

# Normal vs. Green Elementary School Students: Comparison in Nature Relatedness and Pro-environmental Behavior

Aditya Benyamin<sup>1</sup>, Ratna Djuwita<sup>1\*</sup> and Amarina Ashar Ariyanto<sup>1</sup>

<sup>1</sup>Faculty of Psychology, Universitas Indonesia, Depok, Indonesia

**Keywords:** Nature relatedness (NR), pro-environmental behaviour (PEB), green school.

**Abstract:** The lack of proper environmental education which develops an integrated self-concept with nature (nature relatedness) is damaging our environment globally. This study aims to find out whether green school (*Sekolah Alam*) modified curriculum actually created a significant difference in the nature relatedness and pro-environmental behavior of their students by comparing them with normal elementary school students. School location, nature exposure, age, educational, and residential history are controlled. In both schools students were asked to fill the NR-Scale and self-report PEB questionnaire, in addition to behavioral observation. The data was analysed using independent sample t-test. Result shows that that green school students behave more pro-environmentally. Furthermore, there is no significant difference in their nature relatedness. This might suggest that the green school curriculum only alters the behavior of their students, but more importantly not their self-concept. In the discussion, it is explained how PEB could be preceded by other factors which include contextual factors (governmental regulations, infrastructures, technology advancement, etc.) and previous habits.

## 1 INTRODUCTION

The world is currently facing a global environmental threat with problems such as climate change and extinction on our biodiversity (United Nations, 2015). The main contributor to this issue is no other than human ourselves. As our population has grown (World Bank, 2017), so has our consumption rate of the resources around us. One of the behaviour causing that environmental destruction is the overconsumption of single-use plastic. Single-use plastic entangled us in every aspect of our life to the degree that we could call this era as the plastic age (Lewis, 2016, Thompson, Swan, Moore, & von Saal, 2009). With over 80% used plastic accumulated as pollution to our soil and other terrains (Geyer, Jambeck, & Law, 2017), we can no longer stand still to the matter at hand.

In the spirit of tackling this plastic age issue, several solutions have been offered. Globally, world leaders have agreed to create a greener future through the Sustainable Development Goals (SDGs; United Nations, 2015). But, there are also so much we can do as an individual as well. We can realize that SDGs as an individual through behaving pro-environmentally (Thøgersen, 2014). Pro-

environmental behavior (PEB) is human behavior which has the capacity to alter the availability of materials and energy in our environment, or changing the structure and dynamics of the biosphere or ecosystem itself (Stern, 2000).

In order to develop PEB, there are at least four challenges according to Schultz (2011). First, our current education does not necessarily designed to enable this behavior. Second, the human mindset tends to think in a short-term when it comes to the threat to our environment. Third, our relationship with nature seems so severed that we don't consider ourselves connected with nature anymore. Four, this PEB is also influenced by an external factor which is the pre-existing social norm. This study will focus on the first and third challenges which could be summarized with the terms environmental education and nature relatedness (NR).

Nature relatedness is an understanding and appreciation that humans are connected with all other living things on earth (Nisbet, Zelenski, & Murphy, 2009). It is said that this variable is a part of how we define ourselves or our so-called self-concept (Clayton & Myers, 2009). In the past, we completely rely on nature for housings, foods, clothing, and every single thing in our life. As

civilization advances, we grew farther and farther from nature by living in concrete jungles and removing close to all natural elements in our surrounding (Barlett, 2009, Vining, Merrick, & Price, 2008). This is worrisome since nature relatedness has been proven to be one of the antecedents of PEB. Someone with higher nature relatedness will care more about nature, involved with environmental activism and organizations, and generally shows more pro-environmental behaviors (Hinds & Sparks, 2008; Nisbet, 2013; Sparks, Hinds, Curnock, & Pavey, 2014; Nisbet, Zelenski, & Murphy, 2009). If this nature relatedness is not properly cultivated in our current and future generations, the behavior we elicit might be the cause of our own global demise.

The cultivation of one's self-concept that relates to nature should've been done since early stages of our development, yet research on nature relatedness and its relation with PEB in children is still minimum based on the researchers' literature study. Nature relatedness is said to develop since we are a child, or specifically in middle childhood stage (6-11 years old; Clayton & Myers, 2009; Chawla, 1999; Degenhardt, 2002; Wells & Lekies, 2006). In this stage, children start to form and compare their views on him/herself's current state (real self) and in the future (ideal self; Papalia & Martorell, 2014). This view is determined by experiences with nature we acquire during childhood and will continue to direct whether we consider ourselves as an environmentalist or not.

