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Effectiveness of Motor Skills Learning Model through Sports Games for Madrasah Ibtidaiyah Students

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Abstract The purpose of this study was to determine a motor performance learning model based on sports games and test its effectiveness in improving motor performance in elementary school children (madrasah ibtidaiyah). This development study employs his ADDIE (Analysis, Design, Development, Evaluation) model development and uses a mixed approach, qualitative data from model descriptions and quantitative data from field efficacy studies. The subjects involved in developing the model were 60 ninth graders from Kudus age 6 to his age 8. Search for data classified as 'good' for validity and reliability scores using tests of motor learning outcomes for primary schools of Islam. For further analysis, a pre-post test was performed using the paired sample SPSS 23-T test. Significance of difference in T counts indicated = 16.56 df = 59 and p-value = 0.00 <; The researchers concluded that the model developed was in the form of 21 motor skill learning materials consisting of six key criteria based on recorded sports matches and implementation procedures for each element. The developed model can significantly improve motor skills learning outcomes for madrasah ibtidaiyah students.

Keywords: Learning model, motor skills, sports game, madrasah ibtidaiyah,

INTRODUCTION

Sports learning is a mandatory activity in the curriculum to synchronize muscles to achieve a degree of fitness. This is according to Khan et al., (2017) research that shows regular and structured exercise learning increases fitness degrees. Sports learning is a mandatory activity in the curriculum to synchronize muscles to achieve a degree of fitness. The process of learning sports has staged in mastering each set of movements and techniques to do it. Age maturity in line with the development of body functions makes sports learning at every level have differences in the burden given by learners.

Students at the elementary school level under the auspices of the Ministry of Religious Affairs of the Republic of Indonesia, which is called madrasah ibtidaiyah, have an important role in adjusting new movements so that motor maturity can enrich other movements. The characteristics of madrasah ibtidaiyah students who are easily bored, active, and prefer to play games (Benda et al. 2021) encourage breakthroughs to develop learning models through games creatively and innovatively.

Sports learning is a mandatory activity in the curriculum to synchronize muscles to achieve a degree of fitness. The process of learning sports has staged in mastering each set of movements and techniques to do it. Age maturity in line with the development of body functions makes sports learning at every level have differences in the burden given by learners. The equivalent primary school level of madrasah ibtidaiyah within the scope of the Indonesian Ministry of Religion has an important role in adjusting new movements for motor maturity that can enrich other movements. In line with this.

Learning the concept of sports games is important for strategies to develop children's motor skills. Reinforced by the opinion of (Akyol and Pektas, 2018) that group sports games tend to be better at developing motor skills balanced with the mental competition of elementary school-age children. Mental skills balanced with motor skills are needed as a foundation to develop talents to support the potential of psychomotor intelligence (Demirci, Dilbaz & Akar, 2018). This opinion is a reinforcement to bring up the innovation of group sports games in motor movement learning in the realm of madrasah ibtidaiyah.

Motor skills are closely related to the development of congenital functions of madrasah ibtidaiyah children. Children at the madrasah ibtidaiyah level who are felt by teachers to have movement activity in their daily lives tend to have higher

congenital intelligence than children who are passively moving (Widiastuti et al, 2019).

The physical activity of madrasah ibtidaiyah children who can carry out all activities without fatigue must be given the appropriate portion so that maturity in the efficiency of their movement skills becomes more optimal. The efficiency that arises makes muscle recognition in the order of body functions produce permanent motor movements and easier to absorb in brain memory (Muktamar et al. 2018). In mastering their motor skills, madrasah ibtidaiyah children need continuous participation to realize an automation system in the practice of motion in real terms.

Through long stages, children will be able to perform motor skills perfectly, as teachers should be able to shorten without reducing the essence of learning for more productive results. Motor skills are crucial to be taught to children of madrasah ibtidaiyah. With the dominant characteristic in children in the form of always being carefree, good motor skills are expected in every development. Children's motor development is defined as a process of maturity globally including changes in function and social-emotional (Zulfahmi, 2018).

The process of changing motor skills is an exclusive movement involving muscles to move limbs including the feet, hands, and others involved. Categorizes motor motion into the fine motor and coarse motor (Shingjer, 2018). Fine motor motion is defined as systemic coordination involving small muscles such as the movement of releasing arrows in archery, and jerking movements in carjacking games while the gross motor is described as systemic coordination involving large muscle activities such as kicking and throwing balls (Subagio et al. 2020).

