



## Green Consumerism in Environmental Learning: 7th-grade Students Pro-Environmental Behavior in Science Subject

Ilmi Zajuli Ichsan<sup>1</sup>, Diana Vivanti Sigit<sup>2</sup>, Mieke Miarsyah<sup>2</sup>, Md. Mehadi Rahman<sup>3</sup>,  
R. Ahmad Zaky El Islami<sup>4</sup>, Husamah<sup>5</sup>

<sup>1</sup>Department of Environmental Education, Universitas Negeri Jakarta, Indonesia

<sup>2</sup>Department of Biology Education, Universitas Negeri Jakarta, Indonesia

<sup>3</sup>Institute of Education and Research, University of Dhaka, Bangladesh

<sup>4</sup>Department of Science Education, Universitas Sultan AgengTirtayasa, Indonesia

<sup>5</sup>Department of Biology Education, Universitas Muhammadiyah Malang, Indonesia

*Email: [ilmizajuli95@gmail.com](mailto:ilmizajuli95@gmail.com)*

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### Abstract

Science education in the 21st century including biology learning at the level of Junior High School requires a more contextual implementation. Environmental learning topics such as green consumerism is a contextual topic in biology learning. Students must have high Pro-Environmental Behavior (PEB) to participate in protecting the environment. The purpose of this study was to measure the PEB of students at the 7th-grade level. The research method used descriptive with survey data collection techniques. The study was conducted in November-December 2018 at State Junior High School 1 South Tambun, West Java, Indonesia. A total sample of 135 students in 7<sup>th</sup> grade was selected by simple random sampling. The results showed there were six PEB indicators based on Green Consumerism that were Energy Conservation (86.37), Transportation (56.67), Waste Avoidance (53.04), Daily Consumption (64.44), Recycling (58.89), Social Behavior (60.54). Among the six indicators, only energy conservation was categorized as very high, while the others are categorized as moderate. This study concluded that PEB students must be improved by various models, methods, and media in biology learning.

**Keywords:** Environmental learning, green consumerism, pro-environmental behavior

### INTRODUCTION

Environmental education became a prime concern in science education since the purpose of contemporary education is to promote sustainable development among students. Environmental learning combines concepts and principles of the sciences and social sciences under a single approach. Therefore, students can understand that all human environments, societies, and cultures are deeply connected, they must save the environment for their development and survival. Environmental

learning has continued in science classrooms in many forms over the past years (Zandvliet & Ormond, 2014).

Damage to the environment causes bad impacts on people's lives. The urban environment is one of the polluted areas. Pollution that occurs in big cities starting from air and water pollution caused by industry. Besides, there is also much pollution caused by household waste and motorized vehicle pollution (Chander & Muthukrishnan, 2015; Olsson & Kjällstrand, 2006; Yedla & Park, 2017). This has an impact on the health and

quality of life of the people in the city. One of them is felt by students. In this context, students have a role in participating in protecting the environment to avoid pollution.

To protect the environment, students must have environmentally friendly behavior. This behavior is often called pro-environmental behavior (PEB), which is a behavior that supports the balance of ecosystems and the environment (Lavelle, Rau, & Fahy, 2015; Schmitt, Aknin, Axsen, & Shwom, 2018; Vicente-Molina, Fernández-Sainz, & Izagirre-Olaizola, 2018). PEB drive students to pay close concentration to environmental issues, inspire them to take the initiative to take accountability for environmental protection, and promote their positive practice of green consumption behavior (Yue, Sheng, She, & Xu, 2020). PEB in students has an important role because students are one of the parties who have a role in the survival of life in the future. Students who have a high PEB will usually choose to bring their drinking bottles instead of having to buy their bottles that cannot be recycled. Also, students who have high PEB will prefer to use bicycles or walk rather than private vehicles like a car to get to school at a short distance from their homes.

PEB is a behavior that is general in nature. If this PEB is seen in terms of green consumerism, it only focuses on certain aspects. Consumption behavior that minimizes the negative impact of consumption on the environment in the case of purchasing environmentally friendly products is known as Green consumption behavior (Pagiaslis & Kroutalis, 2014; Sheng, Xie, Gong & Pan, 2019). Green consumerism is an understanding of a person in consuming goods and services that still holds the principle of environmentally friendly (Matthes & Wonneberger, 2014; McCarthy & Liu, 2017). Consumers' strong environmental awareness significantly affects green consumption intention, which means they will be more likely to buy environmentally friendly products (Yue, Sheng, She, & Xu, 2020). PEB, which is based on green consumerism, is characterized by six indicators, start from energy conservation, transportation, waste avoidance, daily consumption, recycling, and vicarious social behavior (Kaiser & Wilson, 2004). These six aspects are characteristic of someone who has a high PEB.