One stakeholder who could be a major supplier of that experiences with nature is school. Especially because children spend a lot of time on school ground. In Indonesia, elementary schools usually start at 7 a.m. and end at around 12 a.m to 2 p.m. Furthermore, children's significant others who influence their development started to shift from parents alone to teachers and peers (Papalia & Martorell, 2014). These differences in experience with nature, teachers, and peers could be observed through the school's environmental education policy. Environment education itself is a part of personal-social education (PSE) which is a multidisciplinary field that tried to elevate the knowledge and awareness on environment and relevant challenges in order to develop the attitude, motivation, commitment to make decisions based on information and acts responsibly through pro-environmental behavior (UNESCO, 1977).

In Indonesia, aside from the official curriculum disseminated by the Ministry of Education and Culture, there is a considerably new trend of Nature

School (*Sekolah Alam*). Nature school has a nature-savvy value which is created in order to give their students familiarity and closeness with nature (Sekolah Alam Indonesia, n. d.). They consider nature as a source of children's learning process. To accomplish that, they provide opportunities for their students to learn outdoor on a vast green area of the school and classrooms with open access to nature. Adding to that they have routine outbound activity every week and actually teach several pro-environmental behaviors such as waste segregation, recycle, and bring their own lunch box or drinking bottles. They based their curriculum, including the environmental education, on religious teachings of Islam. This might be a unique approach compared to most researches on environmental education in Western, Educated, Industrialized, Rich, Democratic (WEIRD) samples (Henrich, Heine, & Norenzayan, 2010). Most researches on those samples based their environmental education on a more westernized philosophy.

Compared to Nature School, most public schools don't give as much concern about environmental education. In Indonesia, environmental education is either integrated through other subjects or taught in a distinctive local subject (Muatan Lokal; Soerjani, Yuwono & Fardiaz, 2007). Through other subjects, environment education is taught in civics, natural science, and religion for examples. On the other hand, local subject only applies to several regions in Indonesia as each region has their own unique local subjects. Environment education is generally only given formally through lectures, discussion, or direct experiences in indoor classes (Muntasib, Masy'ud, Rushayati, Meilani, & Rachmawati, 2015; Muslich, 2015). As a result, Indonesian public schools environmental education is deemed to be ineffective (Soerjani, Yuwono & Fardiaz, 2007).

These differences in environment education curriculum are suggested to create a difference in the students' nature relatedness and pro-environmental behavior. Though, there is no specific research on the differences environment education creates on nature relatedness to the researchers' awareness, this study wants to prove this possibility. By definition alone and how it is realized differently in nature and public schools, environment education should be able to create a significant difference between students in the two schools. Next, the different environmental education applied in nature and public schools should also create a significant difference between their students' pro-environmental behavior. As suggested by research

such as from Collado, Staat, and Corraliza (2013), environment education such as nature camps has been proved to develop PEB. This study aims to test this possibility in a different context of environment education in the formal education provided by Indonesia’s nature and public schools. In summary, there are two main research problems in this study. First is to test whether there is a significant difference in nature relatedness between nature and public schools students. Second, is to test whether there is a significant difference in pro-environmental behavior between nature and public schools students.

## 2 METHOD

### 2.1 Respondents

The sample is acquired through a purposive and accidental sampling method. Participating schools are selected purposively after consulting with Indonesia Nature Schools Network (*Jaringan Sekolah Alam Nusantara*) for which school would represent Nature School’s concept most properly. Through that consideration, 7 nature schools are selected in the area of Jabodetabek (Jakarta, Bogor, Depok, Tangerang, and Bekasi) which is Indonesia’s capital megapolitan. Afterwards, the public school were selected by listing down all schools located in 2 kilometers radius as a match for each nature school based on the database provided by the Ministry of Education and Culture. This done so that the environment surrounding each school is controlled. The curriculum used in each public school must also match the curriculum used in nature school (2006 or 2013 curriculum). Furthermore, only schools which implement no international curriculum (such as International Baccalaureate or IB in short, or Cambridge International Examination or CIE in short) that could be included as participant in this research. Through that selection process, 7 public schools were acquired as a match of each nature school.