Motor movements are a strong foundation and a buffer to support learning activities, play games, socialize, and adapt to new movements to increase self-confidence in madrasah ibtidaiyah children. These motor skills are used as targets for children's cognitive development. When children enter the elementary school phase, children are expected to be able to carry out all school activities with good results supported by a strong physical foundation.

This can have a significant impact on children's performance in their school environment, children are freer to be creative by playing with their friends and are more comfortable moving safely when doing activities (Bolger et al. 2021). The study conducted by (Sugihartini and

Yudiana, 2018) explained the results that to improve one of the motor skills children can be trained in an educational game. The game is creatively packaged to repeat a movement taught by the teacher for perfect mastery of movement in the form of a sports game.

Sports games have a wider scope than playing in general, games have certain rules that all actors must abide by. This game has the ultimate goal of generally winning and losing by teaching fair play in it. Sports games have a line that connects games and sports in an organized manner to compete that emphasizes intellectual and physical (Suharsiwi, Fadilah, & Farokhah, 2022).

Sports games in improving children's motor skills have a relevancy that cannot be separated from one another. Another supporting research written by (Nur, Giyartini, and Sumardi, 2020) explains that traditional games can affect children's motor skills. The research that was written did not explain the child as an object specifically, the description only used traditional games fundamentally and did not explain the sports game techniques used in detail.

In contrast to the research of (Suharsiwi, Fadilah, & Farokhah, 2022) who developed an exercise model for the improvement of motor skills in general without including the subject specifically with the latest review of motor motion theory, besides that, the reference to the model design developed is not based on in-depth theoretical studies. Another study written by Nur et al., (2020) outlines that sports games with the right load can significantly improve children's basic Greek abilities, existing studies only discuss surface the forms in general.

Emphasizing the importance of structured and regular exercise programs, this study provides valuable guidance for individuals, educators, and health professionals to design and execute effective exercise learning strategies to improve overall fitness (Albeta et al. 2021). It is more important for this reason that the model applied in the game must be tested for its validity and effectiveness to improve the motor skills of madrasah ibtidaiyah children. Some of the facts contained in previous research supported by the latest relevant theories give rise to the urgency to develop a model of learning motor skills through sports games for madrasah ibtidaiyah students.

METHOD

This motor skills model development research adopts the ADDIE (Analysis, Design, Development, Evaluation) development research model (Widiastuti et al., 2019), the resulting

product is a motor skills learning model through games for madrasah ibtidaiyah students which is recorded with detailed instructions for its application and testing its effectiveness.

The stage begins with analyzing the need to come up with problems and find the right solution, continues to design a framework to support the concept in the solution offered, then develops a model design according to the right approach and the model design developed.

The design of the model is based on deepening the results of sensory information that enters to be passed on in a response that requires the body to move to carry out the concept of motor motion. Information related to the motor will be passed on as a result of intrinsic and extrinsic movements to produce movements of fine and gross motor skills to make the output of learning models developed taking into account the intensity and complexity of the movements.

Furthermore, the developed model is tested on the subject by taking preliminary (pre-test) and final (post-test) data to bring out the effectiveness of the model and end all stages by evaluating the integrated product at each stage. The subjects in this study were low-grade students with special specifications for grades 1 and 2 of madrasah ibtidaiyah (aged 5-7 years) in Bae District, Kudus Regency, Central Java Province, totaling 60 subjects.

The instruments used are in the form of motor skills learning outcomes tests which are divided into fine motor skills with 6 indicators (gambling, cutting, pouring objects, wearing clothes, moving objects with and without tools) and gross motor skills with indicators (running kicks and balls, walking on tiptoe, walking in lines, swinging legs evenly).

To bring up the validity value, Pearson bivariate correlation is used using Pearson bivariate correlation with a value of 0.78 (valid) while the instrument reliability value coefficient is obtained using the Spearman-Brown formula with a value of 0.64 (reliable). Furthermore, testing the effectiveness of the developed model using paired t-test samples with SPSS.20 aimed at determining the mean difference between two interconnected subject groups.

