

## EFFORTS TO IMPROVE SCIENCE SKILLS WITH EXPERIMENTAL METHODS AT SPS MERPATI 2

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### Abstract

This study aims to improve science skills with experimental methods on children aged 5 -6 years at SPS Merpati 2 Jati Murni Bekasi. This research is Classroom Action Research. The research was conducted in two cycles and each cycle was held in two meetings. The subjects of this study were 13 children aged 5-6 years, consisting of 5 boys and 8 girls. Methods of data collection are done through observation and documentation. The data analysis technique was carried out in a qualitative descriptive manner. Increasing science skills is said to be successful if there is an 80% increase in the number of children in science skills from the initial conditions before the action. Children's science skills can be seen from the pre-cycle, cycle I, and cycle II processes. In the pre-cycle, 5 children (38%) had the criteria of not yet developing and 8 children (62%) had the criteria for starting to develop. Then in the cycle, I found 4 children (31%) with the criteria for starting to develop and 9 children (69%) with the criteria for developing according to expectations and in cycle II there were 5 children (38%) developing according to expectations and 8 children (62%) developing very well. So if we look at the percentage per class in children's science skills, we will find that in the pre-cycle process, it was 38.7%, in the first cycle it was 61.5% and in the second cycle it was 85.8%. This proves that the experimental method influences children's science skills.

**Keywords:** *Science; Experimental Method; Early Childhood.*

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## INTRODUCTION

Early Childhood Education is the key to the successful development of Human Resources (HR) throughout life. Early age is the golden age of child development, and investment at this age is the highest investment that gives a deep impression compared to investments in all other life cycle periods. Early age is a period when children need the development of abilities both in moral and religious aspects, cognitive, language, physical motor, social-emotional, and art. Science is one of the abilities that early childhood also needs to have.

According to Carson (Nugraha, 2005, p.14) science for children is everything that is amazing, something that is found and considered interesting and provides knowledge or stimulates them to know and investigate it (Wahid and Suyanto 2015). To support this process, the teacher must prepare the right method of learning. Early childhood needs methods that can make them interact directly with the activities being carried out. In this case, the teacher can use the experimental method. The experimental method is a learning method that allows students to conduct experiments to prove themselves to a question or hypothesis being studied. In principle, the experimental method is a series of experiments carried out by experimenters in a certain laboratory or room (Damayanti and Mawaddah 2020) (Izzuddin, Palapa, and Lombok 2019).

According to Wolfinger (in Suyanto 2006: 7) science material or science activities that can be given to kindergarten children include knowing motion, getting to know liquids, sinking and floating, getting to know scales or balances, playing with soap bubbles, mixing colors and substances, getting to know objects elastic objects, playing with air, playing with shadows, doing simple experiments, getting to know fire and burning, getting to know ice, playing with sand, playing with sounds, playing with magnets, and loving animals (Amalia, Saparahayuningsih, and Suprapti 2018).

The experimental method is a suitable method for learning science because the experimental method is able to provide learning conditions that can develop thinking skills and creativity optimally. Students are given the opportunity to arrange concepts in their cognitive structure, which can then be applied in their lives. Tri Mulyani (2000: 23) explains that this experimental method is more child-oriented in the activity of finding information for themselves that really belongs to them (Assa 2013). Science activities provide opportunities for children to observe, explore and try new things. A science game for children is a game whose process is in accordance with children's play standards (Adinda and Suhardini 2022).

