Ecology-Based Outdoor Activity As an Early Childhood Learning Strategy In the Aftermath of the COVID-19 Pandemic

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***Abstract*— The impact of the COVID-19 pandemic on the world of education has been extraordinary. Learning at school is not running optimally. As a result, there is a decrease in the ability of knowledge and skills (learning loss) in students. Early childhood loses the opportunity to stimulate all the senses in their learning environment. In the period after the COVID-19 pandemic, early childhood needs activities that are able to increase their ability to build knowledge and skills from their learning *experience.* This study was conducted to analyze the ecology-based outdoor activity learning strategy in PAUD in the period after the COVID-19 pandemic. It is hoped that cognitive, motor, language and social-emotional development can be further honed and there will be improvements. This research was conducted at an early childhood education institution in the city of Cimahi. Using descriptive qualitative research methods, based on the constructivism paradigm, the researchers collected data through interviews and observations of relevant sources. Data analysis was obtained by induction to facilitate researchers in compiling more accurate research results. The triangulation technique was carried out to check the validity of the data by comparing the results of interviews and observations. Through FGD researchers get final conclusions that are relevant to the conditions in the field. The results of this study show that most of the cognitive, motor, language and socio-emotional development of early childhood after the pandemic experienced significant development through ecological-based outdoor activity learning strategies. The results of this study can be used as reference material in determining various learning strategies adapted to the situation and conditions of each institution.**

Keywords: ***Ecology, Learning Strategy, Outdoor Activity***

I. INTRODUCTION

The COVID-19 pandemic has made many changes in various sectors of life in the world, including the education sector (Daniel, 2020). By utilizing advances in communication technology, learning in classrooms is replaced by learning in virtual spaces via the internet or distance learning. It is hoped that the learning process can continue and the learning objectives can be achieved (Lubis, 2020). However, in practice, distance learning faces many obstacles. Many students are unable to carry out distance learning because they do not have adequate devices, no internet access at home or because the home environment is not conducive (Jalongo, 2021). This condition causes learning loss in school-age children which is marked by a decline in the academic process, namely children begin to lose knowledge and skills (Engzell et al., 2021). One of the causes of learning loss is due to the lack of face-to-face activities (Donnelly & Patrinos, 2021). This shows that students are not familiar with distance learning culture. They are more ready to learn by interacting directly with teachers and friends at school (Winarti et al., 2021).

Education is a process of developing individual competencies by utilizing the potential of nature and optimizing the potential of the surrounding environment (Izza et al., 2020). A meaningful educational process is a learning process that is able to provide an interesting learning experience. Outdoor activity is a learning method that provides a lot of experience with a variety of varied and interesting activities (Yildiz, 2021). In line with the introduction of a limited face-to-face learning policy, at the

level of early childhood education, educators began to think about learning strategies that were adapted to the unique conditions and characteristics of students. The learning approach must be active, creative, happy and happy, prioritizing aspects of playing, having fun and working together. Outdoor activity is believed to be a very enjoyable activity, and can increase awareness, cognitive, social emotional and physical motor skills, the ability to determine cause-and-effect relationships, observation skills, creative thinking skills, concentration and imagination (Yıldırım & Akamca, 2017).

Efforts to create an environment that supports the learning process to achieve effective learning objectives require a learning strategy (Purwanto, 2021). It begins with choosing a learning approach that is appropriate to the problems that arise, concepts, understandings and theories that support it. Furthermore, establish procedures, methods and techniques that can motivate students to apply their knowledge and experience in solving problems, encouraging students to be able to think and dare to have an opinion. and the next step is setting norms and evaluating learning outcomes to assess the success rate of implementing the program (Hidayati, 2021, p.3). It can even indicate the specifications and qualifications of the behavior change to be achieved. Learning strategies are designed by taking into account the developmental aspects needed by students, because in essence the learning strategies prepared must involve integrated collaboration between educators and students.