RESULT AND DISCUSSION

The analysis stage brings up data in the field using observation in the form of information on field needs for the importance of developing the model made. Field data illustrates that as many as 19% of teachers in Bae, Kudus, and Central Java, feel that the learning model in teaching motor skills feels 88% unvaried, 11% feels less varied, 12 feel varied and the remaining

9% is very varied. This data is the basis for the importance of a more creative learning model with an approach to attracting attention so that it is more comfortable in learning motor skills.

The importance of creative sports learning is proven to provide significant benefits for individual development. Corroborates in their research that creativity in sports learning involves using a variety of activities, games, and challenges that stimulate the imagination and develop participants' motor and cognitive skills (Odum, Meaney dan Knudson, 2021).

The research found that creative sports learning can increase students motivation and engagement, increase their understanding of sports concepts and strategies, and develop their creativity and problem-solving abilities. In addition, creative sports learning also contributes to improved teamwork, social skills development, and improving participants' physical health and mental well-being.

With characteristic considerations supported by theories that explain that children will feel more excited and actively participate in the concept of games (Ztella et al., 2019), the design of learning motor skills through sports games appears as shown in Figure 1.

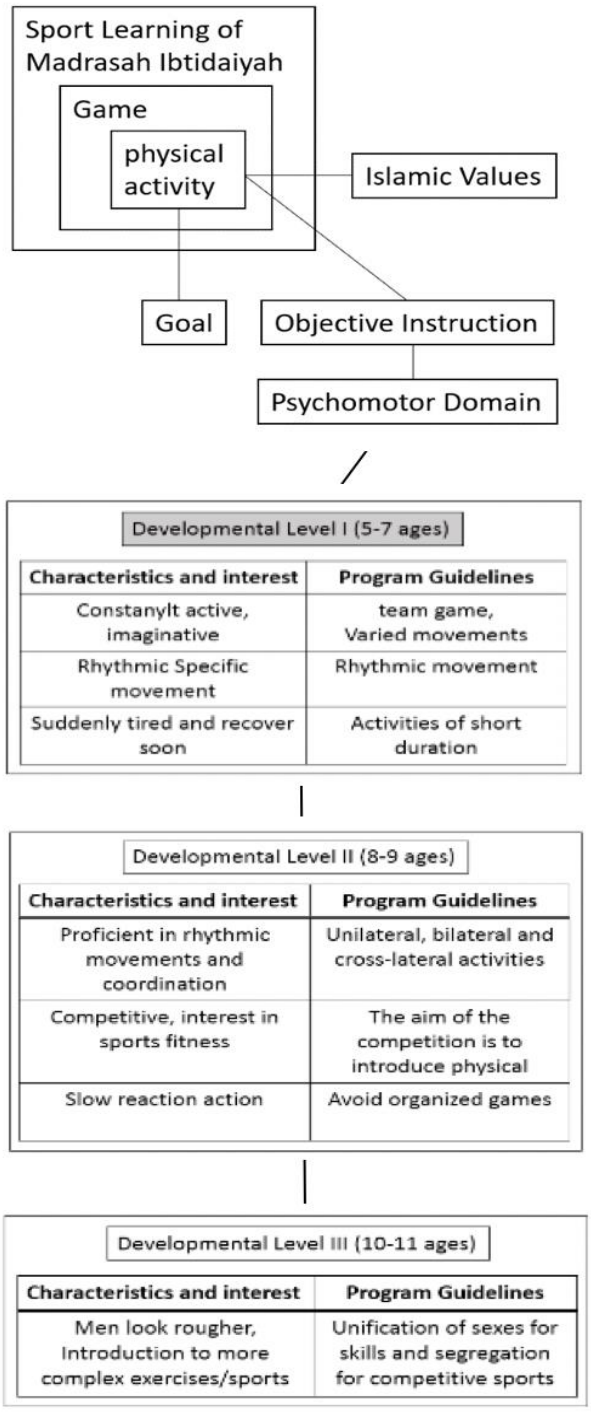

Figure 1. Developed model design

The design stages in the study are based on the research design that has been described. Figure 1 emphasizes the development of a design model based on physical activity based on games, because

the subject of research is madrasah ibtidaiyah, it cannot be separated from Islamic values that support Fairplay. There is a predevelopment level at each age, namely 5-7 years with the dominance of physical activities with short duration, 8-9 years old with a dominance in the form of low-intensity reaction action games, and 10-11 years old with more complex exercises and techniques.

The emergence of sports games cannot be separated from the sub-theme of games in physical education learning in madrasah ibtidaiyah. Fundamentally, the activities carried out by children always go hand in hand with psychomotor skills which are categorized in the lowest to highest level levels.

