



# Ecoliteracy Competence Assessment to Improve Innovation Capability in a Rural Community

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## ABSTRAK

Upaya peningkatan kecakapan hidup masyarakat merupakan bagian dari pemberdayaan. Namun, banyak program pemberdayaan yang belum termanfaatkan secara maksimal karena gagal beradaptasi dengan kebutuhan masyarakat. Fenomena tersebut menjadi landasan penelitian ini, yang bertujuan untuk menganalisis kompetensi masyarakat yang berpusat pada kemampuan mengenali potensi dan memanfaatkan lingkungan (ekoliterasi). Pendekatan kualitatif digunakan dalam penelitian ini, dengan desain deskriptif eksploratif. Wawancara, observasi, studi dokumentasi dan diskusi kelompok terarah digunakan untuk mengumpulkan data penelitian. 12 perwakilan keluarga dan 14 fasilitator keluarga memberikan data. Analisis data dilakukan oleh masing-masing peneliti dengan membaca transkrip dalam proses coding terbuka, mencari konsep, kategori, karakteristik, dan dimensi yang mencirikan setiap aspek yang ditemukan. Temuan mengungkapkan bahwa potensi alam sekitar memiliki kesadaran dan pengetahuan tentang bagaimana memanfaatkan sumber daya ekologis untuk menopang kehidupan, dan gelisah karena masalah ekonomi. Kedua, pada tingkat emosional, mereka puas ketika melihat hasil dari pemanfaatan lingkungan, menyadari nilai ekoliterasi untuk bertahan hidup, dan memanfaatkan lahan untuk konsumsi pribadi sehari-hari. Ketiga, dalam hal penggunaan tanah dan program bantuan sebagai sumber pendapatan mendukung biaya hidup, dengan mempertimbangkan aspek ekonomi dalam memenuhi kebutuhan hidup. Singkatnya, hasil penelitian yang dibedakan menjadi tiga aspek tersebut menunjukkan bahwa masih banyak potensi yang dapat dijadikan landasan upaya pengembangan model pembelajaran ekoliterasi bagi masyarakat.

## ABSTRACT

Efforts to improve people's life skills are part of empowerment; however, many empowerment programs have not been fully utilized because they have failed to adapt to community needs. This phenomenon serves as the foundation for this study, which aims to analyze of community competencies centered on the ability to recognize potential and utilize the environment (ecoliteracy). A qualitative approach was used in this study, with an exploratory descriptive design. Interviews, observation, study documentation and focus group discussions were used to collect research data. 12 family representatives and 14 family facilitators provided data. Data analysis was carried out by each researcher by reading transcripts in an open coding process, looking for concepts, categories, characteristics, and dimensions that characterize each aspect found. The finding reveals that potential of the surrounding nature have awareness and knowledge of how to use ecological resources to sustain life, and are uneasy due to economic problems. Second, on an emotional level, they are satisfied when they see results from using the environment, realize the value of ecoliteracy for survival, and use the land for daily personal consumption. Third, in terms of land use and assistance programs as a source of income support the cost of living, taking into account economic aspects in meeting life's necessities. To sum up, he research results which are differentiated into three aspects, it shows that there is still a lot of potential that can be used as a basis for efforts to develop ecoliteracy learning models for the community

## 1. INTRODUCTION

Poverty is a challenge in national development. The issue of the Covid-19 pandemic that has occurred in Indonesia since March 2020 adds to the complexity of the poverty issue. Significant consequences must be experienced in various sectors of people's lives, ranging from health, education, to the economy (Hart et al., 2020). The economic sector is significantly affected. The cases of layoffs for many private employees, restrictions on physical activity that have an impact on sellers of goods and services, decreased turnover of entrepreneurs, to the occurrence of bankruptcy in various large companies (Momeni et al., 2015; Nainggolan, 2019). This has consequences for the family as a small unit in society. The pandemic has resulted in many heads of families losing their jobs, family members experiencing stress due to family

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stability. The pandemic has increased the number of underprivileged families who need assistance. Families are required to adapt well and create efforts that can reduce pressure so that they can improve their lives more prosperously. Innovation capacity is a crucial thing for every individual as part of a family and community which is then interpreted together as an individual or institutional ability to produce products/services, processes, marketing, and so on that are more meaningful/new (novelty) and bring benefits (Risna Resnawaty, 2017; Tumanggor, 2010).

