



Application of Discovery Learning Strategies in Natural Materials Centers in Early Childhood Education

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Abstract. Early childhood is a unique and has a great curiosity. Therefore, children must be given the opportunity to explore their environment. Discovery learning strategies in this natural materials center are here to provide opportunities for children to explore, build their own thinking concepts and stimulate sensorimotor abilities through several activities. The purpose of this study was to describe the management of the learning process using discovery learning strategies and the evaluation stage in natural materials centers. The method used in this study is a qualitative method with a case study approach. The subjects in this study were group A children at Pos PAUD Anggrek HI 21 with 22 students. Data obtained through interviews and observation was analyzed using thematic analysis. The result of this study indicates that the principle of natural material center learning is in accordance with the principles of discovery learning strategies, namely providing opportunities for children to explore, children are active in learning while the teacher acts as a facilitator, children can build their own thinking concepts and make children have high curiosity. The discovery learning strategies in natural material centers can be applied in the world early childhood education.

Keywords: Early Childhood, Discovery Learning, Natural Material Center

1 Introduction

Children are small individuals who have unique characteristics that are different from adults, during the growth period of children aged 0-6 years it is often said to be a golden age because during this period, children's growth and development takes place very rapidly [1]. According to Rasyid [2] children who are undergoing a golden age or golden age occur in the age range of 0-6 years. At this age children enter important periods in life and try to solve problems. Therefore, children need proper treatment from adults in their environment, starting from proper care, education, and stimulation with the main goal that children grow optimally by providing the right stimulation, so that children will grow and develop well in all aspects of their development.

The learning process is a conscious or unconscious part that all humans must undergo to achieve various kinds of competencies, knowledge, attitudes, and skills [3]. In learning activities, it is not only understood in terms of results, but in terms of processes and results it needs to be considered properly, besides that, creativity and

innovation need to be developed in learning activities. Starting from using various models, strategies and methods that can be applied to learning activities. The learning model is basically a form of learning that is illustrated from start to finish which is presented characteristically by the teacher. In other words, the learning model is a wrapper or frame of the application of an approach, strategy, method, and learning technique [4]. One of the learning strategies that can be applied is the discovery learning strategy.

According to Yuliani & Suragih [1], the discovery learning model is designed to make students have a greater role of activeness, prioritizing the process, finding new information from the learning activities provided. By making students actively involved, in the learning process the teacher acts as a facilitator, namely organizing the process of learning activities. This kind of learning process will develop students' critical thinking power, make students have high curiosity and seek answers from curiosity. According to Magasida [5] the discovery method is a discovery method, which prioritizes the learning process by providing direct experience for students. The discovery method also prioritizes the process rather than the learning outcomes of students. The steps for implementing discovery learning according to Mulyadi [5] There are several steps in the discovery method, namely (1) There is a problem to be solved, (2) The activities provided adjust to the level of development of students, (3) The concepts or principles that must be discovered by students through these activities need to be clearly stated and written, (4) The necessary tools and materials must be available, (5) The arrangement of the class is arranged in such a way as to facilitate students in exploring the main environment, (6) The teacher must provide opportunities for students to collect data, (7) The teacher must provide answers. quickly and precisely with the data and information that learners need. Learning model This discovery learning can be applied in centers.

The center learning model according to Sujiono [6] is a method that provides a combination of theory with direct experience for students. In center learning there are 4 footholds, namely: footholds for structuring the play environment, footholds at the beginning of play, footholds during play, and footholds after play. In center learning is divided into several centers, one of which is the center of natural materials. The natural material center is also the center of learning from other centers because the natural material center uses the five senses directly, trains motor, cognitive, social, and emotional so that the learning process is more effective. This natural material center provides children with facilities to develop and expand their play experience by providing opportunities for children to explore natural materials around them in the process of children's readiness in writing, maturing children's fine motor skills and stimulating children's brain worksystems [7].

According to Yusuf [8] there are several kinds of play centers as follows: 1) Faith and piety center, in this center children are instilled with religious values, 2) The block center, in this center children are given the means to play in improving visual spatial abilities, 3) Small role play centers (micro) and large roles (macro), provide facilities for children to increase vocabulary, social interaction, and introduce various characters, (4) Art centers, in this center children are given the opportunity to show their artistic talents, such as art in the form of music, dance, crafts, sculpture. The art to be developed

depends on each ability and agreement of each PAUD institution unit. (5) Preparation center, in this center children can do preparatory activities in reading, writing, counting, recognizing numbers and shapes, etc., (6) Natural materials center, in this center children are free to explore with materials sourced from nature, such as water, sand, stones, leaves, tree branches, etc., (7) Cooking center, in this center children can get to know the concepts of math, science, nature, and social, nature, and social.

