

UTILIZATION OF ECO-LITERACY IN SCIENCE LEARNING AS A TEACHING MEDIA IN ELEMENTARY SCHOOLS

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ABSTRACT

This research is motivated by using eco-literacy as a teaching medium for science learning in elementary schools. The type of research used is a qualitative phenomenology approach. This research uses data collection techniques carried out by observation, interviews, documentation and triangulation with data analysis techniques through three channels: Data Reduction, Data Display, verification and conclusions. Research shows that school teachers often use the school environment to carry out outdoor learning processes. Class V students are happy and hope learning can occur at their school using the surrounding natural environment. Utilizing the environment in science learning also does not require costs. Learning patterns that utilize the natural environment also attract more students' attention. This can be seen from the results of observations, interviews, documentation and triangulation; all of the indicators in the research can support the use of the surrounding natural environment as a teaching medium for science learning.

Keywords: Eco-Literacy, Science Learning, Teaching Media

ABSTRAK

Penelitian ini dilatarbelakangi oleh penggunaan eco-literacy sebagai media pengajaran pembelajaran IPA di sekolah dasar. Jenis penelitian yang digunakan adalah pendekatan kualitatif fenomenologi. Penelitian ini menggunakan teknik pengumpulan data yang dilakukan dengan observasi, wawancara, dokumentasi dan triangulasi dengan teknik analisis data melalui tiga jalur: Reduksi Data, Penyajian Data, Verifikasi dan Kesimpulan. Penelitian menunjukkan bahwa guru sekolah sering memanfaatkan lingkungan sekolah untuk melaksanakan proses pembelajaran di luar ruangan. Siswa kelas V senang dan berharap dapat terjadi pembelajaran di sekolahnya dengan memanfaatkan lingkungan alam sekitar. Pemanfaatan lingkungan dalam pembelajaran IPA juga tidak memerlukan biaya. Pola pembelajaran yang memanfaatkan lingkungan alam juga lebih menarik perhatian siswa. Hal ini terlihat dari hasil observasi, wawancara, dokumentasi dan triangulasi; seluruh indikator dalam penelitian dapat mendukung pemanfaatan lingkungan alam sekitar sebagai media pengajaran pembelajaran IPA.

Kata Kunci: Ekoliterasi, Pembelajaran IPA, Media Ajar

A. INTRODUCTION

Learning activities are an essential component of the learning

process in schools, determining whether or not learning objectives are achieved (Nugraha, Jalal, &

Boeriswati, 2022). During the learning process, teachers are expected to be able to explore the potential that exists in students optimally. Efforts to develop students' abilities require a long process, so they cannot be measured over a certain period, let alone over a short period (Af'idah, Fitriyah, & Manasikana, 2021). The teacher-created learning components are indicators of developmental changes in visible students. Utilizing school resources and infrastructure, such as using the classroom setting for learning activities, also aims to support the teaching process (Suhendar et al., 2023). The environment is a component of learning that can impact the direct learning process at school (Syafi'atun, Saptono, & Putra, 2022).

The surrounding environment is used as a learning reference that can optimize the process and quality of learning outcomes for students at the elementary school level (Hardiansyah & Mulyadi, 2022). The environment around students can be used as a learning resource for students in their learning process at school (Hardiansyah, 2022b). A teacher teaching by utilizing the school environment in learning materials can make the learning process more

valuable because students will be directed to natural objects and events around them (Hardiansyah & Mas'odi, 2022). Natural sciences are subjects related to nature, but science subjects do not all study understanding in the form of facts, designs, and basics but also connect a process of human interaction with nature (Hardiansyah & Wahdian, 2023). Science learning cannot be done by memorizing or listening to the teacher when explaining the material, but the students carry out observations and experiments. Teachers can help students understand the natural environment around them. It is hoped that science learning will be one step in enabling students to learn about the natural environment to the maximum (Hardiansyah, AR, & Hidayatillah, 2022).