Accidental sampling was used to determine which student would participate in this study. Students were given a parental consent form days before the assigned date of the research and asked to request their parents to fill out the form. Only those who completed this form and was present during the day of the research would be included as the participant. Aside from that, we establish 3 criteria to select the participants. First, they must be officially enlisted as a fifth-grade student in their

school to control age, educational level, teachers’ and peer’s value. Second, they must be enlisted there since the first grade and never move to other schools to make sure of the consistency of curriculum they receive. Third, each student must have lived in Indonesia for 6 years minimum to control past environmental conditions and cultural influences. Through this sampling process, 533 participants were then acquired with 57% were from public schools, 53.3% were male, and age range varies from 10-13 years old (M = 10.88).

### 2.2 Measures

#### 2.2.1 Nature Relatedness (NR)

An adaptation of Nature Relatedness Scale (NR-Scale) by Nisbet, Zelenski, and Murphy (2009) is used. The adaptation process includes back-translating items in the questionnaire, expert judgement, interviews with participants of similar characteristics, and confirmatory factor analysis (CFA). This questionnaire consisted of 7 items with good model fitness ( $\chi^2 = 867.783$ ; RMSEA = 0.083; CFI = 0.939; TLI = 0.909; SRMR = 0.037) and standardized factor loading ranging from 0.514-0.643. Goodness of fit of measurement models is based on insignificant  $\chi^2$  with  $p > 0.05$ , CFI  $> 0.90$ , TLI  $> 0.90$ , RMSEA  $< 0.05$ , and SRMR  $< 0.05$  (Hooper, Coughlan, & Mullen, 2008). All items should also have significant standardized factor loading ( $p < 0.050$ ; Wijanto, 2015). Participants were required to answer in a 4-points Likert scale ranging from strongly disagree-disagree-agree-strongly agree). Sample item includes “nature is important for me (*alam penting bagiku*).”

#### 2.2.2 Pro-Environmental Behaviour (PEB)

Table 1: PEB Self-Report Norm

Behavior	Category/Scoring			
	Plentiful (1)	(2)	(3)	Few (4)
Plate	>8	5-8	3-4	0-2
Glass	>8	6-8	3-5	0-2
Straw	>8	5-8	3-4	0-2
Bag	>7	5-7	3-4	0-2

The PEB measured specifically in this research are consumption of four different single-use plastic including plastic plates, glass, straws, and bags. To quantify these behaviors, two methods were used which are a self-report questionnaire and behavioral observation. Four items in the questionnaire asked how many of each of those aforementioned single-

use plastic products they used in the past week. Participants have to answer with the estimated number of plastics they used. This number was then categorized to four level of consumption from plentiful (1) to just a few (4) based on the date acquired. Detailed norms for each category on every behaviour is shown in Table 1. Each row of the behaviors listed represents the amount of specific products participant used in the past week.

Table 2: PEB Observation-FGD Norm

Behavior	Reasoning	
	Not Pro-Environmental	Pro-Environmental
Not Pro-Environmental	1	2
Pro-Environmental	3	4

PEB was also measured through a structure observation. In the observation process, participants were told that they will be given foods and beverages. Each participant was asked whether they want to use a reusable product or single-use plastic for each behaviour. The reasons why they chose reusable or single-use product were then asked through a Focus Group Discussion (FGD). Scoring based on the behaviors elicited and their reasoning are shown in Table 2. Score from both observation and self-report were then combined. Participants with higher scores are considered to behave pro-environmentally.

### 2.3 Procedure

This study is conducted through mainly four steps after each participant has confirmed their eligibility by submitting the parental consent form. The first step is that all participants were divided into groups of 4-7 students. Each group was accompanied by a research assistant to ensure that they understand each item and instruction, also to guide the FGD session later on. Secondly, participants were instructed to fill out the questionnaire. Third, participants were called one by one to the post where the behavioral observation was done. Each participant was asked to choose a reusable or single-use plastic plate, glass, to use straw or not, and to use a plastic bag or not. Each participant’s answers were noted. In each group, the research assistant will then begin the FGD after all participants have made their choices. Data was then analysed through independent sample t-test in SPSS program.

## 3 RESULT

Table 3: Descriptive Statistics of NR and PEB

Variables	Mean	SD
NR	3.39	.46
PEB	2.62	.69
PEB-SR	2.67	.89
PEB-O	2.57	.85

NR = Nature Relatedness; PEB = Pro-Environmental Behavior (self-report and observation data averaged); PEB-SR = Pro-Environmental Behavior Self-Report; PEB-O = Pro-Environmental Behavior Observation.

