Nature Exploration: A Creative Method to Enhance AUD Science Understanding

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This study aims to improve the science knowledge of students at PAUD Melati 08 Menteng, Central Jakarta, through the application of the environmental exploration method. The study was conducted using the Classroom Action Research (CAR) method with a quantitative and qualitative approach. The subjects of the study were 12 students from Group B. The data analysis technique used was descriptive percentage to measure the development of science knowledge and descriptive activity to analyze children's involvement during learning. Data validity is based on content validity.
The results of the study showed a significant increase in students' scientific knowledge after using the environmental exploration method. In the initial conditions, the average percentage of children's scientific knowledge was 43.4%. After the implementation of the actions in cycle I, the percentage increased to 45.2%. Furthermore, in cycle II it increased to 60%, and in cycle III it reached 78.2%, which was the expected target.
This increase shows that environmental exploration as a learning method is effective in improving early childhood science knowledge. This success is influenced by the teacher's ability to plan, implement, and evaluate learning systematically, using methods that are in accordance with the curriculum. Therefore, the environmental exploration approach can be used as an appropriate strategy to improve science knowledge at the early childhood education level.
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1. Introduction

Early Childhood Education (ECD) is an important foundation in the formation of children's character and knowledge. At this stage, a direct experience-based learning approach, such as nature exploration, plays a significant role in improving children's understanding of science. Nature exploration allows children to learn through direct observation, interaction, and experimentation in the surrounding environment, thus creating a deeper and more enjoyable learning experience.

Nature exploration in early childhood education has been proven effective in connecting children with science concepts naturally. Research shows that this activity not only broadens children's insight into the environment, but also improves their analytical skills, creativity, and curiosity about natural phenomena (Yeni Rachmawati & Euis Kurniati, 2011). In addition, this method helps children to

understand the relationship between humans and the environment holistically, while fostering a sense of responsibility for nature conservation (Ali, 2023).

education supports the cognitive, emotional, and social development of early childhood, including the development of scientific skills through outdoor activities.

Nature exploration methods often involve activities outside the classroom, such as observing plants, studying animal characteristics, or exploring water resources. These activities provide opportunities for children to experiment, ask questions, and solve problems directly. On the other hand, the involvement of teachers as facilitators is very important in providing appropriate guidance during exploration, including maintaining children's safety during activities (Fitrianingtyas Palupi, 2023; Jurnal El-Audi, 2021).

Studies conducted in various PAUD institutions also show that environmental exploration is effective in improving children's understanding of basic science concepts. For example, this approach has succeeded in improving children's understanding of the characteristics of living things and natural processes through direct observation (Nina Veronica & Sofi Yunianti, 2023). In addition, nature exploration also contributes to the development of children's character, such as perseverance, sense of responsibility, and ability to work together.

The importance of nature exploration in AUD education lies not only in the cognitive aspect, but also in the child's ability to enjoy the learning process in a fun way. Positive memories formed during exploration activities will help children to be more interested in science in the future, which can ultimately support the development of superior human resources in the fields of technology and science (Jhonson, 2011; Ali, 2023).

Thus, nature exploration is not only a creative method, but also an effective means of preparing early childhood to face more complex educational challenges in the future. This study aims to review further how the nature exploration method can be optimally implemented in PAUD institutions to improve early childhood science understanding.

benefits of nature exploration in early childhood education (ECE), including social, emotional, and cognitive development. Outdoor learning environments rich in natural elements have been shown to improve the quality of ECE education, yet are often overlooked in education policy. This article provides recommendations for increasing access to nature-based learning spaces to support children's holistic development.

A systematic review of studies suggests that ECE nature-based education has positive associations with children's social, emotional, and cognitive skills. The study identified that interactions with nature can strengthen children's self-regulation, connectedness to nature, and creativity. Despite the positive results, more high-quality experimental research is needed to confirm the impact. This book provides practical guidance on how to encourage creative exploration outdoors to support children's science development. The authors emphasize that nature provides unique learning opportunities that cannot be found in traditional classrooms. This is relevant for ECE who are still at the sensory and imaginative exploration stage. Children's Play in Natural Environments: Implications for Early Childhood Education”

This study discusses how exploration of natural environments can strengthen children's problem-solving and scientific thinking skills. The author highlights the importance of integrating natural elements into the AUD curriculum to foster curiosity and critical thinking skills.Outdoor Play and Learning in Early Childhood: Supporting STEM through Nature”

2. Method

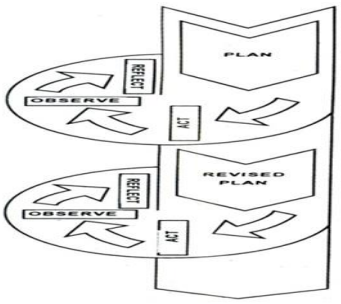
The action research conducted in this study is classroom action research. Classroom action research is a research that aims to improve and enhance the quality of learning in the classroom. The procedure for conducting classroom action research is through several stages, including a) planning, b) action, c) observation, d) reflection. The model used in this study is the Kemmis and Mc Taggart model.

