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Analysis Of Early Childhood Natural Science Learning Strategies At TK IT Nurul Fikri Selong

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Abstract

This research aims to describe Early Childhood Science learning strategies at the TK IT Nurul Fikri Selong. This type of research is quantitative-qualitative descriptive (mixed method). Data collection techniques in this research used observation, interview, and documentation techniques. The results of this research show that teachers at TK IT Nurul Fikri Selong present science learning using simple experimental methods. The results of observations made by two observers regarding the facilities and infrastructure as well as the learning process showed that the criteria for learning implementation and the availability of infrastructure were in the good category. The results of this research also show that science learning can stimulate brain development in early childhood. The obstacle faced by teachers in science learning is directing students to carry out experiments in an orderly manner.

KEYWORDS: Strategy, Science Learning, Early Childhood Development.

INTRODUCTION

Early childhood education is an educational unit that aims to prepare children to enter school. Students at the early childhood level range from 4-6 years old. At this age, the learning methods used by teachers must be varied and innovative so that preschool children can follow the learning optimally. Early childhood learning emphasizes providing stimulation to improve children's physical and spiritual growth and development, one way is to introduce various fields of education so that students can find their interests and talents through these fields (Magfiroh & Suryana, 2021).

The field of education that needs to be introduced to early childhood is the field of science education which is often forgotten at the early childhood education

level because it is rated too high and is therefore difficult for PAUD class students to follow. Science education at the early childhood level emphasizes processes rather than products so that young children can understand several aspects of life through understanding science. By emphasizing the value of the scientific process, students will get used to working procedurally in solving various problems in real life.

Science learning in Early Childhood Education (PAUD) is an important step to form the foundation of children's science knowledge from an early age. In an era of open information like today, learning methods and strategies have undergone a major transformation with the presence of new innovations in the world of education. Science learning not only affects the way children learn, but also creates new opportunities for self-development and a more interactive and interesting learning approach (Windayani, 2024). Science education in PAUD plays a crucial role in developing critical and logical thinking patterns in children. Children who are introduced to science concepts from an early age tend to be better prepared to face academic challenges in the future (Bredekamp & Copple, 2009).

Students at preschool level such as early childhood basically have instinctive scientific skills, but they need to be directed to better understand the surrounding environment through a scientific approach and one part of the ecosystem that must interact with various living and non-living components in the surrounding environment. Science learning in early childhood should be given a different emphasis so that they have the motivation to follow the learning process.

This interactive and engaging learning approach can not only increase children's interest and motivation in learning science, but also has the potential to strengthen memory and understanding of more complex concepts Merchant et al., 2014). TK IT Nurul Fikri Selong is one of the schools with a fairly good quality of learning. The learning ecosystem shown by the teachers has a fairly good culture. So the researcher determined this school to analyze the science learning strategies applied by its teachers.

METHOD

The type of research used in this research is descriptive qualitative-quantitative research (Mixed Method), namely research that combines qualitative and quantitative analysis methods (Waruwu, 2003). This research uses two approaches at once, namely a qualitative and quantitative approach.

Data collection techniques use observation, interviews, and documentation. The objects of this research were class B students at TK IT Nurul Fikri Selong. The data obtained using observation techniques is the teacher's teaching strategy on science material and science learning infrastructure. This observation method is assisted by an observation sheet to make it easier for observers to supervise the teaching and learning process. The data obtained in this observation is quantitative data with a score of 0 – 3 which means not available/not carried out, poor, good, and very good.

The next data collection technique is an interview aimed at collecting data

from teachers, school principals, and education staff regarding teacher strategies and the completeness of infrastructure in presenting science material to early childhood. The questions provided in this interview relate to strategies for teaching science, the learning tools used by teachers, and the facilities provided by the school. The subjects to be interviewed are school principals, teachers, and education staff. Meanwhile, the documentation method aims to collect supporting data such as student attendance, student learning outcomes, and an inventory list of school learning infrastructure. The data obtained through this interview is qualitative.

The data in this research was then analyzed according to the type of data. Qualitative data was analyzed using the Miles and Huberman approach, namely data collection, data reduction, and data presentation (Miles & Huberman, 1984). In general, qualitative data analysis techniques can be seen in Figure 1.