Science in school can encourage environmental learning, so the teaching goal of

science must focus on developing environmental awareness among students (Hadzigeorgiou & Skoumios, 2013). Implementation at school, the learning environment is in the subject of biology, especially in science learning. Environmental learning in schools provides an important role in PEB. That is because, in environmental learning, a lot is explained about environmental concepts. The concept of water and air pollution, for example, can be explained in environmental learning. Students who can master a variety of environmental concepts will affect students' environmental knowledge (Baytar & Ashdown, 2013; Esa, 2010; Kim & Stepchenkova, 2019; Otto, Neaman, Richards, & Marió, 2016; Shin, Im, Jung, & Severt, 2017). According to various studies show that environmental knowledge can affect behavior change, one of which is PEB (Krettenauer, 2017; Wen & Lu, 2013; Yusof, Rahman, & Iranmanesh, 2016).

Research that has been done by researchers in the world usually describes the profile of PEB in the community. Besides that, PEB is usually also described following the general environmentally friendly category (Ahmad & Nordin, 2014; Buzov, 2014; Lee, Sung, Wu, Ho, & Chiou, 2018; Seebauer, Fleiß, & Schweighart, 2017; Tang, Geng, Schultz, Zhou, & Xiang, 2017). While the PEB profile of students based on green consumerism has not been done much. This study has a novelty that is a description of the PEB profile of students based on green consumerism in 7th-grade junior high school students. Based on the description, this research was urgent because there was no profile of 7th-grade students PEB based on green consumerism. Therefore, this study aimed to describe the profile of 7th-grade students PEB based on green consumerism.

## METHOD

This research used a descriptive method with survey data collection techniques. The study was conducted in November-December 2018 at State Junior High School 1 South Tambun, West Java, Indonesia. In this study, samples used were 135 students in the 7th grade of junior high school who were taken by simple random sampling. The instrument used in this study was the PEB instrument based on six aspects of green consumerism, start from energy conservation, transportation, waste

avoidance, daily consumption, recycling, and vicarious social behavior (Kaiser & Wilson, 2004). The instrument used has been declared valid and reliable. The score given on each item from 0-5 with a total of 15 items can be seen in Table 1.

After measuring PEB for 7th-grade students, the next step was to categorize PEB students based on their scores. There were five PEB student scores, starting from very high, high, medium, low, and very low. More details can be seen in Table 2.

**Table 1. Aspects of PEB based on Green Consumerism**

No	Aspect	Item
1	Energy Conservation	1,2
2	Transportation	3,4
3	Waste Avoidance	5,6
4	Consumerism	7,8,9,10
5	Recycling	11,12
6	Vicarious, Social Behavior	13,14,15

**Table 2. Categories of PEB students**

Category	Interval Score
Very High	$X > 81,28$
High	$70,64 < X \leq 81,28$
Moderate	$49,36 < X \leq 70,64$
Low	$38,72 < X \leq 49,36$
Very low	$X \leq 38,72$

## RESULTS AND DISCUSSION

The results showed that the overall average score showed a score of 63.28 (moderate categories). Meanwhile, if seen on each item, the lowest score in item 4 with a low category. In contrast, the highest score was in item 2 with a very high category. As for the other items, many received a moderate category. More details can be seen in the Table 3.

**Table 3. PEB students for each item**

No	Item	Score	Score (0-100)	Category
1	I turn off the lights when going to sleep.	3.96	79.11	High
2	I use the sunlight to dry my clothes	4.68	93.63	Very High
3	I go to campus using public transportation, bicycle, or walking	3.30	66.07	Moderate
4	I use public transportation for traveling	2.36	47.26	Low
5	I reused paper	2.72	54.37	Moderate
6	I use a private bag for shopping	2.59	51.70	Moderate
7	I bought a product that was marked as environmentally friendly	3.49	69.78	Moderate
8	I consume organic food products because it is more environmentally friendly	3.52	70.37	Moderate
9	I do not like buying food in Styrofoam	3.07	61.48	Moderate
10	I avoid using mosquito spray	2.81	56.15	Moderate
11	I separate organic waste from plastic waste	3.10	62.07	Moderate
12	I bought recycled things because it supports go green	2.79	55.70	Moderate
13	I contribute financially to environmental organizations	3.13	62.67	Moderate
14	I attend community service in the surrounding environment	3.49	69.78	Moderate
15	I invite people through social media to be more concerned about the environment (for example, by choosing environmentally friendly products)	2.46	49.19	Low
<b>Average</b>			63.28	moderate

As for the six aspects of green consumerism, the first aspect of energy conservation has a very high category. Meanwhile, the lowest score is in the aspect of waste avoidance. It can be seen that, in general, PEB obtained from the six aspects has a moderate category. More details can be seen in Table 4.

**Table 4. PEB students for each aspect**

No	Aspect	Score	Scale (0-100)	Category
1	Energy Conservation	4.32	86.37	very high
2	Transportation	2.83	56.67	moderate
3	Waste Avoidance	2.65	53.04	moderate
4	Daily Consumption	3.22	64.44	moderate
5	Recycling	2.94	58.89	moderate
6	Vicarious, Social Behavior	3.03	60.54	moderate

Based on this study's results, overall PEB students based on green consumerism still need to be improved. This is because students who are sampled in this study live in big cities. This makes them less aware of the importance of protecting the environment (Song, Li, Duan, Yu, & Wang, 2017; Yedla & Park, 2017). Therefore education has an important role so that students can understand the importance of protecting the environment. The teacher has to explain to students about the importance of green consumerism. Teachers need to provide explicit teaching so that students get opportunities to make connections among environmental knowledge, socio-scientific issues, and their life, and increase the level of environmental awareness among them (Hadzigeorgiou & Skoumios, 2013). Besides explaining, the teacher can also give a project to students related to environmental problems.

