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Development of Early Childhood Game Model to Increase Movement Activities for Kindergarten and Preschool Student

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ABSTRACT
The purposes of this study are to (1) analyzes the validity of early childhood play models to increase motion activity (2) analyze the practicality of early childhood game models to increase movement activity, (3) analyze the effectiveness of early childhood game models to increase motion activity to achieve learning goals. The selected development model is ADDIE (analyze, design, develop, implement, and evaluate). ADDIE is used in research and development as a basis for creating effective learning resources or teaching materials for children. This study involved 30 participants to submit the questionnaire and all of them are from Laboratory Kindergarten and Preschool in Universitas Negeri Malang. This study discussed the initial stage (need analysis) of the game model development. Based on data on the problems faced by preschool educators can be concluded 1) the planning, 2) the implementation, 3) the assessment. The result also discussed how the child's response after learning used the game model to increase movement activities, which are developed, the child's response when doing the practice of implementing the game is very happy even during the rest hours children want to do activities.
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Keywords: *Motion activity, Basic motion appearance, Game model.*

1. INTRODUCTION

Learning for early childhood by using a play approach. Play is a process of optimal child development. Because play serves as a force of developmental influence and through play also gained important experiences in the world of children. Childhood is the most important time for a child's next growth and development. Play directly affects the entire area of a child's development by providing an opportunity for the child to learn about himself, others and his environment. Games give children the freedom to imagine, explore their potential and to develop creativity. The potential that children have increases through experience, in the form of movement skills and information experience. Generally, the experience of movement is obtained in school, community, and family through play. The experience of movement by children will have a strong impact on the next life.

The experience of movement that children get will last a long time. All forms of early childhood play or learning activities should be thoroughly considered. Characteristics of early childhood motor development are at the stage of forming motion, as well as an increase in various variations in the pattern of motion it has. The stages of forming motion in early childhood are the beginning of further motor development. If early childhood motor development does not develop properly, it will have an impact on further motor development. Children will have difficulty when performing complex movements such as coordination, balance, agility, and so on.

The health benefits of engaging in routine movement activities have been widely discussed in the literature, both in relation to children ([1]. Gross motor activities can also be developed by playing, by playing children can channel energy that indirectly develops all aspects of development including motor activities that children do

happily without coercion. Through early childhood play can train the body muscles, stimulate the child's senses, explore, and get to know the environment around the child in addition to the child is able to take various benefits on the development of aspects of basic movement skills, intelligence, and social emotional.

Based on this background, the development of the game model is very important in solving the problem of gross motor development of children and is expected to improve children's learning outcomes. Related to this, a study was conducted entitled "Development of Early Childhood Game Models to Increase Movement Activity".

2. LITERATURE REVIEW

2.1. Early Childhood

Understanding early childhood has age restrictions and understanding of various views used. According to the traditional understanding of children often identified as mini-adult humans, still innocent and have not been able to do anything or have not been able to think. This understanding affects parenting in children, including often treated as a small adult, for example wearing clothes and makeup (makeup) like adults. Along with the development of science and many studies about early childhood, the more understanding children are different from adults.

An early childhood is an individual between the ages of 0-6 years ([2]). According to this understanding, early childhood is a child who is in the process of growth and development ([3]). This indicates that early childhood is a special individual where the child has a pattern of growth and development in aspects of physical activity, cognitive, social emotional, creativity, language and communication that are specific to the stages that are being passed by the child. Most children are egocentric. Children see and interpret things from their own point of view and interests. In this case seen from his behavior such as still scrambling for toy tools, crying when asking for something that is not fulfilled by his parents, or demanding something against others.

2.2. Basic Motion Activities

A child's ability to move and control varied body parts is a major function of this field. Locomotor is the ability to move the body from one place to another through the most precise and efficient means, whether running, jumping, swimming, gliding, swinging ([4])

Smoothness in motor growth depends on the maturity of the brain. Sensory systems, increased flow and number of muscle veins, healthy emotional systems, and opportunities for practice. Movement exercises improve children's creative thinking and that stimulating executive functions may form a step toward inspiring creative thinking (which stimulates executive function can shape the step towards inspiring creative thinking) [5].

Children get many health benefits from engaging in regular physical activity including improvements in social, cognitive, psychological, as well as physiological development ([6]. The level of basic motion activity is strongly influenced by environmental factors ([7]).