## METHODOLOGY

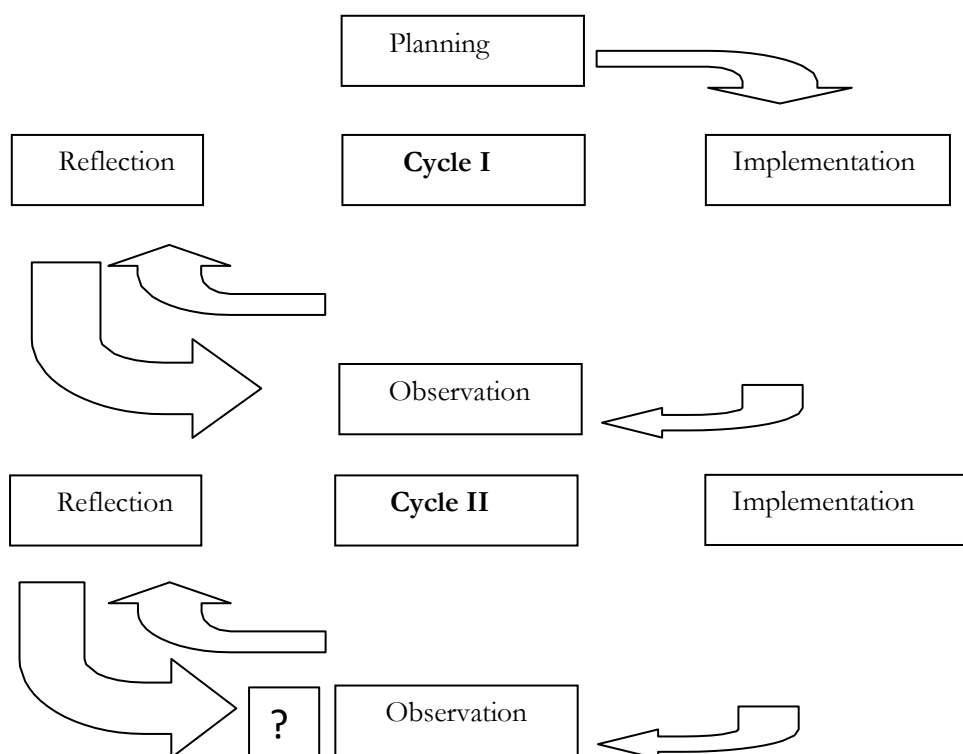
This research method uses the type of Action Research. (Jalaludin 2016). Action research according to Suharsimi Arikunto (2011: 91) is an examination of activities that are deliberately raised that occur in a class. This action research uses the Kemmis and McTaggart models. This model uses two cycles through the stages that must be passed. Mena is in accordance with the research objectives to be achieved, namely to improve science skills with experimental methods in children aged 5-6 years at SPS Merpati 2 Jati Murni Bekasi.

Data collection techniques are data collection carried out to obtain research data. This study uses two data collection methods namely observation and dokumentasi terhadap 5 anak laki-laki dan 8 anak perempuan di SPS Merpati 2 Jati Murni Bekasi.

**Table 1.** Plan of Action

<b>PracycluS</b>			
	Month	Meeting	Date
<b>Cycle I</b>	April	1	April 18, 2022
		2	April 20, 2022
<b>Cycle II</b>	May	1	May 18, 2022
		2	May 19, 2022

As described above, this research was conducted in two cycles.



**Figure 1.** Kemmis and Taggart Models

**Table 2.** Indicators in Science Skills

No.	Indicator
1.	The ability of children to use existing tools to conduct experiments
2.	The child's ability to classify primary colors
3.	The child's ability to classify secondary colors
4.	The child's ability to mix ingredients with the right dose
5.	The child's ability to observe the reaction of mixing colors
6.	The child's ability to predict by mixing colors
7.	The child's ability to tell the results of mixing colors
8.	Child's ability to make elephant trunk bubbles

## RESULTS AND DISCUSSION

To find out the initial abilities of children and to find out the right actions for children, in this study the researchers carried out pre-actions. The pre-action activities were carried out according to the classroom action research steps according to Kemmis and Mc. Taggart. As for the description of the results of pre-action, cycle I and cycle II are with planning where before carrying out the learning, the researcher first carried out the planning stages. The planning is by making a Daily Learning Implementation Plan (RPPH) which contains the material to be delivered in accordance with the learning model that will be used. This RPPH is used as a guide for researchers in carrying out learning activities in class.

Prepare facilities and media that will be used in PTK activities. In this study, tools and materials were used in the form of water, food coloring, spoons, patchwork, used mineral bottles, liquid soap, white sugar, and transparent containers. Prepare observation sheets on children's learning outcomes in color mixing activities and making elephant trunk bubbles guided by the

activity observation grid that has been prepared. Prepare a camera/mobile phone as research documentation.

The implementation of the action is carried out with the RPPH guidelines that have been made. Action research is carried out during teaching and learning activities. The researcher (teacher) carries out the activity plan in accordance with the activity plan that has been made. The course of learning is carried out in accordance with the learning scenario that has been prepared. With the lesson plans in this research activity, there are initial activities, opening activities, core activities, and closing, and then the reflection is carried out. The following are the results of the pre-actions carried out.

