

# The Effect of Fundamental Motor Skills Program on the Character of Kindergarten Students

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## Abstract

Education at an early age has a long-term effect on self-concept. The absence of direct subjects at the Kindergarten (TK) level that teach character values is a challenge for teachers in instilling character values in students. In a wider scope of learning fundamental motor skills (FMS) in kindergarten students have a strategic position to be integrated with other learning. FMS learning that is intervened intentionally by incorporating other teaching material elements such as character allows it to influence the intended domain, but it is not clear how much influence the FMS program intervention has on the character building of kindergarten students. To see the effect of the FMS program intervention which was carried out for 24 meetings for 8 weeks on the character of Kindergarten students. Used is a quasi-experimental design by comparing pre-test data and post-test results. There were 80 students as the sample which were divided into 2 groups where 40 students were the control group and 40 students were the intervention group. The character test uses a validated character instrument. There was an increase in character values in both groups after implementing the FMS program at school, with the intervention FMS group experiencing a significant increase in character values.

Keywords: Fundamental motor skills, Character, Kindergarten students

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## 1. Introduction

FMS is a gross and fine movement pattern that involves large and small muscles as building blocks for the more complex movements required to participate in sports, games, or physical activities. [1,2,3,4,5]. FMS must be taught, learned, and strengthened [6]. FMS proficiency is more likely to be achieved with proper practice, encouragement, feedback, and instructions [7]. Strengthening FMS makes it easier for children to have motor skills, prevents delays in motor skills, and forms self-concept. Students who have low FMS abilities are more likely to experience failure in the motor domain and tend to participate less in sports and games during childhood and adolescence [8]. Good FMS learning is taught from an early age because it becomes the basis for future activities. The preschool years become a key developmental stage for the acquisition and development of FMS and are refined into sport-specific contexts and skills [9,10,]. Having a good FMS will encourage the involvement of physical activity, active movement, good body movement skills, active lifestyle, and good social behavior [11,12,13,14].

FMS ability not only affects motor skills, the intervention of FMS learning is able to promote other domains such as social and cognitive behavior [15,16,17,18,19]. The literature reveals a link between learning motor skills through PE during preschool and scholastic, social, and emotional development [20,21,22], where physically active children tend to experience increased self-esteem, decreased levels of anxiety and depression, and showed increased functioning. brain, academic grades, and have better school attendance [23,24,25]. Children who are physically inactive have decreased extraversion, openness, sociability and conscientiousness [26,27]. Other literature states that PE contributes to the development of students' personality by means of student-centred learning interventions [28]. FMS learning through student-centered physical activity forms

social interaction and cooperation that provides opportunities for students to develop social behavior [29]. The ability to integrate FMS learning with other domains opens up opportunities for kindergarten teachers to integrate FMS learning with the character domain. In the FMS learning process the teacher can enter character values by giving instructions related to character values at the beginning of learning, implementation of learning, and at the end of learning. Incorporating character values in FMS learning can shape student behavior so as to bring up the expected character values. Other literature states that there is a relationship between students who do sports with better mental health such as fewer emotional problems, good relationships with peers and more pro-social behavior in children [30]. Based on field facts, schools as agents of character education need to participate in the formation of students' character [31].

Character education is understood as a deliberate effort to promote the development of virtue, moral values, and moral agency [32, 33]. Character education is very important given from an early age because it becomes the basis for children to be good, now and in the future. Children who learn the moral values of their community at an early age have better social interactions [34] while children who do not receive morality lessons have a greater chance of committing juvenile delinquency, disrespecting people, drug abuse, violence, dropping out of school, conflict at school [35]. The results of a study released by [36] in Indonesia revealed that many students were victims of bullying. The need for the right solution to cultivate character values in students from an early age. Character building through FMS learning provides an ideal practice opportunity because it includes authentic problems [37]. Learning character values directly in FMS learning gives an impression so that it is embedded in memory so that it has a great opportunity for children to realize in their daily lives. Exploration and competitive elements in FMS learning also have a psychological impact on students so that they are able to influence their daily lives [38].