Learning science aims to increase belief in God Almighty and provide knowledge about basic principles and concepts, facts in nature, the relationship between science and technology, and the ability to handle equipment, solve problems, and make observations (Hardiansyah, 2022a). The surrounding environment will attract students' interest in learning because it allows students to interact directly

with actual conditions and situations. The surrounding environment provides many choices and diverse learning resources, allowing students complete freedom to develop their knowledge and adequately embed what they learn. The learning activity closest to students is using their environment as a learning medium. The environment is relatively settled; students will find it easier to identify and learn (Syah, Hidayat, Yuca, Ardi, & Magistarina, 2021). It is hoped that by using the natural environment to study plants, students can better understand the natural phenomena that occur in everyday life. Direct interaction with their environment will foster a new awareness of the relationships between various environments (Kusumawardani, Nurmalasari, & Rofiq, 2023).

The media acts as an introducer or mediator of messages. Media are people, materials, or events that create conditions that enable students to acquire knowledge, skills, or attitudes (Putri, Japar, & Bagaskorowati, 2019). Media usually refers to graphic, photographic, or electronic tools used to capture, process, and combine visual and verbal information in the teaching and learning process. In addition, (Qian,

Korobeynikov, Mishchuk, & Korobeynikova, 2020) states that media are various elements of students' environments that can help them learn. Media can convey messages from sender to recipient to encourage students' thoughts, feelings, attention, and interests, allowing learning to occur anytime and anywhere (Aggarwal, Woolley, Chabris, & Malone, 2019). Media use in learning activities is essential, especially for elementary school students, because they still think concretely and cannot think abstractly. Media helps them understand concepts that cannot be explained with language. Media can represent the teacher's role in explaining material (Hardiansyah & AR, 2022). Thus, by using the environment as a learning medium, teachers hope students will understand what is being taught more quickly (Hardiansyah, Zainuddin, Sukitman, & Astutik, 2023). This is because the environment is closer to students, so they can more quickly understand and develop a love for the surrounding environment (Zhou et al., 2023).

Based on the fourth-grade science learning process in elementary schools in Sumenep district, the surrounding natural

environment has yet to be utilized in learning. So, researchers want to know students' responses to learning by utilizing the natural environment. Teachers have yet to implement learning outside the classroom, whereas learning outside the classroom can facilitate students learning actively. The natural conditions of the location around the school can support the science learning process by utilizing the natural surroundings. The spacious schoolyard also supports learning outside the classroom.

For this reason, teachers still need to optimize the use of the surrounding natural environment in learning. This is to gauge the responses of class IV science students to research that used the surrounding environment as a teaching tool for active learning. One lesson that can be utilized is the surrounding natural environment (eco-literacy). By utilizing the surrounding natural environment for class IV students, it is hoped that learning will be more meaningful for them.

There are three categories of learning media: sight, hearing, sight-hearing, and pictures. According to (De Keersmaecker et al., 2020), food media can be natural objects, people,

and events, models of natural objects, people, and events, or images of natural objects, people, and events. School equipment, sports equipment, and objects around the environment are examples of viewing media that are quite effective to use (Hardiansyah, 2022c). These natural objects can be quickly brought to school or shown directly (Hardiansyah & Zainuddin, 2022). Media can perform three main functions when used for individuals, groups, or large groups of listeners, according to (Usmiyatun, Darmayanti, Safitri, & Afifah, 2021) encouraging interest or action, providing information, and giving directions. Drama or entertainment techniques can be used as learning media to fulfil a motivational function. The expected results are students' interest and motivation to take on assignments, serve voluntarily, or make material donations. Achieving goals will influence a person's perspective, principles and ethics (Gao et al., 2022).

B. RESEARCH METHOD

This type of research uses qualitative research with a phenomenological approach. Qualitative research is research

carried out to find out phenomena about something felt by the subject, in research such as deeds, opinions, and actions in detail written to study a fact about something that is encountered by the subject in global research by writing it down by describing it in the form a series of words and language, in a scientific work using natural methods (Flew & Kirkwood, 2021). The phenomenological approach is an approach used in research that produces data findings in the field clearly and meaningfully and then describes the results of the research that has been carried out (Yeoh, 2020). Qualitative phenomenological research focuses on exploring, understanding and explaining phenomena, events and their relationship with humans in certain situations (Seyfi, Hall, & Rasoolimanesh, 2020).

