

***Promoting Education for Sustainability  
In Early Childhood Education***

Pasiningsih, Monash University, Australia

The Asian Conference on Education & International Development 2016  
Official Conference Proceedings

**Abstract**

Environmental issues have become a public discussion in the last two decades since the Brundtland Report in 1987. It is because environmental issues, such as climate change, air pollution, and water crisis, create a significant impact not only on a local but also on a global society.

Education is considered as one of ways to overcome problems in environment. Ironically, in practice, education still emphasizes in economic development (Greenwood, 2014). As a result, many environmental issues are caused by educated people (Orr, 2010). For example, the danger of DDT invented by the winner of Noble Prize for Physiology or Medicine, Paul Hermann Muller. DDT is used as a pesticide to kill insects, weeds or other pests. However, this substance also causes harm to human and other animals. Therefore, in the era of environmental crisis, it is time to shift education to also involve in environmental sustainability.

Early childhood education can be a good start to foster environmental awareness to children as early as possible. Also, the definition of sustainability offered by the Brundtland Report mentions that sustainability is needed to ensure the needs of future generation. Therefore, in the discussion that influences their future's life, children need to be seen as an active participant. In addition, in the future, children might face sustainability issues that might be different from now. Consequently, they should be taught with the way of thinking that enable them to solve the issues in the future.

Keywords: environmental issues, education for sustainability, early childhood education

**iafor**

The International Academic Forum  
[www.iafor.org](http://www.iafor.org)

## **Introduction**

Environmental issues have become a public discussion in the last two decades since the Brundtland Report in 1987. It is not surprising why they attract a public concern. Environmental issues, such as climate change, air pollution, animals' extinction, forest degradation, and water crisis, create a significant impact not only on the local, regional but also on the global society. Indonesia can be used as an example of a country with complex environmental issues.

This country suffers some big impact as the result of environmental issues. It is not difficult to find the news in media about them. As reported in the *Jakarta Post Newspaper*, The National Institute of Aeronautics and Space (LAPAN) informs that Indonesia suffers drought in 2015 that is believed as the worst condition in the last five years (Dipa, 2015). Consequently, in some places in Indonesia, it causes massive crop failure that will influence economic sector and has high possibility to harm food supply. It also creates a water crisis. Comparing with the rich who can afford to obtain water, the worst victim will be the poor who have less power. They should queue for long hours only to obtain clean water that is very limited. Air pollution in the cities, such as in Jakarta, the capital city of Indonesia, is higher than the standard proposed by the World Health Organization (WHO) (Muhammadi & Elyda, 2013). In terms of biodiversity, there are many species in Indonesia in the edge of extinction because of the decreasing of their population. For example, the extinction of the Sumatran elephant will be predicted in thirty years since the number of them are declined as the result of deforestation (The Jakarta Post, 2012). Those are some examples of many environmental issues in this country that need to be addressed. These examples also show how those issues connect with the discussion of this paper.

Meadowcroft (2002) as cited in Baker (2006) argues that comparing with develop countries, the impact of the environmental crisis will be worse for developing countries. It is because they are already in less disadvantages condition and have low ability to overcome the problems. This paper explores education for sustainability as one of the solutions that can be promoted to address the environmental issues faced by Indonesia as a developing country. It is also suggested that early childhood education can be a good start to implement education for sustainability, including in Indonesian context.

In this paper, the definition of sustainability will be explained firstly. The discussion will be followed by the role of education in education for sustainability. It will be focused more on early childhood education. Finally, the promotion of implementation of education for sustainability in early childhood education, especially in Indonesia will be provided.

## **The Definition of Sustainability**

The definition that commonly used to define sustainability can be found from the Brundtland Report (the United Nation, 1987), *Our Common Future*. It is explained here that sustainability development as “development that meets the needs of the

present without compromising the ability of future generations to meet their own needs” (the United Nation, 1987, p. 41).

It can be seen that the term used in the Brundtland Report above is sustainability development instead of sustainability. However, the two terms share similarities. This argument is supported by Lockley and Jarrath (2013) who claim that the term sustainability and sustainability development are used interchangeably.

