

# the study of ecology

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# <sup>1</sup> The Study of Ecological Behavior of Youth in High School X in Jakarta

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**Abstract.** The study of ecological behavior becomes urgent when dealing with the issue of climate change which is increasingly worrying. The discussion of ecological behavior among teenagers is important because they are the main actors in the progress and maintenance of the natural environment. This study aims to examine the ecological behavior of adolescents in a high school X in Jakarta as a metropolitan city that requires ecological behavior to maintain a better survival. Ecological behavior is individual behavior that contributes to the maintenance of the natural environment. Using qualitative method with data collection techniques through structured interviews and observations, this study seeks to explore the experiences of adolescents in caring for and maintaining their living environment. Behavior, of course, begins with the correct perception and awareness of the environment. The research is expected to be able to find and offer an effective formula in building the ecological awareness of young people for the advancement of sustainable development. The results of the study show that to build ecological behavior among young people, it is necessary to have adequate awareness and understanding of the various ethical theories that underlie such ecological behavior. With this understanding, it is hoped that teenagers will be more motivated to behave in an ecological manner starting from the surrounding environment.

## 1. Introduction

Environmental destruction has become a major problem in many countries. According to the *Environmental Performance Review* (EPR) report from the Organization for Economic Cooperation and Development (OECD) in 2019, in general, most countries in the world experienced a decline in environmental quality. Indonesia as a country that produces minerals and agricultural products is also experiencing environmental problems. Logging and forest fires have become the main causes of increased gas emissions and air pollution [1]. According to the *Environmental Performance Index* (EPI) measurement in 2018, Indonesia has a value of 46.92, which is 133 out of 180 countries. This indicates that Indonesia's environmental quality is relatively low compared to other Asian countries such as Malaysia, Thailand, the Philippines [2]. This environmental problem does not only occur in rural areas but also in urban areas, for example pollution from vehicles, factory fumes and waste that is not managed properly. In the end, this environmental problem will have an impact on global warming and climate change. All problems of environmental pollution cannot be separated from human behavior [3]. It is necessary to strive for ecological behavior in humans to be able to overcome the problem of environmental damage.



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Ecological behavior is an individual's effort to protect the environment and minimize activities that can have a negative impact on the environment. [4] Researchers use various terms to describe human behavior towards their natural environment. Dunlap & Van Liere [5], for example, use the term environmental behavior. While Hiner et al.[6] use responsible environmental behavior. Stern [7] uses environmentally significant behavior, while Kaiser & Fuhrer [8] popularizes ecological behavior. In this study, the author uses the term ecological behavior because the term ecological is closer to behavior, while environmental usually refers to attitude.[9] Ecological behavior is influenced by several factors, namely internal factors and external factors. For example, internal factors include values, motivation, knowledge, attitudes. Meanwhile, external factors include socioeconomic status, infrastructure and geographical area.

Various cases of pollution and damage such as in the sea, forest, water, land stem from human behavior that is irresponsible, not caring and only selfish. Therefore, the current environmental crisis can only be overcome by changing human perspective and behavior towards the universe. Therefore, a new way of life is needed which does not only concern individuals, but also the culture of society as a whole. This means that an environmental ethic is needed that guides humans to interact in a new way with the universe. Environmental ethics is what helps humans build ecological behavior. In environmental ethics theory, there are three major schools of attitude towards the environment, namely anthropocentrism, biocentrism, and ecocentrism.[10]

First, anthropocentrism ethics is an ecological ethic that views humans as the center of the universe system. Humans and their interests are seen as the highest value. Everything else has meaning insofar as it serves human interests. Therefore nature is seen as an object and a means of achieving and fulfilling human needs.[11]

Second, the ethics of biocentrism.[12] According to the view of biocentrism, it is not true that only humans have values. Nature also has value, apart from human interests. According to this theory, every life and living thing has value and worth in itself, so that it deserves treatment, consideration and moral care. Nature also needs to be treated morally, regardless of whether she is of value to humans or not. Because it is valuable in itself, life must be protected. Just like humans, the same principle applies to living things. So the land and the earth in itself have moral value because it provides many benefits for life. So all living things in this universe have moral values, both human and non-human. Ethics applies not only to humans, but also to every biotic community.

