

Introducing Physics Early Childhood Children Using Creative Science Games in RA Darrutaqwa Tasikmalaya

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Abstract

This study aims to improve the science process skills of Early Childhood towards Primary School in RA Daarut Taqwa, Mulyasari Village, Tasikmalaya City, through the application of creative science games (CSG). CSG is a series of interesting games in the form of Apple Spinner and Magic Coin. The method used in this research is the action research method. The action research design of the Kemmis and Mc Taggart model consists of four components which include planning, implementing, observing and reflecting. The results of this study indicate that the application of creative science games can improve science process skills in RA Daarut Taqwa, Mulyasari Village, Tasikmalaya City. Science process skills that emerge and increase are the child's confidence, the process of observing objects / objects or the environment, the process of classifying objects / objects based on color, shape, size or other characteristics, the ability to explore, ask questions, express temporary presumptions, make conclusions, share experiences, and listen to the opinions of others.

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INTRODUCTION

According to Wenham (Gross, 2012: 1) 'science is a way of exploring and investigating the world around us ... not only a way of knowing; it is a way of doing'. Based on Wenham's opinion, it can be interpreted that science is not just mere knowledge, but also the processes and actions we take in achieving that knowledge. Science learning, including the introduction of natural concepts for children is an effort to help children to find certain concepts and processes in life, in other words learning science for children is essentially used as a medium used to stimulate development aspects and maximize the potential that exists in children. This is in line with the phrase Havu-Nuutinen (Gross, 2012: 1-2) as follows:

"Science education is a process of conceptual change in which children reorganize their existing knowledge in order to understand concepts and processes ... more completely"

The opinion above emphasizes that learning science for children is a process to help children to find certain concepts and processes in life, so that it can be said that science learning for children is essentially used as a medium used to stimulate development aspects and maximize the potential that exists within child. The description implies the importance of science learning experiences for children at various levels of school, including at pre-school and elementary school levels. Unfortunately, science learning at both levels is sometimes not yet optimal, only limited to providing activities that are often fixed on student textbooks or worksheets. The concepts taught to children also tend to be rigid and less adapted to the stages of child development, so they tend to force children to understand these scientific concepts. In fact, basically good learning for children is learning that is able to provide hands-on experience and is able to stimulate child development in an integrated manner, not just for the development of just one aspect (Suyadi & Ulfah, 2013; Santrock, 2007).

Based on observations at several Early Childhood Education Institutions (PAUD) in Mulyasari Village, one of them at RA Daarut Taqwa, science learning for children tends to be introduced through activities with the use of magazines and not through direct experience that is meaningful for children. Science learning conducted by PAUD is also less able to stimulate science process skills and attitudes for children, even though these two aspects are very

important in children's lives, especially to support children's abilities at further levels of education. Science learning for children should be aimed at developing individuals to recognize the scope of science itself and be able to use fundamental aspects in solving the problems it faces. So, the focus of science learning development programs should be aimed at fostering children's understanding, interest and appreciation of the world in which they live, the universe (Sumaji, 1988). Leeper (Nugraha, 2008) also said that the development of science learning in children should be addressed so that children have the ability to solve the problems they face through the use of scientific methods, so that children are helped and become skilled in solving various things that they face, have attitudes scientific attitude in gaining scientific knowledge or information, including also having scientific process skills.

Based on the entire description above, we need a solution to deal with problems related to science learning for young children. One of the solutions offered in this research is through creative science games. Creative science games are science learning activities provided through various interesting games and contain scientific concepts that can be obtained by children (Mayeski, 2007). This creative science game is expected to be an alternative science learning that is able to stimulate the process skills and attitude of science in early childhood.

RESEARCH METHOD

The research method used is the action research method of the Kemmis and MC Taggart model (McNiff & Whitehead, 2002). This type of research uses collaborative action research, where researchers collaborate with the school directly in the research process from the beginning until the research ends. The design of this study was chosen by the author because basically this research originated from the problem of process skills and early childhood science attitudes so that a solution was needed to overcome these problems. The solution proposed in this research is to apply a creative science game.

The action research design of the Kemmis and Mc Taggart model (in McNiff & Whitehead, 2002) consists of four components which include planning, implementation, observation and reflection. The design can be seen through the following chart:

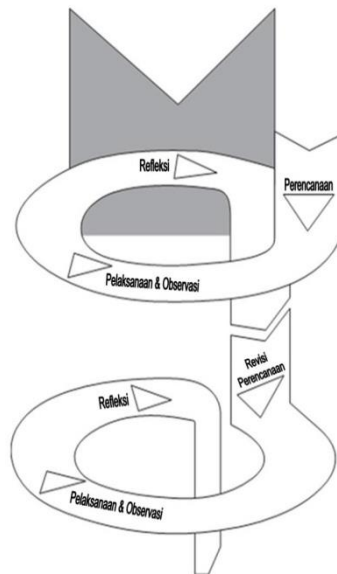


Figure 1. Model Kemmis & Mc Taggart (2005, hlm. 564)