The design of the FMS learning program that is integrated with character can be done through several approaches. The use of educational games is an option in making learning programs to instill character values in kindergarten students, because through educational games students can play while learning [39]. Giving character stimulus through educational games is one of the most effective ways, because the stimulus facilitates more complex learning in all domains [40]. In FMS learning students are required to carry out physical activities that stimulate students to interact, cooperate, succumb, emotional regulation, honest, creative, independent, democratic, disciplined, friendly/communicative, curiosity, appreciate achievement, love peace, these demands stimulate students to grow character values. Program design that is carried out intentionally and simulated increases the possibility of achieving learning objectives. Research results reveal that learning/sports programs that are intentionally and structured will provide positive results [41].

This study aims to determine the effect of the FMS program intervention on the character of students and compare the character values of students who carry out regular FMS learning and FMS intervention. In particular, this study aims to explore the potential of FMS learning to influence the character domain. The hypothesis in this study is that there is a better increase in character values in students who carry out the intervention FMS program.

## **2. Material and Methods**

### **2.1 Research Design**

This research is an experimental type where the researcher conducts an initial test to determine the initial data on the student's character and then manipulates the independent variables with treatment within a certain period of time, followed by posttesting the dependent variable and comparing them with the previous pretest scores. The independent variable in this study was the regular FMS program and the intervention FMS, while the dependent variable was the character. There are two research groups, group one that carries out FMS learning Intervention group two that carries out regular FMS learning.

### **2.2 Participants**

There were 8 teachers and 80 kindergarten students with an age range of 4-6 years who participated in this study, which were divided into two groups. The first group carried out the intervention FMS learning with a total of 40 students consisting of 22 male students and 18 female students, each class consisting of 20 students and 3 teachers, the second group of students carrying out regular FMS learning consisted of 40 students consisting of 23 male students and 17 female students carried out regular FMS learning.

## 2.3 Sampling techniques

Probability sampling is used in sampling in this study. Probability techniques make the population subject have the same opportunity as the sample so that the selected sample is representative. The probability technique uses simple random sampling where the researcher takes a random sample from the entire population.

## 2.4 Method

This research is a quantitative type where the researcher analyzes numerical data sourced from the results of the pretest and posttest to test the hypothesis. Pretest and posttest data were obtained from data collection using standard instruments. The character instrument is designed based on the possibility of the emergence of character values when doing FMS learning. This instrument has been tested for validity and reliability, the  $r$  count is 0.939 while the  $r$  table value is 0.3044. There are 34 questions that represent 15 character values that will be assessed. The character rating scale is divided into four starting from not appearing, starting to appear, often appearing, consistent. This scale describes the level of appearance of character values applied by students during school. Assessment instruments are filled out by the teacher accompanying students in each class. Before filling out the instrument, the teachers have been given knowledge of how to fill out the instrument and a trial of filling has been carried out which is useful for equating the perception of the elements of the assessment points that have been set.

## 2.5 Regular FMS Program Procedures and FMS Intervention

The regular FMS program is a gross motor movement learning program provided by school institutions. This program is carried out based on learning plans according to curriculum guidelines. Regular FMS is carried out through mass movement activities, such as group gymnastics, ball games, and free play. Regular FMS has a variety of movement patterns with low movement repetitions. The regular FMS learning process is centered where the teacher gives examples of motion and students follow the motion. Regular FMS learning is carried out 3 times a week with a learning intensity of 60 minutes.

The intervention FMS program developed consisted of 12 motion materials, 6 locomotor movements, namely running, gallop, jumping, leap, horizontal jumping, sliding, and 6 object control movements, namely hitting the ball, dribbling, catching, kicking, throwing up motion, and rolling the balls. The intervention FMS process was carried out 24 times, 3 times a week, 2 repetitions of motion material with a duration of 60 minutes at each meeting. Before the teacher conducts intervention FMS learning, the teacher first explains the form of character values that will be integrated in the FMS learning process, the teacher is also given notes on some character values that often appear during FMS learning. The integration of character values is given at the beginning of learning, core, and at the end. At the beginning of learning the teacher asks students to pray before starting the lesson, followed by the teacher explaining some character values that may appear during learning such as the value of honesty by daring to admit mistakes, tolerance by appreciating the efforts made by friends, discipline in a timely manner in learning, hard work by trying to master the learning material and several other character values. In the implementation of learning, if there are situations that describe the character values, the teacher encourages students to do these character values, for example if there are students who bully the teacher reminds that the act is not good and asks students to help each other if they see other students are not capable, if there are students who fighting teacher asks them to forgive each other and teaches the attitude of giving in. At the end of the lesson the teacher reviews the character values that have been done by students and motivates students to consistently implement the character values that have been learned.