### **The Concept of Sustainability**

In western society, the concept of sustainability is generally understood in three aspects, namely social, economic and environment (Herremans & Reid, 2002; Sterling, 2010). Instead of being separated, those three aspects are interrelated with each other. The example of the linkage between the three aspects can be seen from the case of climate change. One of the impact of climate change as an environmental issue is a severe drought. As a result, economic aspect will be influenced since drought will cause crop failures and a higher price of clean water. Famine, as caused by the lack of food supply and water crisis, can be seen as the impact from the social aspect.

However, in the current situation, human tend to put more attention in economic aspect than the other two aspects, social and environment (Ärlemalm- Hagsér & Davis, 2014). The cases of forest fires in Riau Province, Sumatera, Indonesia that usually happens almost every year, provide a good illustration of this situation. To reduce the cost of clearing land for planting, forest fires have been used as an inexpensive and fast solution. The impact of fire on the society, such as people’s health because of smoke from the fire and their difficulties to see clearly while travel because of smoke that might cause an accident and the impact for biodiversity and animal extinction are neglected.

Supposed sustainability is a chair with three legged represent the balance between economic, social and environment and compared with the reality that economic is stronger than the other two aspects, it can be imagined how inconvenience to sit down in that chair. Furthermore, as explained earlier, the three aspects are interrelated to each other. Paying attention to economic aspect without considering environmental factor will cause detrimental effect not only for environment but also for social and even economic. Therefore, the need for changing the way of human life should not be neglected.

### **The Dual Roles of Education**

Education is expected to persuade people to live in a sustainable way in order to solve the uncertainty of the future and environmental issues (The United Nation, 1987). In line with this statement, Elliot and Davis (2009) argue that education plays a significant role to change the way of life of a human in this current situation from unsustainable into a more sustainable way. However, in some cases, education can be seen as a source of a problem instead of a solution of it.

Orr (2010) states that “education is no guarantee of decency, prudence or wisdom” (p. 238). Furthermore, he explains that many environmental issues are caused by

educated people that hold a degree (Orr, 2010). His claim seems contradictory with the previous argument mentioned by the United Nation (1987) and Elliot and Davis (2009) who believe that education can be used as a solution to address environmental issues. However, his claim is not made without any evidence.

Some examples of environmental issues are the work of educated people. The innovation of chlorofluorocarbons (CFCs) that causes a hole in the ozone that becomes a public concern nowadays. The danger of dichlorodiphenyltrichloroethane or usually known as DDT invented by the winner of Noble Prize for Physiology or Medicine, Paul Hermann Muller. DDT is used as a pesticide to kill insects, weeds or other pests. On the other hand, at the same time this substance causes harm to human and other animals. Exploitation of forest using advanced technologies is also usually done by educated people to meet their demands.

Greenwood (2014) explains this condition as the result of education that still put more concern in economic development. Therefore, in the era of environmental crisis and the issue of sustainability, it is the appropriate time to shift education that is still controlled by economic driven. Education is expected to be brave to challenge its status quo from economic oriented. As suggested by Greenwood (2014) in the era where socio- ecological impact becomes more detrimental, it is the right time to drive education to put more attention also for sustainability. Education is expected to address the issue of sustainability possibly because education can be a catalyst for people to be aware of environmental issues and to change the people's behavior in sustainable ways of life. Early childhood education as a part of education levels is argued can be a good start to embed the awareness toward environment as early as possible.

### **Education for Sustainability in Early Childhood Education**

Comparing with other educational levels, such as primary, secondary and tertiary education, early childhood education makes a less significant progress in engaging and taking a part in education for sustainability (Elliot and Davis, 2009). Their argument is supported by their findings that research related to the education for sustainability in the context of early childhood education is considered as a new interest and not as much as those who have been conducted in the other educational levels. In their study, Elliot and Davis (2009) explain clearly some common belief in the early childhood education as the reasons why this area makes a slow progress in engaging with sustainability issues.