According to Latif [2], the natural material center is a center that provides opportunities for children to get to know directly various kinds of natural materials. Meanwhile, the natural material center according to Yudhistira [6] is a place where children can explore with natural materials, providing opportunities for children to discover and try new things. With children given the opportunity to explore, learning becomes meaningful to children, so that children are able to easily remember activities that have been carried out and are expected to apply this knowledge to everyday life. The natural materials center aims to provide facilities for children to be able to build their creativity abilities with various kinds of equipment or materials that come from the surrounding nature and can be found in everyday life. As according to Mukhtar [9] the natural material center has the goal is to provide opportunities for children to develop creative ideas, train children's critical thinking skills, and provide opportunities for children to be creative using a variety of natural materials.

Ubaidillah [8] states that the center learning model is learning carried out in a circle, namely the teacher and children sitting in a circle, the teacher provides footing before and after playing to develop all the potential of the child. The activities in the natural material center according to Mukhtar [2] are development activities from natural materials that are around, such as water, sand, seeds, flour, etc.

However, the research on discovery learning has been conducted, but the difference from previous studies in this article is that it discusses discovery learning using natural materials in detail, starting from the initial activities to the final activities, the tools and materials used to the unique things that occur in the learning process of discovery learning using natural materials. And this researchers are interested in using discovery learning as a learning strategy in the use of natural material centers, find out the management of the learning process and the evaluation of natural materials center learning.

2 Method

This research uses a qualitative method with a case study approach. According to Yusanto [9] qualitative methods are descriptive with the aim of obtaining a comprehensive description and understanding of the phenomenon to be studied. Because in conducting research, researchers directly observe the activities to be studied, so that researchers get complete information and in accordance with actual conditions. Meanwhile, according to Prof. Dr. H. Mudjia Rahardjo, M.Si [10] concluded that case studies are scientific activities carried out in depth and detail about a phenomenon, activity, and program both in individuals, groups or institutions according to actual conditions (real life). Center learning model according to Novia and

Mahyuddin [11] the center learning model uses 4 footholds to support child development, 1) Foothold of the playing environment, 2) Pre-play foothold, 3) Footholds during play, 4) Post-play footholds.

Data collection techniques were obtained from interviews and observations. Researchers get data by observing learning activities from start to finish. Data analysis uses a thematic model. Thematic analysis Braun & Clarke [12] is one way to find themes by analyzing the data that has been collected by researchers. According to Fereday & Muir-Cochrane [12] this method is a very effective method if the research has the intention to find out in detail about the relationship of a phenomenon by explaining the phenomenon occurs through direct observation by the researcher. The subject of this research was conducted in class A children with an age range of 4-5 years at Pos PAUD Anggrek HI 21, because after conducting interviews with teachers, it appears that class A often conducts discovery learning using natural materials.

3 Result and Discussion

3.1 Result

From the results of observations made by researchers regarding discovery learning using natural materials in group A, the results obtained, in discovery learning learning activities the teacher does not only use one type of natural material but uses several types of natural materials that are adjusted to the number of activities. In addition, the teacher uses 4 footholds to play according to the instrument that has been planned. This result can be seen from the following explanation.

Learning process management using discovery learning strategy in natural materials center

According to researchers based on the results of observations on May 30, 2023, that in the management of the learning process carried out by the teacher first compiles a daily learning plan (RPPH) that has been adjusted to the child's abilities, themes and indicators that the teacher wants to achieve, prepares a play environment for children, prepares tools and materials related to the center of natural materials. The process of preparing a daily learning plan (RPPH) is usually carried out before activities such as Saturday or Sunday when the teacher has no activities at school, for tools and equipment.

Play environment foothold

The foothold of the playing environment is carried out centered on the child by starting with the child sitting in a circle. Activities in this play environment are in the form of greeting children, asking children who their friends are absent, praying together, singing while clapping, saying the rules of play and asking about the theme that will be done today. The teacher also asks about the previous day's activities (recalling), yesterday the children learned about the country of Indonesia (symbol, flag color and

leader) and typical Indonesian clothes. Then the teacher explains and directs children about what activities will be carried out. Here the role of the teacher becomes a facilitator, by providing 5 kinds of play activities and media for the natural material center.

