

THE DEVELOPMENT OF GAME-BASED MOTOR SKILLS LEARNING MODEL FOR 9-10 YEAR-OLD ELEMENTARY SCHOOL CHILDREN

IAN ALFIAN RIYANTO*, AGUS KRISTIYANTO, SAPTA KUNTA PURNAMA

Department of Sport Science, Sebelas Maret University, Surakarta, INDONESIA.

**Email: ianalfianr@gmail.com*

How to cite this article: Riyanto, I.A., Kristiyanto, A. & Purnama, S. K. (June, 2017). The development of game-based motor skills learning model for 9-10 year-old elementary school children. Journal of Physical Education Research, Volume 4, Issue II, 53-61.

Received: January 11, 2017

Accepted: June 03, 2017

ABSTRACT

The purpose of this research was to produce a game-based motor skills learning model appropriate for the 9-10 year-old elementary school children. This research used the research and development (R & D) method, adapting the research and development according to Borg & Gall with the following steps: (1) collecting information on the field, (2) conducting analysis towards the collected information, (3) developing the initial product, (4) expert validation and revision, (5) small-scaled field experiment, (6) revision, (7) big-scaled field experiment, (8) final revision, (9) final product making, and (10) dissemination and implementation of final product. The technique and instruments used in collecting data were: (1) interview and observation, (2) observation sheet of the model draft, (3) observation sheet of students' activities, (4) student questionnaire. The data were analyzed using descriptive percentage. This research resulted in a game-based motor skills learning model, containing 8 games activities, among others; (1) Korero Kiri (2) Half and half Relay's, (3) Rob the Nest, (4) Mousetrap, (5) Catching with a Partner, (6) Shuttle Passes, (7) Moving Target, (8) Wandering Ball. Based on the results of the research, it can be concluded that the game-based motor skills learning model is appropriate for the 9-10 year-old elementary school children and very good to develop the aspects of affective (attitude), cognitive (knowledge), and psychomotor (skills).

Keywords: Learning model, motor skills, game.

1. INTRODUCTION

Education is essentially one of the basic human needs in order to improve the quality of human resources in order to achieve the more advanced and prosperous

Correspondence: Ian Alfian Riyanto, Post-graduate Program, Department of Sport Science, Sebelas Maret University, Surakarta 57126, INDONESIA, Email: ianalfianr@gmail.com.

life of the nation. Physical education is an integral part of the overall education system. Education as a process of human development lasts forever, has a very important role to give an opportunity to the students to be directly involved in various learning experiences through physical activities. Rosdiani (2012) states that physical education is a medium to encourage the development of motor skills, physical abilities, knowledge, reasoning, living the values (attitude, mental, emotional, and social values), and habituation to a healthy lifestyle that is aimed to stimulate balanced growth and development. Physical education has its own uniqueness compared to other educations, which gives an opportunity to develop social character and nature which are more likely to be realized in teaching practices.

The regulation of the Minister of Education and Culture Number 67 of 2013 regarding the conceptual framework and the structure of the curriculum for Elementary School/Islamic Elementary School states that one of the characteristics of the curriculum is that it is designed to develop attitude (affective), knowledge (cognitive) and skills (psychomotor) as well as to apply it in various situations at schools and society. The current structure and curriculum of physical education in elementary schools now have some characteristics that consist of basic technical skills of several sports. The basic technical skills will be mastered when someone has previously mastered the basic motor skills.

Motor development is the growth process of motor skills of a person. Any movement performed by the children is the result of a complex interaction pattern of the various parts and systems in the body controlled by the brain. According to Oxendine in Nugroho (2005), motor skill is the terminology used in various skills that leads to the mastery of basic motor skills of physical activities. Motor skills consist of gross and fine motor skills. Leaner and Kline (2006) state that the gross motor skills involve large muscles, such as neck, arms, and legs. Gross motor skills include walking, running, catching and jumping. Since the motor learning in elementary schools will affect some aspects of students' lives, such as: (1) through the motor learning, the children will get some entertainment and fun, (2) the children can move from weak condition towards an independent state, (3) children can adapt themselves to the environment, (4) it will support the children's skills in various ways, and (5) it will encourage the children to be independent, so that they can solve any problem they face (Decaprio, 2013).

Motor skills learning in elementary schools is currently getting a lot of attention. However, there is an obstacle in motor learning in elementary schools that is the limited knowledge possessed by the teachers of physical, sports and health education in applying the right model in the motor learning process. It is caused by a lack of knowledge due to limited reading references or sources regarding the appropriate ways of teaching for the physical, sports and health

education teacher in teaching the motor learning model in order to support the achievement of the desired learning outcomes. The determination of which learning model that will be used in learning activities should consider the followings: (a) the objectives to be achieved, (b) learning materials, (c) learners, and (d) other non-technical considerations (Rusman, 2011).

