

*Environmental Education in Indonesia Secondary School Teachers' Perspective:
A Systematic Review*

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Abstract

Environmental education (EE) as a means to implement natural awareness and eco-friendly behavior among students is influenced by the teacher's perspective towards it. In the previous Indonesian school-based curriculum (KTSP), EE is incorporated and mentioned distinctly as a subject. However, the alternation of KTSP into the 2013 curriculum has removed EE as a unit in Indonesian public schools. Therefore, the EE perspective among teachers has changed. Therefore, this study aims to discuss the teacher's perspective towards EE, in this study will be more specified in the secondary school context. A systematic literature review of various studies of EE in the teaching realm is conducted. Curriculum, classroom implementation, and the challenges and opportunities of EE in the teacher's context are the aspects that will be discussed. Several studies mentioned that senior teachers have a profound comprehension of EE compared to new teachers due to their previous knowledge of EE incorporation in the KTSP curriculum. However, despite the lack of experience, some teachers have incorporated EE in the class regardless of teaching experience. Nevertheless, the challenges still impose the EE implementation in the secondary school context. In conclusion, due to the curriculum alteration, this study opines that the secondary school teachers' perspective towards EE has changed, affecting the EE implementation in the class. However, the opportunities for EE implementation are still present and could be improved through well-established cooperation among the responsible parties.

Keywords: The 2013 Curriculum, Environmental Education, Secondary School, Teachers' Perspective, the KTSP Curriculum

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Introduction and Background

The global climate crisis has reached a profound level which become a severe concern and forced society to be aware of it, including teachers, as the frontline of the education system through environmental education (EE) to plant environmental awareness among the students. Stapp (1969, p. 34) explained the definition of EE “Environmental education is aimed at producing a citizenry that is knowledgeable concerning the biophysical environment and its associated problems, aware of how to help solve these problems, and motivated to work toward their solution.” The term EE has been used since the 1970s in Indonesia, and it is similar to ESD in Western countries' context (Nomura, 2009; Parker, 2016). Hence, in this essay, the term EE is used. Before Indonesia's national curriculum, EE in the school-based curriculum (KTSP) is a separate subject. However, in the new curriculum, the 2013 curriculum and the emancipated curriculum (*Merdeka Belajar* curriculum), EE as a subject is being removed and incorporated into some subjects, namely natural sciences and geography. It changes the EE learning process and teachers' perspectives towards it. Therefore, this essay argues that the alteration changed the teachers' perspective towards EE. This essay will convey and elaborate on the Indonesian teachers' perspective towards EE in secondary school.

Environmental education is essential to the student's development since nature has changed and might be dramatically changed in the future. Hence, teachers need to equip students with comprehended environmental awareness. Jorgenson et al. (2019) states that it seems that today's environmental issues are highly likely the effect of the accumulation of several problems in two hundred years. Accordingly, Indonesia is a mega-biodiversity country, like the knife. It has two distinct sides, the edges and the spine. It would bring numerous advantages when it exploits in the proper means, yet it will be a catastrophe when it is overexploited and unpreserved. Thus, the sense of belonging to nature is a pivotal trait for human beings. Caring for and preserving nature have to be implemented in human behavior, especially at a young age (Adlong & Dietsch, 2015). Hence, environmental issues are not merely a local concern, but it is a global matter. While for the young generation, their awareness and actions might be critical aspects that either preserve or destroy nature in the present and the future.

EE could be one of the answers to the SDGs in education and the environmental sector. Through education, it is expected to lead students to be skillful individuals as EE drives them to be more aware of their surroundings, especially concerning sustainability. As a concept, EE is education for sustainable development (ESD) in the Indonesian context and has been implemented in the curriculum since the 1970s (Djuwita & Benyamin, 2019; Nomura, 2009). Referring to Nomura (2009), the EE concept has similarities to ESD in Western countries, yet unlike ESD. EE is more focused on individual behavior towards nature, while ESD also indicates economic and political aspects in the lesson. In the USA, the ESD has been introduced and delivered (Jorgenson et al., 2019). While in Australia, environmental education for sustainability (EEfS) has been introduced for over 30 years (Almeida et al., 2018; Tilbury, 2004) despite the different terms of environmental education. In some European countries, like the Czech Republic, the term Environmental and Sustainability Education (ESE) is the known term for ESD (Cincera et al., 2022). In Ireland's case, the term Environmental Education (EE) has been used to deliver lessons of environmental issues related (O'Malley & Pierce, 2022). Ultimately, it has a similar aim: to cater to and equip students with environmental awareness.

