

# Teacher's Perceptions of Ecoliteracy Practice to Sustainable Communities in Primary Schools

Ganes Gunansyah<sup>1,\*</sup> Ulhaq Zuhdi<sup>1</sup>, Tri W. Setyaningrum<sup>1</sup>, Bekti Bernardi<sup>2</sup>

<sup>1</sup>Department of Primary Teacher Education, Universitas Negeri Surabaya, Indonesia

<sup>2</sup>Islamic Primary Teacher Education, Sekolah Tinggi Agama Islam Tasikmalaya, Indonesia

\*Corresponding author: [ganesgunansyah@unesa.ac.id](mailto:ganesgunansyah@unesa.ac.id)

## ABSTRACT

The purpose of this study is to investigate the perceptions and explore the experiences of sustainability community-based ecoliteracy practices in elementary schools which includes creating conditions, using strategies, and achieving learning outcomes. This study uses a quantitative analysis approach with a survey method. The population in this study were 1070 teachers at 56 primary schools in the west part of Surabaya. The number of samples taken was 63 teachers from 9 schools using the two-stage cluster sampling technique. The demography of respondents were described based on gender, age, level of class teaching, and teaching experience. The data was collected using a questionnaire with google form. The data analysis technique used descriptive statistics by calculating the percentage of each variable. The results showed the practice of ecoliteracy learning which includes the management of the learning environment, the use of learning methods and strategies, and the overall learning outcomes that are sustainable community oriented to ecoliteracy practice in elementary schools which has enough category. The implication of this research is that it can be used as material for improving eco-literacy programs as well as promoting Education Sustainable Development in elementary schools.

**Keywords:** *Ecoliteration, Teachers perceptions, Sustainable communities*

## 1. INTRODUCTION

UNEP together with UNESCO as a branch of the United Nations organization that focuses on the study of natural problems, environmental policy, education, science and culture has released a report on the quality of the natural environment in the world. including Indonesia which is decreasing [1]. Education is one of the agenda being promoted as the core of the Sustainable Development Goals (SDGs) strategy to promote capacity building and education process in strengthening the ability of communities in sustainable action [2]. The aim of the program is directed so that it can be implemented in schools that are integrated into a standard education plan, curriculum and framework [3]. Educational practice can give intervention in environmental protection efforts and biodiversity [4]. Children who are interested and spend more time interacting with the environment will enable them to develop pro - environmental attitudes [5].

The idea of the need for awareness of the importance of protecting the natural environment requires the support of the capacity of knowledge, skills, values, one of

which can be facilitated through Ecoliteracy in the school field. Environmental literacy provides knowledge, and students can use that knowledge to make decisions about environmental problems [6]. The Ecoliteracy domain includes four components in the form of knowledge, skills, affective, and action [7]. The practice of Eco literacy learning is very relevant in supporting sustainable aspects through the creation of learning conditions (learning objectives, constraints, and student characteristics), the use of learning methods (organizing, delivery and management strategies), and learning outcomes (effectiveness, efficiency, and attractiveness. learning [8].

In connection with Ecoliteracy, starting in 2018 the Surabaya city government has collaborated with the environmental *Tunas Hijau* organization (TH) through the Surabaya Eco School program. The program provides punishment to schools that have indicated their environment is dirty by installing a black flag as a form of social sanction. In 2019, based on a report from the education office of the City of Surabaya, it was noted that the most elementary schools in West Surabaya received

the black flag as punishment by 44% or 11 schools. This shows that there are still many elementary schools that have not fully implemented the Surabaya Eco School program properly. Because it still needs to be investigated how the perception and experience of teachers striking management learning conditions, the use of the strategy, as well as the achievement of learning outcomes that support the Eco Literacy practice. It is hoped that this paper can serve as a reference for efforts to improve and perfect the Eco literacy program as well as a reference for relevant good practices in primary schools.

**2. METHOD**

This study used a quantitative analysis approach with a survey method aimed at investigating teachers' perceptions and experiences in ESD-oriented Eco literacy practices in elementary schools in Surabaya. The population in this study were teachers at 56 SD Negeri Surabaya City in the west which were scattered in the Tandes, Sukomanunggal, Lakarsantri, Pakal, Benowo, and Sambikerep districts, totaling 1,070 people. The number of samples taken was 63 from 9 schools using the two stage cluster sampling technique. The categories of respondents were based on gender, age, level of class teaching, and teaching experience.