The location of this research was at SDN Poja II, Sumenep Regency. In this study, the subjects used were class V teachers and class V students, totalling 36 people. The object of this research is an analysis of eco-literacy in science learning in elementary schools. The data collection techniques applied were using interview techniques, observation, documentation and filling out

questionnaires (Aggarwal & Woolley, 2019). Furthermore, the data validity technique used is the triangulation technique. The triangulation technique checks the validity of the research data by using three data collection techniques, namely interviews, observation and questionnaires. Data collection through data triangulation techniques combines various data collection methods such as interviews, observations and questionnaires regarding the research to be conducted.

The data analysis technique used in this research is a data analysis model according to the model from Miles and Huberman, namely 1) collecting data from teacher interviews, observation and documentation in the field, and filling out student questionnaires. 2) data reduction is meant by sorting, focusing and summarizing data. In the first stage, the researcher collected data; then, in the second stage, the researcher selected data from interviews, observations, documentation and filling out questionnaires. Then, the researcher chooses which field notes to use and which not to use for the research objectives. 3) data presentation, namely a description of a collection of

information compiled to draw conclusions and take action. At this stage, the researcher presents the data from field notes through word descriptions, descriptions, and diagrams; therefore, this stage is taken by the writer to make it easier to obtain data that is accurate and by the research objectives. 4) In conclusion, researchers can conclude from the results of interview data, observation, documentation and filling out questionnaires obtained while in the field, then the data becomes valid and can answer the research formulation.

C. FINDINGS AND DISCUSSION

The research results that have been carried out are in the form of interviews, questionnaires, observations and documentation regarding eco-literacy in science learning as a teaching medium in schools. The data from the interviews that were carried out in class V during 2 meetings with the class V teacher are as follows:

Table 1. Interview Results

Variables	Indicators	Interview Results
	Learning process outside the classroom	The students are thrilled and enthusiastic when the teacher carries out the learning process outside; this is proven by the condition of the students during the learning process outside and inside the classroom, namely that they are equally active and very enthusiastic.
Utilization of eco-literacy in science learning to increase student learning motivation	Teachers' use of the school environment in the learning process	Teachers always carry out the teaching and learning process by utilizing the school environment, especially in science subjects, but teachers also often utilize the school environment in learning activities in other subjects. The aim of carrying out the learning process by utilizing the school environment is to make it easier for students to understand the material and to be more grateful for God's creation. The positive impact of learning outside the classroom is that it becomes fun because it is different and varied.
	Students' active learning in learning activities by utilizing the school environment	Class V students seem to be very active in learning when the learning process is carried out outside the classroom by utilizing the school environment. This is evident from the students who actively ask the teacher when they don't understand the material, apart from that they are also very enthusiastic about answering questions from the teacher.

Provision of school facilities to support the learning process in the school environment

The school is equipped with supporting facilities to carry out the learning process outside the classroom, such as the availability of a mini zoo, gardens, rice fields, parks, hydroponic plant rooms and fish ponds. Teachers often use the facilities at this school in the learning process, such as science materials; teachers often use the mini zoo and school garden.

Based on the interview results, it can be seen that the fifth-grade teacher always carries out the learning process outside the classroom by utilizing the school environment in the learning process, especially in science subjects. Students' responses when the learning process is carried out outside the classroom are excellent; this can be seen from their motivation to learn and their activeness when asking the teacher when they don't understand the material. In line with Anindita Sidabutar's opinion, the advantage of utilizing nature in the learning process is that students can easily recognize several objects directly related to the learning material (Nugraha et al., 2022). Students' learning motivation has also increased, evident from their enthusiasm when working on worksheets distributed by the teacher before learning activities outside the classroom.

Based on the results of observations, it shows that the five indicators are met, where all aspects are observed well. In the 1st and 2nd observations, namely 1) Indicators of the learning process outside the classroom, the teacher carries out learning outside by utilizing the environment in science learning ecosystem material; before the learning process is carried out, the teacher has designed learning tools such as the Daily Activity Plan and Worksheet. The students looked happy in the learning activities carried out by the teacher outside the classroom, so there were differences in the students' conditions when learning outside and inside the classroom. 2) The next indicator is teachers' use of the school environment in the learning process. Teachers often use the school environment and provide tangible examples of the material. Next, the teacher distributes LKPD to students

and students work on them in an orderly manner. 3) Indicators of student learning motivation in learning activities by utilizing the school environment: teachers always motivate students before the learning process is carried out so that students become enthusiastic and enthusiastic about learning. 4) The next indicator is that students are active in learning activities by utilizing the school environment; students become active and enthusiastic about asking and answering questions from the teacher. 5) indicators of providing school facilities to support the learning process: this school provides complete facilities such as parks, fish ponds, mini zoos, gardens and hydroponic gardens to support the learning process outside the classroom.