Educators can take advantage of the outdoor environment to ignite the involvement of students and increase their motivation. In addition, they can also provide meaningful experiences with children's imaginations and games, thereby stimulating the emergence of many creative ideas for students (Lindfors et al., 2021). Outdoor activities must be directed and relevant to the needs of students. Interesting learning, from static to dynamic, providing the freedom to explore (Ramdhania & Windarsih, 2020) will be able to motivate students to return to school activities.

Kurniati, et al.'s previous research related to ecology was described through the formation of a character who cares about waste in elementary school children. From a family perspective, Wijaya conducted a study on environmental literacy in Balinese families through ecofamily (Wijaya, 2019) conducted a study on ecofamily. Researchers have conducted research on environmental awareness to create green schools. A study of various outdoor activities was carried out by Yilldrim and Akamca for early childhood, in various activities (Yıldırım & Akamca, 2017).

This research focuses on learning ecology for early childhood in the context of recognizing food chain cycles that have never been introduced to early childhood. Supporting discussions lead to environmental care, waste processing and greening the surrounding environment. And how is it implemented so that it can minimize the symptoms of learning loss that occurred in the period after the COVID-19 pandemic.

II. METHODS

Ecology-based outdoor activity research as an early childhood learning strategy after the COVID-19 pandemic was conducted using a qualitative descriptive method. Researchers conduct investigations to understand natural conditions (natural setting) about what happened, why it happened and how it could affect the learning process of early childhood (Fadli, 2021). Based on the condition of natural objects, it can be said that the purpose of qualitative research is to find answers to a phenomenon according to scientific and systematic procedures (Sidiq, et.al., 2019, p.4). Qualitative research methods are very appropriate to use in this problem because they interpret various perceptions, motivations, behaviors and actions of students who are presented holistically and narratively (Yusuf, 2016). In qualitative research, the researcher acts as a key instrument. Researchers want to see and express the object of research in its context, find deep meaning about the problem at hand. The developed paradigms are constructivism and inductive logic. This paradigm was initiated that knowledge is not passed on from one person to another, but rather by building it (Vintere, 2018). Qualitative research based on the constructivism paradigm views that knowledge is the result of the

thought construction of the subject being studied, not only the result of experience with facts. The goal of constructivism is to construct a situation from the point of view of the participants. Interactions in social life, historical and cultural norms that exist in their lives can foster a diversity of realities (Cresswell, 2015).

The research design developed during the research process with an inductive approach where researchers developed theories and patterns of meaning (Batubara, 2017)). Data about situations, activities, phenomena are described descriptively. This approach emphasizes the importance of one's subjective experience and social reality which is assessed as one's creation by giving meaning and evaluation personally and subjectively constructed. The data is then analyzed using the relevant theories. The data collection technique used by the researcher in this study was through in-depth interviews, documentation, and participation observation.

This study identifies the problem of how an ecologically-based outdoor activity in the post-COVID19 pandemic can become a learning strategy that provides an interesting learning experience for early childhood, is able to stimulate children's curiosity, increase knowledge and insight, and improve students' skills to be practiced at home. environment. The study was conducted at an environmental-based early childhood education institution, involving 20 early childhood participants and 4 teachers. The purpose of this study was to see the extent to which ecology-based outdoor activity learning strategies can be applied at the early childhood education level, thereby opening up insight for other educators to be able to innovate in designing interesting learning strategies for early childhood. From the FGD with the Indonesian Pelmaculture activist community, researchers got data about the deep benefits of blessings, health and sustainable use of nature that can be conveyed to students in a fun way.

Data collection was carried out in stages over several research periods. Data collected and analyzed descriptively. By induction, the researcher collects detailed data/information through the interview and observation process, then divides it into several categories/themes. This theme can be developed into a generalization pattern.