Programs that promote both structured and unstructured PA could Program physical activity activities, structured and unstructured can contribute to increasing the PA levels of preschoolers according to be able to contribute to increase early childhood movement activities recent meta-analysis. Can stimulate the development of fundamental motor skills, development of basic motion skills [8].

3. METHOD

The selected development model is ADDIE (Analyze, Design, Develop, Implement, and Evaluate). ADDIE is used in research and development as a basis for creating effective learning resources or teaching materials for children. This development model can be used for various forms of product development such as models, strategies, learning methods, media, and teaching materials, such as making a development of a child's game model to increase movement activity. All stages of this further research are presented in Table 1.

Based on the Table 1, there are three stages involved in this research. First stage is an initial stage, in this stage we conducted a need analysis. The second stage is development stage. In this stage we developed three main results: (1) development of game model product prototypes to increase motion activities, (2) development of instruments for product assessment, and (3) Development of effectiveness instruments. The last stage includes field test, experiment, and production result.

In this paper, we only provide data result of the initial stage. We used descriptive statistic result to analyze data. As many as 30 participants involved in this research by submitting the questionnaire. There are 24 items of questions delivered to the participants.

Table 1. Stages of Research

No	Stages of Activities	Subject	Analysis Techniques	Product
1	Research) a. The need analysis	Educators / Preschool Teachers in Laboratory kindergarten and preschool UM	Descriptive	Data to raise the problems that exist in educators / preschool teachers
2	Development of game model product prototypes to increase motion activities	Literature studies, field studies, educators/ teachers of Early Childhood	Aiken Scale	Prototype of game model products to increase motion activity
	Development of instruments for product assessment	Experts, educators/ teachers' learners, early childhood	Aiken Scale	Product assessment instruments
	Development of effectiveness instruments	Literature studies, teachers, learning teachers, experts, early childhood	Likert Scales	Instruments of effectiveness
3	Field Test	Product revision, educators / teachers, early childhood, and experts	Aiken Scale	Holistic learning game model to increase movement activity
	Test effectiveness (experiment)	Learning process and early childhood learning outcomes for the realm of attitudes, knowledge, and skills	One group Pre-Test & Post Test Design,	Holistic learning of game models to increase motion activity
	Production Results			Holistic learning results of game models to increase motion activity

3. RESULT AND DISCUSSION

Based on data on the problems faced by preschool educators can be concluded 1) the planning of the problems faced includes: (a) choosing a method that is in accordance with the indicator 93.3%; (b) develop a learning medium of 93.3%; (c) develop a learning medium of 93.3% (d) develop an indicator of 83.9%; (e) determine the material according to the indicator 83.9%. 2) the implementation of (a) the opening is no problem; (b) core experiencing problems in inspiring learning 83.3%; (c) cover no problem; 3) the assessment experiencing problems (a) determines the instrument of assessment in accordance with the realm to be valued at 83.3%; (b) carry out an assessment in accordance with the procedure of 93.3%; (c) analyze the 93.3% assessment data; (d) concluded the assessment result of 93.3%; (e) reported a rating of 93.3%. All data result can be seen in Table 2.

Based on Table 2 only 16% of participants understand the core and basic competencies to plan the daily lesson. They found it difficult to understand the competencies. This is inline with the study that found they found it difficult when making a lesson plan [9], [10].

Based on the implementation stage, it is found that the core competency to make an inspiring learning was the highest percentage, while the teacher found it difficult to make a learning to be a child cantered. It was stated that to be an inspiring teacher it is important to establish empathy toward students, so that they can have a positive impact [11], [12].

