

# Development of Non Locomotor Motion Models For Children 7 Years Old

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**Abstract**—This study aims to develop non locomotor motion model for children 7 years old. This non-locomotor motion model is adapted to the characteristics and growth of the child. Research method used is research and development of Borg & Gall by using 7 stages namely: (1) Research and information collecting (2) Planning—Includes defining skills (3) Develop preliminary form of product—Includes preparation of instructional materials, handbooks, and evaluation devices (4) Preliminary field testing (5) Main product revision (6) Main field testin (7) Operational product revision—Revision of product as suggested by main field-test results. Research subjects used are children 7 years old. The results of small-group and large group trials suggest that the model as a whole can be done well. This study concludes that non locomotor motion developed according to the characteristics and growth of 7-year-old child and is suitable for learning.

**Key words** : *Development, Model, Non Locomotor*

## I. INTRODUCTION

I purposely quote the famous educational philosophy of Ki Hadjar Dewantara, “*Ing ngarsa sung tuladha, ing madya mangun karsa, tut wuri handayani*”. A teacher should be in front of giving example, in the middle of giving opportunity to work, from behind giving encouragement and direction. The statement is increasingly important to live in view of our educational tasks in order to prepare qualified human resources, because with a qualified teacher it will also produce quality students. However, a teacher needs to get interesting material or teaching materials to be delivered to the students, in this case is the students.

Sports physical education and health education lessons are the only subjects conducted in the field. Because it is done in the field, so that students can play and exercise, but if the physical education learning is not delivered by the teacher well, then the student will feel to be saturated and bored, so that physical education material is not delivered. Based on observations made by researchers on non-locomotor motion learning performed by teachers of PJOK, obtained the results that teachers still use the approach of command and assignment instruction. Learning goes smoothly, but still some students are less interested in learning. With the discovery of the facts, the researchers conducted interviews with the teachers concerned, and obtained the result that, teachers do realize that the learning is monotonous impressed, this is not without cause, the teacher has stated that still lack of variations of non-locomotor motion learning model can be used in learning.

Teachers felt the need for the development of non-locomotor basic motion learning model for the more varied elementary schools, so that they can be understood and applied correctly without misconceptions. Therefore, the results of this preliminary study, researchers have got the fact that there is a need for the development of variations of non-locomotor base motion learning model for more innovative primary schools. Further Perreira Jose et.al (2016: 569) asserts that some teaching models and strategies should be considered while teaching Physical Education. Different approaches should be considered as alternatives and teachers should maintain the best in each according to the time in the unit, the student's progress. We can not ignore the opinion of Strac & Strel (2012: 62) which explains that the competence of teachers who have higher ability to plan and provide learning of PJOK give positive contribution especially for physical freshness of children. [14] explains PJOK focused only in terms of improvement or mastery of motion and/or mastery of sports skills. However, the current trend in PJOK is no longer to help improve a skill or game, but to provide a more appealing environment for all learners. Mawer (2003: 89) asserts that when learners are in a good situation, their cognitive function will be needed for critical thinking, such as comparing, differentiating, drawing conclusions, and testing their hypotheses.

### A. Characteristics of 7 Year Old Children

Physical characteristics and stage of motor development of children aged 6-10 years is as follows: 1) Boys and girls range from about 44 to 60 inches (111.8-152.4 cm) in height and 44 to 90 pounds (20.00-40.8kg) in weight. 2) Growth is slow. 3) The body begins to lengthen. 4) The cephalocaudal (head to toe) and proximodistal (center to periphery) principles of development. 5) Girls are generally about a year a head of boys in psychological development, and separate interests begin to emerge toward the end of this period. 6) Hand preference is firmly established with about 85 percent prefer the right hand and about 15 percent preferring the left. 7) Reaction time is slow. 8) Both boys and girls are full of energy but often proces low endurance levels and tire easily [7].

Children usually want to be actively involved in a variety of motions and skills. With their liveliness, their ability will quickly increase. While Piaget explained that in children have a unique attitude that is egocentric. As long as the children are egocentric, they tend to play on their own beside their friends [22]. Physical development in childhood is

characterized by considerable variation in growth patterns. The mastery of non locomotor base motion occurs in line with physical growth and development.

The initial age of entry into primary school varies in many countries, ranging from 5 years to 7 years. For a child entering elementary school age at the age of 6, with a normal education journey he will complete this level of education at the age of 12 years. Wouter Cools et. al, (2010: 597). Physical development in childhood is characterized by considerable variation in growth patterns.