**Table 3.** Recapitulation of Science Skills Pre-action Observation Results

Group	Criteria	Initial Conditions	
		Number of children	%
<b>B</b>	BB	5	38 %
	MB	8	62 %
	BSH	0	0 %
	BSB	0	0 %

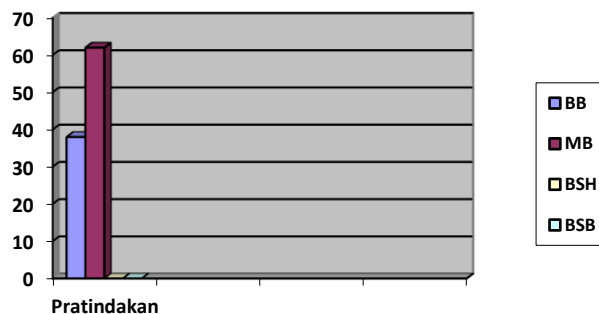
Information

BB = Not Developed

MB = Start Developing

BSH = Growing As Expected

BSB = Very Well Developed



**Figure 2.** Graph of Recapitulation of Science Skills Pre-action Observation Results  
Then proceed with the actions of the first cycle that produces data

**Table 4.** Recapitulation of Science Skills Pre-action Observation Results

Group	Criteria	Initial Condition	
		Number of Children	%
<b>B</b>	BB	5	38 %
	MB	8	62 %
	BSH	0	0 %
	BSB	0	0 %

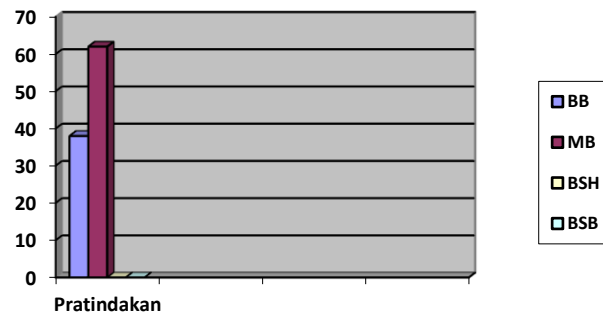
Information

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**Figure 3.** Graph of Recapitulation of Science Skills Pre-action Observation Results  
 With the results that are not optimal, the researcher then continues the cycle II action. The following is the data obtained

**Table 5.** Recapitulation of Observation Results of Cycle II Meeting 2

Group	Criteria	Initial Condition	
		Number of Children	%
<b>B</b>	BB	0	0 %
	MB	0	0 %
	BSH	5	38 %
	BSB	8	62 %

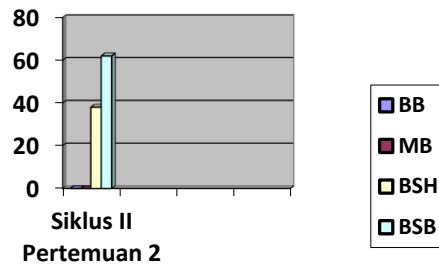
Information

BB = Not Developed

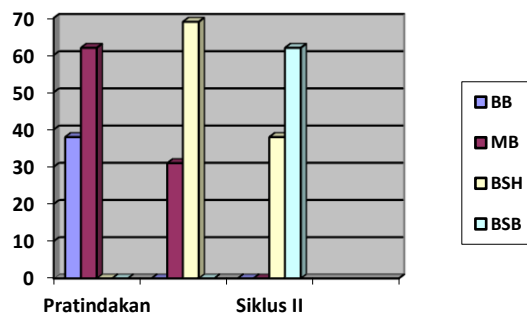
MB = Start Developing

BSH = Growing As Expected

BSB = Very Well Developed



**Figure 4.** Graph of Cycle II Recapitulation Results of Meeting 2 Science Skills  
 So that if you look at it, you will get a comparison between pre-action, cycle I and cycle II according to the following data



**Figure 5.** Graph of pre-action comparison, cycle I and cycle II

**Table 6.** Class percentage recapitulation results

Action	Presentation
Precycle	38,7 %
Cycle I	61,5 %
Cycle II	85,8 %

## CONCLUSION

If we look at the results of the class percentage, it will be found in the pre-action of children's science skills that is equal to 38.7% then in the first cycle it is 61.5% and in the second cycle it is 85.8%. This shows that there was an 80% increase from before the action was taken on children at SPS Merpati 2 Jati Murni Bekasi.

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