Firstly, educators in early childhood education might assume that sustainability in the context of early childhood only means playing in outdoor places. This assumption possibly because for a long time, it is very common in early childhood to combine learning in indoor and outdoor places for children.

Secondly, some sustainability issues, such as famine and drought are not good news. Therefore, they are considered frightening for children. As a result, children that are commonly assumed as innocent, fragile and inexperienced should be protected from thinking about issues in sustainability.

Thirdly, issues in the context of sustainability, for example, global warming, climate change and a hole in ozone are too complex and abstract to be taught for young learners in early childhood education.

Based on that common belief, it is possible that it will be considered as an unwise decision to promote education for sustainability in early childhood context. Children might be seen as too young to be involved and engaged with complex environmental issues, such as climate change, water crisis, deforestation and global warming. Early childhood education is still perceived to provide more opportunities for children to play instead of forcing them to think complex issues such as water crisis, animal extinction and drought. Limited knowledge that children have, also can be used as an argument against the idea of supporting education for sustainability in the context of early childhood. It is doubtful that children will understand some technical terms used in the discussion of sustainability, such as El Nino, ozone, or climate.

However, to promote education for sustainability in early childhood education that common belief and misconception about children should be changed. Davis et al. (2009) believe that early childhood education can be a foundation stage for children to learn education for sustainability. Furthermore, the definition of sustainability offered by the Brundtland Report (The United Nation, 1987) clearly mentions that sustainability is needed to ensure the needs of future generation will not be neglected. Children can be considered as a future generation. Therefore, in the discussion that will be influenced their life in the future, children need to be seen as an active participant instead of being passive. Årlemalm-Hagsér (2013, p. 1784) also emphasizes this argument in her study.

There has also been a transition from seeing children as passive vulnerable recipients to acknowledging them as competent, resilient and active agents with the right to be involved and to be heard in matters that affect them, that is, to recognizing them as active and competent citizen.

A study conducted by Davis (2005) can be seen as evidence that children have the capability to engage with environmental issues and participate in finding the solution. Davis (2005) conducted her study in a kindergarten school in Brisbane, Australia. Teachers in that school believed that children are competent learners to deal with sustainability. Therefore, teachers involved children in a project dealing with environmental issues called Sustainability Planet Project. One of the projects was the water conservation project in which children and teachers discussed the inefficiency of the use of water while at that time Australia suffered a serious drought. Children were given opportunities to participate in finding the solution to that problem. The findings showed that to conserve water used in their school and remind others to use water efficiently, children use a variety of media, such as making signs, drawing pictures and writing messages and put them near the water spots. Furthermore, children's action as a respond to conserve water is not only done in their school but also at home. They tried to persuade their parents to do the same action also at home. In our daily life, there are some experiences that can also be used as counter arguments of those misperceptions.

Frequently, during my experience as an educator in early childhood education and spending time with children, they often make me surprise with their capability to

understand complex issues. I remembered how my student could solve a complex puzzle faster than I did and taught me how to fix a complicated broken toy. In addition, sometimes children become a better problem solver than adults. For instance, when having a conflict with their friend in sharing toys, they can find a solution that can be assumed as a win-win solution for themselves and also for their friends.

Davies et al. (2009) explain that not only based on experience but also from research, young learners have abilities to be involved in complex thinking such as environmental issues. Therefore, they explain further that more advantages will be obtained when children are taught earlier about education for sustainability. From this argument, it can be said that students will have a deeper understanding about the issue of sustainability when it is started from earlier, which is in early childhood education. As a result, they will be more aware and knowledgeable when they are taught about education for sustainability in the next level of school. In addition, Davies et al. (2009) argue that children have the capability to be agents for change and can persuade their parents and family in relation to the idea of sustainability and behavior. The argument from Davies et al. (2009) reminded me of the story from one of mothers of my kindergarten students. She told me that she felt shy with what she did when her child complained when she just threw a plastic bag to the road from her car's window. Her child told her to throw the rubbish in the bin instead of just throwing anywhere.