The environment plays an important role in the survival of all living things on the planet. The quality of the environment has a direct impact on the quality of the creatures that inhabit it. As a result, it is critical that we comprehend the significance of the environment to the survival of life on Earth (Nadiroh et al., 2019; Putri et al., 2019). Environment also can influence individual creativity can be in the form of family, school, and community environment. Ecoliteracy is one of the strengths which, if improved, will have an effect on increasing the capacity of innovation which then has implications for increasing the independence and empowerment of a family. An ecological collaboration system that supports the concept of sustainable development in which the reduction in the number of poverty rates due to the running of the people's economy can be realized if the awareness and capacity of the community increases (Cutter-Mackenzie & Smith, 2003; Desfandi, M., & Maryani, 2017). The development of tourism villages through ecoliteracy uses a community-based learning approach that is closely related to community empowerment efforts. Community-based learning is learning that is carried out in groups according to their respective communities. The learning process is strongly influenced by environmental conditions and potential. The environment has a strategic role in learning in certain communities. This is in line with the research results of previous study that state environmental-based learning can minimize student boredom, foster a love for the environment, foster a passion for learning and students can gain real experience (Suyitno et al., 2016).

Ecoliteracy is one of the strengths which, if increased, will affect increasing the independence and empowerment of underprivileged families. An ecological collaboration system that supports the concept of sustainable development in which the reduction in the number of poverty rates due to the running of the people's economy can be realized if the awareness and capacity of the community increases. Ecoliteracy is defined as an understanding of the principles of ecosystem organization and the application of these principles to create sustainable human communities and societies (McBride et al., 2013; Sivek & Hungerford, 1990). Ecological literacy is ideally defined as the ability to develop a diverse base of knowledge and beliefs and/or philosophies about the environment.

The previously research that focus on ecoliteracy learning in school, for example, show that ecoliteracy as a contemplative pedagogy can help students develop the ability to make and make the right decisions that will help to preserve the environment. Understanding the organizational principles that sustain life is also part of ecological literacy (Schimek, 2016). It considers not only one's environmental knowledge, but also one's attitudes and behavior toward the environment. Such people understand ecological issues and want to solve human-caused problems on the planet. Education for sustainable living based on local food crops can provide a strategic role in increasing the knowledge, attitudes, and behavior of the community to preserve and sustain life. Ecoliteracy is one of the strengths which, if increased, will affect increasing the capacity of innovation which then has implications for increasing the independence and empowerment of a family (Cutter-Mackenzie & Smith, 2003; Oktapyanto, 2017). An ecological collaboration system that supports the concept of sustainable development where the reduction in the number of poverty rates due to the running of the people's economy can be realized if the awareness and capacity of the community increases. Even the results of previous research showed the benefits of ecoliteracy learning in reducing the number of Covid-19 cases (Yuliani et al., 2021). The level of Covid-19 cases in the Duren Sawit sub-district and sub-district is the highest in DKI Jakarta, so an increase in understanding is needed through ecoliteracy and PHBS training activities in efforts to prevent Covid-19.

Thorough understanding of how people and communities relate to each other and natural systems, and how to do so in a sustainable manner, a thorough understanding of environmental crises, an understanding of sustainability models, able to synthesize environmental information and act in ways that lead to environmental sustainability. Hence, this research is aimed at analyzing the competence of ecoliteracy families. The research results can be used as input for policymakers regarding efforts to design programs to improve the welfare of poor families by utilizing existing ecological potential. In this regard, this study aims to describe the ecoliteracy competence of families as a basic to developing new learning concept of ecoliteracy as a empowerment activities.

## 2. METHODS

This research is one of the stages of development research, where development research is an approach to produce certain products or improve existing products and test the effectiveness of these

products. The design of this study uses the 4D (four-D) development model. The 4D model research and development model consists of 4 stages, namely; define, design, develop, and disseminate (Thiagarajan, Sivasailam, 1974).

This research only focuses on the first stage, namely define. So that the activities at this stage are carried out to establish and define development requirements. This stage is often called needs analysis. Thus the researcher uses the method of exploratory descriptive study by describing the result analysis of ecoliteracy skills from families. Research data were obtained through interviews, observation, study documentation and focus group discussions (FGD). The data sources are 12 representatives of families and 14 facilitators in one sub-district, Bantul Regency. Besides, data collection was carried out using a focused group discussion (FGD). The instrument grids in the interview and FGD activities are show in Table 1.

