

CORRELATION BETWEEN THE KNOWLEDGE OF ECOSYSTEM AND ENVIRONMENTAL ETHICS WITH STUDENTS PARTICIPATION IN ENVIRONMENTAL HYGIENE IN JAMBI CITY, INDONESIA

Esty Komariah ^{a*}, Yossa Istiadi ^{a)}, Eka Suhardi^{a)}

^{a)}Universitas Pakuan, Bogor, Indonesia

^{*)}Corresponding Author : komariahesty18@gmail.com

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Abstrak. The objectives of the research is to find the correlation between the knowledge of ecosystem and environmental ethics with students participation in environmental hygiene. The research was conducted at the Junior High School in District Telanaipura, Jambi City, with a sample of 107 students were taken by proportional random sampling. The research used survey method and data analysis technique using the correlation and simple linier regression statistic test, the hypothesis test was conducted on a 0.05 and 0.01 significance level. The research produced three main conclusion i.e. First, there is a significant positive correlation between the knowledge of the ecosystem (X_1) with hygienic behavior (Y) coefficient $r_{y1} = 0.777$ and regression equation $\hat{Y} = 28.794 + 0.730 X_1$. Secondly, there is a significant positive correlation between Environmental Ethics (X_2) with hygienic behavior (Y) with r_{y2} correlation coefficient = 0.790, the regression equation $Y = 21.250 + 0.745 X_2$. Thirdly, there is a significant positive correlation between knowledge about the ecosystem (X_1) and Environmental Ethics (X_2) together with hygienic behavior (Y) with $r_{y.12}$ correlation coefficient = 0.790 and the regression equation $Y = 19.522 + 0.284 X_1 + 0.477 X_2$. Based on the results of this study concluded that a hygiene life behavior can be improved through knowledge about the ecosystem and environmental ethics.

Keywords: environmental sensitivity index; oil spill; Seribu Islands national park; biodiversity

I. INTRODUCTION

Even though school cleanliness has been programmed into school institutions, many schools are still dirty and seem uncomfortable for teaching and learning. This is because all components within the school have not carried out efforts to clean the school, namely educators, students, employees, or janitors [1]. Humans and the environment are an inseparable unit. Humans with their power can affect environmental conditions and vice versa, the environment can affect humans [2]. Problems of cleanliness and beauty, including the greening of the learning environment, are felt to still receive less attention from education managers, because they may be considered to have very little effect when compared to the non-fulfillment of hardware and software [3]. Such a view is imprecise, because one of the factors that influence the process and learning outcomes is environmental factors, one of which is cleanliness [4]. A clean environment and fresh air will have a positive influence on learning processes and outcomes compared to a dirty and stuffy environment.

The problem of environmental cleanliness is not only the government's responsibility, but also a shared responsibility between the government, the business world and society, including students as elements of society. A clean environment will have a positive influence on human survival when compared to a dirty environment [5]. Seeing the role of humans in the environment, it is necessary to carry out ethical development of environmental cleanliness, and a clean

management model that is appropriate to the environment, because environmental cleanliness can stimulate students' passion for learning in the learning process [6].

Human life is inseparable from interaction with the surrounding environment. Every country is faced with environmental problems. To resolve the issue. National development is directed to apply the concept of environmentally sound development or sustainable development. One of the elements in the concept of sustainable development is environmental education [7]. The 1945 Constitution has stated that one of the goals of the Republic of Indonesia is to educate the life of the nation. National intelligence can be formed through the educational process. Where education is a means to form expert and skilled and productive human resources so that in turn it can accelerate the welfare of society. Differences in the level of knowledge that a person has will affect their mindset and attitude. Notoatmodjo [8], argues to increase knowledge is to provide education. The level of student knowledge includes six cognitive aspects including: knowing, understanding, applying, analyzing, synthesizing, evaluating. According to Munandar [9] humans are social beings who cannot live alone, humans are very dependent on other humans and on their environment. Mubarok and Chayantin [10] in general what is meant by healthy schools are schools that are close to clean water, are more than 100 meters from landfills, close to cleaning facilities, and are in places where rainwater and dirty water do not stagnate. Students, teachers, and the school

community maintain the cleanliness of the school environment (including the spaces inside), and dispose of trash in the available places. Apart from being dirty and unsightly, trash also contains various germs. Making it a habit to dispose of trash in the available bins will help create a clean school and avoid disease germs.

In line with this, it is necessary to further increase the concern for each individual in maintaining and managing the environment, including increasing students' knowledge about ecosystems as a basis for environmental knowledge, fostering student ethics, and increasing their participation in maintaining and managing environmental cleanliness as an effort to implement sustainable development. This is what encourages the need to do research on the Relationship of Ecosystem Knowledge and Ethics to the Environment with Student Participation in Environmental Cleanliness.

