and finally (95-103) 10 students with a frequency percentage of (33%).

Table 1. Results of Basic Locomotor Movement Frequency Distribution Test

Interval Class	Fa	Fr%
50 – 58	1	3
59 – 67	2	6
68 – 76	4	13
77 - 85	8	25
86 - 94	7	22
95 – 103	10	33
Total	32	100

Following can be seen in **Table 2** regarding the results of the frequency distribution test of learning outcomes for floor exercises.

Table 2. Results of Frequency Distribution Test for Floor Exercise Activities

Interval Class	Fa	Fr%
54 - 60	6	19
61 - 67	5	16
68 - 74	6	19
75 - 81	7	22
82 - 88	1	3
89 - 96	7	22
Total	32	100

As shown in **Table 2** above, the data on the learning outcomes of floor exercises from 32 students obtained a mean = 73.20, standard deviation = 12.33, minimum value = 54, and maximum value = 94. From the 32 students in the research sample, data on the frequency of basic locomotor movements can be obtained, with 6 students (19% frequency percentage) in the interval class (54-60), (61-67) for 5 students with a frequency percentage of 16%, (68-74) for 6 students with a frequency percentage of 19%, (75-81) for 7 students with a frequency percentage of 22%, (82-88) with 1 people and a frequency percentage of (3%), and finally (89-96) with 7 people and a frequency percentage of (22%).

Validity testing is a test that serves to determine whether a research measurement tool (instrument) is valid or invalid (Janna & Herian-

to, 2021). In this case, validity can be defined as the ability of a measuring instrument to measure what it is intended to measure or to determine the accuracy of the measuring instrument. An instrument is considered valid if the calculated value (Corrected Item-Total Correlation Value) > table value, then the item is declared valid and vice versa. The validity test results can be seen in **Table 3** as follows.

Table 3. Validity Test Results

Value Corrected Item Total Correlation	sig	rtable	description
0,545	0,002	0,349	valid
0,734	0,000	0,349	valid
0,765	0,000	0,349	valid
0,607	0,000	0,349	valid
0,568	0,001	0,349	valid
0,584	0,001	0,349	valid

Based on **Table 3**, it can be seen that all sub-tests of basic locomotor skills have valid status because the rhitung value (Corrected Item-Total Correlation Value) > rtable is 0.349.

Reliability testing is a method for measuring the extent to which a measuring tool (instrument) can provide consistent and stable results when used repeatedly under the same conditions. The results of the reliability test can be seen in **Table 4** as follows.

Table 4. Reliability Test Results

Variabel	ralpha	rkritis	description
Lokomotor	0,704	0,600	Reliabel

Based on **Table 4**, the reliability coefficient of the basic locomotor movement ability instrument is $\alpha = 0.704 > 0.600$, which means that the instrument is reliable or meets the requirements.

Table 5. Shapiro-Wilk Normality Test Results

Variabel	Sig.	Alpha	description
Lokomotor	0.71	0.05	Normal
Learning Outcomes	0.91	0.05	Normal

The normality test is intended to determine whether the variables in the study have a normal distribution or not. This normality test uses the Shapiro-Wilk formula, with a significance level of $\alpha 0.05$. The test criterion is that if the significance value is $< \alpha 0.05$, the data is not normally distributed, and if the significance value is $> \alpha 0.05$, the data is normally distributed. The results

of the normality test can be seen in **Table 5** as follows.

Table 5 shows the results of the normality test using the Shapiro-Wilk test, indicating that the test variables for basic locomotor skills had a sig. value of $0.71 > 0.05$ and the results of floor exercise learning had a sig. value of $0.91 > 0.05$. Therefore, it can be concluded that the data on basic locomotor movement ability and learning outcomes for floor gymnastics activities in this study are normally distributed and can be analyzed using parametric tests.

Table 6. Linearity Test Results

Variabel	Sig.	Alpha	description
Lokomotor Learning Outcomes	0.353	0.05	Linear

The linearity test aims to ensure that the relationship between the independent variable (X) and the dependent variable (Y) is linear. The result is considered linear if the Significance Deviation from Linearity value is >0.05 .