### **Promoting Education for Sustainability in Early Childhood Education in Indonesia**

In the previous discussion of this essay, it is mentioned some rationale why education for sustainability is expected to be promoted in the early childhood education. In the case of Indonesia, considering the complexity of environmental issues happened in this country, one of the efforts done by the government Indonesia in relation to the promotion of education for sustainability can be seen from the agreement made by the ministry of education and the ministry of environment. As the result of the agreement made in 2005, the ministry of education that in charge in developing a national curriculum and textbooks, has integrated education for sustainability in the content of curriculum (Surendra, 2011).

However, there is something missing here. Education for sustainability in Indonesia is only integrated into the curriculum for primary, secondary and vocational education (Surendra, 2011). It is not also included in the curriculum of early childhood education. Possibly, it is because early childhood education in Indonesia is still an optional while primary and secondary education is a compulsory education.

### **Early Childhood Education Curriculum in Indonesia**

The national curriculum for early childhood education, including kindergarten in Indonesia is developed by the Ministry of Education. The framework of the curriculum can be found in *Peraturan Menteri Pendidikan Nasional Republik Indonesia* (Rules of Republic Indonesia Ministry of Education) number 58, the year 2009 about *Standar Pendidikan Anak Usia Dini* (Early Childhood Education Standard).

The absence of education for sustainability in the curriculum for early childhood education can be seen, for example from the curriculum for kindergarten. Seven subjects are taught for children whose age 4 - 6 years old in the kindergarten's curriculum, namely ethic, religion, fine and gross motoric, physical health, cognitive including science and numeracy, linguistic including literacy and social-emotional competence.

From seven subjects in the current kindergarten's curriculum, there are only two contents founded in cognitive, particularly in science, which have relation with the environment. The first content is children are taught to understand a simple concept in their daily life, such as drizzle, rain, dark and light. The second content is children understand the cause and effect of natural phenomena, such as water causes something to be wet and the wind causes leaves to move. Those two contents are considered not sufficient to be connected with environmental issues in Indonesia currently. Lingard (2007) argues that learning in the class should connect with the issues in the society. Some environmental issues mentioned at the beginning of this essay are the problems faced by the current society of this country. Therefore, it is also important to integrate education for sustainability in early childhood curriculum in Indonesia.

Elliot and Davis (2009) believe that education for sustainability in the context of early childhood education is a significant approach in education based on valuing human and other than human that will stimulate change toward those who learn. Furthermore, the importance of involving children in education for sustainability is well known as a foundation to develop lifelong awareness and positive attitude toward environment (Hacking and Barratt, 2007 as cited in Duhn, 2012). Consequently, education for sustainability in early childhood is aimed to change the way of thinking of children and adults in order to reduce the environmental impact and to develop the practice that is more sustainable in the context of schools, home and wider community. In addition, students will face sustainability issues that might be different from the issues that they face now. Therefore, they should be taught with the way of thinking that enable them to find the solution for the sustainability issues they might face in the future.

Nevertheless, it should be taken into account that education for sustainability is complex. UNESCO Decade of Educational for Sustainable Development (2005) as cited in Elliot and Davis (2009, p. 68) explain that there are some main principles in education for sustainability, namely "interdisciplinary and holistic, values-driven, critical thinking and problem-solving, multi-method, participatory decision making, applicability and locally relevant". It means that education for sustainability involves more than just doing recycle, reuse, reduce or plant trees together with children although those activities can be done as one of the ways to promote sustainability. Gadotti (2010) emphasizes this argument by saying that one of the challenges in education for sustainability is to move from the promotion of isolated actions, such as reuse, reduce and recycle.

Education for sustainability is not simply just changing the learning from classrooms into visiting natural places. Early childhood educators sometimes assume that they already implement education for sustainability since children in early childhood

education are often taught in outdoor or natural places (Elliot and Davis, 2009). Although nature is important to raise children awareness about their environment, however, it is considered as not sufficient to deal with the sustainability issues in the recent situation. Some issues in sustainability such as climate change, a hole in ozone and forest degradation can be a challenge for early childhood educators to communicate those issues to children in order to help them understand.

