AMERICAN Journal of Science on Integration and Human Development
Volume 01, Issue 08, 2023 ISSN (E): 2993-2750

Use Of Experimental Method For Making Salt Eggs To Improve Cognitive Understanding Science In Group B Children At Angkasa Lanud Sam Ratulangi Kindergarten

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Abstract:

The problem in this research is how to use experimental methods in making salted eggs to improve children's cognitive abilities to understand science. This research aims to find out whether the use of the experimental method of making salted eggs can improve the ability to understand science in group B children at Angkasa Lanud Sam Ratulangi Kindergarten. This research is Classroom Action Research (PTK), with the research subjects being Group B children at the Angkasa Lanud Sam Ratulangi Kindergarten, totaling 18 children. The implementation of this research was carried out in 2 cycles where in each cycle there were 4 stages consisting of (1) Planning (2) Implementation of Actions (3) Observation (4) Reflection. Data collection uses observation techniques and is processed through the percentage of completeness or learning success as a group. Thus, based on the analysis of the results and discussion, it can be concluded that the use of experimental methods can improve the cognitive abilities of children at the Angkasa Lanud Sam Ratulangi Kindergarten, with the achievement of completeness or 17 out of 18 children achieving learning success with a percentage of 94.44%. It is recommended that PAUD teachers use the experimental method of making salted eggs to improve the cognitive abilities of young children.

Keywords: Cognitive, Experimental Method, Salted Eggs

Introduction

A. Background

Specifically, Early Childhood Education in the Play Group learning program, namely the age range of 2-6 years, has become a very important period, since the publication of the latest research results in the fields of Neuroscience and Psychology, describing that the potential for intelligence and the basics of a person's behavior are formed at that age. early, because it is at an early age that an individual's brain develops very rapidly, even results study States thatdevelopment reached more than 50% (Nugraha 2005:48). This period is so important that early childhood is often called the Golden Age. It will be a very meaningful period if given the

right stimulation to help aspects of children's development which include moral development and religious values. social emotional and independence, cognitive, language, physical/motor, and arts.

However, in group B at Angkasa Lanud Sam Ratulangi Kindergarten, the experimental method is still rarely presented in class, because the experimental method cannot be used on every theme, so far educators have always used the assignment method to develop children's cognitive abilities so that children feel bored, as a result the children It is difficult to absorb the learning provided so that learning success is not maximized.

Based on these problems, the author wants to improve the quality of learning in Group B TK Angkasa Lanud Sam Ratulangi, especially children's cognitive abilities through experimental methods. By implementing this experimental method, it is hoped that it will provide refreshment and new experiences for children, making the learning process more enjoyable and the learning objective, namely increasing children's cognitive abilities, can be achieved. Based on these facts, researchers feel the need to conduct Classroom Action Research (PTK) at the Angkasa Lanud Sam Ratulangi Kindergarten.

B. Formulation of the problem

Based on the problems above, the researcher formulated the problem as follows: How can using the experimental method of making salted eggs improve the ability to understand science in group B children at Angkasa Lanud Sam Ratulangi Kindergarten?

C. Research purposes

To find out whether the use of the experimental method of making salted eggs can improve the ability to understand science in group B children at Angkasa Lanud Sam Ratulangi Kindergarten.

THEORETICAL BASIS

A. Experimental Method

1. Understanding Experimental Methods

According to Mulyani Sumantri and Johar Permana (1999: 157), Experimental method

is a way of presenting learning material where students carry out experiments through experience to prove for themselves a question or hypothesis being studied. The experimental method is a way of teaching, where students carry out an experiment on something, observe the process and write down the results of the experiment, then the results of the observation are presented to the class and evaluated by the teacher.

2. Purpose of the Experimental Method

The objectives of the experimental method, according to Sumantri and Johar Permana (1999: 158), are:

a. Pursue how to draw conclusions from various facts, information or data that have been collected through observation of the experimental process.

b. Pursue how to draw conclusions from facts contained in experimental results, through the same experiment,

c. Practice student designing, prepare, conduct, and report experiments.

d. Train students to use inductive logic to draw conclusions from facts, information or data collected through experiments.

Based on the description above, it can be concluded that the aim of the experimental method is so that students can design, prepare, carry out, report, prove and draw conclusions from various facts and information obtained when they carry out their own experiments.