**Table 1. Instrument Grids in the Interview and FGD Activities**

Instrument	Question Aspect
Potency	<ol style="list-style-type: none"> <li>1. Level of education</li> <li>2. Livelihood</li> <li>3. Earning ranges</li> <li>4. The number of dependents</li> <li>5. Natural resources</li> <li>6. What activities are carried out to protect the environment</li> </ol>
Problem	Lifestyle in everyday life <ol style="list-style-type: none"> <li>1. Complaints that are still often experienced</li> <li>2. Use of assistance (example: according to components not or even to cover holes)</li> <li>3. Fulfillment (example: modern market vs traditional market)</li> <li>4. Use of means of transportation and communication</li> <li>5. Land use (example: increase income,</li> <li>6. Practice protecting the environment (example: waste recycling)</li> </ol>
Accompaniment	<ol style="list-style-type: none"> <li>1. Escort role</li> <li>2. The method used + constraints</li> <li>3. Availability of material</li> <li>4. Companion innovation in the delivery of material</li> <li>5. Motivational efforts for graduation</li> <li>6. Companion best practices</li> </ol>
Module material development	Ecoliteracy <ol style="list-style-type: none"> <li>1. Develop empathy for all forms of life</li> <li>2. Embrace sustainability as a community practice</li> <li>3. Make the invisible visible</li> <li>4. Anticipate unintended consequences</li> <li>5. Understand how nature sustains life</li> </ol>

In this study, the researcher is the main instrument. The data from interview, observation, study documentation also the FGD results were then reduced. The results of this reduction are then presented with sub-themes in relatively small groups. Next, the sub-themes are searched for themes. Data analysis was carried out in stages of developing themes through a series of discussions, negotiations, explorations, and consensus-building. This open communication model is carried out to reduce researcher bias and can be used as a common challenge in the process of concluding. To research this issue, each researcher read the transcript in an open coding process, looking for the concepts, categories, properties, and dimensions that characterize each program path (Gentles et al., 2015). In this study, inter-theme relationships were used to gain an understanding of the ecoliteracy skills of families.

### 3. RESULT AND DISCUSSION

#### Results

The results of the focused group discussion (FGD) were grouped according to the four themes that became the focus of the discussion, then reduced and identified the sub-themes. In the next stage, the sub-themes are connected to get the conclusion. In this study, there are four themes to understand the ecoliteracy skills of the families of the PKH, namely cognitive, emotional, action, and spirit aspects.

### **Cognitive Aspect**

Cognitive is an aspect that shows related skills looking at problems from a systems perspective, understanding basic ecological principles (networks, nesting systems, cycles, flows, development, dynamic balance), critical thinking, assessing the impact and ethical effects of human actions, imagining long-term consequences length of decision. Findings related to ecoliteracy competence in research subjects are presented in [Table 2](#).

**Table 2. Cognitive Aspects of Ecoliteracy Competence**

No.	Sub-Theme	Relationship Between Themes
1	People need to work together to protect the environment	Families can recognize the potential of the surrounding nature
2	Cooperation and cooperation can make life easier in the village	
3	Pandak District has the potential of natural resources such as melinjo gardens	
4	The environment has a large area to be used	Families have the awareness and knowledge to use ecological resources to sustain life
5	Souvenirs are one of the commodities to increase income	
6	Selling food products, ornamental plants, and chips online is a solution in the pandemic era	
7	Garbage bank not only to earn money but to protect the environment	
8	There are natural resources that can be used to earn money	
9	Using cans to reduce waste	

Based on the [Table 2](#), there are two themes related to cognitive aspects, namely the family can recognize the natural potential around it and the family has the awareness and knowledge to use ecological resources to sustain life.

### **Emotion Aspect**

Emotional aspects are matters related to feelings of caring, empathy, and respect for other people and living beings, respect for various perspectives, commitment to equality and justice for all people. Findings related to ecoliteracy competence in research subjects are presented in [Table 3](#).

**Table 3. Emotion Aspects of Ecoliteracy Competence**

No.	Sub-Theme	Relationship Between Themes
1	Small income gives discomfort in living daily life	Family feel discomfort due to weak economic issues
2	Unfixed income gives great anxiety	
3	Feel happiness when you see a clean and comfortable environment	Family experience satisfaction when they get results from environmental utilization
4	Gardening with KWT gives personal satisfaction	
5	Cycling to the market makes life healthier	
6	Physical activity such as using a bicycle to the market has a saving effect	Family feel the benefits of ecoliteracy for survival
7	The proceeds from the sale of ornamental plants are sold online so that children can go to school	

Based on the findings as show in [Table 3](#), there are three themes in the emotional aspect, namely, the family feel discomfort due to weak economic issues, the family experience satisfaction when they get the results from environmental utilization, and the family feel the benefits of ecoliteracy for survival.

