



The Urgency of Ecological Intelligence in History Learning: A Literature Review

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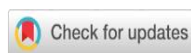
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ABSTRACT

This article aims to provide an overview of the importance of planting ecological intelligence for students, especially students in historical learning. The method used in research is the literature review method to see the development of ecological intelligence studies in the educational environment which is focused on historical learning. Literature search is carried out comprehensively and systematically. The results of this study provide a comprehensive description of the urgency of ecological intelligence of students in history learning. So far, ecological intelligence tends to be built for the current interests without paying attention to and studying the relationship between behavior and local wisdom of the community that has been done for a long time for sustainability. Even though events that occurred in the past or today are closely related to the environment that influences human behavior.



INTRODUCTION

Human is part of the living environment that God created so perfectly. Between man and nature are interconnected and become an inseparable unity that is functional, and interdependent, reciprocal, complementary, and needy. Between humans and the environment or other living things create an ecological ecosystem. The concept of interconnectedness between humans and nature can be realized if there is a good understanding that humans have of nature.

Ecological intelligence has so far tended to only be understood as part of natural science because it contains the word ecological (Sterling, 2009). Later, the word Ecological developed to describe thinking about systemic, ecophilosophical and holistic perspectives (Bowers, 2009; Sterling, 2009). Ecology is also related to collective lifestyles and cultural similarities (Bookchin, 1981; Bowers, 2008; Bowers, 2009). Ecological intelligence in particular can be taught and improved not only through formal education but also through informal education (Bronfenbrenner, 2013; Capra, 2005; Gökdere, 2005; Jenkins, 1989; Kasapoğlu & Turan, 2008; Mahoney et al., 1999; Seginer, 2009). Ecological intelligence is also related to social and economic intelligence education. with the cognitive area or affective area (Capra, 2005; Overson, 2011; Sterling, 2009; Overson, 2011).

Interaction with the natural environment will support cognitive development as part of how to get effective learning experiences to have a holistic perspective and understand complex ecosystem relationships (Capra, 2005). Ecological intelligence does not ignore individual differences because individual backgrounds also affect social communities (Bowers, 2010; Capra, 2005; Overson, 2011; Sterling, 2009). Thus, for the sake of sustainability, an open learning curriculum is needed, adapted to the background of each environment (Capra, 2005).

The main goal of ecological intelligence is to develop social and environmental responsibility (Overson, 2011; Sterling, 2009) and awareness and critical thinking (Bowers, 2010; Capra, 2005),



pursues cooperative learning (Sterling, 2009), and brings about behavior change in the long run (Bowers, 2010; Sterling, 2009). Meanwhile, in terms of philosophical roots, ecological intelligence uses the philosophical foundation of progressivism (Walter, 2009; Sterling, 2009).

According to the literature as seen above, most studies related to ecological intelligence are at the theoretical level. They tend to define only ecological intelligence and explain its characteristics in each aspect of the study. Meanwhile, in practice in learning is still not visible, even though in context for the sake of sustainability, the role of education, including historical education, is needed with the basis of students as object subjects as well as objects in reaching various aspects of economic intelligence, both aspects of understanding, attitudes and skills as the final goal in learning.

Ecological intelligence in historical learning can use an ecopegagogy approach as a practical step from the concept of ecocentrism (Supriatna, 2016). This approach is a concept that offers a new paradigm as the antithesis of the paradigm of anthropocentrism which has long held the view that humans have full power over natural and environmental changes over time.

Studies or literature that specifically discusses ecological intelligence in historical learning are still very limited. For this reason, this study tries to collect and describe research results that reinforce the importance of history learning for students' ecological intelligence. So that the purpose of learning history that is meaningful to students can be achieved. In addition, the public, both theoretically and practically, can also implement the concepts of nature conservation with various approaches and strategies.

RESEARCH METHOD

This research is a literature review research (Zed, 2008). This study is used to identify literature that is relevant to the theme or topic to be researched. The type of literature used in this research is articles accessed via Google Scholar and Scopus.

The literature used was analyzed using a thematic analysis approach to identify the theoretical basis, research methods, and empirical evidence that supports the importance of students' ecological intelligence in learning history. This analysis is structured based on interactions between researchers and literature that has been collected and represented in themes based on key concepts and ideas presented in the literature (Hamzah, 2019). The themes identified from the literature include content to foster students' ecological intelligence in history learning. There are 14 articles that researchers consider relevant from 2013-2023. The standards used in this literature study adopt the standards used by (Kulthau, 2002).