The efforts made to develop the potentials of motor skills and development of elementary school children, overall, need some services in the form of practices or play approach in order to improve the gross motor skills through the appropriate handling based on the characteristics and abilities possessed by the elementary school children. Learning model is a method or strategy performed by a teacher in order to conduct the learning process for the students to achieve a the systematically-designed objectives. Sugihartono (2007) states that learning model is any deliberate effort made by the educators that can make the learners perform learning activities. According to Gagne (Wena, 2009), an effective learning must be performed in various ways and using various instructional media.

One of the forms of physical education activities that make children actively moving is game. Games activities are expected to be able to develop the students based on the educational objectives to be achieved since playing does not only prioritize physical activities, but also has some values that must be met and practiced in daily life. Playing is a very important thing that can affect the cognitive, physical, emotional, and social development, and provides the primary place for social participation (Behr, Rodger, & Mickan, 2013). Therefore, playing and games have similar functions and purposes. All individual functions in children will be trained, both physically and spiritually, during playing.

Learning model that will be developed is the game-based motor skills learning model, which will be developed in accordance with the Basic Competency (KD) of 2013 Curriculum in physical, sports and health education for the 9-10 year-old elementary school. The development of this model is expected to be a good, effective, and fun learning and attracts students' enthusiasm in learning motor skills, so that they can achieve the learning objectives of physical, sports and health education that develop the aspects of attitude (affective), knowledge (cognitive), and skills (psychomotor).

2. METHODS AND MATERIALS

This research used the Research and Development (R & D) method, adapting the research and development according to Borg & Gall with the following steps: (1) collecting information on the field, (2) conducting analysis towards the collected information, (3) developing the initial product, (4) expert validation and revision,

(5) small-scaled field experiment, (6) revision, (7) big-scaled field experiment, (8) final revision, (9) final product making, and (10) dissemination and implementation of final product. The small-scaled experiment was conducted towards 22 students of SD Negeri 3 Jatirejo, the big-scaled experiment was conducted towards 24 students of SD Negeri 1 and 2 Jatirejo. The technique and instruments used in collecting data were: (1) interview and observation, (2) observation sheet of the model draft, (3) observation sheet of students' activities, (4) student questionnaire. The data analysis technique used in this research was the qualitative analysis technique in the form of narratives for the qualitative data collected. The quantitative data collected from the questionnaires and observation were analyzed using the percentage descriptive analysis. The collected data were then able to be interpreted based on the guidelines in data classification arranged based on the following table:

Table 1: Percentage Classification

| Percentage | Classification |
|-------------------|-----------------------|
| 0.000-20 % | Very Poor |
| 20.01 - 40 % | Poor |
| 40.01 - 60 % | Fair |
| 60.01 - 80 % | Good |
| 80.01 - 100 % | Very Good |

3. RESULTS

3.1 Needs Analysis: The development of this learning model product was started by conducting needs analysis based on the observation and interview conducted the elementary schools (SD) and on the literature review. Based on the observation and interview, it obtained the illustrations of the problems occurred in the field, especially regarding the learning process of physical, sports, and health education, as well as various forms of problem solving, supported by the resources from literature review. Based on the results of the needs analysis and observation, it was concluded that in implementing the learning of physical, sports and health education at schools, teachers need a learning model through game to train the children improve their motor skills based on the objectives of the applicable curriculum.

3.2 Description of the Initial Product Draft: After determining the product to be developed in the form of the development of game-based motor skills learning model, the next stage conducted is creating the product that will be developed. After going through the designing process, the initial product of the development of game-based motor skills learning model is created, among others; (1) Korero

Kiri (2) Half and half Relay's, (3) Rob the Nest, (4) Mousetrap, (5) Catching with a Partner, (6) Shuttle Passes, (7) Moving Target, (8) Wandering Ball.

3.3 Expert Validation: The expert validation was conducted to find out the research of game-based motor skills learning model, both in terms of materials, construction, and language. The researcher asked for help from 2 academicians of physical, sports, and health education to fill the data collection instrument which have been constructed to assess the initial model draft.

Table 2. The results of expert judgment on the initial learning model draft validator

| Validator | $\sum n$ | $\sum N$ | $\sum P(\%)$ | Category |
|-----------|--------------|----------|--------------|-----------|
| A 1 | 59 | 75 | 78.67 | Good |
| A 2 | 60 | 75 | 80 | Good |
| P 1 | 58 | 75 | 77.33 | Good |
| P 2 | 61 | 75 | 81.33 | Very Good |
| | $\sum n$ | | | 238 |
| | $\sum N$ | | | 300 |
| | $\sum P(\%)$ | | | 79.33 |
| | Category | | | Good |

Based on the recapitulation of the percentage of the questionnaire results regarding the evaluation of expert judgment above, it can be concluded that the initial learning model draft is good to be used in the learning process of physical, sports and health education for the 9-10 year-old elementary school children.