B. Cognitive Development

1. Understanding Cognitive Development

Cognitive development is the basis for a child's ability to think. This is in accordance with the opinion of Ahmad Susanto (2011: 48) that cognitive is a thinking process, namely the individual's ability to connect, assess and consider an incident or event. So the cognitive process is related to the level of intelligence (intelligence) which marks a person with various interests, especially those aimed at learning ideas.

Cognitive development has an important role in children's success in learning because some learning activities are always related to thinking problems. According to Ernawulan Syaodih and Mubair Agustin (2008: 20) cognitive development concerns the development of thinking and how thinking activities work. In their lives, children may be faced with problems that require solutions. Solving a problem is a more complex step for children. Before children are able to solve problems, children need to have the ability to find ways to solve them.

2. Factors Influencing Cognitive Development

There is another opinion which states that many factors can influence cognitive development. According to Ahmad Susanto (2011: 59-60) factors that can influence cognitive development include:

a. Heredity/hereditary factors

The theory of heredity or nativism, which was pioneered by the philosopher Schopenhauer, states that humans are born with certain potential that cannot be influenced by the environment. The level of intelligence is determined from birth.

b. Environmental factor

John Locke argued that humans are born in a pure state like white paper that has not been stained, known as the tabula rasa theory. The level of intelligence is determined by the experience and knowledge gained from the environment in which one lives.

c. Maturity Factor

Each organ (physical and psychological) is said to be mature if it has achieved the ability to carry out its respective functions. This is related to chronological age.

d. Formation Factors

Formation is all circumstances outside a person that influence the development of intelligence. There are two formations, namely intentional formation (formal school) and unintentional formation (influence of the natural environment).

e. Interest and Talent Factors

Interest directs actions towards a goal and is an encouragement to do more actively and better. A person's talent will influence his level of intelligence. Someone who has a certain talent will find it easier and faster to learn it.

f. Freedom Factor

Human freedom to think divergently means that humans can choose certain methods in solving problems and are free to choose problems according to their needs.

3. Stages of Cognitive Development

The stages of a child's cognitive development describe the child's level of ability to think. According to Piaget as quoted in Yudha M. Saputra and Rudyanto (2005: 162), "children's cognitive development is divided into 4 stages, namely, sensorimotor (0-2 years), preoperational (2-7 years), concrete operational (7-11 years) and formal operations (11-6 years)". Meanwhile, according to Slamet Suyanto (2005: 55), in the preoperational stage, children begin to show clearer thinking processes. Children have learned the names of objects, classified them, and perfected their five sense skills. His egocentric nature is very prominent.

Children show their ability to play symbolic games, for example children move wooden blocks while imitating the sound of a car as if the blocks were cars. In the preoperational stage, children already use their memory about cars and use blocks to express their knowledge.

C. Salted egg

1. Understanding Salted Eggs

Salted eggs are the result of processing raw duck eggs using a mixture of red brick dough, salt and ashes which are left for several days, then produce cooked salted eggs (Astawan, 1989). Duck eggs that are processed into salted eggs can increase the calcium content in duck eggs and can increase the shelf life of duck eggs (Damayanti et al., 2015). Salted eggs are consumed as a food that has been preserved and has a longer resistance to damage compared to raw duck eggs (Sarwono, 1994)

2. Making Salted Eggs

Traditional egg preservation is by salting using salt mixture, namely salt mixed with other ingredients such as ash, red bricks, clay and so on (Astawan, 2005). The salting process can be divided into two ways, namely soaking the eggs in a saturated salt solution and covering the eggs with a salt mixture which usually consists of several additional ingredients, namely red brick powder, rubbing ash and salt or called curing (Suprapti, 2002). The process of salting with dough includes several things such as sorting raw duck eggs, washing, making salted egg curing mixture, adding salt, coating the eggs with curing mixture, curing the eggs for several days, peeling the dough, washing the eggs again, boiling the eggs, draining them, giving them a stamp. The eggs are then packaged.

D. Science Learning

1. Understanding Science Learning

The term learning comes from the word learning, which is an activity or a process for obtain knowledge,improve skills, improve behavior, attitudes, and strengthen personality. This understanding is more directed at individual changes in a person, both regarding knowledge and attitudes and personality in everyday life. Through this learning, it is hoped that knowledge will increase, skills will increase, and can form noble morals (M. Fadillah et al, 2014:23) Abdul Majid (2011:11) Explains that learning is one of the efforts that can influence the growth and development of students' potential in developing knowledge previously possessed or learned. Knowledge that arises from learning can be used as a guide for behavior in life.