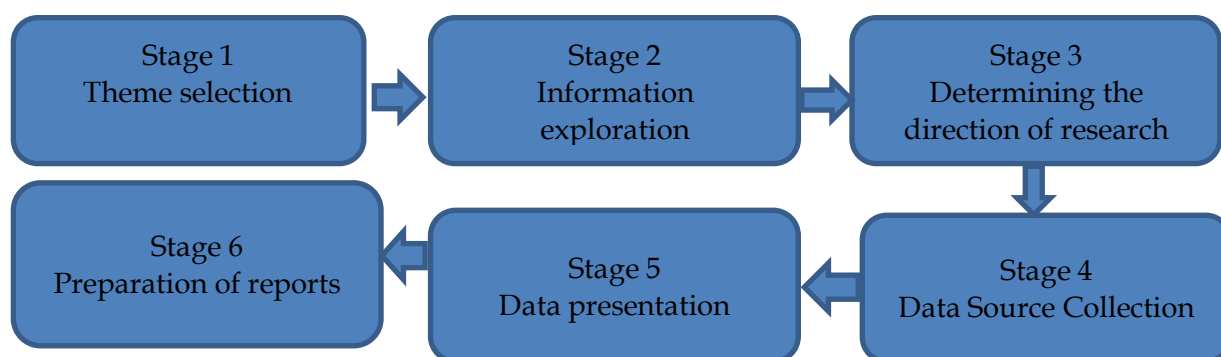


Figure 1. Literature study procedure (Kulthau, 2002)

RESULTS AND DISCUSSION

Ecological Intelligence in the History Learning Curriculum

One of the components of education that determines the achievement of the goals of learning history is the curriculum. Therefore, the preparation of the curriculum must be based on a correct philosophical framework. In the 2013 curriculum which already has a strong philosophical foundation, which is eclectic incorporative starting from essentialism, perennialism, humanism,

and reconstructionism, it has provided space for students to think critically and analytically and is relevant to the development of today's society (Hasan, 2013). so that students can feel the benefits of studying history.

Based on these curriculum opportunities, teachers are given the opportunity to choose and develop themes or history learning materials that are relevant to students' lives today. One of the urgent themes or material that needs to be developed in history learning is themes related to sustainable environmental insight. In the history learning curriculum, one of the approaches that can be taken is the ecopedagogy approach or concept. Ecopedagogy does not only talk about environmental education, but is also related to social behavior patterns carried out by humans towards the environment (Supriatna, 2016; Yasida, 2020).

Ecopedagogy is part of the critical pedagogical movement which opposes the notion of total human dominion over nature. following Freire's thought that there is a transformation-based learning model in which educators and students can critically analyze actions related to humans and the environment. The ecopedagogical movement aims to end all injustices caused by humans and environmental damage which tend to be justified in the name of development and market interests. The concept of ecopedagogy can be an alternative to facilitate students' thinking in learning about environmental development and sustainability in the midst of modernization. The concept of ecopedagogy as a learning approach will shape ecological intelligence (Misiaszek, 2019; Supriatna, 2016a).

In addition, providing space for the development of an environmentally friendly history learning curriculum is a good step to bring out empathy for the environment in students (Fitriah, 2020). Empathy is related to the ability to feel or imagine other people's experiences and ideas or thoughts. Empathy is important for a person's social or emotional development. There are two main components of empathy. First, affective and cognitive components. The affective component is related to feelings of affection and concern for other people. While the cognitive component involves the interpretation process needed to identify and appreciate other people, including thoughts and feelings (Bartelds et al., 2022; Woolrych et al., 2020).

In order to create a historical learning situation with an ecopedagogical approach that creates empathy and ecological intelligence, teachers must have the courage to create new paradigms in the curriculum at the practical level of historical learning. This paradigm shift is good at the elementary school level, junior high school which is integrated in social studies learning and at the senior high school level which is a separate subject. One of them is the courage to sort out themes or materials related to human interaction with the environment.