3.4 The Results of Product Experiment

3.4.1 Small-Scaled Experiment: The small-scaled experiment is aimed at finding and identifying some problems such as weaknesses, lacks or effectiveness of the product when it is used by the students. The data obtained from this experiment were used as the basis to make some revisions on the product before it is used in the big-scaled field experiment.

Table 3: The analysis of the results of student learning achievement data small-scaled experiment stage

| No | Aspect | Percentage | Category |
|----|----------------|--------------|------------------|
| 1. | Psychomotor | 81.25 | Very Good |
| 2. | Affective | 82.73 | Very Good |
| 3. | Cognitive | 86.81 | Very Good |
| | Average | 83.59 | Very Good |

Based on the recapitulation of the percentage of student learning achievement results in the small-scaled experiment stage above, it can be concluded that the well-developed game-based motor skills learning model is very good to improve the student learning results in the psychomotor, affective, and cognitive aspects.

3.4.2 Expert Validation Results: The questionnaires used by the experts were in the form of some aspects regarding the quality and feasibility of the developed game-based motor skills learning model. The assessment data were obtained from the assessment sheet scores from two academicians of physical education and two practitioners of physical education.

Table 4: Data of expert validation results on the game-based motor skills learning model in small-scaled experiment stage

| No | Game | Σn | ΣN | ΣP (%) | Category |
|----|-------------------------|-----------------|------------|------------------|-----------|
| 1. | Korero Kiri | 193 | 240 | 80.41 | Very Good |
| 2. | Half and Half Relays | 190 | 240 | 79.16 | Good |
| 3. | Rob the Nest | 189 | 240 | 78.75 | Good |
| 4. | Mousetrap | 195 | 240 | 81.25 | Very Good |
| 5. | Catching with a Partner | 200 | 240 | 83.33 | Very Good |
| 6. | Shuttle Passes | 193 | 240 | 80.41 | Very Good |
| 7. | Moving Target | 195 | 240 | 81.25 | Very Good |
| 8. | Wandering Ball | 186 | 240 | 77.5 | Good |
| | | Σn | | 1541 | |
| | | ΣN | | 1920 | |
| | | ΣP (%) | | 80.26 | |
| | | Category | | Very Good | |

From the recapitulation of the percentage of the questionnaire results of expert validation evaluation above, it can be concluded that the draft of the developed game-based motor skills learning model in the small-scaled experiment is very good to use in the learning process of physical, sports and health education for the 9-10 year-old elementary school children.

3.4.3 Big-Scaled Experiment: The steps taken in conducted the big-scaled experiment were not too different from what were taken in the small-scaled experiment. The differences were only on the more number of subjects and the experiment location. The learning conducted in the big-scaled experiment was the game-based motor skills learning model which had been revised from the small-scaled experiment.

Table 5. The analysis of the results of student learning achievement data big-scaled experiment stage

| No | Aspect | Percentage | Category |
|----------------|-------------|--------------|------------------|
| 1. | Psychomotor | 85.21 | Very Good |
| 2. | Affective | 85.83 | Very Good |
| 3. | Cognitive | 89.58 | Very Good |
| Average | | 86.87 | Very Good |

Based on the recapitulation of the percentage of student learning achievement results in the big-scaled experiment stage above, it can be concluded that the well-developed game-based motor skills learning model is very good to improve the student learning results in the psychomotor, affective, and cognitive aspects.

3.4.4 Expert Validation: The questionnaires used by the experts were in the form of some aspects regarding the quality and feasibility of the developed game-based motor skills learning model. The assessment data were obtained from the assessment sheet scores from two academicians of physical education and two practitioners of physical education.

Table 6. Data of expert validation results on the game-based motor skills learning model in big-scaled experiment stage

| No | Game | $\sum n$ | $\sum N$ | $\sum P$ (%) | Category |
|----|-------------------------|-----------------|----------|------------------|-----------|
| 1. | Korero Kiri | 205 | 240 | 85.41 | Very Good |
| 2. | Half and Half Relays | 197 | 240 | 82.08 | Very Good |
| 3. | Rob the Nest | 206 | 240 | 85.83 | Very Good |
| 4. | Mousetrap | 200 | 240 | 83.33 | Very Good |
| 5. | Catching with a Partner | 209 | 240 | 87.08 | Very Good |
| 6. | Shuttle Passes | 210 | 240 | 87.5 | Very Good |
| 7. | Moving Target | 212 | 240 | 88.33 | Very Good |
| 8. | Wandering Ball | 210 | 240 | 87.5 | Very Good |
| | | $\sum n$ | | 1649 | |
| | | $\sum N$ | | 1920 | |
| | | $\sum P$ (%) | | 85.88 | |
| | | Category | | Very Good | |

From the recapitulation of the percentage of the questionnaire results of expert validation evaluation above, it can be concluded that the draft of the developed game-based motor skills learning model in the big-scaled experiment is very good to use in the learning process of physical sports and health education for the 9-10 year-old elementary school children.