**B. Non Locomotor Motion**

Basic motion is an important motion pattern that forms the basis for complex motion skills including locomotor motion, non locomotor motion and manipulative motion. The non-locomotor motion is the activity that moves the limbs on its axis and this movement does not cause the culprit to move around such as the motion of bending, twisting, rocking, stretching, hanging, pulling. Non-locomotor motion is a movement performed in place without moving [23]. Non Locomotor consists of bending and stretching, pushing, pulling, lifting, lowering, folding, twisting, shuffling, circling, and bouncing the ball.

Motoric development divided into 4 phases, (1) reflex motion phases, (2) basic early-phase movements, (3) basic fundamental motion phases, and (4) special movement phases (specialists) [7]. Elementary school students aged 7-12 years enter in the development of special motor phase motion (specialist), where this phase is highly dependent on the previous phases, especially the development of basic maturity of basic motion skills. During the specialist phase, motion becomes a tool that is applied to a variety of complex movement activities for daily living, recreation, and sports activities. This is a basic period of stability, locomotor, and manipulative skills that are increasingly refined, combined and developed for use in increasingly demanding situations. Childhood is a critical period, because at a time when children form the habit to achieve success, not successful, or very successful. So the success of the child also depends on the teacher and the parents [9].

**II. METHOD**

The approach and method used in this research is a combination of qualitative and quantitative research (mix methods). While research methods used is using research and development methods from Borg & Gall. The place of study was conducted at Jakarta Morning School Dew. With the subjects of class 1 primary school research. Small-scale trials using subject 10 students while large-scale trial conducted on 40 students of Class 1 Primary School.

The instrument of data collection used is by interview and observation of learning. Observation is done to get information both from experts and teachers of physical education to give input and suggestions about the product that will be produced about the implementation of learning process of non locomotor motion in grade 1 elementary school students. The research and development of non locomotor motion model is a process aimed to develop within consisting of ten steps, among others [2]:

(1) Research and information collecting-Includes review of literature, (2) Planning (3) Develop preliminary form of

product-Includes preparation of instructional materials, handbooks, and evaluation devices (4) Preliminary field testing (5) Main product revision-Revision of product (6) Main field testing-Conducted (7) Revision. (8) Operational field testing (9) Final revision (10) Dissemination and implementation. This can be seen clearly in the figure below

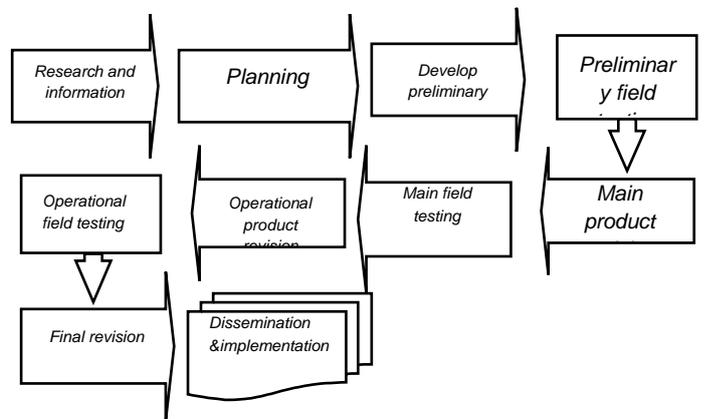


Fig 1. The development phase models

The procedures described above are, of course, not rigidly followed steps. Each development can of course choose and determine the most appropriate steps for himself based on the special conditions that he faced in the development process [1]. He can also modify the steps he recognizes on the basis of his considerations, therefore the researcher here takes the first step up to the seventh.

**III. RESULTS AND DISCUSSION**

**A. Results of Needs Analysis**

As a first step in research and development activities, researchers need to collect various facts and factual data that underlie this research and development. Information and data were obtained by researchers through the needs analysis activities with questionnaires, interviews, and observation of the implementation of learning, as well as conducting literature review as the basis of draft design of the right learning model.

The analysis of product development needs of non-locomotor motion learning model was done by distributing questionnaires and simple interviews to 40 students who were following the non-locomotor motion learning on physical and health education, observing the implementation of learning and studying the literature relevant to the developed model. Needs analysis with questionnaires and interviews is used to determine the need for development through students' perceived responsiveness, non locomotor motion learning conditions, and teacher readiness in terms of ownership and use of various non-locomotor motion learning resources.

**B. Product Design and Development**

The design and development of non-locomotor motion learning products is done based on the findings of needs analysis, observation, interview and literature review relevant to the developed model. The product design is adapted to the Competency Standards and Basic Competencies used by schools that are tailored to the study of the basic motion theory and motor development of children. The result of the

development of non-locomotor motion learning model for elementary school is the product in the form of draft which is packaged in book form. Component of non-locomotor motion learning model consists of several movements developed ie: aircraft stance, stand and squat motion, helicopter propeller motion, kick right and left, jumping jack, wax motion up and down, bike riding movement, movement swinging hand up and down.