The instrument uses a questionnaire with a four-point Likert scale modification in the form of strongly agree, agree, disagree and strongly disagree which is spread evenly into positive and negative statements as many as 35 items of closed questions and 3 items of open questions. To obtain objective results using both internal and external validity and reliability. Data analysis used descriptive statistics to describe the grouping categories that obtained the highest and lowest scores using frequency and per centage tables

- $X > Mi + 1.5 SDi$  Very Good
- $Mi + 0.5 SDi < X \leq Mi + 1.5 SDi$  Good
- $Mi - 0.5 SD < X \leq Mi + 0.5 SDi$  Good Enough
- $Mi - 1.5 SD < X \leq Mi - 0.5 SDi$  Poor
- $X \leq Mi - 1.5 SDi$  Very Poor

**3. RESULTS AND DISCUSSION**

**3.1. Teacher Characteristics**

Here teacher characteristics by background include gender, age, teaching class, and the experience of training and experience-oriented learning practices Eco literacy presented in Table 1.

**Table 1.** Distribution of teacher characteristics

Characteristics	Category	f	%
Gender	Female	51	81
	Male	12	19
Age	21-30	4	6.3
	31-40	28	44.4
	41-50	17	27
	51-60	14	22.2
Class teaching	Low	32	50.8
	High	31	49.2
Teaching experience	1-10	13	20.6
	11-20	32	50.8
	21-30	12	19
	31-40	6	9.5

Based on teacher characteristics, it is known that most of the women (81%) are aged between 31-40 years (44%) and experience between 11-20 years is 50.8%). Meanwhile, the class of teaching places is evenly distributed in the low and high classes. When viewed from the distribution of teacher characteristics, it seems very strategic and potential to support the success of the Eco literacy program in schools.

**3.2. Ecoliteration Practices**

Based on Table 2, the majority of teachers expressed agreement regarding support learning aspect -oriented Ecoliteracy through the stages of the creation of the conditions, the use of strategies and achievement of results. Each stage is further divided into items of questions aimed to obtain information in the form of perceptions and experiences of teachers in designing learning scenario, identify constraints and characteristics of students, implementing a variety of strategies learning , utilization of media and learning resources, the creation of a learning experience, the integration of the charge material in learning, refraction and development efforts of students, as well as the achievement of results which is based on effectiveness, efficiency as presented table below.

**Table 2.** Eco literacy-oriented learning

Dimensions	Statement	SS	%	S	%	T S	%	STS	%
Creation of conditions	the need to get used to caring for the environment as an effort to increase students' caring attitude towards the environment	45	71.4%	18	28.6%	0	0%	0	0%
	Environmental intelligence can be improved through Eco literacy learning	22	34.9%	41	65.1%	0	0%	0	0%
	The need to take advantage of students' interaction experiences with the environment in compiling learning scenarios	28	44.4%	34	54%	1	1.6%	0	0%
	Planting and caring for plants is a way to engage students in Eco literacy learning	30	47.6%	33	52.4%	0	0%	0	0%
	invites students to think about the impact / consequences that occur for an action on the environment	14	22.2%	49	77.8%	0	0%	0	0%
	inviting students to learn by taking advantage of the environment outside the classroom such as school gardens / gardens and so on	5	7.9%	56	88.9%	2	3.2%	0	0%
	The need to attend seminars / training related to Eco literacy or environmental education	3	4.8%	13	20.6%	28	44.4%	19	30.2%
Use of strategy	Eco literacy learning needs to be integrated into various subjects / across fields of study	20	31.7%	41	65.1%	2	3.2%	0	0%
	The use of the environment as the main media and source of Eco literacy learning	34	54.0%	29	46%	0	0%	0	0%
	Inviting students to be directly involved in Eco literacy practices through the use of the environment as a learning experience	29	46.0%	33	52.4%	1	1.6%	0	0%
	Recording student learning progress in a comprehensive Eco literacy practice	7	11.1%	43	68.3%	11	17.5%	2	3.2%
	Controlling student learning by assessing students' habits in protecting the environment	18	28.6%	45	71.4%	0	0%	0	0%
	motivate students in terms of responsibility through giving awards / praise	13	20.6%	38	60.3%	11	17.5%	1	1.6%
	The routine refraction program for caring for the school environment can introduce the importance of the importance of Eco literacy to school residents	7	11.1%	56	88.9%	0	0%	0	0%
	Paying attention to the conditions and characteristics of students before starting Eco literacy learning practices in school	3	4.8%	51	81%	9	14.3%	0	0%
	Ensuring the suitability of learning activities with the achievement of learning objectives	4	6.3%	49	77.8%	10	15.9%	0	0%
Achievement	believe in the influence of student knowledge on attitudes and actions in protecting the environment	18	28.6%	44	69.8%	1	1.6%	0	0%
	habituation of Eco literacy activities can increase students' awareness of respecting the environment	20	31.7%	42	66.7%	1	1.6%	0	0%

