

THE INTRODUCTION OF SCIENCE CONCEPT FOR EARLY CHILDHOOD

Abstract

The purpose of this study is to conceptually describe learning to introduce the concept of science to children and to analyze the development of children's abilities in knowing science. This type of research is library research. The results of this study include: (1) the implementation of learning to introduce the concept of science to children which is done through learning with simple science experiments in accordance with the characteristics of children and school conditions (2) the child's ability to recognize science.

Keywords: Concepts, Learning, Science, Children

Asiyah¹

Abdul Aziz Mustamin²

¹asiyah@iainbengkulu.ac.id

²abdulazizm@iainbengkulu.ac.id

^{1,2}IAIN Bengkulu

Introduction

Early Childhood Education is a bridge between the family environment and the wider community, namely Elementary Schools and other environments with the aim of facilitating children's overall growth and skills or emphasizing the development of all aspects of the child's personality. Therefore education for early childhood, especially in kindergartens, needs to provide various activities that can develop various aspects of children's skills.

This is in line with the opinion of Osakwe (2009) in his research which shows that students who have attended preschool education perform better in aspects of cognitive, psychomotor and social skills than students who do not attend preschool education. Osakwe suggested that early childhood education should be encouraged by the government by providing pre-basic education facilities (classrooms, teaching materials, and equipment) needed for the success of the program

and there should be an appropriate enlightenment campaign on the importance of early childhood education. In this case parents must also be involved in the early education experience of their children by providing the necessary materials. Children in kindergarten based on cognitive development are at a concrete operational stage. In that age range children begin to show learning behavior like (1) begins to look at the world objectively, shifts from one aspect of the situation to another aspect reflectively and looks at the elements simultaneously, (2) begins to think rationally, (3) uses operational thinking to classify objects, (4) establish and use the connectedness of rules, simple scientific principles, and use causal relations. The process of learning activities by developing active student learning, students find themselves, investigate themselves, then the results obtained will be faithful and durable in memory. Learning experiences that children find themselves are learning experiences that are truly mastered and



are easy to use or transfer in other situations.

In other words learning will be meaningful if students are actively involved and directly observe both physically, mentally and emotionally during the learning process. The development of children's potential needs to be carried out intensively in such a way including developing cognitive, especially the introduction of science which has a very important role in helping to develop the basic abilities and formation of human resources expected in the future. In the introduction of science, teachers need to understand the characteristics of children and the environment and become a starting point for learning so that children easily understand the concepts of science as proposed by Akerson and Donnelly (2011) that teaching science in early childhood does not have to wait for children to develop. Linking science to science from an early age will enable students to continue to develop science from time to time to increase science understanding until high school graduation.

Science is very close to the lives of early childhood. For children learning science is everything that is amazing, something that is found and considered interesting and gives knowledge or stimulates it to find out and investigate it so that by learning science get the truth and develop the ability to think. Learning science from an early age begins by introducing nature by involving the environment to enrich children's experiences. Piaget in Suyanto, (2005: 76), revealed that science introduction activities for children aged 5-6 years should be adjusted to the level of child development, kindergarten children are in the preoperational and concrete

operational development phase. For this reason, science activities should have criteria that are adjusted to the level of development, including the following:

- 1) Causal relationship is seen directly. Children aged 5-6 years still find it difficult to connect causes and effects that are not seen directly because of their transductive thoughts.
- 2) Allows children to explore. Science activities should allow children to explore various objects that are around it.
- 3) Allows children to construct their own knowledge. Science recognition activities are not enough to tell the definition or names of objects, but allow children to interact directly with the object and obtain knowledge with various senses from the object.
- 4) Allows children to answer the problem of "What" rather than "Why". Children's limitations connecting cause and effect makes it difficult for him to answer the question "why". The question must be answered with the logic of cause and effect thinking. It will not be answered by children.
- 5) Put more emphasis on the process than on the product. Conducting exploration activities with objects around is more fun for children. The child does not think the results. Therefore, there is no need for teachers to teach children with various scientific concepts.
- 6) Enables children to use language and mathematics. Children can share the results of exploration with friends through language. The child takes measurements, use numbers, and read numbers (mathematics).

Presenting interesting activities (the wonder of science) with nature and its problems. Correct procedures and techniques in recognizing nature and their phenomena are introduced by means or



processes that uncover true science, such as the process of observing, classifying, reasoning, measuring, describing, explaining, asking important questions about nature, formulating hypotheses, designing investigations including experiments. Suyanto (2005: 163) argues that the introduction of science to early childhood is carried out to develop the following abilities: (1) exploration and investigation, namely activities to observe and investigate objects and phenomena that exist in nature; (2) developing basic science process skills, such as observing, measuring, using numbers, and communicating observations; (3) develop curiosity, pleasure, and want to do inquiry and discovery activities; (4) understanding the knowledge of various objects both their characteristics, structure and function.