Figure 1
Action Research Spiral ModelAccording to Kemmis and Mc.Taggart

This classroom action research was conducted at PAUD Melati 08 JL Kalipasir Gg Eretan RT 010/ RW 08 Menteng Central Jakarta due to the low science skills of children aged 5-6 years. This classroom action research was conducted in the middle of the semester. II, to improve science skills as preparation for entering further education. The researcher will conduct the research for approximately 2 months in July-August 2024. This research consists of 3 cycles, each cycle is carried out in 4 meetings. The stages passed in classroom action research, namely: 1) Planning or preparation of action, 2) Implementation of action, 3) Observation and interpretation, 4) Data analysis, reflection. The place where this research was conducted was PAUD Melati 08 Menteng . The number of children was 12 children.

Cycle 1, introduces children to types of fibrous and single rooted plants, so that children can understand the similarities and differences between these types of plants. The implementation stage in cycle two is the process of planting fibrous and single rooted plants. The implementation stage in cycle three is the teaching and learning process with the activity of planting fibrous and single rooted plants. The teacher shows a demonstration and gives examples.

Table 1
Action Teacher Ability Observations



No	Aspects observed	Category
1	Create a Daily Activity Plan according to the	B
2	Carry out activities according to planning	C
3	learning principles	C
4	Do evaluation learning	C

The data collection techniques used are: observation, interviews and documentation.

Science Ability Observation Grid

Variables	**Sub Variables**	**Indicator**
	a. Observation	a. Children are able to use their five senses to observe objects. b. Children are able to collect and use relevant facts

Science Ability	a. Communicating	a. Children ask about the differences between objects presented by the teacher. b. Children are able to mention the similarities of objects presented by the teacher. c. Children are able to mention the characteristics of objects presented by the teacher.
	b. Test	a. Children are able to use tools and materials well b. Children are able to know why to use tools and materials

Then, according to Anas Sudijono, to determine the success of teacher activities and children's science abilities during the learning process, it is processed using a percentage formula, namely as follows:

$$\mathbf{P = F/N \times 100\%}$$

Information:

F = Frequency whose percentage is being sought

N = *Number of Cases* (number frequency / quantity individual)

p = Percentage number

100% = Theta Number p

At this stage, researchers can draw conclusions or verify. Drawing conclusions is an activity in forming a complete configuration. Initial conclusions can be temporary and can still change if no strong evidence is found that can support the next data collection stage. But if at The initial conclusion is that valid evidence has been found, so the conclusion put forward is a credible conclusion.

Data analysis techniques in this study include data reduction, data description, data verification, and data validity. The criteria for data success are at 80% (Wina Sanjaya, 2015)

3. Results and Discussion

3.1 Results

Research result knowledge child educate obtained with procedure action study class through implementation method exploration environment around For increase knowledge science child Educate PAUD Melati 08 can be described as following **.** The following are the results of observations of teachers while teaching in class.

This indicator apparently did not get much attention in class group B. The observation results showed that the indicators above for half a semester or 3-4 months, group B only received teaching twice. Ideally, this indicator can be given one theme at least

three times, so so far it should have received 6 times. The next observation result is the evaluation result of indicators no. 1, 2, and 5 that have been achieved by group B from 12 PAUD group B children who obtained full round scores as many as 2 children, who obtained check marks as many as 5 children and 5 received empty round scores. Or if in a percentage statement, the success of achieving the indicators above is only 31%. With the observation table we can see as follows.