The questionnaire results with 30 respondents showed that 2 students got very poor criteria, 5 got poor criteria, 11 got sufficient criteria, 9 got good criteria, and 3 got perfect criteria. Students who get very poor criteria indicate that their motivation to learn is still very lacking, which can be seen from the results of their questionnaire answers to the positive statement, "I am very enthusiastic about paying

attention to the teacher when explaining when studying in the school environment" with the indicator of their "desire to learn science" answered with a statement of strongly disagreeing. Students who get fewer criteria indicate that their motivation to learn is lacking, which can be seen from the results of their questionnaire answers to the positive statement "I like studying outside the classroom, namely in the school environment" with the indicator "activities using the school environment by teachers" they answered with disagreement. Furthermore, for students who achieved sufficient criteria, it can be seen from their questionnaire answers to the positive statement "The process of learning science in the school environment by the teacher is very interesting for me" with the indicator "activities utilizing the school environment by the teacher" they answered in the affirmative. Meanwhile, students who received good criteria can be seen from their questionnaire answers to the positive statement "I became active in learning because the teacher carried out learning outside the classroom such as in the school yard" with the indicator "encouragement and

facilities for learning" they answered in the affirmative. Then, for students who got perfect criteria, it can be seen from their questionnaire answers to the statement "I am enthusiastic about learning science because my teacher explains science material by utilizing the environment." with the indicator "showing enthusiasm for learning science", they answered very firmly. The questionnaire answers prove that many students have good motivation to learn, as seen from the answers to their chosen statements (Suhendar et al., 2023).

The learning process for ecosystem material is carried out in the school environment. Before starting the learning process outside the classroom, the students are briefed about the lessons they will learn today; then, the teacher distributes worksheets to the students. The learning process occurs in parks, fish ponds and mini zoos. The school environment can give a good impression on learning activities, such as students being enthusiastic and feeling happy and interested in participating in the learning process.

Teachers' use of the school environment can increase students' learning motivation; this can be seen

from the students' questionnaire responses. The results of the student questionnaire averaged 80% with reasonable criteria; the students were enthusiastic about learning because the teacher carried out the learning process by utilizing the school environment. Apart from that, students' motivation also increases, as seen from their activeness during the learning process; many students actively ask the teacher when they don't understand the material and actively answer questions asked by the teacher. Other data results are in the form of observations regarding teachers' implementation of the use of the school environment. There are several supporting facilities for carrying out the learning process outside the classroom, namely utilizing the school environment, such as mini zoos, gardens, parks, hydroponic plant rooms, rice fields and fish ponds. Apart from that, the results of observations made by researchers can be concluded that many teachers use school facilities such as mini zoos in the learning process outside the classroom to include science material.

Data obtained through interviews with class V teachers, researchers concluded that teachers often carry

out the learning process outside by utilizing the school environment; this is done so that students do not get bored when studying indoors. In carrying out the learning process outside the classroom, it also adapts to previous themes, such as science material about ecosystems; here, students are invited to learn outside the classroom, such as in the school garden, mini zoo and fish pond. Before carrying out outdoor learning activities, the teachers brief the students by explaining a little about the sequence of activities that will be carried out today. Next, the teacher distributes worksheets students can work on during the activity. So, besides science subjects, teachers also often utilize the school environment in the learning process, including English subjects. The class V teacher also explained that by carrying out learning activities outside, such as in the school environment, students' learning motivation increases, as can be seen from their activeness during learning activities; many students are enthusiastic and eager to ask their teachers when they have difficulty understanding the material. Apart from that, teachers teaching teachers by inviting them to learn outside the

classroom positively impacts students, namely that students can explore their knowledge more, and learning becomes less boring (Syah et al., 2021). Teachers' teaching methods will affect students' enthusiasm for learning because monotonous and irregular methods will cause students to get bored. From the explanation above, researchers can conclude that the use of eco-literacy in science learning as a teaching medium in schools has been implemented well; this is proven by the teachers who often utilize the school environment in the learning process. The facilities at the school are also very supportive of carrying out learning activities outside; many facilities are available there.