### **Action Aspect**

Research shows that the community has shown activities that represent aspects of ecoliteracy, namely efforts to use tools and procedures sustainably needed by the community, converting beliefs into practical and effective actions, assessing and adjusting the use of energy and resources around them. Findings related to ecoliteracy competence in research subjects are presented in [Table 4](#).

**Table 4.** Action Aspects of Ecoliteracy Competence

No.	Sub-Theme	Relationship Between Themes
1	Catfish and Tombro for daily consumption in unused tubs	Family use the land for daily personal consumption
2	Planting California Papaya	
3	Growing eggplant, Lombok, chips, vegetables	
4	Growing bananas through KWT groups	Family use the land and the assistance program as a source of income to support living expenses.
5	Emping melinjo business development	
6	Utilizing the help of fish ponds to supply daily consumption	
7	Participate in Garbage Bank to earn money	
8	Growing ornamental plants for sale	Family consider the economic aspect in meeting the necessities of life.
9	Planting oranges for sale Rp. 10,000/kg	
10	Shop at the market because it's cheaper	
11	Shop at the shop to be closer	
12	Riding a motorbike just to travel long distances	
13	Ride a bicycle to the market to save gas	

Based on [Table 4](#), there are three themes in the action aspect, namely the family using the land for daily personal consumption, the family using the land and assistance program as a source of income that supports the cost of living, and the family considering the economic aspect in meeting their living needs.

### **Spirit / Connected Aspect**

Spirit / connectedness is about the experience of being in awe of nature, feeling respect for the earth and all living things, feeling a strong bond and deep appreciation for places, feeling a kinship with nature, and evoking that feeling in others. Findings related to ecoliteracy competence in research subjects are presented in [Table 5](#).

**Table 5.** Spirit Aspects of Ecoliteracy Competence

No.	Sub-Theme	Relationship Between Themes
1	Beneficiaries show enthusiasm for the idea of training to manage environmental potential	Meaning of the importance of protecting the environment
2	Natural resources are perceived as a means of fulfilling needs	
3	The environment needs to be maintained for the sustainability and welfare of life	there is a kinship with nature and evokes that feeling in others
4	Beneficiaries convey the benefits and benefits of protecting the environment to other families	
5	Beneficiaries mutually affirm the importance of managing natural potential to other families	

Based on [Table 5](#), there are two themes on the aspect of spirit or connectedness, namely the meaning of the importance of protecting the environment and there is a kinship with nature and evoking that feeling in others.

### **Discussion**

Development is aimed at improving the quality of resources people so they can improve their welfare. But development who exploit natural resources that do not heed the ability and carrying capacity of the environment is even too much emphasis on economic orientation resulted in a decline in environmental quality as well disruption of sustainability including food security. Human resources certainly cannot be separated from the abilities and competencies possessed by individuals or humans themselves. This study focuses on the smallest community group, namely the family. Based on the results of preliminary studies that have been carried out through FGDs, several potential and actual things have been found that already represent ecoliteracy competencies ([Cheah & Phau, 2011](#); [Sapanca, 2012](#)). Literacy-based education is very active in campaigning for a change in all sectors and sub-fields of knowledge. Various ways and efforts are carried out, one form of literacy in maintaining environmental ecology is called the ecoliteracy literacy movement. Ecoliteracy itself was born based on the existence of people who are environmentally literate.

Overall, based on the research results, the ecoliteracy capacity of the community or target group still needs to be improved because there are still many problems that can be solved by utilizing the potential



of the environment. Hence, awareness to take advantage of the environment still needs to be increased. Moreover, the study indicate that four aspects that represent the competence of ecoliteracy have been shown by participants with the status of families in the PKH. The cognitive aspect in the context of building an important element in ecoliteracy competence is related to how individuals think. Someone who thinks critically will process his knowledge and influence his behavior, in this case contributing to environmental preservation (Kartika et al., 2020; Nadiroh et al., 2019). Critical thinking skills can affect a person's perspective and mindset in acting and judging something. Thought and action are two things that are closely related. Quoting from previous study statement state that education is a community practice (Biasutti et al., 2019). The meaning of this statement is the need for a continuing education movement that is poured into real action in the context of daily life.

