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Game-Based Integrative Thematic Physical Activity Model to Develop Interpersonal Intelligence and Manipulative Movement Skills for Kindergarten Students

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Abstract

This study aims to produce a game-based integrative thematic physical activity model product that is packaged in the form of a guidebook to develop interpersonal intelligence and manipulative movement skills for kindergarten students and determine the feasibility and effectiveness of game-based integrative thematic physical activity models. This research is a development research using the Borg & Gall model which includes ten stages, namely information collection, information analysis, initial product development, expert validation and revision, initial trial (small group product trial), initial product revision, field trial main program (large group trial), operational product trial (effectiveness test), final product manufacture and dissemination and implementation. The subjects of this study were kindergarten students in Central Cilacap District, Cilacap Regency. The trials carried out included two stages, namely a small-scale trial conducted on 10 students and a large-scale trial conducted on 20 students and the effectiveness test was carried out with 10 students. The results of the assessments from material experts and practitioners were analyzed using the Content Validity Ratio (CVR) and obtained the validity level of animal-themed games 0.91, plant-themed games 0.92, vehicle-themed games 0.91 in the range 0.80-1.00 and shows a high level of validity, then the game-based integrative thematic physical activity model is feasible to use. The results of the small group trial showed that interpersonal intelligence was 3.03 in the "Good" category, while the manipulative movement skills were 13.3 in the "Average" category. The results of the large group trial showed that the interpersonal intelligence of each kindergarten was 3.11 and 3.12 with the "Good" category, while the manipulative movement skills of each kindergarten were 15 with the "High" criteria. The results of the effectiveness test were calculated using a paired sample t test and the results showed that the significance value of interpersonal intelligence and manipulative movement skills was 0.016 and 0.010 respectively less than 0.05, so there was a significant effect of the game-based integrative thematic physical activity model on interpersonal intelligence and manipulative movement skills of kindergarten students.

Keywords: *Physical Activities; Integrative Thematic; Games; Interpersonal Intelligence; Manipulative Skills*

Introduction

Intelligence development is one part of children development. Intelligence according to the multiple intelligences paradigm is an ability that has three main components, those are the ability to solve problems that occur every day in life, the ability to create new problems faced to be solved and the ability to create something or offer services that will lead to cultural appreciation (Gardner, 2011:64). According to Gardner in Musfiroh (2008) multiple intelligences comprise verbal linguistic intelligence, logical mathematical intelligence, visual spatial intelligence, musical intelligence, kinaesthetic intelligence, naturalist intelligence, existential intelligence, intrapersonal intelligence and interpersonal intelligence. Interpersonal intelligence is the ability to understand and cooperate with other people (Amstrong in Pasaribu et al., 2018). Interpersonal intelligence demands the ability to respond to the moods, character, intentions and desires of others. Children who have high interpersonal intelligence will be able to conduct an effective communication and to cooperate with others. Children with prominent interpersonal intelligence have sensitivity in ongoing situations, understand who they are and are capable to control themselves in difficult situations. They also know what can be done and what cannot be done in their environment. Therefore, interpersonal intelligence needs to be instilled as early as possible starting from Kindergarten (TK).

In addition to intelligence, physical-motor development is also one the fields of children's ability development in which the movement ability is the main characteristic in this field. At the time of Kindergarten (TK), gross and fine motor skills hugely develop and children already have these skills and abilities even though it is not perfect yet. The ideal age for learning the motor skills is kindergarten age because children' body is more flexible than an adult's body, so it will be easier for children to master motor skills. In addition, children do not have many skills yet that will crash with the new skills they have just learned, so children will learn skills easily and most of them are more willing to try. They dare to try something new so that it gives them the motivation to learn. The improvement of children's gross motor skills can be seen from children who are able to perform various kinds of locomotors movements, manipulative movements and correct and directed balance (Lukmawati et al, 2019). Teachers in Kindergarten must understand early childhood development better, especially the physical motor development. One of the physical-motor learning contents in Kindergarten (TK) is moving the limbs to practice basic movement skills. Basic movement skills are the ability to perform daily tasks including walking, running, jumping, and throwing (Hadi & Setyawan, 2017). Basic movement skills are divided into 3 (three), one of them is manipulative basic movement skills. Manipulative movement activity according to Wetton in (Sumantri & Endrawati, 2013) is highly recommended from an early age because it is the foundation for physical motor development as an adult. Besides, manipulative movement activities also play an important role, especially in cognitive, language and social emotional development if the activity is carried out in groups. According to Miller and Pound in (Sumantri & Endrawati, 2013) the potency of manipulative basic movement skills is important to be optimally developed in order to achieve optimal motor development tasks. Manipulative movement skills have direct and indirect benefits. Directly, the children physical growth will determine his skills in moving. Meanwhile, indirectly, the growth and development of children physical and motor skills will affect the children perception of themself and others, which will have an influence on the children general adjustment pattern, for example a child who is less skilled at kicking a ball will quickly realize that he or she is unable to follow the game of football like their peers do. This causes the child to withdraw himself from the environment of his friends (Mirawati & Rahmawati, 2017). One of the stimuli given in developing basic movement skills and interpersonal intelligence can be in the form of physical activity. The results of the study by Kyriaki, et al (2012) stated that increasing physical activity will encourage and have a positive impact on motor development. Children who spend more time in physical activity tend to have higher motor skills and the level of physical activity at preschool age contributes positively to the children motor development. This study is in line with Cools, et al (2009) which states that movement at an early age is important for physical, cognitive and social development. Movement experiences are important for the development of basic motor skills and encourage an active lifestyle. Furthermore, William, et al