Design of Research Activities

Based on the research design that has been described previously, there are four activities that must be carried out by the author, including planning, implementation and observation and reflection. The descriptions of the four components include the following :

1. Planning. In this stage the authors make a plan related to the application of creative science games in improving process skills and scientific attitudes of young children. This stage includes coordinating activities with the institution, preparing learning media and game modules and other supporting tools.
2. Implementation. After planning and preparation, the authors then take action in the form of learning the application of creative science games. The application of creative science games will be carried out by the research team together with the teachers at RA Daarut Taqwa with reference to themes that are adapted to the curriculum in force in the institution.
3. Observation. The next stage is the observation that will be carried out to see the extent of the development of children's science process skills and attitudes, as well as controlling the implementation of creative science games.
4. Reflection. Reflection activities carried out by researchers to discuss the results of

activities that have been carried out. In the reflection phase, data analysis is carried out on the processes, problems and obstacles determined and continued with reflection on the impact of the implementation of the actions that have been carried out.

Subjects and Research

The location of this research is RA Daarut Taqwa, located in Mulyasari Village, Tamansari District, Tasikmalaya City. The subjects in this study were group B children in PAUD RA Daarut Taqwa. This group was chosen as a research participant because it was at the age level ranging from four to six years and at this age it was assumed to have mastered the knowledge needed for aspects of scientific process skills and attitudes.

RESULTS AND DISCUSSION

Condition of Early Childhood Science Skills and Attitudes in RA Daarut Taqwa before the Application of Creative Science Games:

Based on the results of preliminary observations, the process skills and attitude of children's science at RA Daarut Taqwa are still not optimal. This is indicated by the emergence of the child's ability to ask questions, tell experiences, express suspicions, explore and not yet appear independent, high curiosity and children tend to give up easily. After further observation, one of the contributing factors is the ability to learn science for children tends to be introduced through activities with the use of magazines and not through direct experience that is meaningful to children. Science learning conducted by PAUD is also less able to stimulate science process skills and attitudes for children, even though these two aspects are very important in children's lives, especially to support children's abilities at further levels of education. One solution that is assumed to be able to improve children's science process skills in this study is Creative Science Games.

Form and Implementation of Games Activities :

Creative Science Games at RA Daarut Taqwa is one of the programs carried out to improve children's science process skills, especially related to the Apple Spinner and Magic Coin themes. Some of the stages of implementing Creative Science Games are as follows:

- a. Planning for Making Creative Science Games

At this stage the teacher plans a type of Creative Science Games, discusses what is needed in the Apple Spinner and Magic Coin Games, and prepares steps on how to play the game to be performed. Planning this activity usually begins by installing tools that are used to make games together with students. Students are asked to help install some equipment that is easy and affordable for children aged 5-6 years.

b. Implementation of Creative Science Games

At this stage teachers and students play Apple Spinner and Magic Coin in accordance with the plans that have been prepared previously. Children are reminded of the steps involved in playing the good Apple Spinner and Magic Coin by the teacher. Implementation of this activity requires a relatively short time

c. Evaluation Phase of this Activities

This stage is done to see whether the installed game can run as it should, for example the apple spinner that is installed can rotate properly or not. Evaluations are also conducted to monitor whether students can play Creative Science Games properly.



Figure 2. The teacher invites children to make observations on the apple spinner games



Figure 3. the teacher gives the child the opportunity to ask questions about the type of play equipment



Figure 4. The teacher invites children to make observations on the magic coin games.

Early Childhood Science Process Skills After Applying the Apple Spinner and Magic Coin games:

1. In this game the concept of science taught is that students will know that apples will move in a circle because they are in the magnetic field. The magnets placed actually attract each other with aluminum cans that are placed between the apples. The science process skills in students after observations that appear in this game are students Observing objects / objects or the surrounding environment. Students Classify objects / objects based on color, shape, size or other characteristics. Students Tell the experience. Students Listen to the opinions of friends.
2. Figure 3 shows that students are playing the game Magnet. In this game the concept of science taught is that magnets can attract objects made of metal. Metal materials that have a high tensile strength are iron and steel.
3. Science process skills in students after the observations that appear in this game are Observing objects / objects or the environment, asking questions. In Figure 3 students ask why the metal can stick to magnets

CONCLUSION

Based on the entire description above it can be seen that there is a good improvement in the attitude of children's science in RA Daarut Taqwa. The indicators most often raised since the beginning of the action are attitude of independence, exploration, not giving up easily and being honest. As for other indicators that experienced a pretty good increase during the action given, among others, spontaneous attitude, high curiosity, and completing tasks to completion.

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