First of all, descriptive analysis of the acquired data shows that both NR and PEB is higher than the hypothetical mean of 2 out of the maximum score of 4. NR has the mean of 3.39 (SD = .46). PEB has the mean of 2.62 (SD = .69) which specified according to its measurement of self-report with a mean of 2.67 (SD = .89) and observation with a mean of 2.57 (SD = .85). These numbers indicate that most students used at least 3-8 plastic plates, glasses, straws a week and 3-7 plastic bag a week. They used at least 1 single-use plastic product every single day.

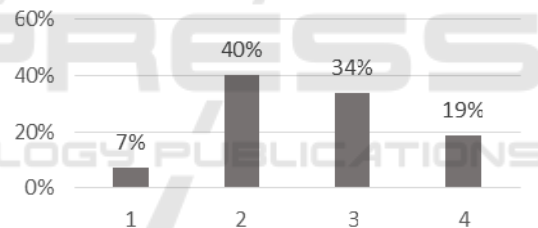


Figure 1: PEB Observation-FGD Result

Group 1-4 as listed in Table 2. PEB Observation-FGD Norm

Furthermore, from the analysis of the participant’s reasoning behind their behaviour, it is found that they usually behave pro-environmentally without pro-environmental reasoning (PEB-O score = 3) or act not pro-environmentally but with pro-environmental reasoning (PEB-O score = 2). The majority (40%) showed the later condition, followed by the first (34%). Only 19% showed PEB with pro-environmental reasoning (PEB-O score = 4), and 7% who didn’t show PEB with not pro-environmental reasoning as well (PEB score = 1). Thus, it can be concluded that their behaviour doesn’t match their reason, for causes that will be discussed further in the discussion.

Table 4: Independent Sample t-test Result

Variables	t	df	Sig. (2- tailed)	Std. Error Differe nce
NR	-1.06	531	.292	.04
PEB	10.33	513.18	.000**	.56
PEB-SR	4.29	531	.000**	.08
PEB-O	11.65	531	.000**	.07

NR = Nature Relatedness; PEB = Pro-Environmental Behavior (self-report and observation data averaged); PEB-SR = Pro-Environmental Behavior Self-Report; PEB-O = Pro-Environmental Behavior Observation.

From the independent sample t-test it is found that there is no significant difference of nature relatedness  $t = -1.056$ ,  $p < 0.05$  (two-tailed) between nature schools ( $M = 3.37$ ,  $SD = 0.54$ ) and public school students ( $M = 3.41$ ,  $SD = 0.39$ ). Although the average score of nature relatedness in public school students is higher, it is not significant. Thus, hypothesis null for the first research problem is failed to be rejected.

There is a significant difference  $t = 10.328$ ,  $p < 0.01$  (two-tailed) on pro-environmental behaviour between nature schools ( $M = 2.95$ ,  $SD = 0.59$ ) and public schools students ( $M = 2.38$ ,  $SD = 0.66$ ). It is proven that nature schools students behave more pro-environmentally than public schools students. More specifically looking at the result from the two methods of PEB measurement, there is a significant difference  $t = 4.29$ ,  $p < 0.01$  (two-tailed) of PEB measure through self-report method of PEB between students from green schools ( $M = 2.86$ ;  $SD = .85$ ) and public schools ( $M = 2.53$ ;  $SD = .90$ ). There is also a significant difference  $t = 11.65$ ,  $p < 0.01$  (two-tailed) of PEB measure through self-report method between students from green schools ( $M = 3.01$ ;  $SD = .70$ ) and public schools ( $M = 2.24$ ;  $SD = .80$ ). According to this result, the alternative hypothesis for the second research problem is accepted.

## 4 DISCUSSION

To conclude this research, the first hypothesis is accepted while the second failed to be proven. There is a significant difference in pro-environmental behaviour, but not in nature relatedness between green and normal (public) schools students. First, we will discuss why there is no significant difference in nature relatedness between the two sample groups. Self-concept is said to develop during childhood and considerably fixed during adolescent stage (Papalia

& Martorell, 2014). The changing state of self-concept in childhood might explain why nature schools students don't significantly differ from public school students. The result of each school's curriculum might not be augmented yet in their self-concept. Furthermore, unstable experiences in childhood might also create unstable self-concept, which in this case unstable experiences with nature such as moving from one place to another frequently might make one's connection to nature unstable too. Thus, they don't view themselves as nature related persons yet (Clayton & Myers, 2009). Further investigation should look out whether this difference would be augmented in adolescent or not.