Education for Sustainable Development (ESD) aims to instill knowledge and familiarize a person to be skilled and critical in life, and to be responsible. If this is done well, a balanced environment will be created, and the community will prosper both now and in the future (Gatti et al., 2019; Segara, 2015). In addition, education for sustainable development including learning process that contains a new vision of education based on lofty ideals to empower everyone to take responsibility for shaping life today and in the future (Segara, 2015; Sujana, 2019). Grounded by the opinions, ESD is an education that aims to form a generation that can contribute and be responsible for development in all aspects of life for the welfare of the present and future. The scope of ESD is very broad. However, it grouped into three, including environmental, social, and economic. The example of implementing efforts to increase ecoliteracy is related to green living activities as conducted in previous study (Ihsan & Hanami, 2021).

Use the term eco-literacy—instead of eco-awareness or eco-sensitivity for instance—a direct connection to notions of what it means to be literate is implied. However, in an effort to build awareness of the family, of course, there are many challenges faced by the Human Resources Assistance. Ecological literacy means having systemic awareness, understanding the interrelationships of life, knowing the state of the world and the surrounding environment, and find out how fast the changes are happening. In other words, ecoliteracy can be juxtaposed with ecological intelligence (Capra, 2007; Code, 2019; Ihsan & Hanami, 2021). Because the more natural and traditional social capital a family has, the less internal cooperation it has. The more human resources a family has, the more resilient it is (Gayatri, M., & Irawaty, 2021; Yang, B., Feldman, M. W., & Li, 2021). The challenges that arise are not only limited to changing the mindset of the target family, but how to prepare underprivileged families to have the motivation to survive. Especially in the current pandemic conditions that put pressure on families, considering that many family work in the informal sector. From the data obtained in the field through the interview process and FGD, it can be concluded that many PKH families are affected by the COVID-19 pandemic. So that efforts to build public awareness so as not to expect too much assistance from the government are becoming increasingly difficult, because many people are affected by the COVID-19 pandemic (Ihsan & Hanami, 2021).

From the results of interviews and FGDs that have been carried out, it can be concluded that the economic difficulties during the covid-19 pandemic are inevitably required to survive by utilizing and developing various existing potentials. However, due to limited knowledge and financial capabilities, many pre-prosperous families have difficulty managing family resilience, especially in the economic aspect. This condition is certainly a homework for stakeholders and PKH program assistants to be able to continue to provide motivation and increase understanding to underprivileged families so that they can increase the capacity of innovation that focuses on solving problems which in turn can maintain the resilience of their families.

Ecoliteracy learning will be carried out in a learning forum that has been carried out routinely by the companion of the family of hope program. That is through family development session (FDS) activities. This activity is routinely carried out by facilitators to strengthen PKH families with materials that have been prepared by the Ministry of Social Affairs (Desfandi, M., & Maryani, 2017; Oktapyanto, 2017). The ecoliteracy material that the researcher will develop is expected to be an additional material for the companion of additional family programs that have been adapted to real conditions, especially the people of Bantul district. So that researchers will strengthen the hopeful family program companion to be able to explore ecoliteracy material which will later be conveyed through family development session activities (Martínez-Rodríguez et al., 2018; Turner & Donnelly, 2013; Vargas-Madrado, 2018).

Learning to deal with problems is a learning strategy that will be used in strengthening activities for the companion of the family of hope program. The concept of learning to deal with this problem, the facilitator uses an adult learning method (andragogy) which is multidirectional communication (from learning participants to learning participants, from facilitator to learning participants, and vice versa) so as to develop a dialogue process and equality relationship (Cheah & Phau, 2011; Emel, 2018). The learning themes are everyday, so that learning becomes relevant to the lives and realities of the participants. Eventhough, there is opportunities and barriers to an increased role for preserves in providing education

to the public that advances environmental literacy (Johns, R. A., & Pontes, 2019; Smith, 2007). On the other hand, implementation of ecoliteracy also can obtain from schools, these times of severe environmental degradation that threatens the very continuation of life on earth, schools have a duty to educate students to be literate about the workings of the environment (G. Seyfang & Haxeltine, 2012; S. and Seyfang, 2013; Snow, 2020).