III. RESULTS AND DISCUSSION

III.1 RESULT

The research was conducted at an early childhood education institution in the city of Cimahi, West Java. In the period after the COVID-19 pandemic, this institution carried out a Limited Face-to-face Learning program, in accordance with government recommendations by implementing health procedures of wearing masks, washing hands and keeping a distance in the room to minimize the spread of the COVID 19 virus. Early childhood children have little difficulty in distance thing. For this reason, more learning activities are carried out outside the room. The diverse tendencies of students when they return to school encourage educators to use learning strategies that are able to make the learning system in the classroom active and fun. Kemp in Santoso (2018) defines learning strategies must be carried out by teachers and involve students so that learning objectives can be obtained properly and correctly. Teachers must have the ability to develop learning strategies that are described in interesting learning plans for students (Wunu et.all, 2021). Learning strategies must be able to help students to develop their mindset, develop their potential and realize their existence in a pleasant environment (Kristiawan & Rozalena, 2017).

The study was conducted for 3 months. Researchers in collaboration with teachers divide the activities in the research plan as follows.

Table 1 Ecology-Based Outdoor Activity Research Plan

Month	Action	Research Object	Activity Time
July	Identify the needs of students	Students	Observation, documentation, assessment
	Preparation of Learning Strategies	Teachers, students	Observation, documentation
	My Environment is Balanced	Teachers, students	Observation, documentation
August	Building a responsible personality	Teachers, students and parents	Observation, interview, documentation
September	My Earth is Green	Teachers, students and parents	Observation, interview, documentation

The form of activities carried out includes 6 aspects of child development, namely:

Table 2 Aspects of Child Development

Aspects of development	Activity
Moral and religious values	Thankful for the sustenance from God in the form of fertile land
Cognitive	Counting the area of the garden, dividing the garden according to needs, reasoning and thinking power, and recognizing letter literacy in games
Language	Know the names of plants, discuss
Physical motor	hoeing, planting, watering, weeding plants
Socio-emotional	The art of gardening according to its type and characteristics,
Art	The art of gardening according to its type and characteristics

The six aspect of development were implemented in activities wtth three themes on three different days, namely:

Table 3 Daily Activities from My Green Earth Theme

Theme	Day	Advisor	Activity
water	Tuesday	Teacher 1	Get to know the water cycle
			Keep the water clean
			Science: simple filtering of water
the soil	Wednesday	Teacher 2	Get to know the organic cycle
		Teacher 4	Keeping the soil clean from pollution
			Science: recognize organic and inorganic waste
the air	thursday	Teacher 3	Get to know the oxygen cycle
			Keep the air clean
			Science: simple teaching aids about the process of breathing

Here are the daily activities from the theme build a responsible person. Its activities are processing organic waste, and utilizing inorganic waste. This behavior must become a good habit that is instilled from an early age so that it will continue to stick into adulthood (Kurniati et al., 2020).

III.1.1 Initial Identification

Observations began to see the responses and attitudes of children to the learning material provided. There are 20 students in this institution with a composition of 5 people in group B, 7 people in group A, and 8 people in the Play Group. The activities in the first week of teacher 1 (T1). teacher 2 (T2), teacher 3 (T3) and teacher 4 (T4) made anecdotal recaps which were concluded as follows:

Table 4. Attitudes of Students in the First Week

Activities in the classroom	Actively		
	Engaged	**Hesistating**	**Not responding**
Circle Time	All children	None	None
Pray	Class B	Class A	Play group
Duha prayer	Class B	None	Class A play group
Snack Time	All children	None	None
Storytelling about Cica Worms who lost their playmates because of a lot of garbage on the ground (building children's perceptions of the food chain)	None	All children	None
Outdoor Activities			
Looking for worms in the school garden	All children	None	None
Become a cleaning-loving 'ant army'	All children	None	None
Simulation of Cica Worms so as not to lose a playmate again (building children's knowledge of the food chain)	All children	None	None

The circle time activities in the classroom looked interesting and the children were actively involved. Children sing, move to the beat, and play a little in groups. When reading prayers and praying dhuha, the children can't be silent. Habits that had been formed at the beginning of school began to diminish because routine activities at school stopped and did not continue at home. Especially when storytelling activities about Cica the Worm use storybook media, the interaction tends to be one-way. The children are not enthusiastic, just silent and passive. Some children even start looking for activities on their own. The teacher directed him to refocus, but he could only hold on for a moment.