Ecological Intelligence and the Value of Past Experience

Events that occurred in the past will be closely related to a particular environment or place. Humans' past experiences in responding to challenges given by God to survive are the value of past experiences that can be studied and understood and are still considered relevant today. This is in accordance with the theory put forward by Toynbee (1972) that the basis of civilization lies in humans' ability to withstand the challenges presented by nature. The theory of challenge and response is created along with the growth of a civilization as the culmination of culture. To be able to survive the challenges that nature provides requires human understanding in treating nature, and this is where human ecological intelligence plays a role both individually and in groups.

Ecological intelligence is related to the value of one's knowledge to align oneself, be aware, and skilled to be able to live side by side with nature (Supriatna, 2016). Ecological awareness raises the value of a sense of responsibility to protect and preserve the nature in which one lives, which historically has provided value or contribution to present and future life. Ecological intelligence is a concept tied to cultural values or habituation to see the relationship between humans and nature by using clear morals and ethics. These relationships determine how people relate to each other with respect, and how they act together socially, as well as how people relate to other forms of life leading to respect for diversity and interdependence.

Certain groups or communities that have ecological intelligence means they have high imagination values in terms of respecting or empathizing with other living creatures. Understanding life that occurred in the past of a group or society is the result of efforts to search for identity based on space (environment) and also the trajectory of time related to values. From here, noble values can be found from experiences that have been tested and maintained and maintained (Supriatna, 2019; Susanto, 2011). There is a strong relationship or interaction between humans as historical actors and the environment in which they live. This behavior produces a culture from which values can be used as learning for the present and the future.

Ecological intelligence is also the result of developing education based on character values. In the context of learning history, the character values that are developed are related to environmental education which is used as a form of awareness of past events that occurred in certain environments or places. In learning practice, the environment around students or local history can be used as an alternative learning resource to develop material that does not yet exist in national material (Hasan, 2012). Planting a sense or value of order and empathy for the environment as a place to live, where various events occurred in the past are part of the character values that must be owned and have positive implications for the balance of the ecosystem (Ramadhan & Resmi, 2019).

Ecological Intelligence in History Learning Resources and Media

Ecological intelligence in the history learning process can be seen from various angles of development programs. One of them is the development of green history-based history learning modules or textbooks at the high school level. With the preparation of learning modules, students can easily study past events as a guide for present and future life related to the surrounding environment (Hermana, 2017; Karima & Firza, 2019). The green history paradigm places humans not only as actors as well as determinants of any changes that occur in nature, but the concept of green history places humans as part of and even equal to nature. Learning from past experiences regarding human relations with nature, creative human actions emerged in conquering nature in order to survive. However, in its development, this creative action gave birth to an anthropocentrism paradigm which gave birth to bad behavior, gave birth to excessive dependence on, management and mastery of nature. So, the concept of green history in history learning with a deconstruction paradigm offers an ecocentric concept that positions humans not as the main determining factor in environmental change. However, there are other living creatures that also need to be appreciated. This deconstruction process is carried out starting from the curriculum, materials and learning strategies carried out (Supriatna, 2016a).

Strengthening ecological intelligence in students is also related to the strategy for developing the methods, media or learning resources used. This strategy is related to the creativity and imagination of teachers who teach (Afifah & Rofiah, 2020; Sair, Asnimar, Ermanovida, & Syarifuddin, 2019; Supriatna, 2019; Supriatna & Maulidah, 2020). Becoming a creative teacher does not necessarily just happen. There are several learning conditions that must be built; First, there is freedom to understand and explain the material taught systematically, think strategically, and understand the psychology of students as humans which also requires assessment in the form of motivation, encouragement and even praise for student participation in learning. Second, getting used to thinking differently (divergent) "deviating" from what other people usually think, breaking away from standard standards and standards after first getting used to convergent thinking is also the key to being a creative teacher (Supriatna & Maulidah, 2020).

Introducing the concept of ecological intelligence to students through history lessons does seem to deviate from the old habits that have been commonly practiced so far. However, it must be realized that events that occurred in the human past cannot be separated from nature or the environment where these events occurred. Apart from that, it should also be noted that creativity can also come from the initial potential or foundation that students have. The development of divergent thinking patterns is balanced with convergent thinking habits while still paying attention to students' basic potential. This means that the creative process is not only about

something new, but developing what has been done before can also be done. This method will also produce better knowledge (Wang, & Wegerif, 2020).

To see the importance of ecological intelligence in learning history, there are several articles summarized in several journals and proceedings, both national and international, as shown in table 1 which can be used as an overview.

