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Analysis of Environmental Literacy Skills Based on Hands-on Activities (HoA) of Muhammadiyah 16 Surabaya Elementary School Students

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Abstract: The purpose of this research is to ascertain an analysis of environmental literacy skills based on Hands-on Activities (HoA) among Muhammadiyah 16 Surabaya Elementary School students. By employing the Hands-on Activity (HoA) method in this learning activity, children can engage in a pleasant and non-boring manner. The research method employed for this study is qualitative-descriptive, utilizing data collection techniques such as observation, interviews, documentation, and audio-visual methods. Data analysis involves descriptive techniques such as data reduction, data display, and data verification. Furthermore, data validity is ensured through triangulation techniques. The research findings can be concluded that the Hands-on Activity (HoA) learning method has a significant impact on students' environmental awareness, promoting their ongoing commitment to environmental conservation and sustainability. Through the HoA teaching approach, students are encouraged to directly identify elements within their environment, recording the names of local regions and the Latin names of plants found around the school vicinity. The HoA method underscores a constructivist learning approach, placing more emphasis on student-centered learning where students are directly engaged in observing real-life phenomena or situations.

Keywords: environmental literacy skills, hands-on activity method, elementary school students

INTRODUCTION

The potential and development of elementary school students should be effectively facilitated through education. The learning process in elementary school is viewed as a means of nurturing the intellectual growth of the nation's children. Proper education is intended to hone students' abilities and optimize the potential for the development of their knowledge (Wijayanti, 2015). The significance of education for

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elementary school children lies in its role in providing students with a means to develop various aspects of knowledge. One such area of development for elementary school students is environmental literacy skills. Environmental literacy skills are essential for every student to acquire through the learning process (Haqqi, 2017).

Primary school education is an educational level that involves developmental efforts aimed at children from the age of seven to around thirteen years old. This is achieved through the implementation of educational designs to assist students' growth and development, preparing them for further education, and conducted within the formal educational framework (Pattipeilohy & Febiyola, 2020). Therefore, education at the elementary school level is crucial for stimulating students' growth and development. During a child's formative years or their golden age, efforts should be made to provide appropriate developmental stimulation according to the stages of their growth. This enables children to develop optimally and continue progressing in the subsequent phases of life (Amalia, Aini, Makmun, 2020).

In the context of primary education, teaching methods at elementary schools should be developed based on learning theories that utilize scientific procedures and strategies. One of these strategies is the utilization of teaching methods (Susanti et al., 2019). Moreover, the teaching methods implemented in elementary schools should be well-suited to the student's needs (Dores, et al., 2020). Therefore, not all teaching methods that have been developed by educational experts can be effectively employed at the elementary school level. The scope of child development in elementary school institutions is extensive, and achieving this can be realized through diverse approaches that align with the student's comprehension levels (Karyadi, Hidayat, 2021).

The success of the learning process in students is characterized by achieving optimal growth and development in children and producing outcomes that enable them to adapt to their environment and future development (Fitriasari et al., 2020). To achieve this success, teaching children should be conducted in alignment with their developmental stages (Puspita et al., 2020). Therefore, a child's environmental literacy skills need to be nurtured and developed by an educator (Lastriningsih, 2017). Consequently, environmental literacy is highly essential for students, serving as an effort to adapt to their surroundings and express their feelings and thoughts (Firdausi et al., 2021).

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Environmental knowledge is a component of the foundational sciences that underlie the development of knowledge and the study of concepts related to human life, aiming for living in harmony with natural laws (Puspita et al., 2020). Therefore, from the aforementioned definition, it can be understood that physics education is a foundational science for technological advancement, studying the properties and phenomena of natural objects that are observable by the sense of sight. Through studying physics, we can comprehend the world around us through investigation and the formation of knowledge. The learning model in Indonesia is "the method used by educators to establish connections with students during the course of learning" (Fitriasari et al., 2020).

Based on the author's observations in the environmental literacy enhancement activities at Muhammadiyah 16 Surabaya Elementary School, it is evident that there is a need for improvement through the Hands-On Activity (HOA) teaching method. Therefore, teachers, acting as facilitators, present challenges for students to tackle following the instructions provided by the teacher-facilitator (Nugraha, 2018). Consequently, contemporary learning in the context of science education is no longer conducted solely within the confines of the classroom; a more effective approach is to engage in outdoor learning. This way, the learning process is adapted seriously, enabling students to actively participate in enjoyable learning experiences (Rahdiyanta et al., 2017).