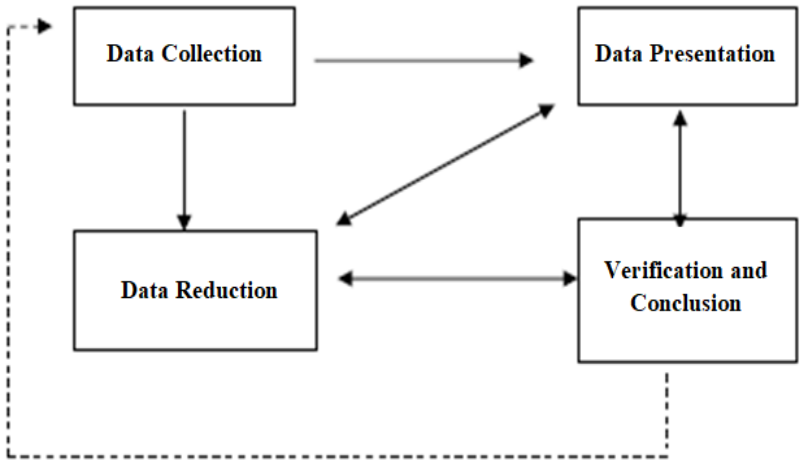

Figure 1. Data analysis techniques

The data in this research was then tested for validity using triangulation techniques. The triangulation techniques used in this research are subter triangulation, method triangulation, and theory triangulation.

Meanwhile, quantitative data was analyzed using Microsoft Excel software by analyzing the values given by two observers who used the same observation sheet.

RESULT ANDA DISCUSSION

Learning Facilities and Infrastructure

Teaching and learning activities in every educational institution from early childhood to tertiary level will be influenced by several factors, including; teacher competency, learning environment, and learning infrastructure. This is in line with the statement expressed by Nabilah and Abadi in their research which describes the factors that influence student learning outcomes, including; Teachers' self-motivation and teaching methods (Nabilah & Abadi, 2020), as well as when science learning activities are carried out in early childhood, are also inseparable from

these factors. The results of observations related to science learning facilities and infrastructure at TK IT Nurul Fikri Selong can be seen in the following graph. into the table/figure as in the example in Figure 2).

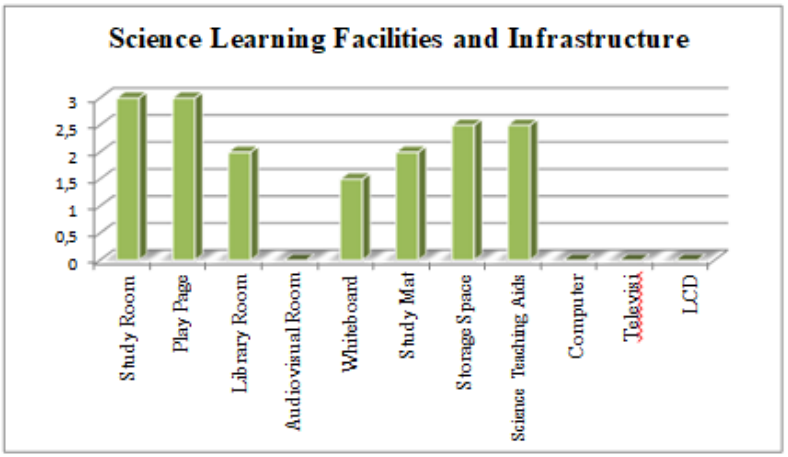

Figure 2. Condition of Science Learning Infrastructure

The graph presented in Figure 2 shows the condition of science learning facilities and infrastructure at TK IT Nurul Fikri Selong. A score of 3 is given if the facilities are available, in good and sufficient condition, a score of 2 if the facilities are available, the condition is good but insufficient, a score of 1 if the facilities are available, the condition is damaged and insufficient, and a score of 0 if the facilities are not available. There were 11 items observed by two observers including the study room, play yard, library room, blackboard, desks and chairs or study mats, storage room, science APE, computer, television, and LCD at TK IT Nurul Fikri. These components are deemed necessary to be prepared before carrying out early childhood science learning activities, because learning facilities and infrastructure have a positive and significant influence on student learning outcomes at school, and also influence teacher performance in conducting learning (Sopian, et al. 2023).