Eco literacy activities related to household waste management recycle involved people from all walks of life, including children, adolescents, and adults. Waste class activities, recycling camps, recycling gardens, and waste recycling skills are examples of environmental literacy activities (Hilmi et al., 2021; Spínola, 2015). Spirit is related to how the psychological aspect is an essential aspect in the competence of ecoliteracy. Previous study revealed that ecoliteracy is not only about protecting and managing the environment which is manifested in technical actions but also includes developing compassion and empathy for other life forms, understanding sustainability at both conceptual and contextual levels (Goleman et al., 2012). Individuals with high ecoliteracy are prepared to become effective members of a sustainable society, with comprehensive abilities of mind, heart, hands, and soul, consisting of organic understanding of the world and participatory action in and with the environment (Kim et al., 2017; McBride et al., 2013). The mental spirit in maintaining and managing the potential of the environment not only has an impact on the tangible benefits of nature but can also realize life in harmony with nature. Assistance for families can be done by strengthening innovation through the potential around them, one of which is by instilling an understanding of ecoliteracy.

The implications of this study related to ecoliteracy, families will combine various potentials and supporting resources to improve their welfare, this is an adaptation process needed to be able to survive and empower themselves in the current Covid-19 pandemic era. In addition, environmental educators can use proverbs or folklore sources as a bridge for unifying traditional ecological wisdom and cultural expressions with modern scientific and systems-based learning of sustainability. The limitation of this study lies in the limitations of the subject which only involved 12 representatives of families and 14 facilitators in one sub-district. Therefore, it is hoped that future research will be able to further deepen and expand research related to ecoliteracy competence assessment.

#### 4. CONCLUSION

This study discovered some ecoliteracy competence in the rural community, which can aid in the development of innovation on ecoliteracy learning. First, in terms of cognition, they can recognize the potential of the surrounding nature, have the awareness and knowledge to use ecological resources to sustain life, and experience discomfort as a result of poor economic conditions. Second, in terms of emotion, they are satisfied when they see the results of environmental utilization, feel the benefits of eco-literacy for survival, and use the land for daily personal consumption. Third, consider the economic aspect of meeting life's needs when using land and assistance programs as a source of income to support the cost of living.

#### 5. REFERENCES

- Biasutti, M., Concina, E., & Frate, S. (2019). Social Sustainability and Professional Development: Assessing a Training Course on Intercultural Education for In-Service Teachers. *Sustainability (Switzerland)*, 11(5), 1–12. <https://doi.org/10.3390/su11051238>.
- Capra, F. (2007). Sustainable Living, Ecological Literacy, and the Breath of Life. *Canadian Journal of Environmental Education*, 12(1). <https://openjournal.lakeheadu.ca/index.php/cjee/article/view/624/0>.
- Cheah, I., & Phau, I. (2011). Attitudes towards environmentally friendly products: The influence of ecoliteracy, interpersonal influence and value orientation. *Marketing Intelligence & Planning*, 29(5), 452–472. <https://doi.org/10.1108/02634501111153674>.
- Code, J. M. (2019). Ecoliteracy and the trouble with reading : ecoliteracy considered in terms of Goethe ' s ' delicate empiricism ' and the potential for reading in the book of nature. *Environmental Education Research*, 25(8), 1267–1280. <https://doi.org/10.1080/13504622.2018.1558438>.
- Cutter-Mackenzie, A., & Smith, R. (2003). Ecological literacy: The 'missing paradigm' in environmental education (part one). *Environmental Education Research*, 9(4), 497–524. <https://doi.org/10.1080/1350462032000126131>.
- Desfandi, M., & Maryani, E. (2017). Building ecoliteracy through adiwiyata program (study at adiwiyata school in Banda Aceh). *The Indonesian Journal of Geography*, 49(1), 51. <https://doi.org/10.22146/ijg.11230>.
- Emel, O. B. (2018). Development of an Ecoliteracy Scale Intended for Adults and Testing an Alternative