## 3. Results

The mean pretest scores of the two groups were used to describe the initial development of the 15 character values of kindergarten students.

Table 1. Pre test character

Catagory FMS	N	Minimum	Maximum	Mean	Std Deviation	Indikator Modus
Intervensi	40	66	83	69,5	4,86	Start Appearing
Reguler	40	67	80	70,1	4,14	Start Appearing

The results of the pre-test statistic obtained that the information on the minimum and maximum scores of students in the two groups was not much different, with a mean score of 69.5 in the intervention FMS group and 70.1 in the regular FMS group, this score shows that students have the same character development in early learning. From the statistical analysis, it is known that the standard deviation of the two groups is smaller than

the mean value, so it can be stated that the mean value is a representation of the entire data. In the character development indicators, it is revealed that at the beginning of the learning process, all students are in the character indicator mode. This indicator shows that students have not applied character values in their daily activities. The need for providing a stimulus to influence the character of students.

Table 2. Post test character

Catagory FMS	N	Min	Max	Mean	Std Deviation	Std. Error Mean	% An increase from the initial test	Indicator mode
Intervention	40	115	130	121,8	4,67	,739	75,2%	Consistent
Regular	40	84	100	93	4,93	,771	32,6%	Appears Often

From the results of the treatment for 24 meetings, it was found that there was an increase in character values in the 2 groups. In the intervention group, the increase in student character scores was 75.2% with a minimum score of 115 points and a maximum value of 130 points. In the regular group, the character value increases by 32.6% with a minimum value of 84 points and a maximum value of 100 points. The difference in student character values in the two groups revealed that stimulation through intervention FMS had a better effect on student character. Based on the character value indicators, it is known that students in the intervention FMS group are in consistent category mode while students in the regular FMS group are in the category mode starting to appear and often appear.

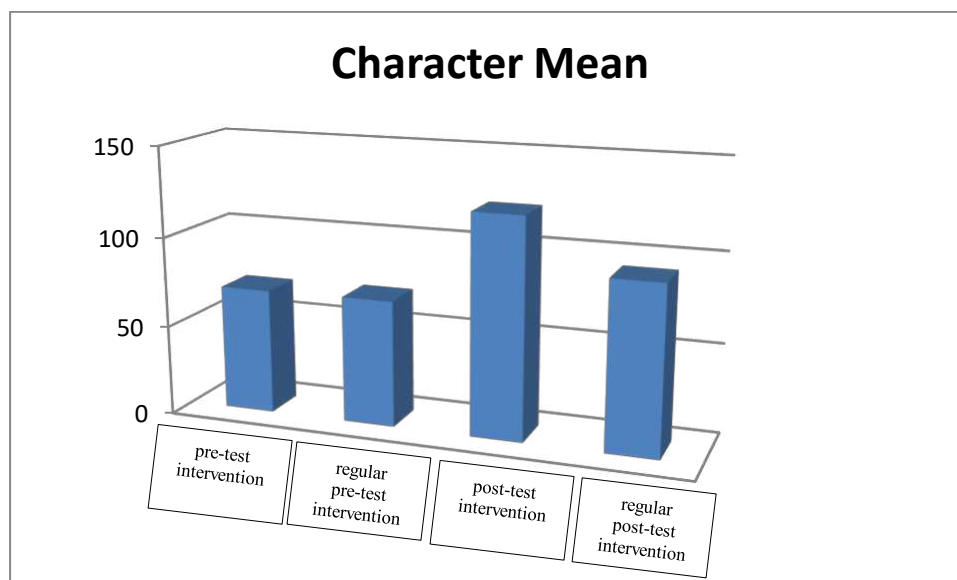
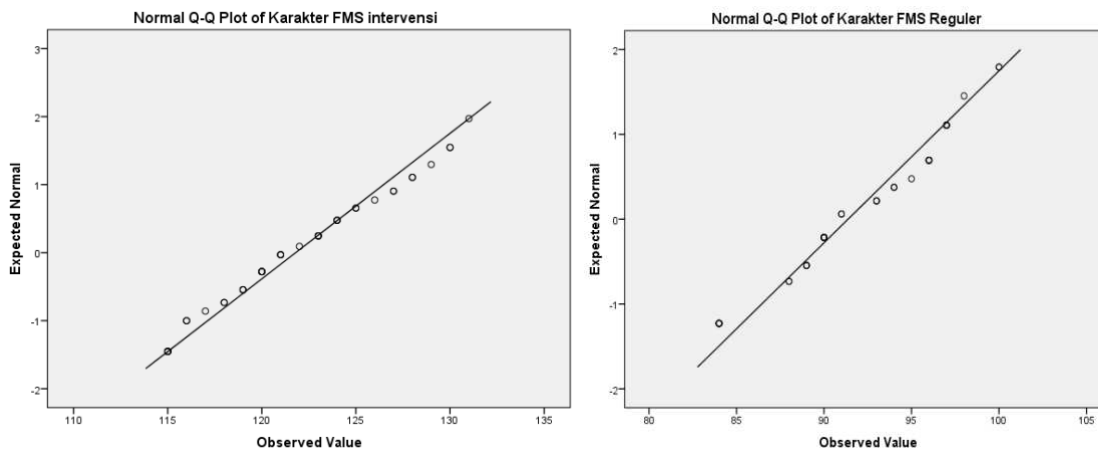