Pre-play footing

In the foothold before play, the teacher discusses with the child about today's theme, explains what activities the child must do, starting from the rules in each play activity, the stages of play, and introduces what media are used in the 5 play activities provided by the teacher. The results of observations on May 30, 2023 children are doing activities with the theme of my imagination and creativity. Of the 5 activities provided by the teacher, 1 of which children work on in groups. The natural materials center media provided are banana fronds, cotton buds, playdough, matches, and ice cream sticks. Before the play activity, the teacher gives a trigger question or open-ended question, then shows the letter card and the child is asked to name the object in the classroom according to the letter that appears and the child can choose which activity to do first.

Playtime footholds

For the first activity, children color the printed girl's or boy's clothes using banana fronds and watercolors with colors provided by the teacher only primary colors such as red, yellow and blue. The teacher also helps pour the paint. For the second activity, the teacher provides playdough and trays. In this second activity, children are asked to shape the playdough according to the letter of the country they choose, there are Indonesian, Indian, Arabic and Korean countries. The color of the playdough is also freed by the teacher according to the child's wishes. During the activity of forming letters using playdough, there were children who mixed several colors of playdough so that when the playdough was formed, the color of the playdough was different.

The playdough letters have various color gradations. For the third activity, the teacher provides a batik shirt print. In this activity, children are asked to color batik using cotton buds with colors according to the preferences of each child. In this third play activity, the teacher also provides primary colors, namely red, yellow and blue. During the activity, some children tried to mix the primary colors in the container. Children tried to mix blue with yellow and a new color appeared, namely green, tried to mix red with yellow and appeared orange, tried to mix red with blue and appeared purple and tried to mix red, blue, with yellow and appeared light brown. The children were very happy because during the activity the children were also trying and discovering something new.

For the fourth activity, the teacher provides paper forming a heart pattern made from an unused calendar. In this activity, children are asked to decorate the heart- patterned paper using glue and flower petals provided in various colors. The petals used are of various colors and children are free to be creative, there are children who follow the teacher's example using only red petals, some only use white, and there are children who mix various colors of petals. What is unique is that there is one child who, when

looking for petals on the tray, finds the green base of the flower. Then the child asked the teacher what part he found and the child made the base of the flower into his paper decoration. For the fifth activity, children make mind mapping with the theme of my imagination and creativity. Children make mind mapping on cardboard with pictures that have been prepared by the teacher, later children choose the country that will be made mind mapping, tidy up the picture with scissors, stick, make arrows using matches and decorate the edges of the picture using ice cream sticks. In this activity, it is done in groups with one of the children being the leader of the group. Children also share the task of cutting, pasting and decorating.

After-play footholds

In the foothold after the play, the teacher and the child again sit in a circle and do recalling by asking whether the child feels happy or not when given the play activity earlier. The teacher also asks what activities have been done, the children's answers vary, such as finding the base of a green flower that is used as a decoration on heart-shaped paper, some try to mix several colors so that new colors appear and some when making letters using playdough children mix several colors first, so playdough appears with various color gradations. The teacher also asked the children about the results of mind mapping, what was in the mind mapping, what decorations the children had made and asked about the country that the children made in the mind mapping, starting from the typical clothes for men and women, typical food and famous places in the country that the children chose to visit, made into mind mapping, namely Korean, Indian, Indonesian and Arab countries. Followed by praying home and singing, not forgetting the teacher explains a little about the theme and activities that children will do tomorrow to children.

Evaluation of learning in the natural materials center

Based on the results of observations and interviews, the evaluation of learning in the center of natural materials at the Anggrek HI 21 PAUD school is seen from checklist assessments, anecdotal records, serial photos and portfolios. For checklist assessment is a record that contains indicators of the learning objectives to be achieved. Instruments that show the development of children that are objective. For anecdotal notes are brief notes of teacher observation or teaching carried out from the child's arrival to return home. The teacher assesses from the beginning of the activity to the end, speech, behavior that children do covering three elements (religious values and manners, identity, and the basics of literacy, mathematics, science, technology, engineering and art). For serial photos is a series of photos recording children's activities equipped with captions covering three elements. And finally, a portfolio is a collection of records or documents of children's continuous assessment during the learning process. This evaluation is reported to parents under the name LPA or child development report in the form of a narrative. This report will be given to parents in the middle and end of the semester.