The reality on the ground is based on data from students and teachers that every day there are children who are subject to raids throwing garbage out of place and almost under every table there is food waste. Various efforts have been made including giving awards and sanctions to all students also there has been no significant change. This means that student participation in maintaining the cleanliness of state junior high schools in the Kota Baru Jambi sub-district is still low, this indication is shown by the presence of preliminary study data in January 2015 in 5 schools in the Kota Baru Jambi sub-district, namely SMP Negeri 18, SMP Negeri 20, SMPN 21, SMP Negeri 22, SMP Negeri 24, 15.84% have graffiti on the walls and on the table, 64% have trash under the table, 88% of students throw garbage out of place, 64% of students have snacks on the side of the road, 95% of the food sold in the canteen is unwrapped and 56% of the toilets are not clean and smelly. In the 2014-2015 school year, the inclusion of Environmental Education (PLH) subjects as local content in the curriculum is expected to keep the environment clean at State Middle Schools throughout Kota Baru Jambi.

II. RESEARCH METHODS

Based on the identification of the problem, it turns out that there are many variables (factors) that are thought to influence or relate to student participation in keeping the environment clean. To clarify the aspects to be studied, it is necessary to limit the problems based on considerations so that research can be carried out in depth [11]. On the basis of these considerations, this research is limited to ecosystem knowledge and ethics towards the environment as independent variables and student participation in keeping the environment clean as the dependent variable. The unit of analysis in this study was using class VII students.

This research was conducted at Public Middle Schools in Kotabaru District, Jambi City. The schools that were used as research objects were: SMPN-14, SMPN-18, SMPN-20, SMPN-21, SMPN-22, SMPN-24, SMPN-25. This study used a survey method with the main data collection tools in the form of questionnaires and tests following Suganda & Priatna [12] and Rosadi [13]. The research data was obtained through

a questionnaire made by the researcher which was then tested on respondents outside the research sample [14]. Then it was validated by looking for its validity and reliability based on indicators of student participation in keeping the environment clean as a variable (Y), ecosystem knowledge (X1), and environmental ethics (X2). Measuring tools used in this study are tests and non-tests (instruments) which are arranged based on the indicators that exist in the research variables. The population that was used as the research object was class VII students of State Middle Schools in the SSN Category in the Kotabaru District, Jambi City, namely; SMP N-18, SMPN-20, SMPN-21, SMPN-22, SMPN-24, were taken randomly. Based on data obtained from the Jambi City Education Office. Based on data obtained from the Jambi City Education Office, there are a total of 5 classes/groups of study. The total number of students at SMP N in the Kotabaru sub-district is class VIIB as many as 146 people.

The research sample is part of the total population and the characteristics possessed by the population. The technique used in this research is Proportional Random Sampling. Data collection techniques for variables for student participation in maintaining school cleanliness used a questionnaire compiled by researchers based on a rating scale. Furthermore, each variable is explained about the conceptual definition, operational definition, grid, validity and reliability of the research instrument. The instruments were made according to the number of variables, namely the instrument of student participation in keeping the environment clean, knowledge of ecosystems and ethics towards the environment [15]. All of the instrument items in this study were made by researchers based on the indicators of each research variable.

III. RESULTS AND DISCUSSION

Relationship between Knowledge of Ecosystems and Student Participation in Environmental Cleanliness

The results of the study prove that there is a very significant positive relationship between knowledge about ecosystems and students' participation in environmental hygiene. The strength of the relationship between knowledge about ecosystems and student participation in environmental hygiene can be seen from the correlation coefficient ($r_{y.1}$) of 0.777, indicating a strong relationship between the two variables. The coefficient of determination ($r_{y.2}^2$) is 0.604. This means that the variance of student participation in environmental hygiene can be explained by the variance of Knowledge about ecosystems of 60.4% while the rest is related to other variables. The form of the relationship between knowledge about ecosystems and student participation in environmental hygiene is shown by the regression equation $\hat{Y} = 28.794 + 0.730X_1$, where quantitatively it can be said that each additional 1 unit of knowledge about ecosystems will increase student participation in environmental hygiene by 0.730 units. Thus, increasing student participation in environmental hygiene can be done by applying knowledge about ecosystems. The higher the knowledge about the ecosystem that is applied to students,

the higher the participation of students in environmental hygiene.