Third, the ethic of ecocentrism, which focuses ethics on ecological communities, both living and non-living. According to ecocentrism, living things and abiotic objects are related to each other. So the moral responsibility is not only on living things, but on all ecological realities.[13] One version of ecocentrism is deep ecology introduced by the Norwegian philosopher, Arne Naess, who argues that the new ethic is no longer centered on humans, but on all living things. What is emphasized is that humans are no longer the center of the moral world. So the center of deep ecology is all species including non-human species. Through deep ecology which is centered on the long term, a practical ethic will be developed as a movement.[14]

The study of ecological behavior that is usually carried out is always associated with various influencing factors, such as the relationship of ecological behavior with value orientation or knowledge of the environment. In addition, ecological behavior among employees is also investigated. However, not so much research has been done on ecological behavior among adolescents. There are several researchers who have conducted studies of ecological behavior among adolescents in college, such as Abd. Wahab Hasyim who conducted a study on students at the University of Khairun Ternate to examine the influence of knowledge and value orientation on ecological behavior. It was found that there is a significant effect of value orientation on ecological behavior.[15] In addition, Effendi et al attempted to describe the ecological behavior of students while at the same time encouraging ecological behavior to continue to be developed in the campus environment [16]. Various efforts have

**1** been made in the campus environment such as green buildings, purchasing environmentally friendly campus facilities and infrastructure, water and energy conservation, waste minimization and recycling.

In this study, we want to analyze the ecological behavior of adolescents in high school environments in urban areas. This study is important because it wants to see how the younger generation develops ecological behavior in their school environment. In addition, they are the next generation of the nation who will determine the future direction and goals of the nation. Teenagers who are still in the world of education need to be researched to see how far knowledge about the environment is integrated in the school curriculum. Thus, it can be obtained a picture of the understanding of adolescents regarding ecological behavior and which aspects of this ecological behavior still need to be improved in order to improve the environment in a sustainable manner.

The ecological behavior that wants to be analyzed from teenagers in high school is related to the six domains of ecological behavior adapted from the self-reported behavior introduced by Kaiser, Oerke and Bogner [17], namely: recycling, disposing of waste (waste avoidance), consumerism, energy saving (energy conservation), mobility and transportation, and vicarious conservation behavior. Ecological behavior is generally influenced primarily by perceptions and knowledge that can be seen from their understanding of ecological behavior itself. Starting from the perception/understanding, it gives birth to an attitude which in the end becomes concrete in behavior.

To examine the ecological behavior of adolescents in X high school, the researchers referred to the model of Kollmus and Agyeman [18]. According to Kollmus and Agyeman, the model of ecological behavior is influenced by internal factors such as personality, value system, environmental awareness, knowledge, and external factors including infrastructure, economic situation, politics, social and culture. When these two factors act synergistically to form ecological behavior, but at the same time there are possible barriers or barriers that are none other than old behavior patterns/habits. These barriers then cause a person to fail to change his behavior. Furthermore, Kollmus and Agyeman argue that internal and external factors build an individual's environmental knowledge capital and provide him with the tools to overcome existing barriers to ecological behavior. Environmental awareness together with external factors such as race, ethnicity, gender, geographical area, socioeconomic status and political affiliation are able to build environmental science capital. In fact, individuals with high environmental knowledge have the means to demonstrate ecological behavior. However, the problem is that it is not necessarily done because of the many obstacles faced.

In relation to the ecological behavior of young people in high school X in Jakarta, we want to first see their understanding of ecological behavior, because understanding is the basis for a person to act. Through attitudes that are influenced by internal or external factors, adolescents are able to realize ecological behavior through concrete actions.

## **2. Research methodology**

This study uses a qualitative method with a narrative model and was conducted at the high school X in West Jakarta. The respondents are representatives of the students. Data was collected through in-depth interviews, observation and documentation. The data collected concerns the ecological behavior of students which includes their understanding of ecological behavior, the efforts made by the school to develop ecological behavior, through what students obtain education on the development of ecological behavior, the efforts made by students in an effort to build ecological behavior, especially with regard to the six domains. ecological behavior such as recycling, disposing of waste, consumerism, energy saving, mobility and transportation, and substitute conservation behavior. In the end, the data was analyzed descriptively using content analysis by following the flow of sorting, rechecking and drawing conclusions.