III.1.2 Outdoor activaties 1 : Save our soil

The following week, after the teacher designed a different learning strategy with the same material, the children became enthusiastic. Applying the story of Cica the Worm, the children are challenged to move looking for worms with their hoe and shovel, carefully moving them to the school garden area. From this activity, the children were directed to understand the role of worms in the environment. Associated with the story of Cica the Worm who lost her friends, because she accidentally swallowed a piece of plastic so she died, the children were excited to collect garbage in the school yard. Children begin to understand the function of worms to fertilize the soil. If the soil is not fertile, many plants die, the food chain will be broken, the life cycle is disrupted, the effect will be very dangerous for human life and other living things. From the observations of the teachers, the

children's enthusiasm rose when the activities took place outside the classroom. It turns out that many things children get when they are outdoors with activities they like. Material reinforcement is delivered when children are involved in activities and delivered by educators in a relaxed atmosphere.

Table 5.ECCE Learning Strategy Design

	Outdoor Learning Strategy		
Theme	**Balanced Environment**	**Building a responsible person**	**Green Earth**
Learning Materials	Cica Cacing story book School gardens	Used goods, food scraps, media for destroying organic waste	Books, film
Learning Activities	Get to know the food chain	Sorting and processing waste	Designing a vegetable garden Recognize the water cycle as the source of life
Tools method	Spades, hoes, cans Discovery learning	Customized Project learning	Plant seeds, growing media Role Play. Story telling
Learning resources	Surroundings, zoos	School environment	Books, films
Evaluation	Children are able to tell what they already know, Answering the question what happens if the environment is not balanced, what happens if nature starts to break down.	Children are able to recognize and place organic and inorganic waste Children begin to behave in reducing waste,	Children participate in planting, caring for, utilizing land for planting, behaving wisely with sources of life.

III.1.3 Waste management: "Where is my place?"

The child's learning environment inside or outside the school must be free of garbage. Involving students in protecting the environment turned out to be an interesting activity. children can be invited to get to know the various types of waste and how to deal with it.

Table 6. Waste Management

Waste treatment	Purpose	Method
Vegetable and fruit waste	Making eco enzymes	pieces of fruit skin and vegetable residue, mixed with brown sugar water, fermented for 3 months
Paper and cardboard	Making educational toys	according to the child's wishes
inorganic used goods	Loosepart	connect and combine materials into the desired object
Plastic wrap for dry food and drink bottles	Eco bricks	Cut plastic waste from small (dry) food and put it in plastic bottles.

In the activity of classifying waste. some children seem to be confused about the difference between organic waste and inorganic waste. As a result, green trash cans have more contents than blue trash cans or yellow trash cans. T2 and T4 helps children identify types of waste by doing a "Where is my place?" activity.

T4 gives the task to the child to carry the trash as follows:

1. Used beverage packaging (tetrapack)
2. Used snack food packaging (plastic)
3. Styrofoam
4. Waste paper
5. Leftovers
6. Fruit skins and vegetable pieces
7. Unused toys

The children were invited out of the room to an empty lot in the school yard. Then each child digs the ground and bury the trash he brought.