In order to achieve that goal, the teacher, as a frontline of the education system, has a pivotal role. While curriculum and schooling are part of the education foundation, teachers interpret and deliver it into practice. Additionally, Mastrilli (2005) and Schatz (1996) emphasised that teachers as an educator are not only equipped with pedagogical skills but also possess concern and awareness of environmental problems, especially in their surroundings, a school, for example. Another critical point is that teachers also have to master the characteristic of the EE (Nurwidodo et al., 2020) so they can convey it effectively. Several learning methods have already been implemented to deliver EE in the classroom, such as the school gardening (Situmorang & Tarigan, 2018) and brainstorming local issues (Dagamac & Darmawan, 2021) could be alternative methods in EE learning. Hence, teachers are supposed to be mastering the planning and leading of the EE learning process.

Yet, Indonesia's teachers have different experiences regarding teaching EE, especially in secondary school. Some teachers have difficulty interpreting the EE point in the curriculum (Dagamac & Darmawan, 2021; Utomo, 2005), while others could manage it (Prihantoro, 2014; Wakhidah et al., 2022). On the one hand, EE has already been incorporated into the learning process (Dagamac & Darmawan, 2021; Situmorang & Tarigan, 2018; Warju et al., 2017), but on the other, it is barely implemented or not at all (Kusmawan et al., 2009; Parker & Prabawa-Sear, 2019). Moreover, EE has challenges and opportunities in its learning and implementation in Indonesia's secondary schools that occurred in different circumstances. Therefore, this essay will discuss teachers' perspectives in terms of EE interpretation in the 2013 curriculum, the implementation of EE in the classroom and finally, the EE challenges and opportunities. This essay will be finalised with recommendations from the literature.

Indonesian Teachers' Perspective Towards Environmental Education in Secondary School

Teachers and the 2013 Curriculum in the Environmental Education Context

Some teachers have hardness to interpreting the EE concept in the curriculum. On the one hand, teachers voice that the EE in the curriculum is unclearly stated and confuses them (Dagamac & Darmawan, 2021). Because in the 2013 curriculum, EE is not a subject, it is incorporated into the learning objectives of some subjects, namely science and geography. Although it is stated, Parker (2016) and Parker and Prabawa-Sear (2019) explain that the instruction from the curriculum is still vague and indescribable. On the other hand, some teachers believe that the curriculum has a strong message on implementing EE in the learning process (Prihantoro, 2014; Wakhidah et al., 2022). So they could incorporate the EE in the classroom and use a specific method to engage students in EE learning, however, even when the teacher is able to interpret the EE in the curriculum. In another case, some teachers have a tendency to implement the curriculum they are familiar with. It is in line with Utomo (2005) study, which mentioned that teachers are more comfortable using the curriculum that they already master and are familiar with in the classroom. Yet, the teachers opine that they know the core competency of the new curriculum. Thus, interpreting the curriculum and implementing EE in the classroom is a challenge for EE to incorporate into the learning process.

Based on the literature, the curriculum mentions the core competency *to care* for nature, yet this is still an abstract term due to the broad definition of caring the nature. In spite of the teacher's pedagogy skills and teaching experience, interpreting the EE concept in the curriculum still becomes an issue to implement in the classroom. Also mentioned by Parker

(2016) that the 2013 curriculum almost lacks the EE concept, but it contained caring for nature as a core competency in the learning objectives. Hence, it is one of the problems contributing to the teacher's comprehension of EE interpretation in the curriculum. Moreover, science teachers in Palembang thought that the curriculum could be changed and cater to a specific subject that concerned EE (Dagamac & Darmawan, 2021). Since the curriculum is the root of the educational component, a suitable curriculum should be imposed to create contextual learning of EE at the secondary level.