Bring students closer to the environment so that they feel happy and like Eco literacy practices	17	27%	46	73%	0	0%	0	0%
The suitability of learning outcomes achieved in Eco literacy learning practices	4	6.3%	50	79.4%	9	14.3%	0	0%
The suitability of time efficiency in achieving the objectives of Eco literacy learning practice	0	0%	43	68.3%	20	31.7%	0	0%
The suitability of energy efficiency in achieving the objectives of Eco literacy learning practice	0	0%	42	66.7%	20	31.7%	1	1.6%
The suitability of cost efficiency in achieving the objectives of Eco literacy learning practice	0	0%	43	68.3%	20	31.7%	0	0%

Most teachers stated their agreement that the practice of learning-oriented eco literacy need to be supported and facilitated by good design. *First*, the creation of conditions such as habituation, the ability to think about consequences and learning experiences that support interactions related to the environment. *Second*, the use of strategies through the integration of learning across fields of study, the environment as the main learning resource, direct involvement through various environmental conservation activities. *Third*, the achievement of results to ensure the suitability of time, effort, cost and achievement of learning objectives which include dimensions of cognitive, affective and student behaviour. For the development of the dimension of knowledge, especially critical thinking, the teacher emphasizes the need for the ability to detect problems (n = 38), collect data (n = 40), register the consequences of action (n = 34), formulate alternative problem solving (n = 48), and draw conclusion (n = 43).

Next is the content of the theme that is relevant to the principle of Eco literacy learning, the teacher agrees that it needs to teach about interactions with the environment (n = 61), diversity (n = 44), sustainability (n = 27), interdependence (n = 35), harmony with nature (n =

31). While the teachers' efforts for motivate students, teachers need to make giving attention to students (n = 59), explaining the relevance of learning (n = 49), assists learning difficulties (n = 48) and the award / praise (n = 52), monitored aspects of student development (n = 51), kept records of progress on an ongoing basis (n = 55).

There are 7 question items to obtain data on the creation of learning conditions. The results of descriptive calculations obtained the highest value of the respondents by 35 and the lowest value of 26. The mean learning conditions were 29.63, and the standard deviation was 2.295. For the use of the strategy, the respondent's highest score was 35 and the lowest was 26. The mean learning conditions were 30.90, and the standard deviation was 2.532. To achieve the highest score, the respondents were 34 and the lowest was 24. The mean learning condition was 28.73, and the standard deviation was 2.187. When viewed from all frequency distribution, perception and experience of teachers convey agree and support for efforts eco literacy program in schools as presented in Table 3.

**Table 3.** The frequency of research data

Component	N	Min	Max	Sum	Mean	Std. Deviation
Learning practice	63	80	103	5624	89.27	5,004
<b>Condition</b>	63	26	35	1867	29.63	2,295
Learning objectives	63	8	12	630	10.00	1,016
Obstacles	63	6	13	591	9.38	1,396
Characteristics of learners	63	9	12	646	10.25	1,121
<b>Method</b>	63	26	35	1947	30.90	2,532
Organizing strategy	63	8	12	586	9.30	.796
Delivery strategy	63	7	12	601	9.54	1,229
Management strategy	63	10	14	760	12.06	1,216
<b>Result</b>	63	24	34	1810	28.73	2,187
Effectiveness	63	12	17	899	14.27	1,273
Efficiency	63	6	9	505	8.02	1,408

Attractiveness	63	4	8	406	6.44	.857
Valid N (listwise)						

In addition to closed statements, there are also answers in open form as written by several teacher respondents regarding the practical experience of Ecoliteracy learning. An example of one of the teachers said "through Eco literacy program can gain experience make hydroponics, greening in school, engage in clean Friday, activity picking up litter before the clock starts learning, activities reduce plastic waste by bringing their own tumbler bottle to school, make *biopori*, and conduct eco school activities".