Student Study Room

The study rooms at TK IT Nurul Fikri Selong are well available and have sufficient room size. The study room has an attractive design to stimulate children's brains in learning, air circulation and lighting are also adequate. Such conditions will have a positive influence on teaching and learning activities in the classroom, including science learning. Apart from that, the classroom also has a positive influence on students' concentration levels in receiving learning (Ansrianti et al, 2020). Classrooms are equipped with blackboards, storage space, and sufficient seating. In the classroom, there is also adequate science APE available to carry out simple science experiments. However, this class is not yet equipped with televisions, computers, and LCD that can be used for audiovisual-based learning that can show various simple scientific phenomena in nature.

Figure 3. Classroom Conditions

Schoolyard

Apart from the classroom, science learning can also be done in the park or school playground. several science experiments must be carried out in the open yard. The condition of the TK IT Nurul Fikri playground is good and has sufficient area. This play yard is also equipped with various play facilities that function to improve students' gross and fine motor skills, such as swings, seesaws, stairs, and so on. The play yard at this school is given a variety of colors to increase children's motivation in teaching and learning if the play yard is used as a location for science experiments. The color component is one of the important things in science learning. Through science experiments, children can get to know clothes, such as the experiment of making a rainbow (Amantika et al, 2022).

Figure 4. Play page

Science Learning

The learning process is all activities carried out by teachers and students in teaching and learning, including learning related to science. The observation results obtained from the teaching and learning process can be seen in the following graph.

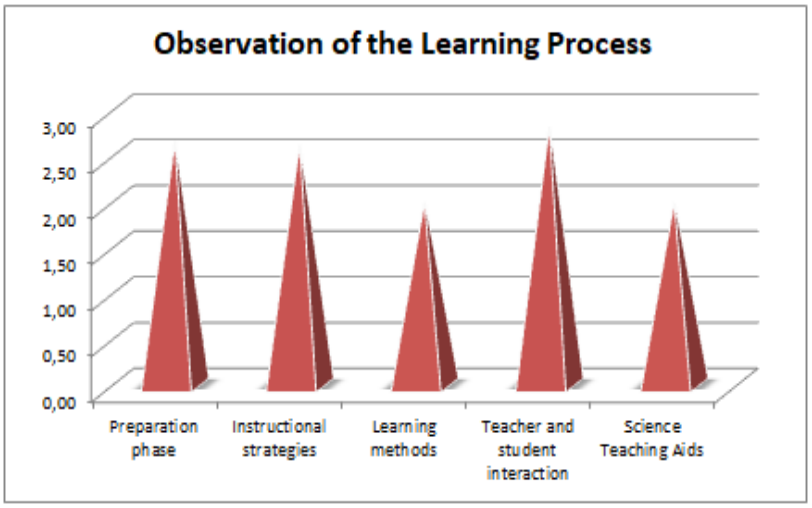

Figure 5. Observation of the Learning Process

The science learning process is a branch of knowledge that cannot only be conveyed with material, but requires experimentation in delivering the material so that it can be understood optimally by students. Science experiments are a good strategy to stimulate brain function in young children. The graph shown in Figure 5 shows the science learning process at TK IT Nurul Fikri. A score of 3 is given if the stage is carried out very well, a score of 2 if it is done well, a score of 1 if it is not done well, and a score of 0 if it is not done. In general, the science learning stages at TK IT Nurul Fikri were carried out well (Hadi et al, 2021).

In this research, science learning activities carried out at TK IT Nurul Fikri were observed through several items, namely: (1) Preparation stage; (2) Instructional strategies; (3) Learning methods; (4) Interaction; (5) Learning media.

This preparation stage is related to the suitability of the theme to the material, the selection of teaching materials presented in the learning process, and the selection of activities in the learning process.The science center teacher at TK IT Nurul Fikri prepares lessons well before entering class, such as preparing tools and materials used for science experiments. Based on the results of interviews conducted by the Principal, it was revealed that "teachers at TK IT Nurul Fikri prepare teaching materials for one week on Saturdays. "In this way, teachers can focus more on preparing teaching materials because on Saturdays there is no teaching and learning process."