The Implementation of Environmental Education in the Learning Process

Implementation of EE in the classroom is challenging if the teachers have little teaching experience. For instance, young teachers have difficulty implementing the EE in the 2013 curriculum (Dagamac and Darmawan, 2021); other than struggling to interpret EE in the curriculum, young teachers also have issues adapting EE into the classroom context (Hernawan et al., 2021). However, despite the vague context of EE in curriculum and learning objectives in secondary school, some teachers already attempted to incorporate the EE concept into the module and learning process, especially senior teachers with long teaching experience. Science teachers in Palembang have already incorporated the EE context in their learning process, especially in the science and geography (Dagamac & Darmawan, 2021), while in Jakarta, teachers already compile EE into the lesson planning and deliver the EE into the extracurricular activity, namely through scouts (Amini, 2015) and science club activities (Nada et al., 2021). The implementation of EE has been conducted due to some teachers' experience in delivering EE subjects in previous Indonesia's curriculum, which is the school-based curriculum (KTSP). Therefore, EE implementation in the classroom might be influenced by the teaching experience. To some extent, the curriculum in this context has a minor influence on the EE learning process. Because in spite of the unclarity of EE in the curriculum, senior teachers are still able to incorporate EE in the class.

The implementation of EE into class activities has numerous methods, but still, there is an issue in some cases. For example, a finding of (Kusmawan et al., 2009) study indicates that some teachers still teach in the conventional method without adjusting or improving the learning activity in terms of the EE approach. Moreover, teachers still lack EE comprehension and the skill to incorporate it into the subjects (Dagamac & Darmawan, 2021; Parker & Prabawa-Sear, 2019). Thus, they are unsure how to deliver the EE concept in the lesson or do it in the lecture method without adapting unique approaches. However, another study mentions that in Palembang, teachers bring a local issue to stimulate pupils and involve them in problem-solving conditions by asking several questions to initiate the discussion (Dagamac & Darmawan, 2021). While Kusmawan et al. (2009) study illustrates a learning process to expose students to their surrounding area, chemistry teachers try to engage their students in local community and field research activities to investigate and observe the local environmental issues. These studies mentioned how teachers have already immersed the EE concept in the learning process and improvised the context of EE by their own understanding. It shows that Indonesia's teachers already possessed proper EE comprehension so that they could apply it in the classroom.

Furthermore, the implementation of EE in Indonesia's schools has a remarkable program that was created by the government. It is called *Adiwiyata* (green school program). A study suggests that the green school program has a minor effect on improving students' and teachers' natural awareness (Djuwita & Benyamin, 2019). Moreover, the teachers' perspective towards nature preservation is a character they already possessed before the green

school program was held in the school (Calhoun, 2007). However, in the green school program, one of the assessed criteria is the teacher's understanding of environmental issues and the implementation of environmental awareness in the classroom. Thus, the schools joining this program must equip their teachers with comprehensive EE knowledge. The study of teachers in the green school program shows that teachers in the school who join the program possess a better understanding of the EE implementation in the class and an awareness of the environmental problems and nature preservation (Warju et al., 2017). The studies also indicate that the characteristic of green school teachers in terms of environmental awareness is excellent (Warju et al., 2017; Situmorang and Tarigan, 2018). Therefore, EE implementation through a green school program is an activator to induce natural awareness in the learning process since the trait of it is already planted inside the human mind.

Despite the self-initiation of EE implementation in the classroom by teachers in secondary school, some cases illustrate the hardship of teachers to incorporate EE in the learning process. Therefore, this essay supports the notion from Parker (2016) that EE implementation in the classroom is a learning component that needs to be enlightened since the 2013 curriculum only implies it in several subjects and does not integrate it into the core competency (Parker, 2016). Hence, it affects teachers' understanding of it and hinders its implementation in the classroom. Because self-regulated and highly motivated teachers are still a minimum number in Indonesian secondary schools (Kusmawan et al., 2009; Parker, 2016), providing a comprehend and appropriate guidelines to the teacher might be an alternative to aid teachers in EE implementation. Nevertheless, some teachers have tried to engage the classroom activity by incorporating the EE concept into the learning process.

