

## INCREASING CAPACITY OF KINDERGARTEN TEACHERS IN THE LEARNING OF PRESERVATION BUTTERFLY

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**Abstract:** Butterflies are animals that are attractive to humans because they have the beauty of their bodies. In addition, beautiful and unique butterflies are also sought after by collectors for trade. Butterflies that are used as collections, must be preserved first. Preserving butterflies as part of environment-based learning can be supported by good preservation techniques that will improve teachers' understanding of butterflies and make insect recognition to kindergarten children more enjoyable. Therefore, learning about butterfly preservation accompanied by identification of butterflies needs to be conveyed in kindergarten. This research was carried out in TK Khalifah 7 Poligon, Palembang City. The purpose of the research is to describe the ability of kindergarten teachers to preserve butterflies. The method used in this research is a case study with a participation research approach. The results of the research showed; (1) The practice of butterfly preservation practice was responded well by the participants, and felt as valuable knowledge and skills in supporting learning activities on insect recognition material in the school environment; (2) The high interest and motivation of the training participants greatly supports the transfer of knowledge, can be absorbed by all and the resulting learning products meet scientific criteria; (3) The results of training in the form of dry butterflies in a storage box that have been identified in the home or school environment can be used as a learning device that supports the learning objectives of insect recognition in the school environment.

**Keywords:** butterfly; kindergarten; teacher; preservation

### 1. INTRODUCTION

Butterflies are one of the most numerous insect species and are often used as merchandise. Butterflies have a high selling value because they have beautiful wing colors. This has resulted in butterflies being hunted by humans, both to be enjoyed by the beauty of wings while flying, collections as mementos, and as the interests of science (Efendi 2009). The economic and aesthetic value of butterflies are not only influenced by the way they are caught and collected, but also by the way they are preserved (Belkin & William 1952). Butterfly preservation process is quite important. Butterflies that have been preserved quickly suffer damage due to improper preservation techniques

(Lee & Brown 2006). The type of damage experienced, generally, occurs in parts of the body that are damaged or lost, wings are torn, wing colors fade, moldy, and so on.

School environment-based learning, such as direct observation of insects in the environment or through preservation is sufficient learning material to support the achievement of optimal competencies and learning objectives, especially in the field of biology (Mertha et al. 2018). Insect preservation or insectarium technique is one form of learning media based on school environment (Murni et al., 2015) and will help understanding biology, interest and focus in learning (Murni et al. 2015). With these potentials and conditions at this location, training in butterfly preservation and school-based butterfly identification techniques is needed.

Submission techniques are very diverse in providing educational messages specifically environmental messages. This is part of the communication environment which provides awareness and communication actions. Everyone has a tendency to save the ecology that is around him. Communication approach based on knowledge and skills objects becomes part of strengthening the capacity of individuals to manage their environment. Flor and Cangara (2018) explain that environmental communication is how a person learns and conveys a message of ecological change to himself and those around him so that a good ecological change arises in his daily activities. Heidinia (2017) states that environmental communication in a variety of ways in understanding and performing actions, among others, by pragmatic techniques, which is interpreted visually by referring to the cognitive realm and perception and the second technique is constitutive leads to the meaning of the environment's meaning to themselves and their personality in understanding the message behind it.

In this research the authors divide the three objectives to see the process of community service activities, namely (1) describing the response to the environment that is around the participants, (2) describing the interests and motivations of the participants, (3) analyzing the benefits of the participants.

## **2. METHODS**

Targets of community service activities are the Khalifah 7 Kindergarten teachers, Palembang City with 12 participants. Data collection instruments consisted of questionnaires and observation sheets. This activity was carried out in December 2018. Material activities delivery are carried out classically, all participants follow the material delivered by lecturing, discussion and question and answer. After completing the material delivery activity, then the performance of the practice of making butterfly preservation using dead butterflies was found in the home or school environment. For practical activities, participants are divided into groups, each with 2-3 members. In the practice of butterfly identification, the emphasis is on using the identification key through the book from Braby (2000). This activity was conducted a pre- and post- test to see the participants' abilities and to assess their motivation and interests and benefits after participating in butterfly preservation activities.

