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RESEARCH ARTICLE

THE INFLUENCE OF KNOWLEDGE OF BASIC ECOLOGICAL CONCEPTS ON ALTRUISTIC BEHAVIOR TOWARDS THE ENVIRONMENT

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Abstract

Eco-friendly behavior conceptualized as altruistic behavior is a response that gives positive feeling and gives positive impact to the environment. Altruistic behavior does not come from nothing, instead it comes through knowledge that a person possesses, experience, and so on. This study aims to obtain information about the influence of knowledge of basic ecological concepts on altruistic behavior towards the environment. This study used survey method with correlational techniques through quantitative approach. Respondents in this study were students of Universitas Satya Negara Indonesia, who were selected through simple random sampling. The data was collected using a Likert scale questionnaire. The data then analyzed using correlation regression, while regression significance and linearity were analyzed using ANAVA test. The results showed that there is a very significant relationship between knowledge of basic ecological concepts with altruistic behavior towards the environment. In other words, the better the knowledge of basic ecological concepts, the higher their altruistic behavior will be.

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Introduction:-

Global warming is undoubtedly becomes a reality today. The condition is getting as countries in the world develop themselves without paying too much attention towards the environment. The main cause of climate change is human activity. Population growth, rapid industry and technology development increased human activity, which also lead to an increase in greenhouse gas. Jing Zhang stated that climate change is already a global issue that poses various risks to the natural and social system; this will be exacerbated by increased human activity [1].

The proenvironmental behavior concept is basically eco-friendly behavior that is conceptualized as altruistic behavior, in which the individual who possesses this behavior wants to protect the environment and society as a whole, and it is often followed by considerations about the costs or rewards of the behavior [2]. From this statement, it is necessary to increase altruistic behavior in society to minimize further environmental damage.

Altruistic is a response that elicits positive feeling, such as empathy. An altruist has altruistic motivation; a desire to always help others. The altruistic motivation arises because there is an internal reason in him/her that encourages positive feeling that triggers actions to help others. Those internal reasons will not lead to egocentrism [3]. Altruistic is a voluntary act to help others without expecting reward of any kind, also referred to as selfless action. Altruism can also be defined as the act of giving help to others without anticipation of a reward[4].

Myer describes the characteristics of altruism, such as:[5]:

- (1) Empathy, altruism will occur due to the presence of empathy in a person. The most altruist person feels themselves responsible, social, adaptive, tolerant, able to control themselves, and motivated to make a good impression.
- (2) Belief on a just world, the characteristic of altruism behavior is believing in "a just world", meaning an altruist believes that the world is a good place and it is assured that the good always get "reward" and the bad get "punishment". With these beliefs, one can easily exhibit helpful behaviors (which can be categorized as "good").
- (3) Social responsibility, everyone is responsible for whatever others do, so that when someone needs help, other individuals must help him or her.
- (4) Internal LOC, another characteristic of an altruist person is internal control. The various things he/she does are motivated by internal control (e.g. self-satisfaction).
- (5) Low egocentrism, an altruist has low selfishness. He/she prioritizes others above him/herself.

There are three (3) ways to increase altruism, namely:

- (a) Empathy. The act of altruism can be increased by increasing the feeling of empathy.
- (b) Moral affiliation. Altruism occurs, if one have the understanding of relationship of moral connection with the act of helping.
- (c) Moral principle. By discussing and explaining moral principles, acts of altruism can be increased. One such moral principle is the discussion to make this "world" better (practical explanation) [3]

From the explanation of the definition of altruism, we can conclude that indicators of behavior of an altruist person are:

- (1) Empathy; an altruist can relate his/her feeling to his/her environment.
- (2) Interpretation; an altruist can interpret and realize that someone needs help.
- (3) Social responsibility; an altruist feels responsible for the situation around him/her.
- (4) Initiatives; an altruist has the initiative to take action to help quickly and appropriately.
- (5) Willingness to sacrifice; an altruist is ready to sacrifice something, even him/herself, to help others.

In other words, altruism is a helpful or entertaining behavior directed at individuals who need help, when they are sick, or are under pressure. Individuals who have altruist behaviour always try to consider the rights and well-being of others. People who have altruistic behavior will always care about helping even if there is no benefit offered or there is no hope that they will get something. "Altruism is a motive to improve the well-being of others involuntarily for the benefit of a person" [6].

Based on the description above, the synthesis of altruistic behavior towards the environment is a person's activity in preserving the environment through aspects of empathy, interpretation, social responsibility, initiative, and willingness to sacrifice.

Altruistic behavior does not come from nothing, instead it comes through knowledge that a person possesses, experience, spiritual intelligence, locus of control and others. Therefore, the role of educational institutions is necessary in fostering students' altruistic behavior towards the environment. This matches the opinion of Robertson and Barling, that organizations contributes significantly to climate change. Thus there needs to be altruistic behavior in raising students' awareness to contribute in minimizing environmental damage [7]. Romeiro's research suggests that altruistic behavior might lead to solidarity with future generations [8].

Many factors influence a person's altruistic behavior. Since the focus of altruistic behavior investigated here is minimizing environmental damage, then what may have an effect is the knowledge of ecological concepts. Based on the researcher's initial observations, many college students do not yet have altruistic behavior towards their learning environment, as reflected from the number of students who throw garbage carelessly, make use of various spots to dispose of food and paper packaging waste, untidy lecture halls, and others. Students have not been able to understand the importance of utilizing the learning environment and how to maintain their campus environment.