Hands-On Activity (HOA) is a teaching method in which students are not mere observers and listeners to the teacher's explanations; instead, in this approach, learners observe, perform actions, and directly identify the objects being studied (Rahdiyanta et al., 2017). Hands-on activity is a learning model designed to engage students in exploring information through questioning, activities, discovery, data collection, analysis, and conclusion-making. Learning through this method involves a social interaction process where students collectively construct meaning and concepts. The Hands-On Activity teaching approach has a positive impact on developing students' environmental literacy (Hamidy & Purboningsih, 2015).

Through the Hands-On Activity teaching method, students' environmental literacy skills can be significantly enhanced and improved (Afriani, 2021). This learning approach involves group learning activities where each member contributes information,

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ideas, knowledge, and skills to enhance the understanding of all group members (Haqqi, 2017). Furthermore, the Hands-On Activity teaching method can create a comfortable and enjoyable learning experience for students, as they directly interact with the environment, making them active participants in the learning process (Rahdiyanta et al., 2017).

METHOD

This study employs a qualitative descriptive research design to observe the analysis of environmental literacy based on the Hands-On Activity (HOA) approach at Muhammadiyah 16 Surabaya Elementary School. Qualitative research is chosen as it involves a naturalistic setting, aiming to interpret the occurring phenomena, and is conducted through the involvement of various existing methods. In this study as the research location used in completing this final project, researchers used schools using Muhammadiyah 16 Surabaya Elementary School.

This research requires instruments to gather valid data. In qualitative research, the instrument or tool used for data collection is the researcher themselves. The researcher acts as the data collector and active instrument in the field, using observation guidelines and interviews. Therefore, the researcher must be responsive to both the subjects and objects of the study, ensuring that the collected data remains focused and aligned with the predetermined objectives. Data for this research are sourced from informants, considering specific data from the individuals or groups being studied. Thus, the researcher will conduct observations, interviews, and document analysis with individuals deemed as the subjects of the study. The subjects of this research include teachers, the principal, curriculum coordinators, and students from Muhammadiyah 16 Elementary School in Surabaya.

In the data collection techniques, the researcher undertook various activities as part of the research, including: 1) Observation, where the researcher directly went to the field to observe the behaviors and activities of individuals at the research location. 2) Interviews, where the researcher conducted face-to-face interviews with participants. 3) Documents, encompassing public or school-related documents relevant to the research focus. 4) Audio and visual data, consisting of photographs, videos, and all kinds of

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sounds. Furthermore, observation guidelines and other instruments can be found in the appendices of this thesis article.

The activities involved in qualitative data analysis are conducted interactively and continuously until completion, progressing until the data reaches saturation. These activities encompass data reduction, data display, and conclusion drawing/verification. These can be elucidated as follows: Data reduction, data reduction means summarizing, choosing the main things, focusing on the important things, and looking for themes and patterns. Thus the reduced data will provide a clearer description. Data display, the common method employed to present data in qualitative research is through narrative textual forms. Data verification, drawing conclusions and forming conclusions may be capable of addressing the initially formulated problem statement, but it's also possible that they may not fully do so.

The technique used to ensure data validity in this research is the Triangulation technique. Triangulation is a method of data validity examination that utilizes external elements to cross-check or compare with the data. Through the technique of triangulation with sources, the researcher compares interview outcomes obtained from each source or informant in the study as a means of verifying the accuracy of the information. Furthermore, the researcher also validates the credibility of the data by employing triangulation through methods. This involves cross-referencing research outcomes with different data collection techniques such as interviews, observations, and documentation, thereby ensuring the validity of the data's credibility.

RESULTS

The research was conducted at Muhammadiyah 16 Surabaya Elementary School with the theme of "Creative School," comprising the following elements 1) Edutainment learning is a school in Surabaya City that employs a joyful learning concept. 2) Meaningful learning, goes beyond theoretical teachings confined to the classroom environment. It involves not only theoretical concepts but also encourages students to engage in outdoor and practical learning experiences. Students are guided to learn from local resources and experts within the school's vicinity. 3) The concept of Creative Blended Learning is learning that combines online learning and face-to-face learning. Creative School is a school born from a creative concept. That is a concept that is not

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only concerned with academic aspects but also creativity and spirituality.