This is consistent with Eti Kustiati's research that there is a significant positive relationship between knowledge about ecosystems and student participation in environmental hygiene as indicated by the regression equation $\hat{Y}_1 = 77.0482 + 0.4702X_1$ and the correlation coefficient $r_{y1} = 0.6435$. From the results of the research that has been stated above, it can be concluded that knowledge about ecosystems makes a significant contribution to clean living behavior. The better the knowledge about the ecosystem that is applied, the higher the student's participation in environmental hygiene. Conversely, the lower the knowledge about ecosystems, the lower the student's participation in environmental hygiene.

Relationship between Environmental Ethics and Student Participation in Environmental Cleanliness

The results of the study prove that there is a very significant positive relationship between environmental ethics and student participation in environmental hygiene. The strength of the relationship between environmental ethics and student participation in environmental hygiene can be seen from the correlation coefficient ($r_{y.2}$) of 0.790, indicating a strong relationship between the two variables. The coefficient of determination ($r_{y.2}^2$) is 0.624. This means that the variant of clean living behavior can be explained by the variant of environmental ethics by 62.4% while the rest is related to other variables. The form of environmental ethics relationship with student participation in environmental hygiene. indicated by the regression equation $\hat{Y} = 21.250 + 0.745X_2$, where quantitatively it can be said that each addition of 1 unit of environmental ethics will increase student participation in environmental hygiene by 0.745 units. Thus, to increase student participation in environmental hygiene can be done by increasing environmental ethics. The higher the environmental ethics in learning, the higher the participation of students in environmental cleanliness.

These results are consistent with research that there is a very significant positive relationship between environmental ethics and student participation in environmental hygiene as indicated by the regression equation $\hat{Y} = 38.147 + 0.711X_2$ and the correlation coefficient $r_{y2} = 0.829$. From the results of the research that has been stated above, it can be concluded that environmental ethics makes a significant contribution to student participation in environmental hygiene. The higher the environmental ethics students have, the higher student participation in environmental hygiene can be achieved. Conversely, the lower the environmental ethics, the lower the student's participation in environmental hygiene.

The relationship between Knowledge of Ecosystems and Environmental Ethics together with Student Participation in Environmental Cleanliness

The results of the study prove that there is a very significant positive relationship between knowledge about ecosystems and environmental ethics and students' participation in environmental hygiene. The strength of the

relationship between knowledge about ecosystems and environmental ethics with student participation in environmental hygiene can be seen from the correlation coefficient ($r_{y.12}$) of 0.790, indicating a strong relationship between the two independent variables and the dependent variable. The coefficient of determination r^2 is 0.624. This means that the variance of student participation in environmental hygiene can be explained by the variance of knowledge about ecosystems and environmental ethics together at 62.4%, while 37.6% is related to other variables. Based on the results of the study, it shows that the relationship between environmental ethics and student participation in environmental hygiene is significantly influenced by knowledge about ecosystems. This is indicated by the partial correlation coefficient $r_{y2.1}$ (rcount) of 0.2264. The calculation results obtained tcount 2.1563 and ttable 0.1987 ($\alpha = 0.05$), then the partial correlation coefficient is very significant. The form of the relationship between knowledge about ecosystems and environmental ethics and student participation in environmental hygiene is shown by the regression equation $\hat{Y} = 19.522 + 0.284X_1 + 0.477X_2$, it can be concluded that if students have good ecosystems and students have high environmental ethics, then student participation in cleaning environment tends to be high. Students who have good knowledge about ecosystems expect the creation of students who have high environmental ethics so as to enable the achievement of student participation in environmental cleanliness

IV. CONCLUSION

Based on the results and discussion of the research that has been stated above and in accordance with the hypotheses previously proposed, it can be concluded from this study as follows There is a very significant positive relationship between knowledge of ecosystems and students' participation in environmental hygiene, with a correlation coefficient $r_{y.1} = 0.777$ and a regression equation $\hat{Y} = 23.794 + 0.730X_1$ meaning that knowledge of ecosystems can predict significantly student participation in environmental hygiene. The coefficient of determination $r_{y1}^2 = 0.604$ means that the contribution of knowledge about ecosystems to student participation in environmental hygiene is 60.4%. There is a very significant positive relationship between environmental ethics and student participation in environmental hygiene, with a correlation coefficient $r_{y2} = 0.790$ and a regression equation $\hat{Y} = 21.250 + 0.745X_2$ meaning that environmental ethics can predict significantly student participation in environmental hygiene of 62.4%. There is a very significant positive relationship between knowledge about ecosystems and environmental ethics together with student participation in environmental hygiene, with a correlation coefficient $r_{y.12} = 0.790$ and a regression equation $\hat{Y} = 19.522 + 0.284X_1 + 0.477X_2$ coefficient of determination $r_{y.12}^2 = 0.624$ which means that the contribution of knowledge about ecosystems and environmental ethics together contributes 62.4% to student participation in environmental hygiene.

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