D. Conclusion

Based on research findings and discussions regarding the use of eco-literacy in science learning as a teaching medium in elementary schools, it can be concluded that teachers in schools often carry out outdoor learning processes by utilizing the school environment. Class V students are happy and hope learning can occur at their school using the surrounding natural environment. Utilizing the environment in science

learning also does not require costs. Learning patterns that utilize the natural environment also attract more students' attention. This can be seen from the results of observations, interviews, documentation and triangulation; all of the indicators in the research can support the use of the surrounding natural environment as a teaching medium for science learning.

REFERENCES

- Af'idah, N., Fitriyah, L. A., & Manasikana, O. A. (2021). Implementation of Ecoliteracy and Ecorepreneurship to Grow Entrepreneurial Interest of Science Education Students. *Lensa: Jurnal Kependidikan Fisika*, 9(2), 113–123.
- Aggarwal, I., & Woolley, A. W. (2019). Team creativity, cognition, and cognitive style diversity. *Management Science*, 65(4), 1586–1599.
- Aggarwal, I., Woolley, A. W., Chabris, C. F., & Malone, T. W. (2019). The impact of cognitive style diversity on implicit learning in teams. *Frontiers in Psychology*, 10, 112.
- De Keersmaecker, J., Dunning, D., Pennycook, G., Rand, D. G., Sanchez, C., Unkelbach, C., & Roets, A. (2020). Investigating the robustness of the illusory truth effect across individual differences in cognitive ability, need for cognitive closure, and cognitive style. *Personality and Social Psychology Bulletin*, 46(2), 204–215.
- Flew, T., & Kirkwood, K. (2021). The impact of COVID-19 on cultural tourism: Art, culture and communication in four regional sites of Queensland, Australia. *Media International Australia*, 178(1), 16–20.
- Gao, B., Li, K., Liu, J., Liu, X., Zhang, J., Xu, C., ... Zhao, M. (2022). Life events and depression among children and adolescents in southwest China: a two-stage moderated mediation model of social support and cognitive styles. *BMC Psychiatry*, 22(1), 1–17.
- Hardiansyah, F. (2022a). Snowball Throwing: A Method To Uplift Elementary School Students' Responsibility on Environment. *AL-ISHLAH: Jurnal Pendidikan*, 14(3), 3853–3864. <https://doi.org/10.35445/alishlah.v14i3.1966>
- Hardiansyah, F. (2022b). The Implementation of School-Based Management in Improving Quality of Education in Primary School. *Kelola: Jurnal Manajemen Pendidikan*, 9(2), 148–162. <https://doi.org/10.24246/j.jk.2022.v9.i2.p148-162>
- Hardiansyah, F. (2022c). the Implementation of Tolerance Character Education Through Social Science Learning in Elementary School. *AULADUNA: Jurnal Pendidikan Dasar Islam*, 9(2), 168–180. <https://doi.org/10.24252/auladuna.v9i2a5.2022>
- Hardiansyah, F., & AR, M. M. (2022). Enhancing Students' Learning Motivation through Changing Seats in Primary School. *Mimbar Sekolah Dasar*, 9(1), 253–268. <https://doi.org/10.53400/mimbar-sd.v9i1.43002>
- Hardiansyah, F., AR, M. M., & Hidayatillah, Y. (2022). IPAS