The results of the observations conducted in this research indicate that environmental literacy based on the Hands-On Activity (HoA) approach at Muhammadiyah 16 Surabaya Elementary School can be effectively implemented. The study conducted at this elementary school identified the students' ability to preserve the environment. In alignment with the observation findings at Muhammadiyah 16 Surabaya Elementary School through the Hands-On Activity (HoA) method, the presented information is summarized in the following table:

Table 1. Student Respondent Data

Respondents	Information
Male	16 Students
Female	11 Students
Age	9-11 Years
Class	IV
School	SD M 16 Surabaya

The table above demonstrates that all respondents who served as the research subjects amounted to 15 students, consisting of 7 male students and 8 female students. Their average age ranges between 9 and 10 years, and they belong to the IV grade at Muhammadiyah 16 Elementary School in Surabaya. The selection of these respondents was based on alignment with the research objectives utilizing the *Hands-On Activity* (HoA) method.

The Hands-On Activity (HoA) teaching method, employed as a model in the learning process, is designed by educators to engage students in exploring information through questioning, activities, discovery, data collection, analysis, and conclusion-making. Students are encouraged to observe their school's surroundings, identify various plants and trees, and document their observations guided by the teacher acting as a facilitator.

In the learning process, students are provided with Student Worksheets (LKS) directly by the teacher. The teacher forms small heterogeneous groups of students during the learning process. In these small groups, students are guided to identify plants within the school environment, recording both their common and scientific names. The

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provided LKS contains statements that students can fill in to express their responses, facilitating their engagement and interaction, such as:

Table 2. Student Responses in the Observation Process

No	Statements
1	What do you like most about environmental activities?
2	Constraints in the process of environmental activities
3	Increase in carrying out environmental activities
4	The feeling of cleaning the school and home environment

From the provided statements, various opinions emerged from the students based on their knowledge. The first statement indicates that students enjoy participating in cleanliness activities at home by assisting their parents and at school without needing to be instructed by teachers. The second statement highlights the challenges students face when helping their parents with tasks like hanging clothes to dry, especially when the clothesline is relatively high. The third statement is related to an area for improvement, addressing the habit of using excessive water and leaving taps running after bathing, resulting in unnecessary water wastage. The fourth statement captures the emotions experienced by students while cleaning both the school and home environments, expressing feelings of happiness and contentment.

The steps of the Hands-on Activity (HoA) learning method can be explained as follows:

a. Apperception questions (questioning and constructivism), The learning process begins by posing questions to elicit students' prior knowledge, enhancing their engagement in asking and answering questions;
b. Formation of Learning Communities (Learning Community), Heterogeneous groups are formed to address the issue of low student cooperation in basic physics learning.;
c. Provide modeling on how to conduct experiments followed by observing real problems that exist in the surrounding environment, making tables, writing down experimental data, and answering questions in worksheets.

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d. Assessment of student performance is carried out during learning by the teacher to increase student learning activities;
e. The conclusion, lesson concludes by encouraging students to independently conclude the conducted learning activities, connecting them to their prior knowledge. The teacher also reflects on clarifying concepts as needed.

As conveyed by the respondent, Ustadz EW, a teacher at Muhammadiyah 16 Surabaya Elementary School, during an interview conducted by the researcher, he expressed his perspective on the learning activities utilizing the Hands-on Activity (HoA) method as follows:

> *"Implementation of learning using the Hands-on Activity (HoA) method by observing plants by looking directly at several plants in the school environment and students taking notes with pleasure. Because HoA provides a learning atmosphere that immediately connects students to real-world scenarios, allowing them to gain firsthand experiences aligned with what they observe during the learning process."*

The viewpoints shared by the two teacher respondents were reaffirmed by the Curriculum Vice Principal of Muhammadiyah 16 Surabaya Elementary School, who emphasized the school's status as a creative institution by stating:

> *"As an educator, one must consistently strive to innovate teaching methods that align with the needs of the students. Personally, as the Curriculum Vice Principal, I endeavor to facilitate our teachers in maximizing their creativity, to create an enjoyable learning environment for the students. The school fully supports and actively participates in meeting the needs of the teachers as required to ensure the smooth flow of the learning process."*

The statement is further reinforced by another respondent, and during the second interview, Ustadzah L, the class teacher, emphatically expressed her perspective on the implementation of the learning process using the Hands-On Activity (HoA) teaching method, stating:

> *"Through the Hands-On Activity (HoA) teaching method, students are captivated and enjoy participating, leading them to better comprehend and understand the plants present in the school environment. They grasp the process of planting and the techniques to nurture the plants, contributing to the greener and more*

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pleasant surroundings. Hence, using this method creates an enjoyable learning atmosphere within the school environment."