Challenges and Opportunities of Environmental Education

EE implementation in secondary school has various obstacles. For instance, In (Cholil & Parker, 2021; Dagamac & Darmawan, 2021) study shows that teachers delivered the three main challenges in implementing EE, whether in the school or society, and these three challenges are (1) Regulation; (2) Indonesians' traits; and (3) Students' attitude. These studies mentioned that the Indonesian government have a tendency to act when the situation of the environmental problem gets worse, so prevention or preservation is rarely offered by the government. While Indonesian and its young generation, the students, have sufficient theoretical knowledge regarding the issue, the practical implementation and knowledge still need to be improved (Debrah et al., 2021; Zaman, 2014). The young generation, especially, is unable to open their mind to the local issue. On the contrary, also mentioned the opportunity for EE application in school, such as (1) Teachers' initiative to take the environmental issue into account (Dagamac & Darmawan, 2021); (2) The green school program (Dagamac & Darmawan, 2021; Warju et al., 2017). Therefore, the role of the teacher to plant environmental awareness in the students in their early development is crucial so the young generation could be more open mind and aware towards their surroundings.

Despite the opportunities for EE implementation in secondary school, the challenges of this process are higher. For instance, the initiation of incorporating EE in the classroom have been conducted in prestigious school with experienced teachers (Parker, 2016; Parker & Prabawa-Sear, 2019), such as private green school and highly reputed public school. On the other hand, it might be challenging to implement EE in the local school where experienced and skilful teachers are most likely inadequate. Whilst the green school program could gain student attainment on the environmental issue, the teacher also could stimulate an active learning process in the actual situation (Warju et al., 2017). Albeit, another study stated that

green school programs have a minor effect on the environmental awareness of students and the school staff (Parker & Prabawa-Sear, 2019). Therefore, EE implementation is not merely a teacher's duty, but it is correlated with other aspects, from government policy to societal norms. Another point that is worth noting, families are also a pivotal factor in making the EE implementation could be done both inside and outside the school.

Environmental Education in the Global Context

In The UK, ESD has been implemented and systematically regulated by the government. However, it is more government policy initiatives that may not have been based on broader educational debates and thinking (Bourn, 2008). While in Germany, the curriculum has specified ESD throughout early childhood to higher education and varied among states and institutions (Singer-Brodowski et al., 2019) In Australia, the EfS has been assigned by the state & federal government while in the field, educator could innovate the method, namely community engagement (Wilson, 2012). Reflecting on the other countries' EE integration in the curriculum, it shows that EE has been part that the government and the educators take into account. On the contrary, the Indonesian government's decision to remove EE from the latest curriculum shows a different concern in the Indonesian education system. Even though the local and national environmental crisis has been on the verge in these past years, the government is still more focused on the students' hard skills to soft skill, such as environmental literacy and awareness.

Conclusion

As the frontline of the education system, teachers should be able to implement the EE concept into the learning process. However, the hindrance to incorporating EE in the classroom still occurs in secondary school. Due to the clarity issue of EE in the 2013 curriculum, teachers are unable to interpret the EE and the EE is only incorporated into some subjects, namely science and geography. Thus, teachers encounter difficulty in implementing EE in the class. Even though senior teachers with a long teaching experience have a minor issue regarding EE interpretation in the curriculum, it is different to the young teachers' context. Young teachers have difficulty because they lack EE teaching experience since EE is not a subject in the 2013 curriculum, unlike the senior teachers who already gained EE teaching experience when the KTSP curriculum was implemented. Therefore, the gap in prior experience in teaching EE is different between the two groups. The issue is worsening due to the unclarity of EE explanation in the 2013 curriculum.

In spite of the opportunity and challenges of the EE learning process in secondary school, some teachers already attempted to incorporate EE in the classroom. Innovating the method to deliver EE into the class, teachers engaged the students in the EE learning to introduce nature awareness and preservation. Furthermore, the green school program contributes to the EE practical activities in the school. However, the challenges hinder the process of EE implementation, namely the removal of EE subjects in the 2103 curriculum. Hence, EE is not a priority learning objective, and teachers tend to neglect it in the learning process. Due to the hindrance and challenges in the EE learning process. Finally, this essay opines that the teachers' perspective towards EE has changed, and it affects the EE implementation in the class.

Recommendation

For teachers: Delivering EE in the 2013 curriculum is not a mandate; equipping students with environmental awareness is significant for their future and their behavior towards nature.

For schools: Implementing EE in the classroom needs support from the school. For instance, building competence and confidence in the teaching context is a program that could be offered by schools. Hence, teachers' capabilities would be updated and sharpened.

For stakeholders: Removing EE as a subject in the 2013 curriculum is backwards since EE has a comprehensive lesson and an effective method to plant environmental awareness to the students. Therefore, this essay believes that EE in the 2013 curriculum should be separated into a subject.

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