This results might also due to the fact that nature schools don't actually target their students' self-concept, but their values instead. But, even values requires continuous repetitions of experiences which could develop it (Schwartz, 1992). This should be put into nature schools management consideration, since a nature-related self-concept might determine more various pro-environmental behaviour regardless of the specific ones being taught at school. So the school could guarantee that students who received their environmental education curriculum would actually be greener individuals in general. Nature schools could prioritize developing a nature related self-concept as one of their long-term goals and implemented through their school regulation, learning plan, teaching prompts, and many other methods. And even then, a child's value or self-concept should still be doubted as their own, as Cheng and Monroe (2012) found that parental value predicts a child's PEB more than other variables.

Next, we should discuss how there is a significant difference in PEB despite that there is no difference in NR. Even though PEB could be explained by NR, there are many other variables that are able to predict PEB. Stern (2000) stated that there are at least 4 categories of factors which could explain PEB. First is attitudinal factors including norms, beliefs, and values. Basically, this category covers almost all internal psychological variables explaining PEB. NR should also be in this category. Form this category alone, PEB might be explained by other variables such as values and belief. These variables should be a focus on future researches. Furthermore, this category does not only covers the attitudinal factors of oneself but also other. As someone's attitude, belief, and even-self are prone to the effect of social desirability. Responses given within this research might also have been tempered by this effect, thus becoming one of the limitations.

Second, contextual or external factors which include interpersonal influence (persuasion, modelling, community expectation etc.), governmental policies, incentives, financial state, family conditions, and many more. Demographic variables such as gender are also part of this category and should be more rigorously controlled in future study. Third, personal capabilities which include knowledge, ability, time availability, and resources availability. Environmental education might also alter these variables, which then change how pro-environmental someone might behave. Fourth, is habit and routine. Future studies should also collect data regarding past behaviors and how participant behave across context such as in home or with other certain people.

The significant difference in PEB should also be followed up with caution as this research found that children's behaviour doesn't match their reasoning. Children might use single-use plastic (not PEB) so they can reuse it to make handicrafts (pro-environmental reasoning) or don't use plastic (PEB) just to reduce their financial expenditure (not pro-environmental reasoning). It should have been better if these are not the case. Thus, school should reconsider their environmental education strategy to develop proper environmental knowledge and belief so they can have pro-environmental reasons the next time they have to choose between single-use plastic or more sustainable options. This would fit an existing value-belief-norm (VBN) model by Stern (2000) which explains the belief that our behaviour has certain consequences to nature or Adverse Consequence (AC) is one of the antecedents of PEB. Furthermore, school management should also be informed the hierarchy of sustainable consumption and production as stated in the Sustainable Development Goals (SDGs) number 12 that suggests to prioritize reducing consumption of unsustainable products before their waste management. Currently Indonesia, and green schools specifically is only focusing on the later through their trash bank and waste segregation policy. All and all, this research would be the first step to formulate a better environmental education not only in green schools but hopefully also in public schools.