Based on the observations and interviews conducted with the two research respondents, it can be concluded that the Hands-On Activity (HoA) teaching method has a positive impact on students' environmental awareness, motivating them to sustainably preserve and care for their surroundings. Through the HoA approach, students are guided to directly identify plant species within their school environment, recording local and Latin names. The HoA method emphasizes constructivist learning that is more student-centered in which students are directly invited to make direct observations by looking at real phenomena or realities.

Figure 1. Implementation of the Hands-on Activity (HoA) Method

DISCUSSION

The Hands-On Activity (HoA) teaching method in science education is defined as any laboratory activity that allows students to handle, manipulate, and observe scientific processes. These laboratory activities may involve conducting experiments in the surrounding environment (Di & Athfal, 2018). During these experiments, students engage not only in physical activities (hands-on activity) but also in mental activities (mind-on activity). The Hands-On Activity teaching mode is designed to involve students in information discovery and inquiry, as well as engaging in activities, exploration, data collection, analysis, and forming their own conclusions (Zahara, 2018).

Hands-On Activity (HoA) learning is an appropriate alternative to address student challenges. It is defined as a learning approach that involves direct engagement and experience with natural phenomena or educational experiences, actively involving

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students in manipulating objects to acquire knowledge or understanding (Nisa & Zuhriyah, 2016). The hands-on activity method can train and enhance students' environmental literacy because, in this type of learning, children engage in observation and direct experimentation with tangible objects in their environment, utilizing their hands-on skills for scientific experimentation (Kartono, 2010).

The Hands-On Activity (HoA) teaching method involves students directly observing their surrounding environment. This type of activity, conducted outside the classroom, requires observational skills. Hands-On Activity learning can enhance motivation, strengthen memory, address learning challenges, prevent misunderstandings, gather feedback from peers, and bridge the gap between concrete and abstract concepts (Fathir, 2015). Through the hands-on activity method, children play a direct role in the learning process. They engage in optimal observation of tools and materials used in experiments, utilizing their senses of sight and touch. Subsequently, children conduct scientific experiments on their own, allowing them to visualize events more realistically (Rismayanti et al., 2015).

Hands-On Activity (HoA) aids students in learning more actively and creatively, enabling them to not only receive and note down the material given by the teacher but also comprehend and draw their own conclusions. In HoA learning, students are encouraged to remain actively engaged, preventing boredom as they tackle tasks provided by the teacher (Yanita et al., 2020). Hands-On Activity (HoA) involves learning from direct observations of daily life that can be executed firsthand. HoA assists students in directly acquiring knowledge through personal experience, thereby gaining a grasp of concepts taught by the teacher (Zahara, 2018).

The Hands-On Activity method is an integral part of the contextual approach to teaching and learning, often known as Contextual Teaching and Learning (CTL). Contextual learning is a learning concept that helps teachers connect subject content with real-world situations and motivates students to establish links between knowledge and its application in their lives (Zahara, 2018). Contextual learning occurs when students experience and apply what is taught about real-world problems. The contextual approach is about bringing real-world situations into the classroom and encouraging students to make connections between the knowledge they possess and its application in their lives (Sihotang & Tauran, 2020).

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Hands-On Activity is a model designed to involve students in gathering information, asking questions, engaging in activities, making discoveries, collecting data, analyzing, and drawing their own conclusions (Fathir, 2015). Students are granted the freedom to construct thoughts and findings during these activities, allowing them to perform tasks without burdens, in an enjoyable manner, and with high motivation. Hands-On Activity emphasizes a contextual approach to teaching and learning, often referred to as CTL (Kartono, 2010). The theoretical foundation of science learning is more contextual through the constructivist theory. Students are given the freedom to construct and discover while engaging in activities, enabling them to perform tasks independently, with enjoyment, and high motivation (Effendi et al., 2018).

CONCLUSION

From the research findings and discussions presented in the article, it can be concluded that based on the results of observations and interviews conducted with the two research respondents, the use of the Hands-On Activity (HoA) teaching method has an impact on students' environmental awareness, encouraging them to continue to sustain and care for their surroundings. Through the HoA learning method, students are encouraged to directly identify their environment by noting the local and Latin names of plants in the school vicinity. The HoA method emphasizes constructivist learning that centers more on students, involving them in direct observations of real-life phenomena and realities.

Through this research, by enhancing environmental literacy using the Hands-On Activity (HoA), children are directed to engage in direct field activities. However, it should be noted that this research is still far from perfect and requires further refinement. Environmental literacy among children needs to be continuously improved through the Hands-On Activity (HoA) teaching method. It's important to consider that enhancing students' environmental literacy requires teaching methods that are enjoyable and tailored to the needs of elementary school students.

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