4. THE FINAL PRODUCT

The purpose of this research is to produce a game-based motor skills learning model appropriate for the 9-10 year-old elementary school children and able to develop the aspects of affective (attitude), cognitive (knowledge), and psychomotor (skills). In addition, in order for the teacher it is easy to use this learning model packaged a Handbook of usage models. The purpose he had made use of the manual model is explained more specifically about how to use this model, and so the teacher as a practitioner in the field and the readers will understand and be able to use this model.

Instructional videos are packaged in the form of DVD (Digital Video Disc) as a guide to the implementation of the learning with games, as for the product specifications that are developed are:

4.1. Materials

4.1.1 Development of the content and purpose of game-based learning model on Basic Competency (KD) and adapted to characteristics for the 9-10 year-old elementary school children.

4.1.2 Some of the games in the handbook contains three parts: (1) inception work with on the implementation of the before learning that starts prepare students to warming, (2) core activities with on the implementation of the learning motor skills with an eight-games activities, among others: (a) Korero Kiri, (b) Half and Half Relay's, (c) Rob the Nest, (d) Mousetrap, (e) Catching with a Partner, (f) Shuttle Passes, (g) Moving Target, (h) Wandering Ball. (3) activities cover with activity cooling, an assessment on presentation weighting, and reflection benefit learning to the game done

4.1.3 Handbook containing about some activity game to improve motor skills/ name is a game, the purpose of the game, an instrument used, the game, assessment, security standards, drawing the game and games variations.

4.2 Learning the Equipment: Learning the equipment used are tools that is easily obtained and safe to be used, and the costs affordable who can exercise increase motor skills for the 9-10 year-old elementary school children. An instrument used covering: whistle, cones, rope raphia, taskbar colors, a small ball plastic, a tennis ball/rounder, a large ball (plastic ball/volleyball), a circle/hoops, tenement foam.

4.3 DVD Learning Model Development: This learning model using DVD-R plus GT-16 X Promulti-Speed. Capacity of a chip is DVD-R 4.7 GB 120 min.

DVD the development of game-based learning model can be used on all types of computers and laptops with minimal specs operating system Windows XP or Mac OS, resolution 1024 x 800 pixels processor 1.66 Ghz Pentium IV, 512 Mb of RAM, VGA on board 32 Mb, HDD 40 Gb and it has a CD/DVD drive. DVD game-based learning model of development can also be used on the DVD Player all types and brands.

5. CONCLUSION

The development of game-based motor skills learning model in this research results in some conclusions based on the resulted product, as follows:

Based on the results of validation conducted by the experts, it is stated that the developed game-based motor skills learning model is suited for the 9-10 year-old elementary school children.

Based on the results of product test, it is stated that the game-based motor skills learning model is very good to develop the affective (attitude), cognitive (knowledge), and psychomotor (skills) aspects for the 9-10 year-old elementary school children.

6. REFERENCES

- Behr, A.K, Rodger,S., & Mickan, S. (2013). A comparison of the foundational skills of preschool children with and without developmental coordination disorder. *American Occupational Therapy Foundation*, 33, 198-208.
- Decaprio, R. (2013). *Application the theory of motor learning at school*. Yogyakarta: Diva Press
- Leaner, J.W. & Kline, F. (2006). *Learning disabilities and related disorders characteristics and teaching strategies*, (10th ed.). New York: Houghtoon Mifflin Company
- Nugroho, S. (2005). *The role of kinestetis in motor learning*. Yogyakarta: FIK UNY.
- Rosdiani, D. (2012). *Direct learning model in physical education and health*. Bandung: Alfabeta.
- Rusman, (2011). *Learning models: Develop professionalism of teachers*. Jakarta: Rajawali Pers.
- Sport New Zealand. (2012). *Developing fundamental movement skills manual*. SPARC. Sport & Recreation New Zealand.
- Sugihartono (2007). *Educational psychology*. Yogyakarta: UNY Press.
- Wena, M. (2009). *Innovative learning strategies contemporary*. Jakarta: Bumi.