## **3. RESULTS AND DISCUSSION**

### **3.1. Description of butterfly preservation training activities**

This training starts with how to properly store insects, for example placement of butterfly wings so that they remain intact on papilot paper. Butterflies that have been stored in papilot paper,

put in a desiccator to moisturize. After that, the butterflies are removed from papilot paper, then stabbed into the thorax using an insect pin with the position of a butterfly perpendicular to the insect needle. Butterflies that have been pricked with needles are inserted into the pinning block to position the butterflies on the needles. Stretching butterflies can be done in 2 ways, namely using a board stretch and hold the position using a stone. Butterflies that have been stretched, then placed into the shade while aerated for about 2 weeks until the butterflies are dry and

also given camphor and silica gell roots are protected from fungus, ants and other disorders. After drying, the butterflies are removed, removed from the stretch board to be put into a butterfly box or storage cabinet that has been put in camphor.

### 3.2. Butterfly identification practice

The butterfly identification practice, participants gained experience in identifying using butterfly specimens and identification keys (Peggie and Amir 2006). participants carefully identified butterflies by matching morphological features Long-lasting specimens with known scientific names with butterfly characteristics are unknown the name (being identified). When the correct name has been found, they get award by applause by other trainees. This activity becomes fun and they want to try identifying other types to find names scientific. The use of an identification key in determining the scientific name of a butterfly is carried out with match a number of statements and wing patterns found on the key with the features contained in preserved specimens that are being identified (Triplehorn and Johnson 2005). Valuable experience This is very helpful and makes it easy to study butterflies in the school environment considered difficult.

### 3.3. Participants' responses to the surrounding environment

Participants have good capability on the environment. Especially in knowing the character of insects in nature. This can be seen by the ability of participants to guess and mention a common name used in nature, and is able to mention the name and place of the insect life. But in some other cases, participants did not yet understand their roles and functions in nature. Participants consider these insect animals as a balancing ecosystem in nature and beauty in the environment. The participants environmental responses were seen from the participants' knowledge in terms of (a) butterfly species, (b) host plant, (c) metamorphosis process, (d) feed. From the four variables produced an assessment of know and not know, each participant (Table 1).

Table 1 Participant responses to the environment are measured through knowledge.

Observational characteristics	Know	Don't know	Total
a. Type of butterfly	2 (17%)	10 (83%)	12 (100%)
b. Host plants	2 (17%)	10 (83%)	12 (100%)
c. Metamorphosis process	9 (75%)	3 (25%)	12 (100%)
d. Feed	10 (83%)	2 (17%)	12 (100%)
<b>Total</b>	<b>23 (48%)</b>	<b>25 (52%)</b>	<b>48 (100%)</b>

The activities carried out in developing the insight of kindergarten teacher participants were able to increase teacher awareness of the environment around them by recognizing the types of butterflies, host plants where butterflies perch to lay eggs and reproduce and how butterflies look for food that helps their growth. Most teachers lack knowledge about insects, especially butterflies. This is caused by less care for the environment. In addition, the lack of socialization towards understanding the environment of insects, especially butterflies.

Omdal (2018) mentions five things that need to be understood in building an environment-based education system, namely strengthening the ability of teachers to understand the environment, focus on the process implementation, the support of the education system, leadership that supports the environment and the development of the same vision. Pianta (1999) states that this needs to be designed by teachers and parents to build quality time according to students' focus and interests. The children always ask what they see and explore what they see and feel, therefore this training is able to provide enlightenment of the questions that are often asked by children and stimulates the teacher to find new ideas for activities in school.

### 3.4. Interests and motivations

Interest and motivation are part of the reasons why this research is carried out. The interests are the desires that are known by the participants including (a) getting to know butterflies more deeply, (b) knowing how to preserve. Whereas motivation is encouragement that is the reason for the participants, namely (a) increasing knowledge, (b) increasing skills, (c) being able to improve the participants' economy. Data obtained regarding the participants' interests and motivations are set out in Table 2.