Diagram 1. Mean Pretest and Posttest Characters of Kindergarten Students

Bar chart visualization shows that in the initial conditions students have the same character development, but after implementing both forms of FMS learning, it is known that the intervention FMS program has better learning outcomes than regular FMS with an increase difference between the two learning groups of 44.5%.

Further tests were carried out using ANOVA to compare the population mean and determine the significance of the differences between the two groups of data. The first step is to see if the data distribution is normally distributed. From the Kolmogorov-Smirnov normality test, it is known that the Sig value of the intervention FMS group is 0.200 and the regular FMS group is 0.074 with the assumption that the data is normally distributed.



From the visualization of the probability distribution plot of the data following the normal distribution reference line, although there are several observation points crossing the boundary line, it can be concluded that the data for both groups are normally distributed.

### Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Character Results	Equal variances assumed	,427	,516	27,106	78	,000	28,950	1,068	26,824	31,076
	Equal variances not assumed			27,106	77,863	,000	28,950	1,068	26,824	31,076

The results of statistical processing using SPSS 23 obtain several outputs that describe the results of the study, it is known that the value of Sig. Levene's Test for Equality of Variances  $0.516 > 0.05$ , it is known that the variation in data between students in the intervention FMS learning group and the regular FMS is homogeneous. In the equality of means column, the Sig value is known. (2-tailed)  $0.000 < 0.05$ , it is assumed that there is a significant difference in the mean scores of groups of students who carry out interventional and regular FMS learning.

In the mean difference table, 28.95 points are obtained with a confidence interval of 26.824 to 31.076. Based on the results of the t test, it is known that t count  $27.106 > t$  table 1.686, assuming that there is a significant average difference in the learning outcomes of students who study FMS intervention and regular FMS where students who learn FMS intervention have a better influence on character. student.

## 4. Discussion

The research findings reveal that the intervention FMS program has a significant effect on changes in the character of kindergarten students. The results of the study are in accordance with a review of several literatures which state that a structured and focused FMS is an important component when implementing a physical activity program to improve children's motor skills and behavior [42]. FMS which is carried out through educational games can develop potential and instill character values in early childhood, where subjects exposed to physical activity have self-confidence and pro-social behavior that can improve problem solving abilities, stimulate the development of language and verbal skills, develop social skills, and a platform for emotional expression, teaching children to recognize and respect others [43,44]. The existence of interventional FMS learning abilities on the character domain proves that FMS learning has a strategic position where it can be integrated with character learning related to basic knowledge. Sports that are deliberately structured and simulated are effective to facilitate learning to teach life skills significantly to improve life skills [45].