Meanwhile, another teacher said that "in collaboration with Tunas Hijau (pro-environmental social organization), the Surabaya City Environmental Service, the Sanitation and Security Service, and the Surabaya City DKRTH have provided a number of practical experiences regarding environmental-based school

**Table 4.** Teacher grouping categories

Category	Frequency	Percent	Valid Percent	Cumulative Percent
Very positive	8	12.7	12.7	12.7
Positive	11	17.5	17.5	30.2
Pretty positive	26	41.3	41.3	71.4
Less positive	16	25.4	25.4	96.8
Very less positive	2	3.2	3.2	
Total	63	100.0	100.0	100.0

The teacher has a strategic role and position in managing the learning environment. The creation of a learning environment that is relevant to a changing world and optimal resource management are necessary in responding to today's challenges. One of the main challenges is to create a learning environment that involves the sensitivity of students [9]. Eco literacy is a movement aimed at integrating social emotional intelligence to create educational, social, and environmental welfare by reducing environmental damage and preserving nature [10].

Adopting an interdisciplinary approach can facilitate educational practices for sustainable development [11]. There are quite a number of public elementary schools in Surabaya that have practiced hydroponic making, composting, and other activities in maintaining and caring for the environment. It is hoped that this will encourage the care and responsibility of school residents to the environment. Eco Literacy is an awareness that nature and humans influence each other in all aspects of their lives to form a sustainable society that is aware of the importance of protecting the environment [12].

program management. "Another teacher said" through the participation of the eco literacy program, the school has obtained several achievements that make the school proud, such as winning the *Adiwiyata* competition at the city level, second place in the UKS (School's Health Clinic) competition for little doctors, completing the 3rd stage selection competition for the prince and princess environment in Surabaya City, finalists in the yells competition. Tunas Hijau, 1st winner in Surabaya City level zero waste competition, and winner of ecopreneur Tunas Hijau.

Based on descriptive statistical analysis, the categories of teachers who received the highest and lowest scores are presented with a frequency and percentage table in table 4.

The Centre of Eco literacy in the United States has developed four core competencies for Eco literacy, namely knowledge, attitude skills, and human relations with nature. Knowledge competency Indicator is understanding the basic ecological principles and the ability to think in terms of the context of the existing problems, analyse the impact of technology and human behaviour, think about the long-term effects will be obtained, and think deeply and critically about a problem. Eco literacy can facilitate the involvement of high-level thinking about cause and effect and connect existing problems with a more complex network of systems [13]. Based on the teacher's experience, it is necessary to introduce students to the consequences of human action on the environment. Environmental literacy provides knowledge for students to be used in making decisions about environmental problems [6].

Competencies indicator such attitude of empathy and care for the environment, respect for the environment along with its contents, hold firm to be justice, not take away the rights of others for personal gain. According to the teacher's perception, bringing students closer to the environment through environmental observation activities, caring for and protecting plants in the school garden is believed to be able to foster sensitivity and

care. Behaviour towards the environment influenced by individuals concerned in protecting nature and treat well and friendly [14].

Competency indicator skills in the form of inventing an environmentally friendly community needs, utilizing existing resources with due regard to the principles of ecology and energy use of existing as well as possible. One of the characteristics of modern society is the high consumption of industrial products derived from natural resource-based materials accompanied by exploitation of natural resources [13]. This characteristic appears in the teacher's perception of the need for support from various resources, the involvement of all parties in environmental sustainability efforts. The key to the continuing education model is reconnecting humans with nature and the environment [15].

Competence indicator of human relationship with nature in the form of experience memorable and love for nature, respect for nature and all its components, is always grateful for the beautiful environment, and feel close to nature and try to keep it. This indication can be seen from the teacher's perception that it is important to raise awareness from the start to respect and respect the environment. The attitude dimension is shown through responses to environmental problems, including interest, sensitivity, responsibility, and willingness to act in managing the environment [16]. Someone who has ecological literacy will understand how to apply it in the real environment, the interconnection of local and global problems and be aware of the needs of the local environment [17].

Various achievements from the practice of eco literacy through the involvement of schools in various competitions for environmental activities, the achievements in cities, provinces, and nationalities as well as cooperation from various parties are expected to motivate as well as emphasize that solving environmental problems requires collaboration of many parties. Participatory efforts can provide opportunities for all stakeholders involved in building a collective understanding of sustainable development issues [18]. Therefore, Eco literacy practices in schools in the context of sustainable development are expected to contribute positively to the reconstruction of better socio-ecological practices.

#### 4. CONCLUSION

Teachers' perceptions and experiences regarding sustainable Eco literacy practices are in a good category. Most teachers agree that the success of Eco literacy practice needs to be supported by efforts to create learning conditions, the use of various strategies and targets for achieving effective and efficient results. Eco literacy learning experience through student interaction with the environment is directed to develop dimensions of knowledge, skills, attitudes and actions into learning activities. Developing knowledge by introducing students to the consequences of human action. The development of a caring attitude, empathy, and respect for the environment is facilitated by observation activities and activities to care for and manage the school environment. Skills development is bridged with the use of various resources owned by schools through collaboration, collaboration that is directed towards sustainable community.