4. Table 3

Results of Observations of Children's Science Knowledge before Action

Indicator	Observation result				Completed Amount	%
	1	2	3	4		
1. Point to and mention as many characteristics of the object as possible.	2	4	4	2	6	50%
2. Knowing equality second object .	4	3	3	2	5	42%
3. Knowing difference second object .	6	2	2	2	4	33.3%
4Finding characteristic features his discovery Alone	4	2	3	3	6	50%
5. Telling his knowledge and experience	5	2	2	3	5	42%

Description of the data from the application of the environmental exploration method to improve science knowledge in cycle 1 is: Based on the implementation of cycle 1, out of 12 children, there are those who have achieved maximum ability, although only a few children. The percentage of children's achievement in their science knowledge is 41%, thus there has been a 10% increase from the original 31% in the pre-cycle or before the action was taken. Although it has shown an increasing change, further action is still needed in cycle II in order to achieve the success indicator.

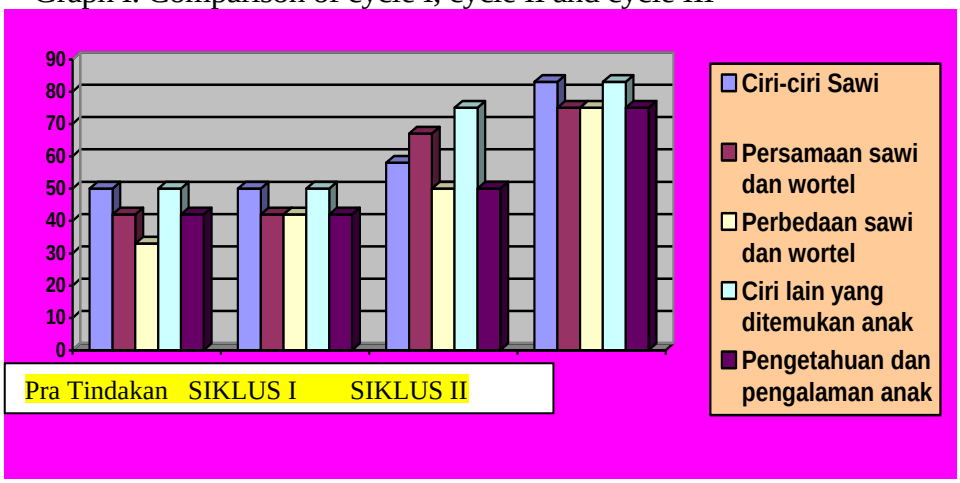
The results of the implementation of the action in cycle II were better than cycle 1. The percentage of children's achievement in science knowledge was 59%, meaning that there was an increase in students' science knowledge by 18% from the original 41% in cycle I. However, the results of cycle II still need to be followed up with the provision of action. So a third action or cycle III is still needed, because it has not reached the minimum success indicator or it is expected that more than 75% of PAUD Group B children have very good knowledge.

Cycle III Reflection Description of the implementation data on children's science knowledge on the theme of plants through the environmental exploration method is as follows: There are 12 students who have participated in the environmental exploration activities in cycle III and can follow them well. In the activity of researching carrots and mustard greens in cycle III, 75% or 10 children have been able to point and mention as many characteristics as possible. This shows that the use of the environmental exploration method in teaching and learning activities has been able to improve the abilities of students at PAUD Melati 08 Menteng in science

knowledge. The success of solving problems that occurred in group B PAUD Melati 08 cannot be separated from the teacher's ability to use the environmental exploration method. In this cycle, the teacher is good at compiling, planning, implementing and evaluating well in playing and learning activities with the environmental exploration method.

The results of the implementation of pre-action, cycle I, cycle II and cycle III can be seen in the table below.

Graph I. Comparison of cycle I, cycle II and cycle III



5.

3.2 Discussion

out in 3 cycles because children still need conditioning on this method and teachers need consolidation in implementing it. That is why classroom action research here cannot be carried out in just 1 or 2 cycles.

Educators are those who are responsible for the implementation of education. In Early Childhood Education, PAUD teachers are responsible for guiding children's learning according to the characteristics of the child's needs and development, as well as creating enjoyable learning activities.

Directed reciprocal communication between students and teachers is very important in achieving educational goals. For example, in PAUD education, interaction occurs when teachers guide children to play and learn in fun situations or in a learning environment that has been arranged in such a way that it allows children to learn while playing and playing while learning

6. Conclusion

The improvement of science knowledge of students of PAUD Melati 08 Menteng through learning with the method of exploring the surrounding environment has been proven by the results of observations on the activeness of students in expressing their science knowledge in cycle I, cycle II and cycle III. The ability of teachers in teaching with the method of exploring the surrounding environment in cycle I, cycle II and cycle III gets a good category of application to students, so that in this study the teacher successfully applied this method.

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