Table 2. The Initial Result

No	Items	N	Percentage
1	Planning		
	Understand core competencies	5	16.7%
	Understand basic competencies	5	16.7
	Develop indicator	25	83.3 %
	Determine the material according to the indicator	25	83.9 %
	Choose a method that suits the indicator	28	93.3 %
	Develop learning media	28	93.3%
	Drafting a assessment procedure	28	93.3%
2	Implementation		
	Opening		
	Apperception (connecting with previous learning	15	50%
	Explain the learning objectives	10	33%
	Explain the benefits of learning	15	50%
	Explain the activities that will be carried out	15	50 %
	Core		
	Interactive Learning	8	26.7 %
	Inspiring Learning	25	83.3%
	Fun Learning	10	33.3%
	Contextual Learning	14	46.7 %
	Child-centered Learning	2	6.7%
	Cover		
	Efforts to explore children's play experiences that have been done in one day	15	50%
	Encourage children to follow the next learning activities.	15	50 %
3	Assessment		
	Understand the realm to be rated	15	50%
	Determine the assessment instrument in accordance with the realm to be valued.	25	83,3 %
	Carry out assessments according to procedure	25	83.3%
	Analyze assessment data	28	93.3%
	Conclude the results of the assessment.	28	93,3 %
	Report the results of the assessment.	28	93,3 %

4. CONCLUSION

This study discussed the initial stage (need analysis) of the game model development. Based on data on the problems faced by preschool educators can be concluded 1) the planning, 2) the implementation, 3) the assessment.

Based on the planning stage, the teachers found it difficult to understand the core and basic competencies to plan the daily lesson. In the implementation stage, it is found that the core competency to make an inspiring learning was the highest percentage, while the teacher found it difficult to make a learning to be a child cantered.

The result will further discuss how the child's response after learning used the game model to increase movement activities, which are developed, the child's response when doing the practice of implementing the game is very happy even during the rest hours children want to do activities.

REFERENCES

[1] L. Pannekoek, J. P. Piek, dan M. S. Hagger, “Human Movement Science Motivation for physical activity in children : A moving matter in need for study,” *Human Movement Science*, vol.

32, no. 5, hlm. 1097–1115, 2013, doi: 10.1016/j.humov.2013.08.004.

[2] J. Grewal, M. Wernicke, dan J. Zhang, "Early childhood development when second-trimester ultrasound dating disagrees with last menstrual period : a prospective cohort study," 2012.

[3] G. Morrison., *Dasar-dasar Pendidikan Anak Usia Dini*. PT Indexs. Permata Puri Media. Kembangan Utara Jakarta Barat 11610., 2012.

[4] P. C. Judie Bulluss, *Smart Start with P.M.P A Perceptual Motor Program*. Australia: Published by Smart Starters 1 Albert Street, Mordialloc 3195 Victoria, 2008.

[5] D. Dziedziewicz, D. Oledzka, dan M. Karwowski, "Developing 4- to 6-year-old children ' s figural creativity using a doodle-book program," *Thinking Skills and Creativity*, vol. 9, hlm. 85–95, 2013, doi: 10.1016/j.tsc.2012.09.004.

[6] O. J. M. Martyniuk dan P. Tucker, "An exploration of Early Childhood Education students ' knowledge and preparation to facilitate physical activity for preschoolers : a cross-sectional study," hlm. 1–10, 2014.

[7] M. Y. Abbas, M. Othman, dan P. Z. M. A. Rahman, "Pre-school Classroom Environment: Significant upon Childrens' Play Behaviour?," no. 1, hlm. 1–18, 2019.

Procedia - Social and Behavioral Sciences, vol. 49, hlm. 47–65, 2012, doi: 10.1016/j.sbspro.2012.07.005.

[8] S. Vazou, C. Mantis, G. Luze, dan J. S. Krogh, "Self-perceptions and social – emotional classroom engagement following structured physical activity among preschoolers : A feasibility study," *Journal of Sport and Health Science*, vol. 6, no. 2, hlm. 241–247, 2017, doi: 10.1016/j.jshs.2016.01.006.

[9] S. Alkornia, "Studi Deskriptif Kompetensi Pedagogik dan Profesionalisme Guru PAUD Dharma Wanita Binaan SKB Situbondo," 2016.

[10] D. S. Winarni, "Analisis kesulitan guru PAUD dalam membelajarakan IPA pada anak usia dini," *Edu Sains: Jurnal Pendidikan Sains dan Matematika*, vol. 5, no. 1, hlm. 12–22, 2017.

[11] A. Sandberg dan I. Pramling-Samuelsson, "An interview study of gender difference in preschool teachers' attitudes toward children's play," *Early Childhood Education Journal*, vol. 32, no. 5, hlm. 297–305, 2005.

[12] S. Turhan, "A Research on the Characteristics of the Inspiring Teacher.," *International Journal of Educational Methodology*, vol. 5,