After 3 days the children were invited to reopen the hole and observe what happened to the trash they buried then the children also saw what happened on the 8th and 14th day. The results of his observations are contained in the table 4:

Table 7. Trash test "Where is my place?" activity

Activity	Observation Results		
	3rd day	8th day	14th day
Bury the tetrapack waste	No changes	No changes	No changes
Bury the plastic waste	No changes	No changes	No changes
Bury the styrefoam waste	No changes	No changes	No changes
Bury the paper waste	No changes	Starting to crumble	Destroyed but there are still pieces of it
Bury the food waste	Starting to crumble	Destroyed	Mixed with soil
Bury the fruit peels and vegetables waste	Starting to crumble	Destroyed but there are still pieces of it	Mixed with soil
Bury unused toys (painted wood)	No changes	No changes	No changes

Researchers conducted interviews with T4 about the target achievement of these activities. T4 displays as follows:

1. Children know the types of waste
2. Children understand the classification of waste and how to handle it
3. Children understand the consequences of organic and inorganic waste in the soil
4. Children can determine wrong and right behavior towards garbage.
5. Children can become agents of change in the environment around where they live (family and playmates at home)

This is the result Observations from the activity "Where Is My Place?"

Table 8. Children Behaviour After "Where is My Place"? Activities

Child's behavior	Always	Sometimes	Never
Dispose of waste according to its category containers	v		
Bringing a totebag as a substitute for a basket for additional containers/bags		v	
Picking up scattered trash	v		
Remind others to behave wisely towards the environment		v	
Bring food and drinks from home in a lunch box	v		

III.1.4 Gardening

Early childhood can be invited to understand how to save land by gardening and fertilizing it with organic fertilizer from waste processing (eco enzymes). The teacher (T1 and T3) chooses types of plants that are easy to grow, and the results can be harvested by young children. To monitor plant growth in the garden, students are invited to make a table of plant growth. Teacher 1 and teacher 3 guide children to make reports on plant growth. Tables are made in the form of pictures and numbers to make it easier for children to make reports. Besides that, the children were given the task of taking care of the garden in turn with the guidance of the teacher.

III.2 DISCUSSION

In the field, various phenomena of student behavior were found. It turns out that not all children like ecological-based outdoor activities. Children who like ecological activities, they are ready to face learning with structured assignments, such as reading, writing and arithmetic. The reason is because in their ecological activities they are required to report the results of their activities in the form of pictures or graphics, then they have to give names to the plant growth cards. The habit of writing starts from small things so that when they are ready to face structured assignments in class. (Kintu et al., 2017).

Children who like ecological activities, but do not like activities in class, still have a great curiosity about the natural surroundings, still need exploration. And in the end the child will be moved to start writing reports and making growth cards. The next goal is to lead children to start liking structured assignments such as reading, writing and arithmetic. Children who do not like ecological activities and activities in class, it turns out that they still feel uncomfortable going to school. This child needs support from home either in the form of physical or mental support to socialize in the form of story telling or motivation from people at home. Based on the activity “Where is my place?”, the early childhood behavior is generally easy to direct but also easy to change if they see the wrong example. Children must get experience first in order to easily understand the problem.

The researcher conducted a discussion group forum with the Indonesian Pelmacuture environmental activist community, Mira Wulandari and Anam Masrur from Yogyakarta, about fun and meaningful gardening activities for students. Although the results of the garden are not optimal, in the process the children really enjoy and understand the importance of loving the earth by gardening and exploring outside the classroom. This pelmaculture community focuses on agricultural design by prioritizing the interaction between ecosystem elements that are synergistic, collaborative, symbiotic and syntropic with a holistic design. So students, apart from getting gardening lessons, also understand the blessings of health and sustainability as a whole (Masrur and Suraprana, 2021, p.3). Discussions with the Kampung Dongeng Indonesia, showed that early childhood was very enthusiastic about the method of delivering material through fairy tales. As a result, all children are interested in participating in this activity.

In the post-COVID-19 pandemic, students feel the freedom to explore, answer their curiosity and create a sense of pleasure and amazement. to natural phenomena. This provokes children to know more things and fosters a scientific attitude. Children can control their emotions associating with their peers. Little by little the attitudes and habits formed during distance learning (PJJ) began to disappear and were replaced with new, more humane and realistic habits.