Table 2 Participant responses to interests and motivation

observational characteristics	Interest Level		Total
	High	Low	
a. Butterfly knowledge	5 (42%)	7 (58%)	12 (100%)
b. How to preserve	5 (42%)	7 (58%)	12 (100%)
<b>Total</b>	<b>10 (42%)</b>	<b>14 (58%)</b>	<b>24 (100%)</b>
	Motivation level		
a. Increase knowledge	4 (33%)	8 (67%)	12 (100%)
b. Add skills	2 (17)	10 (83%)	12 (100%)
c. Improving the economy	12 (100%)	0 (0%)	12 (100%)
<b>Total</b>	<b>18 (50%)</b>	<b>18 (50%)</b>	<b>36 (100%)</b>

Butterfly preservation training activities are considered to be interesting activities and make participants curious and develop into productive things. This was indicated by Interests and motivations are indicated through response papers and frequently asked questions when participants carry out direct insect drying simulations.

The quality of teachers who understand the environment more or less affects students, especially children under five who are going to elementary school are able to recognize and understand the surrounding environment. In this case, Manning et al. (2017) states that the teacher's ability is very close to the child's insight into the environment with whom he lives and plays, who has a role to him and how they should build a good life ecology. In addition, the interaction of the teacher, the environment and leadership character are part of what children remember and respect so they are

able to provide memories for them.

All teachers expressed their opinions agreed that this activity was able to provide new experience and could be developed to a home scale in the form of industry. However, this requires a joint commitment. At present the orientation of this activity is in the cognitive domain and awareness that from the environment there is a lot of beauty that can be utilized both as a value of health, education, ecology and education. After crossing the data between motivation and interest, high and medium score data are obtained, which means that the teacher's seriousness to follow up on the preservation activities is only limited to know and is not yet on an increase in business scale (Table 3). This has many factors including the busy schedule of providing kindergarten children's teaching materials, rare market opportunities and substantial capital.

Table 3 Cross between interests and motivation

observational characteristics	Motivation level		Total
	High	Low	
<b>Interest</b>	<b>5 (42%)</b>	<b>7 (58%)</b>	<b>12 (100%)</b>

### 3.5. Benefits for participants

The benefits gained from the participants after participating in this activity are being able to preserve the environment, maintain and care for plants well, aspects of beauty, help the process of pollinating plants as well as learning media (Table 4).

Table 4 Participants' perceptions of the benefits obtained

observational characteristics	Benefits Level		Total
	High	Low	
<b>a. Protect the environment</b>	<b>6 (50%)</b>	<b>6 (50%)</b>	<b>12 (100%)</b>
<b>b. Take care and care for plants</b>	<b>8 (67%)</b>	<b>4 (33%)</b>	<b>12 (100%)</b>
<b>c. Beauty aspect</b>	<b>7 (58%)</b>	<b>5 (42%)</b>	<b>12 (100%)</b>
<b>d. Assist the pollination process plant</b>	<b>7 (58%)</b>	<b>5 (42%)</b>	<b>12 (100%)</b>
<b>e. Learning Media</b>	<b>6 (50%)</b>	<b>6 (50%)</b>	<b>12 (100%)</b>
<b>Total</b>	<b>34 (57%)</b>	<b>26 (43%)</b>	<b>60 (100%)</b>

Explanation from the interest and motivation section shows that there are high benefits to these activities, although it is difficult to develop further without the encouragement of environmental-based leadership (Omdal 2018). Almost all participants responded well to the benefits of this preservation activity. The highest point is to provide benefits and understanding that without plant insects it will not be able to pollinate perfectly (Sodiq 2009, Jankielsohn 2018). Keywords from butterfly insect preservation training activities are (a) aspects of communication that need to be emphasized to build motivation and interest, (b) aspects of planning in building activities that are environmental awareness, (c) aspects of implementation and sustainability so that an environmental home needs to be built or insect houses (captivity) for communities that are part of saving the ecosystem.

#### 4. CONCLUSION

Butterfly insect preservation and training activities provide benefits for participants, especially kindergarten teachers. This activity builds participants' confidence in maintaining the environment and developing diverse ecologies as a form of natural balance. Interest and motivation need to be continually developed by developing insect breeding sites.

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