This was confirmed by one of the Class A1 teachers who stated, "Saturday is the place where we usually prepare the materials that must be taught for one week. Due to the regulations at this school, Saturday is a learning holiday but teachers still come in to carry out various activities including preparing tools, materials and material to be taught. And most of the materials come from teacher creativity and sometimes collaborate with guardians to prepare the materials." It can be understood that preparations made by teachers, and collaboration with guardians will make learning easier, in line with what Novitawati stated, preparation for

school is very important for children, and these efforts should be started as soon as possible. School readiness at an early stage can have a significant impact on later development. Every element involved, both in the school environment and at home, namely student guardians, has a big role in providing support to children so they are ready to face school challenges (Novita, 2013). In addition, teachers have the responsibility to create a supportive environment, including preparing places and play activities that can stimulate children's school readiness. In this way, teachers can help children feel comfortable and ready to learn. The overall contribution of elements around the child, including parents, is very important in forming a positive foundation for the learning process at school.

Instructional strategy is a method of learning that is related to organizing teaching and learning to achieve predetermined goals. TK IT Nurul Fikri in this case, especially educators do this with indicators, which consist of; attention to individual differences, classroom organization, initiative, and learning climate in the classroom. The instructional strategy in science learning at TK IT Nurul Fikri is quite good by paying attention to individual student differences, learning climate and class organization. Teachers begin learning by checking the mental readiness and learning equipment of students one by one without exception. Individual differences usually arise from hereditary and environmental factors that cause each individual to be unique. Therefore, teachers must be able to facilitate each of these differences (Turhusna & Solatun, 2020).

Learning methods are related to the methods or techniques used by educators in delivering learning material with indicators including; selection/use of learning methods used, and accuracy of use of learning methods. The choice of learning method used by the teacher is a student-centered learning method. Science learning should be facilitated with a constructivist learning model so that students can construct their knowledge (Hadi, et al. 2018). Based on the results of joint interviews with science center teachers, it was revealed that in presenting science material, teachers often use mixed learning models, meaning that existing learning models are combined to form student-centered learning methods. Therefore, the results of observations on teacher and student interaction items received high marks in the good category. This is evident from the students' high enthusiasm for trying various science experiments provided by their teacher.

Figure 6. Student activities carrying out science experiments

Interaction is a social activity carried out between educators and students in the implementation of learning with indicators namely interaction qualifications in science learning, children's involvement in activities, and group activities. The results of observations carried out by researchers found that science learning carried out by educators at PAUD institutions increased the interactions carried out by students with other students and teachers in the class. This is also supported by the results of interviews with accompanying teachers in the class who revealed, "science learning activities related to nature, students' enthusiasm and curiosity are very great so they are very involved in learning activities and indirectly learn to work in groups"

Learning media in this case is related to APE owned by educational institutions with indicators namely suitability of APE to science learning, and assessment according to science learning material. The science learning media or APE used is available in each class. The teacher just needs to use and adapt it to the theme being taught that day. Based on the results of interviews with the deputy principal, he stated that "learning media is often created by the teachers. "For students to gain more experience, teachers sometimes take students directly to visit farms, rice fields, or other places that allow students to explore their knowledge to the fullest." Learning that uses nature as a medium has high effectiveness in exploring and developing knowledge. In this context, students can feel, see, and even carry out direct activities, which directly contribute to students' understanding (Evayani, 2020). Learning outside the classroom does not only mean moving learning material outside but rather inviting students to interact with nature and observe objects around them. This aims to create a deep understanding in students (Waite, 2011).

CONCLUSSION

Natural Sciences or Science is one of the lessons that can be used to stimulate early childhood development. Teachers at TK IT Nurul Fikri Selong present science learning using simple experimental methods that are easy for young children to understand. The experimental media was designed by the

teacher himself using items that were easily found. Science experiments are used to present material on the themes of the earth, environment, and other themes that can allow for the insertion of science experiments in them. The obstacle faced by teachers in science learning is directing students to carry out experiments in an orderly manner.

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