The results of discussions with teachers are concluded that in everyday, learning activities at this institution are different from other schools in general. What distinguishes it is how teachers explore aspects of child development through activities in the field (school gardens and school yards). Writing, reading and arithmetic are carried out while carrying out activities, not formally structured. In fact, many activities are carried out in the open field.

The findings of the researcher, it turns out that children who actively participate in outdoor activities based on gardening activities really enjoy activities at school, aspects of their growth and

development are in a positive direction and even develop faster. Ecology-based outdoor activity is a learning strategy through experience that can be given to students because it can provide extraordinary fun so they don't feel that they are actually learning. Activities related to the environment help develop aspects of children's attitudes and behavior about the importance of the environment for life, it is hoped that the behavior of caring for and protecting the environment will be integrated in their daily lives. However, it cannot be forced on some children who do not like ecological activities. For these students, the teacher prepares teaching materials according to their learning needs in the classroom with the same theme as the theme in the outdoor activity. However, children must get space to acquire knowledge, skills and attitudes. Wisely, children are invited to care, protect and use the environment with good ethics.

Table 9. Discussion Results

Activities	Finding
Observation of learning strategies	Learning strategies are carefully designed, the character of students is the main consideration, prioritizing the existence of the potential and needs of students
Observation of ecological learning	Involving children to care about the environment, be active and have mutually agreed responsibilities, habituation to live healthy, disciplined and always grateful
Identifying the needs of students	Guided by 6 aspects of child development
Preparation of teaching materials during Limited face-to-face learning	Flexible in nature according to conditions in the field

In line with the Cognitivism Theory developed by Auseble, this ecology-based outdoor activity learning strategy views the importance of external factors that influence the learning process of students. The continuous interaction experienced by students in the process of assimilation and accommodation can build broader knowledge. Students get a stimulus from the educator, then the child tries to understand it and make it as information material in the next learning activity with the process of associating meaning.

IV. CONCLUSION AND RECOMMENDATION

From the results of the study, it was concluded that outdoor activity as a learning strategy based on the ecology of the surrounding environment can increase the enthusiasm of early childhood to return to school after the COVID 19 pandemic. Children's enthusiasm for the environment can improve their learning outcomes, both in the realm of knowledge, attitudes and skills competencies. Positive teacher expectations of students will affect the performance of students. When dealing with students who cannot understand the teaching material, the teacher must immediately be able to achieve it with the same expectations of other students. Likewise with students who have other needs with other learning methods. Teachers must believe that learning is not about speed, but understanding, reasoning, applying, and evaluating the end of learning. Each student is unique, has a different learning roadmap. No matter how good the learning strategy designed by the teacher is, if it is not in accordance with the needs and characteristics of the students, there is no benefit. It also requires conducive support from the home environment and school environment for maximum student development.

Children come from different home environments and have different characters. At school, children receive attention from educators according to their specialization. Children have a free spirit who likes to move and are enthusiastic about new things, but still in a structured play context, because playing is a means for children to learn many things and the initial concepts of a long child learning process experienced by every human being.

The results of observations and interviews with parents and teachers were obtained about the existence of children who did not like outdoor activities. Some children experience minor trauma related to insects, the air outside, parental prohibitions or simply do not like the crowded atmosphere. Teacher's persuasion that it was safe outside could not affect their stance. Once in a while, the teacher takes turns accompanying students playing in the classroom, occasionally bringing children outside for activities indoors. This research can be carried out more deeply, because it is still possible for changes to occur in the child so that he can then join him outside the room. Children who like outdoor activities tend to have stable emotions and are ready to face structured learning, because their energy has been channeled in outdoor activities. There are so many benefits that come from outdoor activities, encouraging educators to introduce children more to the surrounding environment so that they are not awkward in facing the wide world in front of them in the future.

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