Based on **Table 6** above, the Deviation from Linearity value obtained is $0.353 > 0.05$, so it can be concluded that there is a linear relationship between basic locomotor movement ability (X) and learning outcomes in floor exercises (Y).

Table 7. Hypothesis Test Results

Koefisien Korelasi (r)	Koefisien Determinasi (r ²)	Sig.	conclusion
0,603	0,363	0,00	positive

Hypothesis testing in this study used correlation analysis with the Pearson Product Moment correlation test. The results of the test calculations can be seen in **Table 7** as follows.

Table 7 above interprets that the correlation coefficient between variable X and Y (r_{xy}) is 0.603, which is categorized as a strong correlation in the range of 0.60–0.799. This value also indicates a positive relationship between basic locomotor skills and floor exercise learning outcomes because the correlation coefficient is positive.

This significance test aims to test the significance of the relationship found, namely whether the relationship found can be applied to the entire population. The significance test in this hypothesis testing uses the t-significance test, which compares the t-count value with the t-table ($dk = n - 2 = 30$ significance level (0.05)). The table shows that the t-count value is 4.136, while the t-table value is 1.697. When comparing the va-

lues, it can be concluded that $t\text{-count} > t\text{-table}$, so H_0 is rejected and H_1 is accepted. This is also reinforced by looking at the sig value (Martono, 2010:166) in **Table 7**, which shows 0.00. This sig value is much smaller than 0.05 ($0.00 < 0.05$), which means there is a significant relationship between basic locomotor movement ability and learning outcomes in floor gymnastics.

Correlation analysis (Koefisien Determinasi (r²)) can be continued by calculating the coefficient of determination, which is the square of the correlation coefficient. Based on Table 7, the coefficient of determination is 0.363. This means that 36.3% of the variance in student learning outcomes is determined by the variance in the basic locomotor skills variable. It can also be interpreted that the influence of basic locomotor skills on learning outcomes in floor exercises is 36.3%, while 63.7% is determined by other factors.

Based on the data analysis that has been conducted, a positive relationship was found between basic locomotor skills and the learning outcomes of floor exercises in students. This indicates that the better a student's locomotor skills, the higher their learning outcomes in floor exercises tend to be. Basic locomotor movements, such as walking, running, jumping, and balancing, are fundamental elements in every floor exercise movement sequence. Without foot coordination and efficient movement skills, students will find it difficult to transition between movements or achieve the momentum needed for complex movements such as forward rolls or straddle jumps. In line with the findings (Saputra & Firdaus, 2019), it can be concluded that there is a significant relationship between basic locomotor movement skills and the physical education learning outcomes of second and third grade students at elementary school 09 Pulau Punjung District, Dharmastraya Regency.

The results of this study indicate that basic locomotor skills play a role in improving students' floor exercise learning outcomes. This is in line with research conducted by Gallahue and Ozmun in (Chak Lun Fu et al., 2016), which explains that basic motor skills are a set of motor skills that develop gradually through the interaction between biological, psychological, and environmental factors, enabling individuals to move effectively and efficiently in various situations. Therefore, it can be concluded that the higher the basic locomotor movement skills, the higher the learning outcomes of floor gymnastics activities.

CONCLUSION

Based on the results of research conducted on the relationship between basic locomotor skills and learning outcomes in floor exercises, it can be concluded that there is a positive relationship between basic locomotor skills and learning outcomes in floor exercises among seventh-grade students at Public Junior High School 40 Bandung. Data analysis shows that the better the students' basic locomotor skills, the higher their learning outcomes in floor exercises. In addition, observations during the learning process also show that students find it easier to perform more complex movements in learning activities. Thus, the development of basic locomotor skills can contribute positively to improving learning outcomes in floor gymnastics activities. Therefore, it is recommended that teachers consider mastery of basic movement skills as one of the strategies to improve student learning outcomes in physical education subjects.

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