In this study, there are several important points that need special attention so that the FMS intervention

program achieves its goals. The first point is setting goals, learning objectives serve as guide lines in the preparation of teaching materials, setting clear goals provides an overview of the stages that must be passed in order to achieve learning objectives. A structured and focused learning system facilitates the achievement of learning objectives. Programming intentionally and structured will provide positive results [46]. The second point is the design of the learning program design. The design used in the research is instructional in which students are the main component so that the design is adapted to students' abilities, needs, and goals. Program design becomes a tool to solve problems, in determining learning design there are several things that need to be considered, namely: object characteristics, age and level of movement ability, duration of learning, intensity, appropriate material, control and evaluation. A structured learning program is a better educational methodology than free play to achieve adequate motor development in preschool children [47]. Attractive programs increase enthusiasm/motivation for students to study well [48]. One form of learning that is interesting for kindergarten students is through the concept of games, learning programs that use game situations can improve students' FMS [49]. Learning with the concept of games creates an element of exploration and competition and has a psychological impact on students so that they can improve performance in the aspect of learning motivation [50]. Playing can also accelerate social, cognitive, motor, and linguistic improvements [51,52]. The third point is the readiness of the teaching staff, the teacher's understanding of the teaching material and the ability to realize it is very important. The suitability of the material provided by the teacher with the design has an impact on the validity of the program's success [53]. Before the teacher carries out learning, it is necessary to do a material understanding test, during the learning process control is carried out on the implementation of learning, at the end of the lesson an evaluation is carried out. The suitability of the provision of material and the consistency of the teacher in carrying out the learning process are the keys to the implementation of the right research program. The fourth point is the availability of facilities and infrastructure. facilities and infrastructure are one of the key elements of the education system which can help improve the quality of the teaching and learning process [54]. Infrastructure is a very important component in ensuring the success of education because it is the main basis for effective teaching and learning in schools [55]. In the provision of FMS intervention, the completeness of infrastructure facilities supports learning success because the availability of infrastructure makes it easier for teachers and students in the learning process, increasing student motivation. The fifth point is student consistency, in carrying out the learning program it takes student consistency such as full attendance and enthusiasm for learning that will have an influence on learning outcomes. Although some literature reveals that there is no significant relationship between student attendance in class and academic achievement [56], there are other literatures which state that there is a correlation between student attendance and student achievement [57]. In the FMS program, the intervention which has the aim of increasing the character of the student's attendance rate is very important, because it takes the cultivation of character values that is carried out repeatedly with direct practice in order to improve the character of students. These five points have a relationship with each other so that if there are points that are missed it will affect the learning outcomes.

In carrying out the research, there are several obstacles experienced including the lack of consistency of teachers in explaining character values that appear in the learning process so that strict control is needed so that teachers consistently explain character values during the learning process. The author recommends to researchers if they want to implement an intervention FMS program to improve character, it needs to be carried out by expert teachers and the learning process must be in accordance with program guidelines. FMS learning in accordance with child development delivered by physical education specialists can improve FMS proficiency [58].

## 5. Limitations

Although the results of the study reveal that there is a significant effect of the FMS intervention program on character, further research is needed to determine the effect of the program on a larger sample to obtain a stronger picture of the effect of the intervention FMS program on the character of Kindergarten students. This research can be used as the basis for developing a curriculum, where the cultivation of character values can be integrated with FMS learning.



## 6. Conclusions

Based on the results of the study, it is known that the two FMS programs are able to improve the character of students, but the intervention FMS program has a better effect on improving the character of students. The ability of FMS interventions to improve student character is indicated by the existence of program objectives and sufficient learning intensity, selection of appropriate materials, ownership of teacher competencies, adequate infrastructure, and student consistency during learning. The success of the intervention FMS program in improving student character can be used as a basis for teachers to develop FMS programs that are integrated with the cultivation of character values in schools so that they can improve students' motor skills as well as character values. The findings of this study can be developed by other researchers to integrate FMS learning with other materials for kindergarten students.

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