The realm of development of children's psychomotor abilities consists of level one (age 5-7 years), level two (age 8-9 years), and level three (10-11 years) with characteristics and guidelines for the implementation of different programs (Merce et al., 2022) explained that. Because this research has a limitation of the problem, the focus will only be on subjects aged 5-7 years.

Development at that age children have a high level of imagination and activeness so the model to be developed must be in the form of considering the program guidelines as listed. Description of the development at levels two and three as a complement and comparison of those described in level 1 as shown in figure 3.

Development is defined as the stages to develop the model created. Table 3 shows the basis for developing products systematically. The characteristics of children aged 5-7 years are based on program guidelines listed with four main categories: constant activity, imaginative, rhythmic movement, and low-load activity.

All of them have different items as shown in Table 1. The table explains the results of the implementation of each item and validation information from 3 validators who are experts in the fields of sports, education, and sports education madrasah ibtidaiyah. There were 21 model items finalized, each well executed, and the three validators who evaluated declared it feasible to implement and tested for effectiveness.

Developmental Level I (5-7 ages)

Characteristics and interest	Program Guidelines
Constanylt active, imaginative	team game, Varied movements
Rhythmic Specific movement	Rhythmic movement
Suddenly tired and recover soon	Activities of short duration

Figure 2. Development Level 1 Phase

Tabel 1.
Item Execution and Validation Results

Developed basis	Execution-Yes(Y)/ No (N)		Validator-Worthy (W) /No (N)						Description
			1		2		3		
	Y	N	W	N	W	N	W	N	
Constant if active									
Items 1-3	√	-	√	-	√	-	√	-	All done
Items 4-6	√	-	√	-	√	-	√	-	All done
Imaginative									
Items 7-12	√	-	√	-	√	-	√	-	All done
Rhythmic movement									
Items 13-15	√	-	√	-	√	-	√	-	All done
Items 16-18	√	-	√	-	√	-	√	-	All done
Activities of low intensity									
Items 19-21	√	-	√	-	√	-	√	-	All done

Furthermore, testing the effectiveness of the validated items is carried out. This stage of implementation is explained in detail by the field results that have been examined. After knowing the pre-post test data, the data is normalized for further t-tests. There was an increase in motor skills of madrasah ibtidaiyah students with the continuity of motor motion adjustment in carrying out several skills according to the research design.

The research design raises the concept of sports learning in madrasah ibtidaiyah with the main objective of the introduction of objects in the form of a psychomotor domain with three levels of development according to age. By the design in other studies supported by the curriculum of the Indonesian Ministry of Religious Affairs, sports discussions in madrasah ibtidaiyah are required to include general goals and Islamic values that exist during learning (Retnanto & Firdiansyah 2022).

In the learning process based on this sports game, Islamic goals, and values have been represented by the value of fair play students when learning. Required to pray before and after the study and according to the observations, as many as 16% took the initiative to perform ablution before starting the study on the playing field (Firdiansyah, 2022).

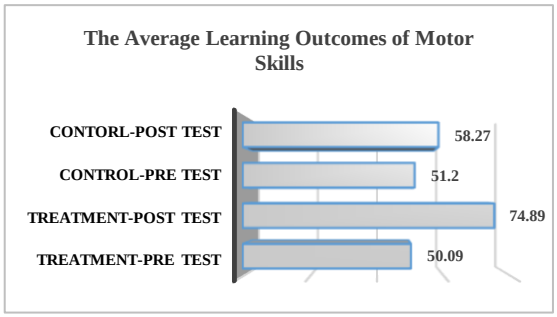

Figure 3. Research Data Diagram

Diagram 2 presents data from the study consisting of treatment and control groups in which there is a pre-post test. In the treatment group, there was a more dominant change in the diagram, normatively the pre-test treatment group showed an average of 50.09 and the post-test showed an average of 74.89. The data changes in the control group

were not too far apart, namely at an average of 51.2 and 59.27. After such research data, all data were tested for normality using Shapiro-Wilk according to the output of Table 1.