**C. Non-Locomotor Motion Products**

The following is the result of the development of non locomotor base motion:



Fig. 2. Some Non-Locomotor Motion Variation Models

On the picture above are some examples of non locomotor learning models. The product development result is 8 variations of non locomotor motion. Once it is felt that the product has sufficient quantities of variation, the next step is to test the feasibility of the product both theoretically and practically. Therefore, in testing the feasibility of this model, researchers are assisted by 2 experts of motoric development, 1 media expert and 2 learning experts of physic, sports and health education.

**D. Model Feasibility**

The feasibility of the model is carried out by means of expert tests to provide assessment and input so as to meet theoretically and empirically feasible criteria on the developed product. Based on the data and responses collected from Motoric Learning experts, there are some parts of the product that need to be revised. This is done to further optimize the development benefits for teachers and students.

TABLE I. EXPERT TESTS FOR VARIATION OF NON-LOCOMOTOR MOTION LEARNING MODEL

No	Aspects	Answers		Feasible	Not feasible
		Expert 1	Expert 2		
1	Aircraft Attitude is done 5 seconds	1	1	√	-
2	Standing-Squatting while carrying the ball is done as much as 3 times	1	1	√	-
3	The propeller is done as much as 20 times	1	1	√	-
4	Sit down, kick right and left were done as much as 20 times	1	1	√	-
5	Jumping jack was done as much as 20 times	1	1	√	-
6	Candles up and down were done as much as 20 times forward and backward	1	1	√	-
7	Rear bike to front and back were done as much as 20 times	1	1	√	-
8	The hand is swung upwards, then down was done as much as 20 times	1	1	√	-

After declared feasible by the experts, then the researchers make improvements to the product in accordance with expert advice and input. Then the revised product was tested on a small group of 10 students and assisted by three observers when the learning models were practiced in order to obtain a response to the model's effectiveness. The result of the small test is that the overall model can be implemented well which means the model is feasible to proceed in the next stage of the big test.

Furthermore, in this large test was aided by observers to observe directly the model developed when practiced, this large group trial also retrieved the response data from 40 students related to the model undertaken by the students. In this large group trial, the overall model can be well implemented which means the model is feasible to proceed in the next stage.

While the implementation of the model according to the observers was obtained the following results:

TABLE II. LARGE GROUP TEST RESULTS OF MODEL IMPLEMENTATION BY OBSERVER

No	Model	Description
<b>Variation of Non Locomotor Motion Learning Model</b>		
1	Aircraft Attitude had been done during 5 seconds	Model Can Bee Done Well
2	Standing-Squatting while carrying the ball is done as much as 3 times	Model Can Bee Done Well
3	The propeller is done as much as 20 times	Model Can Bee Done Well
4	Sit down, kick right and left were done as much as 20 times	Model Can Bee Done Well
5	Jumping jack dilakukan sebanyak 20 kali	Model Can Bee Done Well
6	Lilinnaiturundilakukan sebanyak 20 kali kedepankebelakang	Model Can Bee Done Well
7	Rear bike to front and back were done as much as 20 times	Model Can Bee Done Well
8	The hand is swung upwards, then down was done as much as 20 times	Model Can Bee Done Well

After doing this research, the researcher hopes that the product will be able to: (1) maximize the ability and potential of basic motion of the child in his age so as to stimulate the growth and development of the child well, (2) become the reference for teacher of PJOK in giving the learning of non locomotor motion, so that the learning activity to be more varied and fun, (3) Help teachers in making lesson plans focused on motoric movement or motion, (4) Develop a child's locomotor movement learning model at the age of 7 years in accordance with the characteristics and stages of growth and development of children at their age. With the results of research that has been done the experts have given the feasible criteria of the product to be tested with a few revisions. Learning of non locomotor motion using simple tools is needed by physical teacher [18]. Through the development of this learning model, it can help teachers of physical education in teaching the students multilateral movements by combining various modifiable tools.

The development of his model makes students more active and happy because the physical activity can facilitate and explore the child to the activities around him [17]. So that the learning model that is prepared in accordance with the characteristics of children and deserve to be used in the physical education learning. In addition, the study results of the ability of the physical education learning program also describes that the achievement of physical education objectives is influenced by several factors, including the ability of teachers in teaching, learning models and adequate infrastructure.

#### IV. CONCLUSION

Based on the research results can be taken the conclusion as follows: The research and development of this model resulted a non-locomotor motion model consisting of 8 variations of motion. Based on the data obtained, from the results of small group trials, large group trials and discussion of research results can be concluded that with the development of non-locomotor motion model of teachers and students can learn and implement a learning of non locomotor motion well.

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