#### REFERENCES

- [1] K. G. Austin, A. Schwantes, Y. Gu, and P. S. Kasibhatla, "What causes deforestation in Indonesia?," *Environ. Res. Lett.*, 2019. Available: 10.1088/1748-9326/aaf6db.
- [2] M. F. Westphal, M. C. Franceschini, and A. F. F. Setti, "How can the healthy municipalities, cities and communities strategy advance the sustainable development goals agenda? lessons from agenda 21 and the MDGs in Brazil," in *World Sustainability Series*, 2018.
- [3] UNESCO, "UN decade of ESD," *Educ. Sustain. Dev.*, 2014.
- [4] N. Harring, S. C. Jagers, and S. Matti, "Public support for pro-environmental policy measures: Examining the impact of personal values and ideology," *Sustain.*, 2017. Available: 10.3390/su9050679.
- [5] J. C. H. Cheng and M. C. Monroe, "Connection to nature: children's affective attitude toward nature," *Environ. Behav.*, 2012. Available: 10.1177/0013916510385082.
- [6] J. A. King and R. L. Franzen, "Environmental literacy in environmentally themed higher education courses," *J. Sustain. Educ.*, 2017.

- [7] H. Karimzadegan and H. Meiboudi, "Effectiveness of environmental education on environmental knowledge of kindergarten children in Rasht City," *J. Environ. Friendly Process.*, 2014. Available: 10.14266/jefp14-2.
- [8] N. Lebo, C. Eames, R. Coll, and K. Otrell-Cass, "Toward Ecological Literacy: A Permaculture Approach to Junior Secondary Science," *Aust. J. Environ. Educ.*, 2014. Available: 10.1017/aee.2014.9.
- [9] M. Kalantzis and B. Cope, "The teacher as designer: Pedagogy in the new media age," *E-Learning*, 2010. Available: 10.2304/elea.2010.7.3.200.
- [10] D. Goleman, Z. Barlow, and L. Bennett, "Forging new norms in New Orleans: from emotional to ecological intelligence," *Teach. Educ. Q.*, 2010. Available: 10.2307/23479461.
- [11] A. B. A. Avelar, K. D. da Silva-Oliveira, and R. da S. Pereira, "Education for advancing the implementation of the sustainable development goals: a systematic approach," *Int. J. Manag. Educ.*, vol. 17, no. 3, p. 100322, 2019. Available: 10.1016/j.ijme.2019.100322.
- [12] D. Wardaniah, I. D. Lestari, and E. Ramdhayani, "Ekoliterasi Siswa melalui kegiatan pengelolaan sampah berbasis group investigation di SMAN 1 Moyo Utara tahun pelajaran 2017/2018," *Klasikal J. Educ. Lang. Teach. Sci.*, 2019.
- [13] H. D. Wallace, "Transdisciplinary learning in a kitchen garden: connecting to nature and constructing a path to ecoliteracy?," *Int. Res. Geogr. Environ. Educ.*, 2019. Available: 10.1080/10382046.2019.1646013.
- [14] N. Špur, S. Škornik, and A. Šorgo, "Influence of attitudinal dimensions on children's interest in preserving extensive grasslands," *J. Rural Stud.*, 2019. Available: 10.1016/j.jrurstud.2019.09.011.
- [15] F. M. Martínez-Rodríguez, M. de los Ángeles Vilches Norat, and A. Fernández-Herrería, "Challenging the neoliberal view of education: the center for ecoliteracy as a transformative educational practice," *Globalizations*, vol. 15, no. 3, pp. 422–436, 2018. Available: 10.1080/14747731.2018.1446601.
- [16] A. Breakspear, "A new definition of intelligence," *Intell. Natl. Secur.*, 2013. Available: 10.1080/02684527.2012.699285.
- [17] J. A. Reynolds and M. D. Lowman, "Promoting ecoliteracy through research service-learning and citizen science," *Frontiers in Ecology and the Environment*. 2013. Available: 10.1890/1540-9295-11.10.565.
- [18] E. Sinakou, J. Boeve-de Pauw, M. Goossens, and P. Van Petegem, "Academics in the field of education for sustainable development: their conceptions of sustainable development," *J. Clean. Prod.*, 2018. Available: 10.1016/j.jclepro.2018.02.279.