(2008) in his research said that children who have more advanced motor skills find it easier to be active and engage in more physical activity than those who have less developed motor skills. The research results conducted by Siregar (2018) the application of physical activity in learning in kindergarten can improve aspects of interpersonal intelligence such as tolerance, perception and empathy, while physical activity can increase the concentration of children who tend to be short and easily bored. Through physical activity in the form of games, children's interpersonal intelligence will develop when children move together. They learn to work together in running games smoothly, children look active and interactive with teachers and their peers (Pratiwi and Ayriza, 2018).

Physical activity refers to all energy expended by movement and is defined as any body movement produced by skeletal muscles that results in energy expenditure above resting levels (Manz & Krug, 2013). This definition includes all types of activities such as walking, cycling, shopping, playing, intentional sports and activities of daily living or other recreational activities. By getting children used to do more physical activity from an early age, they will be more active in doing physical activities later in life. Through physical activity, children will develop skills that are useful for filling leisure time, engage in activities that are conducive to developing a healthy life, develop socially and contribute to their physical and mental health.

Education through physical activities carried out in schools not only can develop psychomotor and cognitive aspects but also can also develop affective aspects. In this case the teacher has a major role as an intellectual actor. Teachers play the role models for values that are always imitated by students and even at the kindergarten or lower grade elementary schools. What teachers say is considered the most correct and more trusted than their parents. Education through physical activity contains educational value which lies in the philosophical beliefs that underlie the education system. While specifically, it contains assumptions that include reality, truth, values, ethics and morals.

One of the physical activities that can be introduced to early childhood is playing. In childhood, playing is an inseparable part of life and tends to be an essential basic need. Even education experts say that children are identical with playing, because almost all of their lives cannot be separated from playing. According to Wiyani and Barnawi (2014: 93) the term play is defined as an activity carried out using or without using tools that generate understanding, provide information, provide fun, and can develop children's imaginations. Activities of play can be used by children to explore their world, develop competence in an effort to cope with their world and develop their creativity. Catron and Allen (1999:148) state that the function of play for children is to develop the six aspects of child development which include aspects of self-awareness (personal awareness), emotional, social, communication, cognition and motor skills.

In playing it takes a medium called a game. Santrock in Fadillah (2014) explains that the game is a fun activity that is carried out for the benefit of the activity itself. Game allows children to release excess physical energy and release pent-up feelings. The game has many forms so it has various variations as well. However, with the various forms of the game, it doesn't make children confused in playing it, instead it is a very interesting and fun thing for them. It is because it provides a variety of choices and makes it easier for children to move on to the next game they like to play. Therefore, playing activities or game never make children bored but contrary it is very fun.

Paramitha and Anggara (2018) stated that several problems in early childhood education face many obstacles to be implemented in Indonesia. Starting from aspects of learning, facilities, social conditions as well as the government regulations that pay less attention to early childhood education. Susanti (2014) states that whether we realize it or not, many parents today emphasize their children to excel academically in school and assume that success in school is the key to success in the future. They tend to ignore the stages of children's physical development, even though the cognitive function can be affected by physical activity. This statement was strengthened by Hosseini et al (2011) which states that

early childhood cognitive skills are influenced by programmed physical activities within a certain period. It is undeniable that the high demand for preparing children to be ready to enter elementary school is a dilemma, but the introduction of physical activity learning also needs to be implemented. Limited movement experience and laying the basis for the development of a child's mindset and personality will be largely determined by the learning experience experienced by the child.