- Model by Structural Equation Modelling. *International Electronic Journal of Environmental Education*, 8(1), 15–34. <https://eric.ed.gov/?id=EJ1181007>.
- Gatti, L., Ulrich, M., & Seele, P. (2019). Education for sustainable development through business simulation games: An exploratory study of sustainability gamification and its effects on students' learning outcomes. *Journal of Cleaner Production*, 207, 667–678. <https://doi.org/10.1016/j.jclepro.2018.09.130>.
- Gayatri, M., & Irawaty, D. K. (2021). Family resilience during COVID-19 pandemic: A literature review. *The Family Journal*. <https://doi.org/10.664807211023875>.
- Gentles, S. J., Charles, C., Ploeg, J., & McKibbin, K. A. (2015). Sampling in qualitative research: Insights from an overview of the methods literature. *The Qualitative Report*, 20(11), 1772–1789. <https://pdfs.semanticscholar.org/3bd0/66b5d7ea4e3a933699576689a855d09f08b6.pdf>.
- Goleman, D., Bennett, L., & Barlow, Z. (2012). *Ecoliterate: How educators are cultivating emotional, social, and ecological intelligence*. Jossey Bass.
- Hart, J. L., Turnbull, A. E., Oppenheim, I. M., & Courtright, K. R. (2020). Family-centered care during the COVID-19 era. *Journal of Pain and Symptom Management*, 60(2), e93–e97. <https://doi.org/10.1016/j.jpainsymman.2020.04.017>.
- Hilmi, M. I., Lutfiansyach, D. Y., Hufad, A., Kamil, M., & Wahyudin, U. (2021). Eco-Literacy. *First Transnational Webinar on Adult and Continuing Education (TRACED 2020)*, 118–121. <https://doi.org/10.2991/assehr.k.210508.022>.
- Ihsan, A. F., & Hanami, Z. A. (2021). Implementasi Ekoliterasi di Era Pascaliterasi. *Seminar Nasional Adiwidya*, 8, 42–47. <https://www.researchgate.net/profile/Aditya-Ihsan/publication/348522744>.
- Johns, R. A., & Pontes, R. (2019). Parks, rhetoric and environmental education: challenges and opportunities for enhancing ecoliteracy. *Journal of Outdoor and Environmental Education*, 22(1), 1–9. <https://doi.org/10.1007/s42322-019-0029-x>.
- Kartika, P. C., Daesusi, R., & Farichah, H. (2020). Ekoliterasi Masyarakat Stren Kali Kelurahan Karangpilang Kota Surabaya Menuju New Reality Era Pandemi Covid-19. *Community Development Journal: Jurnal Pengabdian Masyarakat*, 1(3), 401–409. <https://doi.org/https://doi.org/10.31004/cdj.v1i3.1097>.
- Kim, G., Vaswani, R. T., Kang, W., Nam, M., & Lee, D. (2017). Enhancing Ecoliteracy through Traditional Ecological Knowledge in Proverbs. *Sustainability*, 9(7), 1182. <https://doi.org/10.3390/su9071182>.
- Martínez-Rodríguez, F. M., de los Ángeles Vilches Norat, M., & Fernández-Herrería, A. (2018). Challenging the neoliberal view of education: the Center for Ecoliteracy as a transformative educational practice. *Globalizations*, 15(3), 422–436. <https://doi.org/10.1080/14747731.2018.1446601>.
- McBride, B. B., Brewer, C. A., Berkowitz, A. R., & Borrie, W. T. (2013). Environmental literacy, ecological literacy, ecoliteracy: What do we mean and how did we get here? *Ecosphere*, 4(5). <https://doi.org/10.1890/ES13-00075.1>.
- Momeni, M., Nielsen, S. B., & Kafash, M. H. (2015). Determination of innovation capability of organizations: qualitative meta synthesis and delphi method. In *25th Annual RESER Conference*. <https://core.ac.uk/download/pdf/43251846.pdf>.
- Nadiroh, N., Hasanah, U., & Zulfa, V. (2019). Behavioral geography: An ecoliteracy perspective and critical thinking skills in men and women. *Indonesian Journal of Geography*, 51(2), 115–122. <https://doi.org/10.22146/ijg.36784>.
- Nainggolan, T. (2019). Aspek Gender Dalam Program Keluarga Harapan. *Sosio Informa*, 5(1), 1–14. <https://doi.org/10.33007/inf.v5i1.1593>.
- Oktapyanto, R. R. (2017). *Ecoliteracy: Literasi Dasar yang Terlupakan*. Lontar Digital Asia.
- 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. <https://doi.org/10.11591/ijere.v8i2.18901>.
- Risna Resnawaty, S. A. S. (2017). Program Keluarga Harapan ( Pkh ): Antara Perlindungan Sosial. *Prosiding Ks: Riset & Pkm*, 4(1), 1–140. <https://doi.org/10.24198/jppm.v4i1.14213>.
- Sapanca, P. L. Y. (2012). Efektivitas Ekoliterasi Dalam Meningkatkan Pengetahuan, Sikap Dan Perilaku Masyarakat Mengenai Education for Sustainable Development Berbasis Tanaman Pangan Lokal (Studi Kasus Di Kecamatan Bangli). *Jurnal Agrimeta*, 20(3), 1–13. <https://scholar.archive.org/work/wfkbvo2gn5ddzaxsq2dffdzf7i>.
- Schimek, M. J. (2016). How an experience in nature affects ecoliteracy of high school students. *School of Education Student Capstone Theses and Dissertations.*, 4133, 1–88. [https://digitalcommons.hamline.edu/hse\\_all/4133/](https://digitalcommons.hamline.edu/hse_all/4133/).
- Segara, N. B. (2015). Education for Sustainable Development (ESD) Sebuah Upaya Mewujudkan Kelestarian Lingkungan. *Social Science Education Journal*, 2(1), 22–30. <http://download.garuda.kemdikbud.go.id/article.php?article=2593748>.