### 1 3. Results and Discussion

Of the 8 subject students who were interviewed there were 6 girls and 2 boys aged between 16-18 years, consisting of class 10 (3 people), class 11 (1 person), and class 12 (4 people). They understand ecological behavior as an act to reduce environmental damage and encourage actions to protect the environment, preserve/care for the environment, protect the environment with others, support activities to keep nature beautiful, maintain ecosystem balance, and preserve nature. From the answers they gave, respondents' understanding of ecological behavior has two aspects. First, reduce the negative impact of environmental destruction. Second, care for and maintain the environment.

**Table 1** Demographic picture

Subject	Gender	Age	Class
SJ	M	18	XII
CHT	M	17	XI
KJ	L	18	XII
CW	L	18	XII
ZAG	L	18	XII
NZ	L	16	X
ZIP	L	16	X
FAT	L	16	X

Schools as educational institutions play an important role in building the ecological behavior of students. Various efforts were made by schools to develop ecological behavior of students, such as schools requiring students to bring their own food from home, doing reforestation by planting trees around schools, using school buses as a mode of transportation, tightening hygiene and health programs, prohibiting excessive use of plastic, The school canteen provides vegetarian and vegetable food, and provides trash cans in every corner of the school.

In addition to carrying out various ecological actions and school advice that students must obey, the school also includes environmental education through the curriculum through the subjects of biology and geography. In the final evaluation of the two subjects, there is an assessment of knowledge and attitudes towards the real environment through maintaining personal hygiene, classrooms and toilet rooms. In extracurricular activities students are given skills such as dancing, singing, sports. At the time of the implementation of this extracurricular, students are still required to maintain cleanliness, care for the environment and dispose of garbage in its place.



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**Table 2** Description of ecological behavior in six domains

Subject	<i>Ecological behavior</i>					
	R	WA	C	EC	MT	VC
SJ		V	V			
CHT			V			
KJ				V		
CW	V	V				
ZAG					V	
NZ					V	
ZIP	V	V	V	V	V	
FAT		V			V	V

(R-Recycling, WA-Waste Avoidance, C-Consumerism, EC-Energy Conservation, MT-Mobility & Transportation, VC-Vicarious Conservation)

The respondents also tried to reveal some of the ecological behaviors that they have done, for example various behaviors that are included in (1) recycling: sorting waste (ZIP), avoiding food packaging (CW), (2) disposing of waste: together to clean the environment (SJ), maintaining cleanliness (CW), community service (ZIP), throwing garbage in its place (FAT), (3) consumerism: leaving no food (ZIP), using own food (SJ), saving on water (CHT), (4) energy saving: turning off lights when not needed (ZIP), saving electricity (KJ) (5) mobility and transportation: using school buses, reducing the use of private vehicles (ZIP), short walking distance (FAT), and (6) substitute conservation behaviors: reduce plastic use (NZ, ZAG), carry cloth bags when shopping (FAT).

#### 4. Conclusion and Recommendation

This study aims to explain the description of the ecological behavior of high school students in Jakarta. The research findings cannot be generalized to all schools in Jakarta, let alone to all of Indonesia. Further research still needs to be done. What is clear is that this research seeks to explore the experiences of teenagers in schools practicing ecological behavior in their surrounding environment. Of course, it is unavoidable that through exploring this experience, no guarantees can be made for models or formulas to carry out ecological behavior. However, at least the experience of the youth in this school can be used as an example for other youths that realizing ecological behavior in the smallest environment in the school can be carried out despite all its limitations. To complement this qualitative research, it is necessary to conduct quantitative research to measure, for example, the level of correlation between the environmental guidance obtained in schools and the ecological behavior of adolescents. Research still needs to be done on which environmental ethics theory is the basis for students in carrying out ecological behavior, what facilities can be used in schools to increase knowledge about the environment other than through curriculum and extracurricular activities. Then which of the two internal and external factors is more influential in changing the ecological behavior of adolescents in the school environment.

#### 5. Acknowledgments

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