According to Triyana (2017) children in kindergarten feel uninterested and less active in physical-motor learning materials. This is due to several factors including the child himself who tend to be lazy to move, the teacher related to the delivery of physical activity activities that are too monotonous, the parents and families who do not repeat the gross motor activities that have been taught. Another factor is the lack of the allocation of time due to the material provided. conveyed focused more to academic development. One of the difficulties in learning physical-motor material is manipulative basic movement skills. According to Yunia (2013), children still have difficulty in performing basic manipulative movements such as throwing and catching. During throwing activities, the ball released by the child does not fully bounce and caught by the child, but it falls first then bounces and finally is caught by the child. Some children throw the ball not aiming at their friend who is in front of him but bounces up. Many of the balls that were thrown by the children were too hard and too weak so that they did not reach the target. In the catching activity, most of the children were able to catch the ball but the ball was out of control. There were also some children who deliberately avoid the ball. Children experience the lack concentration and daydream. Therefore, when they are given the ball, they often do not realize and cannot catch the ball that comes to their way. This basic manipulative movement skill is not optimal due to the child's inability to use a certain amount of energy from the body to support hand strength so that the result of their throw distance is too close or too far. This also causes the child's inability to contact the ball or lose the ball and poor ball control from the ball. child. When doing the activity, the teaching methods and techniques used by the teacher are inappropriate and monotonous. In addition to the lack of motor skills, interpersonal intelligence in children is still not optimal. Aziz (2018:4) said that children in kindergarten want to win on their own, can't wait for their turn when playing together and many children only play individually without teamwork with other friends, as well as when a friend wants to borrow toys, children still don't want to share toys with other friends.

This is in line with the preliminary study conducted at the Kindergarten in Cilacap Regency. The initial study was conducted by filling out questionnaires to kindergarten teachers related to the application of physical activity, physical-motor and interpersonal intelligence in each lesson. It was obtained the following information: (1) the curriculum designed is more dominant in the development of academic achievement such as teaching children to read, write and calculating while the allocation for the provision of material related to physical activity is quite small, only limited to walking around the village area around the kindergarten or having joint gymnastics (2) Kindergarten teachers already understand the basic concepts of physical activity and physical activity that are suitable for children but do not understand the development of types of physical activity to develop interpersonal intelligence and basic manipulative movement skills, (3) the absence of a kindergarten teacher with a Physical Education teacher teacher background which causes the limitations in the development and delivery of physical activity (4) the need for a physical activity model that can be used to develop interpersonal intelligence and basic movement skills of children. One solution that can be done to overcome the various problems above is to develop a game-based integrative thematic physical activity model to develop interpersonal intelligence and manipulative movement skills for kindergarten students.

Research Methods

This study uses the research and development model (R&D) Borg & Gall model which is intended to develop a game-based integrative thematic physical activity model. It is aimed to develop interpersonal intelligence and manipulative movement skills for kindergarten students. Borg & Gall in

Sumarni (2019:3) state that research and development is a process used in order to develop and validate educational products. The results of development research are not only to examine an existing development product but also to find knowledge or to answer the practical problems.

The research procedure in this study is divided into several stages, namely 1) potential and problems, 2) data collection, 3) initial product development (complete product design with specifications), 4) initial trial (testing the product to a limited area/subject, 5) revisions to compile the main product (revision of the product based on the results of initial trials), 6) main field trials (product trials, the results of revisions to a wider area, 7) revision of operational products (improvement of products at a higher gradation to be tested) on the actual work), 8) operational product testing (product effectiveness test), 9) final product revision (effective product revision), 10) dissemination and implementation.

The subject of the research test consisted of a small group product trial, namely Pratiwi Ranting Kindergarten, a large group product trial sample of 10 Andaruwati Kindergarten students and 20 Puspa Indah Kindergarten students. The subject of the effectiveness test came from 10 Budiluhur Kindergarten students. In obtaining the data, the researcher used a research instrument in the form of a value scale questionnaire. This data collection technique in the form of a questionnaire was carried out during the preliminary study by distributing questionnaires via Google form to all kindergarten teachers in Cilacap Regency. It is aimed to strengthen the researchers' assumptions and to find out real problems related to the application of physical activity, interpersonal intelligence and physical-motor in kindergarten. The research instrument is a tool that measures the observed natural and social phenomena.

The obtained data then is analysed using qualitative descriptive analysis techniques and quantitative descriptive analysis. Qualitative data analysis techniques were carried out to analyse data from the assessment of material experts and practitioners, as well as input from teachers. Meanwhile, quantitative data analysis techniques were carried out on the results of expert assessments and product test assessments of the developed products. Meanwhile, quantitative descriptive data analysis techniques were carried out on data from preliminary study questionnaires, the expert assessments of the products developed as well as product test results data, effectiveness tests.

The data from the effectiveness test were analysed through the experimental method of one group pre-test post-test design. The data collected is in the form of scores from the assessment of interpersonal intelligence and manipulative movement skills which will be tested statistically using the SPSS (Statistical Product of Service Solution) for windows program. The product effectiveness test in this study used paired t test to determine the effect of the physical activity model on the components.

Research Result

A. Preliminary Study

A preliminary study was conducted to analyse the needs in research. Based on the results of the preliminary study, the researchers obtained the following data:

1. The curriculum designed is more dominant in the development of academic achievement such as teaching children to read, write and count, while for the allocation of material related to physical activity is quite small. There were only walking around the village area around the kindergarten or doing gymnastics together.