Based on the explanation above, it should be noted that the success of education for sustainability relies on teachers. Teachers should be knowledgeable and possess skills needed in order to assist children understanding the concept of sustainability and take a part to live more sustainable. Teachers can develop children awareness in environmental issues as long as teachers have sufficient knowledge and possess positive attitude (Tuncer et al., 2009 as cited in Burmeister and Eilks, 2013).

Children learn best with examples, not a theory (Davies et al., 2009). This means early childhood education setting as well as their educators also expected to be active and be a role model in promoting education for sustainability in practice. It seems hypocrite to teach children to save water while the school or teachers ignore the water drip from a tap. One good example for teachers and school might have a significant impact more than one hundred words to children to be persuaded to live in a sustainable way.

Environmental issues are everywhere. It is impossible to ignore that fact. It relates to children's daily life and their life in the future. Education that does not teach and neglect about those issues cannot be considered as a *true* education. It means, a different kind of education from the current education is needed. It is also emphasized by Orr (1992) as cited in Elliot and Davis (2009) by saying "the crisis [of sustainability] cannot be solved by the same of education that has helped create the problem (p. 68). One of expectation from education is to help students to think in order to find the solution to the issues around them. If education only teaches theories that cannot be practiced in daily life, the purpose of education should be questioned.

## **Conclusion**

The survival of people and the destiny of environment are intertwined. Therefore, it is an appropriate time to change the way of our life to be more sustainable. In the case of Indonesia, this country is a developing country that faces many environmental problems. It is an urgency to take some action to address those problems otherwise they will become worse and detrimental. One of them is changing the old paradigm of education that is still economically driven into education for sustainability.

Early childhood education can be a good start to teach education for sustainability for children in order to develop their awareness of sustainability issues and take a part to find the solution. Children can be involved as active agents to deal with the environmental issues and promote a sustainable way of life. However, it should be noted that education for sustainability involves more than a surface understanding. Therefore, it requires educators who are knowledgeable, especially in the context of early childhood education that deal with young learners.

In contrast, teachers cannot teach what they do not know. The current curriculum of early childhood education in Indonesia does not include education for sustainability. It means teachers might have a lack of experience and face difficulties to integrate education for sustainability in their pedagogy. To address this issue, it is expected to include education for sustainability in the curriculum for early childhood education in Indonesia. Deepening education for sustainability in Indonesia is also suggested to consider teachers' professional development, such as pre-service and in-service training to improve their knowledge and understanding of education for sustainability. In addition, children learn best through examples. It means early childhood education and educators in early childhood can play as a role model of sustainability in their practice in order to develop children's awareness of sustainability.

### **Acknowledgements**

As one of the awardees, I would like to express my gratitude to the Indonesian Endowment Fund for Education Scholarship (LPDP). Because of financial support from LPDP, I could participate in The Asian Conference on Education & International Development (ACEID) 2016, Art Center of Kobe, Kobe, Japan, April 3-April 6, 2016.

## References

Ärlemalm-Hagsér, E. (2013). Minds on earth hour – a theme for sustainability in Swedish early childhood education. *Early Child Development and Care, 183*(12), 1782-1795. doi:10.1080/03004430.2012.746971

Ärlemalm-Hagsér, E., & Davis, J. (2014). Examining the rhetoric: A comparison of how sustainability and young children's participation and agency are framed in Australian and Swedish early childhood education curricula. *Contemporary Issues in Early Childhood, 15*(3), 231-244. Retrieved from <http://search.proquest.com/docview/1651860973?accountid=12528>

Baker, S. (2006). *Sustainable Development*. New York: Routledge

Burmeister, M., & Eilks, I. (2013). An understanding of sustainability and education for sustainable development among German student teachers and trainee teachers of chemistry. *Science Education International, 24*(2), 167-194. Retrieved from <http://search.proquest.com/docview/1509085426?accountid=12528>