Discussion

The implementation of learning in children to introduce the concept of science carried out three times a meeting. Learning content is designed in such a way that science learning objectives are achieved through simple science experiments by utilizing the conditions of the school environment. The first meeting, learning to introduce science about sinking and floating. The teacher prepares the tools and materials that will be needed in observation. Before the child enters the room, the teacher has placed it on the table of each group according to the number of groups. The teacher does a demonstration first to stimulate the child to be curious and ask questions.

When the teacher conducts an experiment by putting salt into one of the glasses filled with water and then entering the egg and then observing the position of the egg, the child looks surprised and amazed to see the difference in the position of the egg ie the egg dipped in white water is at the bottom of the glass while the egg dipped in salt water is above the water

surface . Before the children explore, the teacher invites children to observe the tools and materials that have been provided by direct holding, kissing, touching or pressing to distinguish the materials provided. Then the teacher invites to experiment on the materials that have been provided. Some children still look stiff and are afraid to touch the tools and materials provided even though the teacher has directed the children. At this first meeting, only one or two children were interested in conducting the experiment, the teacher who dominated revealed the results of the experiment, the child looked passive, ashamed, afraid of being blamed by the teacher so the learning seemed passive.

The second meeting in this science learning about mixing primary colors (red, yellow, blue) produces secondary colors (green, orange, purple). As with previous learning the teacher prepares the tools and materials that will be needed in observation. Before the child enters the room, the teacher has placed it on the table of each group according to the number of groups. The teacher demonstrates to stimulate the child to be curious and ask questions. When the teacher conducts an experiment by mixing the blue color into a glass filled with water and the red color into a different glass then the results of the mixing are combined, red and blue, it will form a new color, purple. Seeing the experiments conducted by the teacher, the children looked amazed and considered like sulab. The teacher explains the results of the experiment. Furthermore, children are invited to observe tools and materials by touching, touching, mentioning what they see on the table. Without hearing the cue again the child immediately conducts an experiment to mix the colors that have been provided. At this meeting some children began to be interested and curiosity arises to conduct further experiments.

The third meeting in learning science is about observing melting and non-melting



objects. The class is ready to start learning so the teacher does a demonstration to stimulate the child by heating a piece of wax on a low flame so that the piece of wax will turn into liquid that was once solid. Seeing the experiments conducted by the teacher, the children were surprised and asked the teacher because they thought the event was like magic. The teacher explains the cause. Children look very happy, enthusiastic, compete to answer the teacher's questions and some children even ask questions to the teacher if they do not understand. Children do the experiment carefully because this third meeting, learning looks challenging because it uses a small fire. However, because children are used to previous experiments, learning can be well controlled.

The children already understand so that without a fight but regularly children move the materials to the containers that have been provided. When communicating the results of experiments the child looks enthusiastic, always wanting to be the best and competing to answer the teacher's questions. Sometimes children ask questions that make teachers feel overwhelmed answering children's questions. At this meeting the children were also more intrigued, and interested in joining the next science learning. Assessment of the development of children's abilities to recognize science concepts is carried out while learning is in progress. For pre-test data taken at the first meeting of learning and post-test data taken at the third meeting.

Conclusion and Suggestion

Suggestions that can be put forward from the results of this study include: (1) for schools that want to introduce science to children with other themes then can use learning by conducting simple science experiments, (2) subsequent studies are expected to use learning by conducting simple science experiments in places,

different school areas so that their application to different conditions with the same results.

Bibliography

- Gijlers, H., and Tong de Jong. 2005. The relation between prior knowledge and students' collaborative discovery learning processes. *Journal of Research in Science Teaching*, 42, 264-282
- Nugraha, A. 2008. *Pengembangan Pembelajaran Sains Pada Anak Usia Dini*. Bandung: Jilsi Poundation.
- Osakwe, R. N. 2009. The Effect Of Early Childhood Education Experience On The Academic Performances Of Primary School Children. *Studi Home comm Sci*, 3(2): 143-147.
- Sugiyono. 2010. *Metode Penelitian Pendidikan*. Bandung: Alfabeta
- Supardi. 2013. *Aplikasi Statistika Dalam Penelitian (Konsep Statistika Yang Lebih Komprehensif)*. Jakarta: Change Publication.
- Suyanto, S. 2005. *Konsep Desain Pendidikan Anak Usia Dini*. Jakarta: Depdiknas.