2. Kindergarten teachers already understand the basic concepts of physical activity and its types that are suitable for kindergarten children but do not understand the development of types in physical activity which are aimed to develop interpersonal intelligence and manipulative movement skills,

3. The absence of kindergarten teachers with Physical Education teacher (PJOK teacher) backgrounds, which results the limitations in the development and the lack of delivery in physical activity.

4. The need for a physical activity model that can develop children's interpersonal intelligence and manipulative movement skills.

The information which was obtained from the results of the preliminary study was analysed with the aim of obtaining the data used in preparing the initial draft of the model product of physical activity.

B. Preparation of the Initial Draft of Physical Activity Model Products

Activity model used is game-based integrative thematic physical activity model. It is aimed to develop interpersonal intelligence and manipulative movement skills which consists of 3 theme-based games with each theme consisting of 2 games, namely animal-themed games (auumm!! games and animal guessing games), themed games plants (cat fruit games and vegetable ball games), vehicle themed games (land and water games and puzzle ball games). The objectives of this games are to develop empathy, pro-social attitude, self-awareness, problem solving and social communication as well as to develop and to involve the students in various manipulative movements such as throwing, catching and rolling.

C. Product Validation

The results of the initial draft of the product before being tested in the field, the initial draft of the game-based integrative thematic physical activity model to develop interpersonal intelligence and manipulative movement skills for kindergarten students was first validated by experts. After getting an assessment from experts and practitioners, then the obtained data was analyzed to determine the level of validity. This study uses Content Validity Ratio (CVR) analysis. The results of the validity test are in the range of 0.80-1.00 and shows a high level of validity.

D. Product Test

Product testing is divided into 2 stages, namely the small group product trial stage and the large group product test stage. The results of the small group trial of the game-based integrative thematic physical activity model have reached 3.03 for interpersonal intelligence and are included in the Good category. Manipulative movement skills get a score of 13.3 and are included in the average category. Meanwhile, the results of large group product trials on interpersonal intelligence variables have reached 3.11 and 3.12 and are included in the Good category. The manipulative movement skill variable in each kindergarten has reached 15 with the High criteria.

E. Effectiveness Test

The effectiveness test is carried out after the test product is declared to be feasible to be continued in the next stage. Based on the results of small product trials and large group product trials, the product of a game-based integrative thematic physical activity model is to develop interpersonal intelligence and manipulative movement skills for kindergarten students. The results of the operational product test or effectiveness test were carried out on 10 students from Budiluhur Kindergarten, Central Cilacap. Testing the level of product effectiveness is divided into 2 stages, namely pre-test and post-test. In addition, testing is carried out based on or according to each variable, namely interpersonal intelligence and manipulative skills.

Based on the effectiveness test of interpersonal intelligence, the results of the pre-test were 3.07 and the post-test results were 3.21. These results indicate that there is an increase in students' interpersonal intelligence after being given treatment in the form of a game-based integrative thematic physical activity model. The test results were then calculated using a paired sample t test using the SPSS program and obtained the results that the significance value obtained was 0.016 <0.05, so there was a significant effect of the game-based integrative thematic physical activity model on the interpersonal intelligence of kindergarten students of class B.

Meanwhile, based on the manipulative skills test, the pre-test results were 10.67 and the posttest results were 17.67. These results indicate that there is an increase in students' interpersonal intelligence after being given treatment in the form of a game-based integrative thematic physical activity model. The test results are then calculated using a paired sample t test using the SPSS program and get the results that the significance value obtained is 0.010 <0.05, so there is a significant effect of the game-based integrative thematic physical activity model on the manipulative movement skills of kindergarten students of class B.

Conclusion

Based on the results of the research and discussion presented in the previous section, it can be drawn the following conclusions:

1. This research produces a game-based integrative thematic physical activity model through the approach and development of the Borg & Gall model which consists of 3 (three) theme-based games, namely animal-themed games (auumm!! games and animal guessing games), plant-themed games (fruit cat and vegetable ball game) as well as vehicle-themed games (land and water games and puzzle ball games) that can be used to develop interpersonal intelligence and manipulative movement skills for kindergarten students. This study also produced a guidebook as a guide in using a game-based integrative thematic physical activity model consisting of 3 (three) theme-based games, namely animal-themed games (auumm!! games and animal guessing games), plant-themed games (fruit cat games). and vegetable balls) and vehicle-themed games (land and water games and puzzle ball games).

2. The game-based integrative thematic physical activity model is proven to be suitable for developing interpersonal intelligence and manipulative movement skills of kindergarten students.

3. The game-based integrative thematic physical activity model is proven to be effective for developing interpersonal intelligence and manipulative movement skills for kindergarten students.

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