Tabel 1. Results from literature review journals

Author/year	Title	Results of Literature Review
(Ahmad, 2013)	Pembelajaran sejarah berwawasan lingkungan	• Environmental problems that occur today are related to human behavior in the past. This problem is one of the concerns of history education or learning. • One step that can be taken is to develop environmentally-oriented history learning that emphasizes better and more effective aspects of content and context. • With the development of history learning with an environmental perspective, an awareness of the value of caring for the environment will emerge.
(Kuszmar, 2014)	From Boat to Throat: How Oral Histories Immerse Students in Ecoliteracy and Community Building	• By using oral history in history learning, this research succeeded in providing students with ecological awareness about the threats to the marine fisheries industry in Monterey Bay, Central California, giving rise to a group ecoliteracy movement.
(Supriatna, 2016b)	Local Wisdom in Constructing Students Ecoliteracy Through Ethnopedagogy and Ecopedagogy	• Students' ecological intelligence can be built through ethnopedagogy and ecopedagogy in the teaching and learning process. • Ethnopedagogy specifically refers to forms of educational approaches and practices based on local wisdom to gain understanding, awareness and life skills that are appropriate to environmental conservation issues. • Ethnopedagogy and ecopedagogy support the birth of ecological intelligence, as a talent for understanding, realizing, and actualizing the meaning of living in harmony with nature. The study in this research took the example of the local wisdom of the people of West Java related to ways of preserving the natural conditions of forests, water sources, and local food consumption to be integrated with students in learning.
(Karima & Firza, 2019)	Modul Berbasis Green History Untuk Pembelajaran Sejarah Di Sekolah Menengah Atas	• Based on research results, the history learning process using green history-based modules can generate ecological intelligence. • Learning from people's past behavior towards the environment allows students to understand and behave in a friendly and caring way towards the environment. • The activities formulated in the green history-based module must also receive support from the institution, in this case, the school.
(Misiaszek, 2019)	Ecopedagogy: teaching critical literacies of 'development', 'sustainability', and 'sustainable development.'	• To understand sustainable development education for the environment, critical teaching models are needed to answer the questions for whom is environmental development for? What is the interest behind this development? It is used to see the long-term positive or negative impacts of human interactions with nature.

(Ramadhan & Resmi, 2019)	Analisis Pendidikan Karakter Berbasis Nilai Kearifan Local Cipta Gelar Sukabumi Dalam Mengembangkan Kecerdasan Ekologis	- To foster ecological intelligence in students both in terms of knowledge, attitudes, and skills, it can be taken from the local wisdom of a particular community group. In this study, local wisdom was awarded the title Sukabumi. - Knowledge, attitudes, and skills related to ecological intelligence can be integrated into learning and can be combined with certain learning models in this study combined with discovery inquiry learning models.
(Fitriah, 2020)	Environmental history for school	- Environmental history can be integrated into history learning in schools using an ecopedagogical approach. For this reason, it is necessary to have a curriculum that supports and is open to materials related to environmental sustainability - Studying environmental history will raise students' awareness of environmental sustainability, create a sense of empathy, and be wise in considering behavior or interactions that will be carried out on the environment
(Yasida, 2020)	Eco-Pedagogy	- The Ecopedagogy approach in learning history emphasizes material related to human behavior in the past related to nature or the environment, and the events that accompanied it - Learning history using an ecopedagogy approach can increase students' awareness about protecting, preserving and loving nature, because they learn from previous events, to guide them for the benefit of the present and the future..
(Afifah & Rofiah, 2020)	Pengembangan sumber dan media pembelajaran IPS untuk meningkatkan ecoliteracy peserta didik	- Historical material is integrated or becomes an integral part of social studies subjects. - By developing a product in the form of a module as a learning resource with the theme of recycling plastic bottle packaging can increase students' ecoliteracy as green consumers - Students become more active and enthusiastic about learning, and have the potential to become historical actors in their time by caring about the environment while learning to become entrepreneurs by creating used bottles that have economic value.
(Wasino et al., 2020)	Cultural Ecoliteracy of Social Science Education at Junior High School in North Java Indonesia	- By using qualitative research methods with a case study design, one of the findings of this research is the formation of students' understanding of the representation, relationships and identity of historical heritage preservation. - By using a cultural ecoliteracy approach, it raises awareness of students' progressive critical thinking regarding responsible attitudes both individually and collectively regarding environmentally based cultural sustainability.
(Munawar, 2022)	Construction of Environmentally Minded History Learning Through Infographic Media to Increase Students' Ecopedagogy	- To strengthen students' understanding of the relationship between humans and nature from every event studied in historical material, creative and innovative steps are needed in the learning process, one of which is the development of ADDIE (Analysis, Design, Development, Implementation and Evaluation) - By using (ADDIE) Analysis, Design, Development, Implementation and Evaluation, students' interest in learning history, especially those related to environmentally based history learning, increases.
(Raharjo & Supriatna, 2022)	The Application of "Life Cycle" Through Family Historiography to	Awareness of environmental sustainability can start from the family.