In this study, it was found that students' habits in traveling still often use private transportation. This indicates that public transportation still does not reach various tourist objects. Also, there has not yet arisen the awareness of students to get used to using public transportation. Indeed, there is no prohibition on using private transportation in the context of an excursion, but it would be better to use public transportation if the location is still relatively close (Chander & Muthukrishnan, 2015; Nwankwoala, 2015).

In addition to the lowest items, there are items with the highest score related to the habit of drying clothes using sunlight. This can be explained because, indeed, the use of sunlight is a common habit that people do to dry their clothes. That is because the use of

technology to dry clothes is still small and not too familiar. This is certainly very good because it will save energy (José Vinagre Díaz, Richard Wilby, & Belén Rodríguez González, 2013; Lane et al., 2015; Lavelle et al., 2015). People with a high economic capacity might be easy to buy equipment to dry clothes, but usually for the general public still uses traditional methods.

Then if we look at the green consumerism aspect, it can be seen that the energy conservation aspect is the aspect with the highest score. This indicates that students have realized the importance of saving energy. It means that learning about the importance of saving energy has been done well. However, it still needs to be given a deeper explanation by the teacher to students so that they also continue to increase their behavior in saving energy (McGuire, 2015; Okur Berberoglu, Ozdilek, & Yalcin Ozdilek, 2014).

In the aspect of waste avoidance, students still have the lowest score compared to other aspects. Students are not accustomed to making a habit of processing waste. One of them relates to the behavior of saving paper and using a personal bag for shopping. This habit needs to be instilled early on, for example, by moving to save paper made by the school through instructions from the school principal. Students are required to bring their drinking bottles from home and make students improve their behavior, especially in the aspect of waste avoidance (Avan, Aydinli, Bakar, & Alboga, 2011; Mahmud & Osman, 2010; Sudiby, Pradana, Budiman, & Budhijanto, 2017).

Overall, in this context, environmental learning has an important role in improving

students' PEB. It is necessary for parents' participation in providing education to students to protect their environment, at least to protect the environment around their own homes. Environmental learning at the junior high school level becomes important because, at this level, students are experiencing significant growth and development to understand the concept of environment. This makes it easier for the teacher to direct students in changing their behavior. The teacher could have provided a project for students related to environmental care activities, for example, by asking students to make work-related to environmentally friendly aspects (Amaral & Santos, 2018; Derevenskaia, 2014; Jewpanich & Piriyaawong, 2015; Musyaddad & Suyanto, 2019). For example, by asking students to make a work-related to making environmentally friendly bags. Science teaching-learning mainly depends on students' direct experience, which involves observation, critical reflection, and negotiation skills to learn. Students can have a deeper understanding of the environment and the impact of human behaviors on the environment through direct experience. Therefore, students can challenge different cultural perspectives concerning environmental problems and study them critically (Zandvliet & Ormond, 2014).

Science teachers need to use multiple teaching methods and teaching aids in their teaching-learning activities to make students learning more effective. Moreover, teachers should explore students' prior knowledge, misconception and connect them with new scientific knowledge in the science classroom (Rahman, 2018). In addition to providing a project, the teacher must also be able to provide a learning media that stimulates students to think critically in learning and have the creativity to solve environmental problems that surround them. Learning media such as videos, android applications, e-books will make students active and interested in the environment so that it will be easier for teachers to convey various concepts related to the environment. In this context, the teacher must develop their learning to be more interesting to students (Fitriani, Adisyahputra, & Komala, 2018; Hyun, Ediger, & Lee, 2017; Suhendar

& Wahyuni, 2018; Uzun, 2012; Weninger, 2018). Students can learn science more efficiently when they can look for information about science and ask questions based on their environment. There are many materials in the environment such as plastic, glass, bottles, iron scraps, textiles, woods, wires, and ceramic, etc. which are regarded as a pollutant. These materials can be used in classroom teaching as improvised instructional materials, which will increase students' creativity as they are involved in the improvisation and recycling process (Aina & Philip, 2013). Also, teachers must be able to give examples to students about environmentally-friendly behavior so that teachers can be an example for their students. This will facilitate the teacher in inviting students to behave in an environmentally friendly manner. This will later have an impact on the rise in PEB students.

## CONCLUSION

Based on the results of this study concluded that the PEB score of students in 7th-grade is still in the moderate category. The teacher, as a facilitator in environmental learning, has an important role. Efforts that can be made by teachers to improve PEB 7th grade students are to provide project-based learning. Besides, environmental learning can be done with the help of learning media. This media will make students active and interested in environmental learning.

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