RESEARCH METHODS

A. Types of research

This research is participatory classroom action research involving fellow teachers and Group B class teachers at Angkasa Lanud Sam Ratulangi Kindergarten as collaborators and teachers. This research aims to improve cognitive understanding of science in Group B children at Angkasa Lanud Sam Ratulangi Kindergarten.

B. Research Stage

This research will be carried out in a cyclical form. Each cycle has four stages, namely planning, implementation and observation, and point reflection. This research was carried out in several cycles. The number of cycles used is in accordance with the achievement of predetermined success indicators.

C. Research subject

In this research, the subjects were Group B at Angkasa Lanud Sam Ratulangi Kindergarten

D. Place and time of research

1. Research Place

This research was carried out at the Angkasa Lanud Sam Ratulangi Kindergarten

2. Research time

This research will be carried out on 14-17 September 2020

E. Research procedure

In this research, it was carried out according to the steps in each cycle. If the success indicators have been achieved, the research is declared complete. Systematically, there are 4 steps that will be implemented in this research, such as:

1. Planning
2. Implementation
3. Observation/Observations
4. Reflection

F. Method of collecting data

The data collection method used in this research was observation. Observation is used to observe the making of salted eggs to improve cognitive observing science. Apart from that, observations are carried out to observe or collect data to see how far the consequences of the actions that have been implemented are based on the guidelines that have been prepared in the observation sheet. The observation activity involved two people, namely the researcher, assisted by a colleague.

RESULTSRESEARCH AND DISCUSSION

A. Research result

1. Results of Implementation of Cycle I Actions

Based on table 4.1 above, it can be explained that of the 16 children who took part in the learning activities, there were 5 children who received one star because the children were able to soak eggs for 2 minutes, which shows that the abilities of these five children were still categorized as not having the imagination to understand making salted eggs. Meanwhile, 5 children received two stars because the children were able to clean the eggs slowly with the shell dregs, which shows their ability to understand how to make salted eggs. Then 3 children got three stars because the children were able to mix the rubbing ash with water and cover the eggs with soil until they clump together and 3 children got four stars because the children were able to dress and sprinkle the eggs with the rubbing ash, which shows that they have understood how to make salted eggs.

As for this research, it is said that children who are capable are children who get it

Three stars and four stars are classified as children who can be said to have successfully demonstrated development in improving their cognitive abilities in making salted eggs.

So in this first cycle of classroom action research there were 6 children who were successful, or in other words there were 37.5% of the 80% of children who experienced good development in improving their cognitive understanding of science in making salted eggs using experimental methods.

Results of Implementation of Cycle II Actions Based on table 4.2 above, it can be explained that out of 16 children who took part in learning activities there isThe child gets a two star mark because the child is able to clean the egg slowly with the shell dregs which shows that the child is categorized as starting to improve in making salted eggs because canclean egg in a wayslowly and carefully. Then 7 children got a three star mark, which means that the child can mix the ash and water and can also cover the egg with soil until it clumps and 8 children got a four star mark, which shows that the child can dress and sprinkle the egg with the rub ash, which shows that they have demonstrated good improvement in understanding the science of egg making

salty. egg salty becausecan clean egg in a wayslowly and carefully. Then 7 children got a three star mark, which means that the child can mix the ash and water and can also cover the egg with soil until it clumps and 8 children got a four star mark, which shows that the child can dress and sprinkle the egg with the rub ash, which shows that they have showed good improvement in understanding the science of making salted eggs.

In this research, it is said that children who are capable are children who get three and four star marks, namely children who are said to have succeeded in showing increased cognitive

understanding of science in making salted eggs using experimental methods. So in this second cycle of class action research there were 15 children who were successful, or in other words there were 93.75% of the children who understood the science of making salted eggs because the children were able to mix the ashes with water and could cover the eggs with soil until they clump. so it is said to experience cognitive improvement.

B. Discussion

The discussion of research results focuses on the implementation of class action research in cycle I and cycle II by following 4 research stages, namely planning, implementing action, observing and reflecting.

By carrying out classroom action research, with learning material on making salted eggs to improve scientific cognition using experimental methods for Group B Children at the Angkasa Lanud Sam Ratulangi Kindergarten for the 2023/2024 Academic Year, it turned out to bring satisfactory results.