- Seyfang, G., & Haxeltine, A. (2012). Growing Grassroots Innovations: Exploring the Role of Community-Based Initiatives in Governing Sustainable Energy Transitions. *Journal of Environmental and Planning C: Government and Policy*, 30, 381–400. <https://doi.org/10.1068/c10222>.
- Seyfang, S. and. (2013). Grassroots Innovation movement: Challenges and Contributions. *Journal of Cleaner Production*, 63, 1–11. <https://doi.org/10.1016/j.jclepro.2012.12.025>
- Sivek, D. J., & Hungerford, H. (1990). Predictors of responsible behavior in members of three Wisconsin conservation organizations. *Journal of Environmental Education*, 21(2), 35–40. <https://doi.org/10.1080/00958964.1990.9941929>.
- Smith, C. (2007). Education and society: The case for ecoliteracy. *Education and Society*, 25(1), 25–37. <https://doi.org/10.7459/es/25.1.03>.
- Snow, T. (2020). Ecosystem metabolisms and functions: an eco-literacy framework and model for designers. *Form Akademisk*, 13(4), 4. <https://doi.org/10.7577/formakademisk.3370>.
- Spínola, H. (2015). Environmental Literacy Comparison between Students Taught in Eco-schools and Ordinary Schools in the Madeira Island Region of Portugal. *Science Education International*, 26(3), 392–413. <https://digituma.uma.pt/handle/10400.13/1361>.
- Sujana, I. W. C. (2019). Fungsi Dan Tujuan Pendidikan Indonesia. *Jurnal Pendidikan Dasar*, 4(1), 29. <https://doi.org/10.25078/aw.v4i1.927>.
- Suyitno, Kamil, I., Sunoto, M., & Suherjanto, I. (2016). Teknik pembelajaran observasi lingkungan berbasis kearifan lokal. *Jurnal Kependidikan*, 46(1), 14–28. <https://doi.org/10.21831/jk.v46i1.6826>.
- Thiagarajan, Sivasailam, D. (1974). *Instructional Development for Training Teachers of Exceptional Children*. National Center for Improvement Educational System.
- Tumanggor, R. (2010). Tinjauan Konseptual Tentang Keluarga. *Informasi*, 15(2). <https://ocs.unmul.ac.id/index.php/JParadigma/article/view/348>.
- Turner, R., & Donnelly, R. (2013). Case Studies in Critical Ecoliteracy : A Curriculum for Analyzing the Social Foundations of Environmental Problems. *Educational Studies*, 49(5), 387–408. <https://doi.org/10.1080/00131946.2013.825262>.
- Vargas-Madrado, E. N. R. I. Q. U. E. (2018). Contemplative dialogue as the basis for a transdisciplinary attitude : Ecoliteracy toward an education for human sustainability. *World Futures*, 74(4), 224–245. <https://doi.org/10.1080/02604027.2018.1444833>.
- Yang, B., Feldman, M. W., & Li, S. (2021). The status of family resilience: effects of sustainable livelihoods in Rural China. *Social Indicators Research*, 153(3), 1041–1064. <https://doi.org/10.1007/s11205-020-02518-1>.
- Yuliani, S., Scoviana, N., & Istiqomah, N. (2021). Pencegahan Covid-19 melalui Pelatihan Ekoliterasi dan Perilaku Hidup Bersih dan Sehat ( PHBS ). *KRA-ITH ABDIMAS*, 4(3), 108–116. <https://journals.upi-yai.ac.id/index.php/IKRAITH-ABDIMAS/article/view/1532>.