(Febriantje, 2023)	Nurturing Ecological Awareness in History Learning Menumbuhkan Kecerdasan Ekologis Siswa Melalui Kearifan Lokal Masyarakat Kampung Naga Dalam Pembelajaran Sejarah	• Through learning history students can compile family historiography by taking themes related to activities between humans and the environment. • One of the ways to develop students' critical thinking about current environmental problems is through learning with an eco-pedagogy approach. • In learning history, the ecopedagogy approach is a perspective for selecting materials to be studied that are related to activities, past human adaptability to the environment, one of which is material related to local wisdom, in this study local wisdom the people of Kampung Naga in protecting the environment. • Through material about the local wisdom of the Kampung Naga community, teachers and students can learn about the ways in which the Kampung Naga community maintains environmental sustainability, such as an understanding of the existence of a forbidden forest.
(Sunarno & Supriatna, 2023)	Ecological Intelligence in Local Wisdom of The Tengger Tribe as Learning Sources of Social Studies	• The local wisdom possessed by the Tengger people to minimize natural damage has been passed down from generation to generation in old poetry as a manifestation of the ecological intelligence possessed by the local community. • Ecological intelligence which has existed since the past is closely related to historical learning which is learning about the past, but in this research it is integrated into social studies learning.

From the several journal articles listed in table 1 above, it shows that the material or themes for learning history are taught in schools at all levels, both at thematic elementary schools, junior high schools that are integrated in social studies subjects, as well as at the school level. Upper secondary school in its own subjects has a close connection with the environment. therefore the development of environment-based history learning is a new paradigm at the praxis level, both curriculum and learning approaches used both the cultural ecoliteracy approach and the ecopedagogy approach (Ahmad, 2013; Misiaszek, 2019; Supriatna, 2016a; Wasino et al., 2020).

To bring out and strengthen ecological intelligence in students, teachers can formulate and develop modules, media or history learning methods that emphasize the selection of materials or themes that are directly related to environmental sustainability such as green history themes, recycling themes (Afifah & Rofiah, 2020; Karima & Firza, 2019; Munawar, 2022). Providing opportunities for students to write simple writings about family activities related to environmental themes also has a positive impact on creating ecological intelligence for students (Raharjo & Supriatna, 2022).

Local community wisdom related to natural conservation management spread across various regions in Indonesia is also a learning resource that can be used in history learning. By learning from the way people interact and manage nature with various local wisdom directly, apart from learning history or social studies, it becomes interesting for students and can also foster ecological intelligence, as well as getting the opportunity to become historical actors of their time. The grades obtained will be useful for students' lives now and in the future with various adjustments that follow (Febriani, 2021; Ramadhan & Resmi, 2019; Sunarno & Supriatna, 2023; Supriatna, 2016b).

CONCLUSION

Ecological intelligence has urgency in three interests. First, the position of historical learning which is always related to learning about events that occurred in the past which is always related to the concept of space and time, ecological intelligence plays an important role in the pedagogical

context, namely producing students who have good awareness and behavior towards the environment as a result of learning from past events related to the environment. Second, ecological intelligence is closely related to values that are tied to character values as an identity that students must have related to behavior towards the environment. Third, from various existing literature, the urgency of ecological intelligence in historical learning can be effectively done if there are adequate sources and media, while based on the results of the findings, there is still very much literature editing that focuses and specifically explains the importance of the concept of ecology intelligence in learning, especially history learning. Finally, this study emphasizes the importance of more, farther, and in-depth studies related to the urgency of ecological intelligence, especially to review how past events provide meaningful lessons not only individually but also various groups of society.

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