The results of the children's learning in the first cycle of learning were that 5 children received one star because the children were able to soak the eggs for 2 minutes, which means that the five children were categorized as not having had any cognitive improvement in understanding science in making salted eggs using experimental methods. This shows that they need continuous teacher attention and guidance and always accompany them in learning activities. Then there were 5 children who received two stars because the children were able to clean the eggs slowly with shell dregs, which means that these five children were categorized as starting to improve their cognitive understanding of science in making salted eggs using experimental methods, but still needed teacher guidance. Thus, these children still need the teacher's attention and guidance in their learning activities. Furthermore, 3 children got three stars because the children were able to mix the scouring ash with water and cover the eggs with soil until they clump together and 3 children received four stars because the children were able to mix and sow the eggs with the scouring water, which means they were very good and did not need the teacher's help. , this indicates that they have shown cognitive improvements in understanding science. Thus, children's learning outcomes are only around 37.5% of the target of 80%, so this is action research. This class needs to be continued in the next cycle.

The results of the children's learning in the second cycle of learning included 1 child who received two stars because the child was able to clean the eggs slowly with shell dregs, which means that the child was grouped into a cognitive increase in understanding science in making salted eggs using experimental methods and still had to be continuously guided by the teacher.

Then there were 7 children who received three stars because the children were able to mix the ashes with water and cover the eggs with soil until they clump together, which means that the seven children were grouped to develop according to expectations in improving their cognitive understanding of science in making salted eggs using experimental methods. However, these children still need the teacher's attention and guidance and there are 8 children who received a four star mark because the children were able to smear and sprinkle the eggs with rubbing water, which means that these ten children have shown that they have shown cognitive improvement in understanding science in making salted eggs with using experimental methods.

Children who received three stars and four stars were declared successful in participating in learning activities in cycle II. Thus, there were 15 children out of 16 who were declared successful, because they could improve their cognitive understanding of science in making salted eggs by using experimental methods. Because of this, the children's learning outcomes were around 93.75% of the target of 80% which was successful, so the class action research cycle II was declared successful and did not need to be continued in the next cycle.

CONCLUSIONS AND RECOMMENDATIONS

A. Conclusion

Based on the results of the previous analysis and discussion, the author can conclude that the teacher's process in developing independence for children aged 5-6 years through the use of the experimental method of making salted eggs to improve cognitive understanding of science in group B children at Angkasa Lanud Sam Ratulangi Kindergarten, is as follows:

a. The teacher chooses the theme and objectives to be achieved according to the existing program.

b. The teacher creates a learning atmosphere

c. The teacher prepares materials and motivates them to do the assignment.

d. The teacher divides tasks into each group with different tasks.

e. The teacher provides direction and explains how assignments work.

f. Teachers give children opportunities to do assignments.

g. The teacher repeats the material or recalls the experimental activity of making salted eggs.

h. Teachers carry out evaluations of children's independent development activities through experimental methods

Judging from these eight steps, the teacher's process in the salted egg experiment activity to improve cognitive understanding of science in group B children at Angkasa Lanud Sam Ratulangi Kindergarten was said to be successful because 15 children were able to cover and sprinkle the eggs with rubbing water with a percentage of around 93.75% from the target of 80%, which means it is very good and does not need teacher assistance, this shows that they have shown cognitive improvement in understanding science.

B. Suggestion

Based on the results of research that has been carried out, regarding the salted egg experiment to improve cognitive abilities in group B children at Angkasa Lanud Sam Ratulangi Kindergarten, the researchers put forward the following suggestions:

1. Children at Angkasa Lanud Sam Ratulangi Kindergarten can provide knowledge about the importance of understanding science in everyday life so that they can know the origin of things such as how eggs can cook and taste salty.

Teachers at Angkasa Lanud Sam Ratulangi Kindergarten, should always pay attention and provide understanding in educating children for the good of the child's development, especially in getting children used to trying to do something new

2. Teachers should make innovations in applying experimental methods and learning media to improve children's cognitive understanding of science so that students do not experience boredom.

Teacher should more infesting learningthrough fun activities.

References

1. Ali Nugraha. (2005). Development of Science Learning in Early Childhood. Jakarta: Ministry of National Education Directorate General of Higher Education Directorate of Educational Development of Educational Personnel and University Personnel
2. Isjoni (2011). Early Childhood Learning Learning Model. Bandung: Alphabeta
3. Kurniati; Rahmawati (2005). Cognitive and Creativity Development Methods. Teaching materials. Not Published. Malang State University
4. Kusumah, Wijaya & Dedi Dwitagama (2011). Getting to know Classroom Action Research. PT. Index: Jakarta
5. *Madya, Suwarsih. 2007*. Action Research Theory and Practice. Bandung: Alphabeta. Marlian.