## REFERENCES

- Barlett, P. F. 2008. Reason and reenchantment in cultural change: Sustainability in higher education. *Current Anthropology*, 49, 1077- 1098.
- Chawla, L. 1999. Life paths into effective environmental action. *Journal of Environmental Education* 31 (1), 15-26.
- Cheng, J. C. & Monroe, M. C. (2012). Connection to nature: Children's affective attitude toward nature. *Environment and Behavior* 44 (1): 31-49, DOI: 10.1177/0013916510385082.
- Clayton, S. & Myers, G. 2009. *Conservation psychology: Understanding and promoting human care for nature*. New Jersey: Wiley- Blackwell Publishing.
- Collado, S., Staats, H., & Corraliza, J. A. 2013. Experiencing nature in children's summer camps: Affective, cognitive and behavioral consequences. *Journal of Environmental Psychology*, 33, 37-44.
- Degenhardt, L. 2002. Why do people act in sustainable ways? In P. Schmuck & W. Schultz, *Psychology of sustainable development*. Boston: Kluwer.
- Geyer, R., Jambeck, J. R., & Law, K. L. 2017. Production, use, and fate of all plastic ever made. *Science Advances*, 3: e1700782.
- Henrich, J., Heine, S. J., & Norenzajayan, A. 2010. The weirdest people in the world? *Behavioral and Brain Sciences*, DOI:10.1017/S0140525X0999152X.
- Hinds, J. & Sparks, P. 2008. Engaging with the natural environment: The role of affective connection and identity. *Journal of Environmental Psychology*, 28, 109-120.
- Hooper, D., Coughlan, J., & Mullen, M. R. 2008. Structural equation modelling: Guidelines for determining model fit. *The Electric Journal of Business Research Method*, 6, 1, 53-60.
- Lewis, D. 2016. *Are we living in a plastic age? Scientists argue that this material may best define our current period within the Anthropocene*. Accessed on 31 May 2018 dari <https://www.smithsonianmag.com/smart-news/are-we-living-plastic-age-180957817/>.
- Muntasib, E. K. S. H., Masy'ud, B., Rushayati, S. B., Meilani, R., & Rachmawati, E. 2015. *Buku ajar pendidikan konservasi*. Bogor: Penerbit IPB Press.
- Muslich, A. 2015. *Metode pembelajaran dalam pendidikan lingkungan hidup pada siswa sekolah dasar: Studi kasus antara sekolah Jepang di Indonesia dan sekolah adiwiyata di DKI Jakarta*. Depok: Universitas Indoensia.
- Nisbet, E. K. 2013. *Nature relatedness-Individuals' connectedness with nature and the role in motivating environmental concern and behavior*. Scientific presentations on 2013 Clean Water Summit. Accessed on 13 January 2018 from <http://www.arboretum.umn.edu/UserFiles/File/2013%20Clean%20Water%20Summit/Elizabeth%20Nisbet.pdf>.
- Nisbet, E. K., Zelenski, J. M., & Murphy, S.A. 2009. The nature relatedness scale: Linking individuals' connection with nature to environmental concern and behavior. *Environment and Behavior* 41 (5): 715-740, DOI: 10.1177/0013916508318748.
- Papalia, D. E. & Martorell, G. (2014). *Experience human development* (13th Ed.). New York: McGraw Hill Education.

- Schultz, P. W. 2011. Conservation means behaviour. *Conservation Biology*, 25 (6), 1080-1083.
- Schwartz, S. H. 1992. Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. *Advances in Experimental Social Psychology*, 25, 1-65.
- ekolah Alam Indonesia. n.d. *Visi dan misi*. Accessed on 11 January 2018 from <https://www.sekolahalamindonesia.org/visi-dan-misi/>.
- Sparks, P., Hinds, J., Curnock, S., & Pavey, L. 2014. Connectedness and its consequences: a study of relationships with the natural environment. *Journal of Applied Social Psychology*, 44, 166-174, DOI: 10.1111/jasp.12206.
- Soerjani, M., Yuwono, A. & Fardiaz, D. 2007. *Lingkungan hidup: Pendidikan, pengelolaan, lingkungan dan kelangsungan pembangunan* (Edisi Kedua). Jakarta: yayasan Institut Pendidikan dan Pengembangan Lingkungan (IPPL).
- Stern, P. C. 2000. Toward a coherent theory of environmentally significant behavior. *Journal of Social Issues*, 56 (3), 407-424.
- Thompson, R. C., Swan, S. H., Moore, C. J., & von Saal, F. S. 2009. Our plastic age. *Philos Trans R Soc Lond B Biol Sci*, 364 (1526), DOI: 10.1098/rstb.2009.0054
- Thøgersen, J. 2014. Unsustainable consumption: basic causes and implications for policy. *European Psychologist*, DOI: 10.1027/1016-9040/a000176.
- UNESCO. 1977. *Intergovernmental conference on environmental education*. Tbilisi: UNESCO-UNEP.
- United Nations. 2015. *A/RES/70/1 - Transforming our world: The 2030 agenda for sustainable development*. Accessed on 13 February 2018 from <https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf>.
- Vining, J., Merrick, M. S., & Price, E. A. 2008. The distinction between humans and nature: Human perceptions of connectedness to nature and elements of the natural and unnatural. *Human Ecology Review*, 15, 1-11.
- Wells, N. & Lekies, K. S. 2006. Nature and the life course: Pathways from childhood nature experiences to adult environmentalism. *Children, Youth, and Environments* 16 (1), 1-24.
- Wijanto, S. H., 2015. *Metode penelitian menggunakan structural equation modeling dengan LISREL 9*. Jakarta: Lembaga Penerbit Fakultas Ekonomi UI.
- World Bank. 2017. *Population total*. Accessed on 12 June 2018 from <https://data.worldbank.org/indicator/SP.POP.TOTL>.