Davis, J. (2005). Educating for sustainability in the early years: Creating cultural change in a child care setting. *Australian Journal of Environmental Education, 21*(2005), 47-55. Retrieved from <http://search.proquest.com/docview/61858306?accountid=12528>

Davis, J., Engdahl, I., Ottieno, L., Pramling-Samuelsson, I., Siraj-Blatchford, J., & Vallabh, P. (2009). Early Childhood Education for Sustainability: Recommendations for development. *International Journal of Early Childhood, 42*(2), 113-118. Retrieved from <http://search.proquest.com/docview/194771932?accountid=12528>

Dipa, A. (2015, July 10). Indonesia to suffer worst drought in five years in 2015: agency. *The Jakarta Post*. Retrieved from <http://www.thejakartapost.com/news/2015/07/10/indonesia-suffer-worst-drought-five-years-2015-agency.html>

Duhn, I. (2012). Making "place" for ecological sustainability in early childhood education. *Environmental Education Research, 18*(1), 19-29. doi:10.1080/13504622.2011.572162

Elliott, S., & Davis, J. (2009). Exploring the Resistance: An Australian Perspective on Educating for Sustainability in Early Childhood. *International Journal of Early Childhood, 41*(2), 65-77. Retrieved from <http://search.proquest.com/docview/194778948?accountid=12528>

Gadotti, M. (2010). Reorienting education practices towards sustainability. *Journal of Education for Sustainable Development, 4*(2), 203-211. Retrieved from <http://search.proquest.com/docview/762467484?accountid=12528>

Greenwood, D. A. (2014). Culture, environment and education in the anthropocene. In M. P. Muller, D. J. Tippin, & A. J. Stewart (Eds.), *Assessing Schools for*

*Generation R (Responsibility): A Guide for Legislation and School Policy in Science Education* (pp. 279-292). Dordrecht, New York: Springer

Herremans, I. M., & Reid, R. E. (2002). Developing awareness of the sustainability concept. *Journal of Environmental Education*, 34(1), 16-20. Retrieved from <http://search.proquest.com/docview/14640621?accountid=12528>

Lingard, B. (2007). Pedagogies of indifference. *International Journal of Inclusive Education*, 11(3), 245-266. doi:10.1080/13603110701237498

Lockley, J., & Jarrath, M. (2013). The nature of sustainability as viewed by european students. *Journal of Education for Sustainable Development*, 7(1), 113-124. Retrieved from <http://search.proquest.com/docview/1651844453?accountid=12528>

Muhammadi, F. Z., & Elyda, C. (2013, June 10). Air pollution in city reaches alarming level. *The Jakarta Post*. Retrieved from <http://www.thejakartapost.com/news/2013/06/10/air-pollution-city-reaches-alarming-level.html>

Orr, D. W. (2010). What is education for? (1990). In D. W. Orr, *Hope is an Imperative: The Essential David Orr* (pp. 237-245). Washington D. C.: Island Press

Sterling, S. (2010). Living "in" the Earth: Towards an education for our times. *Journal of Education for Sustainable Development*, 4(2), 213-218. Retrieved from <http://search.proquest.com/docview/762467346?accountid=1228>

Surendra, L. (2011). Reviewing national experiences: Indonesia. In I. Mula, & D. Tilbury (Eds.), *National Journey towards Education for Sustainability Development* (pp. 37-52). Retrieved from <http://unesdoc.unesco.org/images/0019/001921/192183e.pdf>

The Jakarta Post (2012, January 24). Sumatran elephants could be extinct in 30 years. *The Jakarta Post*. Retrieved from <http://www.thejakartapost.com/news/2012/01/24/sumatran-elephants-could-be-extinct-30-years.html>

The United Nation (1987). *Report of the world commission on environment and development: Our common future*. Retrieved from <http://www.un-documents.net/our-common-future.pdf>

**Contact Email:** [Pasiningsih@gmail.com](mailto:Pasiningsih@gmail.com) or [ppas4@student.monash.edu](mailto:ppas4@student.monash.edu)