Table 2.
Normality Test

	Shapiro-Wilk		
	Statistic	**df**	**Sig.**
Pretest	.978	50	.259
Posttest	.953	50	.164
Control Pretest	.938	50	.071
Control Posttest	.972	50	.475

The four existing groups have significance values>0.05, meaning that all of them have normal data. Normal data is a prerequisite for determining the results of the effectiveness of learning models developed by paired sample t-test using SPSS.20. As in table 2, the signification test in the t-test which crops a calculated t value = 38.867, db=49 and p-value = 0.00 < 0.05, meaning that there is a difference in the signification of the results of learning motor skills before and after treatment in the form of a developed sports game learning model.

The results of existing tests can be a prerequisite for it is said that the learning model developed is effective and can improve the motor skills of madrasah ibtidaiyah children.

Table 3.
Paired Samples Test

Paired Differences					*t*	*df*	*Sig. (2-tailed)*
Mean	*Std. Dev*	*Std. Error Mean*	*95% Confidence Interval f the Different*				
			Lower	*Upper*			
17.73	3.331	.502	15.55	13.53	38.867	49	.000

Discussion

The evaluation of these stages is not limited to specific parts but rather evaluates all stages in the development of ADDIE. The outline is that at the implementation stage, at this stage there is a miss communication so there are some subjects that are not included in the characteristics of the subjects included. It should be 5-7 years old but there are 14% of the total subjects are above that age.

These differences have no meaningful effect but to discipline ADDIE role models to a minimum to avoid. At this stage, there is also the application of some items that are not by the scheme because the infrastructure does not deny in terms of the size of the field and the type of field base that poses a risk of injury if carried out according to the developed scheme.

The skills of madrasah ibtidaiyah children need to be honed from an early age, and the existence of a curriculum in learning to translate this into a reference (Ali et al., 2018). Children prefer outdoor activities to play activities during the learning process, which is the basis for teachers to develop innovations in the learning process (Subagio et al., 2020). Children's motor development is defined as a process of maturity globally including changes in function and social-emotional (Zulfahmi, 2018).

Motoric abilities are closely related to the development of innate functions of children from the toddler phase. Play and games become inseparable, therefore the involvement of students in the application of all activities becomes important in-game activities (Hary and Firdiansyah 2019). The game here is characterized by volunteering to comply with agreed rules in a series of formal physical activities in the learning environment (Zeng et al., 2017).

This makes the reinforcement of the results of research that has been carried out by researchers, that with play activities students feel freer to move by expressing what is in them to learn their motor skills. Sports games that are developed are proven to improve the results of learning motor skills in which there are significant fine and gross motor skills. If reviewed more deeply the development of the model created is based on the psychomotor domain reviewed from three levels (Jusuf et al. 2020).

Each level has its characteristics and age divisions as shown in Figure 1. The corresponding activity program's characteristics, interests, and guidelines at each level are also displayed in the figure (Hanifah et al., 2021) as the. Originator of the psychomotor domain explained that at this age children are given the right stimulus to maximize growth and development with other review skills in the form of motor skills (Perdima, Suwarni, and Dwi Anggara 2022).

The basis in Figure 1 is designed to create stimulation in training children's motor skills at the right age stage. Fine motor skills can be trained by coordinating the elaboration of movements by reviewing child safety (Susilowati and Suwarjo 2020). For gross motor skills use the concept of activity contextually and holistically with a combination of low-intensity rhythmic gears (Kesumawati et al., 2022).

This is to the explanation of Bolger et al., (2021) that making children more competent in their motor development has one of the imperatives for the application of any activity without coercion and low to moderate activity load.

Indirectly, research has an impact on leading readers to understand that a child or student who has an activeness to move in terms of or that approaches kinesthetic intelligence must be well supported without any descriptiveness in the learning process (Zeng et al. 2017), because his play activities have a positive impact on the continuation of motor and even cognitive development (Susanto et al., 2022).

CONCLUSION

The analysis stage outlines field data that in teaching motor skills does not vary. The study design was a game-based physical activity that included Islamic values. The stages of development are prioritized by the age of 5-7 years in the form of constant activity of low loads, and imaginative and rhythmic movements. The implementation of this research is that 21 items are well resolved.

There is miss communication so that some subjects that are not included in the characteristics of the subjects are included. There is an explanation of model development in the form of 21 motor skill learning items based on sports games.

Each item has a detailed description of the objectives, equipment/ infrastructure, procedures, rules, and schemes in the application of the item. The model developed is proven to significantly improve the learning outcomes of motor skills of madrasah ibtidaiyah students based on the concept of sports games.

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