- Learning Assessment To Measure Science Process Skill In Elementary School. *International Journal of Elementary Education*, 6(3), 612–623. <https://doi.org/https://doi.org/10.23887/ijee.v6i4.54217>
- Hardiansyah, F., & Mas'odi, M. (2022). The Implementation Of Democratic Character Education Through Learning Of Social Science Materials Of Ethical And Cultural Diversity In Elementary School. *Journal of Innovation in Educational and Cultural Research*, 3(2), 234–241. <https://doi.org/10.46843/jiecr.v3i2.101>
- Hardiansyah, F., & Mulyadi. (2022). Improve Science Learning Outcomes for Elementary School Students Through The Development of Flipbook Media. *Jurnal Penelitian Pendidikan IPA*, 8(6), 3069–3077. <https://doi.org/10.29303/jppipa.v8i6.2413>
- Hardiansyah, F., & Wahdian, A. (2023). Improving Science Learning Outcomes Through the Development of the Magic Card Box Learning Media. *AL-ISHLAH: Jurnal Pendidikan*, 15(1), 823–833. <https://doi.org/https://doi.org/10.35445/alishlah.v15i1.2711>
- Hardiansyah, F., & Zainuddin, Z. (2022). The Influence of Principal's Motivation, Communication, and Parental Participation on Elementary School Teachers' Performance. *Al Ibtida: Jurnal Pendidikan Guru MI*, 9(2), 319–334. <https://doi.org/10.24235/al.ibtida.snj.v9i2.9936>
- Hardiansyah, F., Zainuddin, Z., Sukitman, T., & Astutik, C. (2023). Development Of Learning Media Smart Book To Improve Understanding Of Elementary School Students In Science Learning. *Lentera Pendidikan: Jurnal Ilmu Tarbiyah Dan Keguruan*, 26(1), 72–87. <https://doi.org/https://doi.org/10.24252/lp.2023v26n1i7>
- Kusumawardani, E., Nurmalasari, Y., & Rofiq, A. (2023). Ecoliteracy Competence Assessment to Improve Innovation Capability in a Rural Community. *Journal of Education Research and Evaluation*, 7(1).
- Nugraha, R. G., Jalal, F., & Boeriswati, E. (2022). The Urgency Of The Ecoliteracy Module In Improving The Ecoliteracy Ability Of Elementary School Students. *International Conference on Language and Language Teaching*, 43–56.
- Putri, S. S., Japar, M., & Bagaskorowati, R. (2019). Increasing Ecoliteracy and Student Creativity in Waste Utilization. *International Journal of Evaluation and Research in Education*, 8(2), 255–264.
- Qian, X. X., Korobeynikov, G. V., Mishchuk, D. M., & Korobeynikova, L. G. (2020). Features of individual cognitive style of qualified badminton players. *Health, Sport, Rehabilitation*, 6(4), 39–46.
- Seyfi, S., Hall, C. M., & Rasoolimanesh, S. M. (2020). Exploring memorable cultural tourism experiences. *Journal of Heritage Tourism*, 15(3), 341–357.
- Suhendar, A., Taufika, R., Rachmatsyah, R., Yusuf, R., Fajri, I., Yusoff, M. Z. M., & Adawiah, R. (2023). Eco-literacy and sustainable citizenship: The role of the school environment in

- shaping responsible environmental behavior. *Sekumpul: Journal of Multidisciplinary Education Sciences*, 1(1), 12–19.
- Syafi'atun, A., Saptono, S., & Putra, N. M. D. (2022). Utilization of Household Waste Media in Project-Based Learning to Improve Students' Eco-literacy and Creativity. *Journal of Primary Education*, 11(1), 64–77.
- Syah, N., Hidayat, H., Yuca, V., Ardi, Z., & Magistarina, E. (2021). Examining the Effects of Ecoliteracy on Knowledge, Attitudes, and Behavior through Adiwiyata Environmental Education for Indonesian Students. *Journal of Social Studies Education Research*, 12(4), 209–230.
- Usmiyatun, U., Darmayanti, R., Safitri, N. D., & Afifah, A. (2021). Cognitive style, thinking ability, mathematical problems, how do students solve open-ended problems? *AMCA Journal of Science and Technology*, 1(2).
- Yeoh, B. S. A. (2020). The global cultural city? Spatial imagineering and politics in the (multi) cultural marketplaces of South-east Asia. *Culture-Led Urban Regeneration*, 102–115.
- Zhou, X., Li, X., Wu, W., Zhang, X., English, A. S., & Peng, K. (2023). Fear during pandemic promoted holistic cognitive style: The moderating role of uncertainty. *Emotion*.