3.2 Discussion

At Pos PAUD Anggrek HI 21 there is a learning process using a discovery learning strategy in the center of natural materials by implementing 4 play footholds, namely footholds for the play environment, footholds before play, footholds during play, and footholds after play. This is in line with the opinion of Mujiati [13] which states that by using footholds children will be more directly and actively involved in the learning process, with the teacher's role as a facilitator and helping children if they experience difficulties.

Before carrying out activities, teachers and children usually hold discussions by sitting in a circle. Because when sitting in a circle the teacher can be more flexible in discussing with children, because there are no children sitting in front or behind so that all children look equal so that what the teacher explains is more clearly heard by the child. This is supported by the opinion of Wahyuningsih [14] who argues that sitting in a circle is a process of explaining the play footholds that children will use in footholds before play, footholds during play and footholds after play so that children have a clear picture of what to do when they are in the activity chosen by the child and must be done thoroughly.

During play activities, children try to mix primary colors so that colors appear in batik activities and decorating clothes. The children were curious about what colors would appear if the colors given by the teacher were mixed. Finally the children dared to try and get answers to their curiosity. After trying to mix the colors, the children told the teacher about the experiment. The child also observed the flower petals on the tray and found something different about the petals, which the child thought was the base of the flower. The child re-examines the base of the flower on the tray and looks for whether there is another base, because it is unique and there is only one, the child takes the initiative to use the base of the flower as a decoration, this is different from what his friends do who only use flower petals. The child also feels less interested if the colors in the heart drawing are only red, pink and yellow, so the child adds a green flower base as an additional color. This is in accordance with Lieung's opinion [15] which explains that learning by using this discovery learning strategy makes children find, understand, make conjectures and discover something in the learning process.

In planning activities, the teacher will involve the child directly so that the child's memory will last longer. Because children can express and try ideas and build their own knowledge, children will also be able to draw conclusions from the results of the activities they carry out directly. This is supported by the opinion of Rahmat et al., [16] who say that it is important for children to have understanding or ideas through active activities in the learning process and children are encouraged to be active in most learning activities in order to gain experience and carry out experiments to build his own knowledge. When providing activities, teachers must also adapt to the child's development level, because if the activities provided by the teacher are too low level, the child will take them for granted and feel temporarily bored. If the teacher provides activities that are higher than the child's development level, the child will find it difficult. This is supported by Astuti & Harun [17] who say that children are given activities by teachers by paying attention to the child's ability level according to their

age. And in implementing learning activities, it must be interesting for children because it will make children interested and feel curious about carrying out activities. This is supported by Oktavia et al., [18] activities for children must be carried out by learning by doing or learning while playing by providing activities. creative, fun. and safe for children. Based on the results of research by Cintia et al, it was found that the results of increasing creative thinking skills were due to the application of the discovery learning model that had been carried out in accordance with the stages of children's abilities [19].

The teacher's role in the learning process is as a facilitator. Teachers provide services so that students can easily understand and carry out learning activities, so that the learning process becomes easier for children and teachers can achieve the goals they want to achieve. The teacher also provides learning media facilities that the teacher will use. Even though the teacher is only a facilitator, this does not mean that the teacher is free from responsibility, but still has to guide the children. In this activity the teacher also guides the activity from start to finish so that learning activities are carried out in a conducive manner [20]. Evaluations carried out by teachers on children are seen from assessment checklists, anecdotal notes, photo series and portfolios which are carried out periodically and objectively. This is in accordance with Maryadi's statement [21] which states that assessments must be carried out comprehensively or seen from various sides, honestly and carried out continuously or on an ongoing basis. This assessment is useful for knowing the extent of a child's development, whether the goals set by the teacher have been achieved or not. Apart from that, using several assessment methods can help teachers collect information about children which will later be conveyed to parents so they know their child's progress at school.

4 Conclusion

The learning process is an important thing that will be experienced by children for provisioning living life, therefore the activities provided in the process must be meaningful, child-centered and fun. The discovery learning strategy in the center of natural materials provides direct experience for children so that children can build their own thinking concepts. With activities carried out in an organized and planned manner, it will make it easier for children and teachers to achieve the desired goals. By using media materials Children can recognize and explore objects that are around them. Supported by evaluations carried out by teachers on an ongoing basis so that children's growth and development goes well and according to their age.

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