Knowledge is essentially everything we know about a particular object, and is a characteristic of mental wealth that directly or indirectly enriches our lives. According to Suriasumantri, knowledge is the source of answers to questions that arise in life and can be used as a tool to solve problems [9]. According to Anderson, knowledge is divided into four: factual (based on actual facts), conceptual (related to conception / understanding), procedural

(related to its implementation), metacognitive [10]. Knowledge of concepts is a level of ability that expects a person to be able to remember and understand the meaning or concept of a known situation and fact, and can explain using his own words while not changing the meaning.

Every human being has different basis and complexity of knowledge. Odum said, "Ecosystem is a basic functional unit in ecology, which includes both organisms (biotic communities) and the abiotic environment, each of which has the characteristics of the other and both require the maintenance of their life as we have on this earth". Thus, the ecosystem is part of the basic concept of ecology. Meanwhile, the definition of ecology is the study of the relationship between living things and their environment, because ecology deals specifically with living things and with processes on land, in oceans, in freshwater [11]. In a more modern sense, ecology is defined as a study of the structure and function of nature; while knowledge of the basic concepts of ecology is a person's initial knowledge about ecosystems, patterns of interaction between components, the cycle of matter and energy, and the biogeochemical cycle through the dimensions of specific knowledge and facts; knowledge of the means and means of dealing with specifics; knowledge of universal and abstract things.

It is necessary to give students knowledge of the basic concepts of ecology in order to increase their awareness of environmental preservation by behaving altruistically. The participation of education leaders in building students' altruistic behavior is needed, because humans essentially have a reciprocal relationship with the environment. Efforts to foster and develop the altruistic behavior of students who care about the environment can be done through environmental education training. It is hoped that environmental education training can change students' personality and increase awareness of the environment, which may lead to the improvement in the quality of the environment

Essentially, environmental problems are also humanitarian problems, which are closely related to social values, social system and religion. Therefore, technical effort is not the best way to overcome environmental problems. Instead, we should use educational and persuasive efforts. This effort is carried out through environmental education, starting from kindergarten. To achieve this, we need to set a right example, establish an appropriate incentive system (campaigns and family care).

The researcher is interested in conducting research to investigate the relationship between knowledge of basic ecological concepts with students' altruistic behavior towards the environment. The researcher had identified several research questions, including: 1). Does spiritual intelligence have a relationship with altruistic behavior towards the environment? 2). Does locus of control have a relationship with altruistic behavior towards the environment? 3). Does personality have a relationship with altruistic behavior towards the environment? 4). Does work environment has a relationship with altruistic behavior towards the environment? 5). Does knowledge of the basic concepts of ecology have a relationship with altruistic behavior towards the environment? However, the researcher only conducted a study on the relationship of knowledge about the basic concepts of ecology with altruistic behavior towards the environment?, so the aim of this study was to find out and provide information about the relationship between knowledge of the basic concepts of ecology and the altruistic behavior towards the environment of students at Universitas Satya Negara Indonesia.

Research Method:-

The study was conducted using survey method with correlational techniques through a quantitative approach. Respondents in this study were students of the Universitas Satya Negara Indonesia. The samples were selected using simple random sampling. The number of respondents was decided at 50 using the Slovin formula [12]. Data were collected using a Likert scale questionnaire. The data was then analyzed using correlation-regression analysis, descriptive statistics and inferential statistics. The regression significance and linearity were tested using ANOVA regression test.

Discussion:-

According to the data, students have a sufficient altruistic behavior, with a mean value of 97.7, while for the knowledge of the basic concepts of ecology, the mean value is 92.6. The relationship between knowledge of basic ecological concepts and altruistic behavior was tested using simple regression analysis. The regression equation obtained is $\hat{Y} = 51.107 + 0.42 X$. The results of the regression significance and linearity test are shown in Table 1:

Table 1:-Linear regression ANAVA Y on X; $\hat{Y} = 51.107 + 0.42 X$.

Source Variance	df	Sum of Squares (SS)	Average of Sum of Squares (ASS)	F _{count}	F _{table}	
Total	49	6,077.076			$\alpha=0.05$	$\alpha=0.01$
Coeffisien (a)	1					
Regression (b/a)	1	1,345.577	1,345.577	13.65**	4.04	7.19
Residual	48	4,731.499	98.573			
Deviation from linearity	30	2,896.379	96.546	0.947 ^{ns}	2.11	2.92
Error	18	1,835.12	101.951			

** $\rho(13.65) > (7.19 \text{ on } \alpha=0.01)$ ^{ns} $(0.947 < 2.11 \text{ on } \alpha=0.05)$ Non significant

The test resultsshowed that the regression significance is Fcount 13.65>Ftable 7.19 at $\alpha 0.01$; showing that there is a very significant relationship between knowledge of the basic concepts of ecology and altruistic behavior towards the environment. Regarding linearity, with the test resultsofFcount 0.947>Ftable 2.11 at $\alpha 0.05$, it shows that the relationship between knowledge of the basic concepts of ecology and altruistic behavior towards the environment is linear.

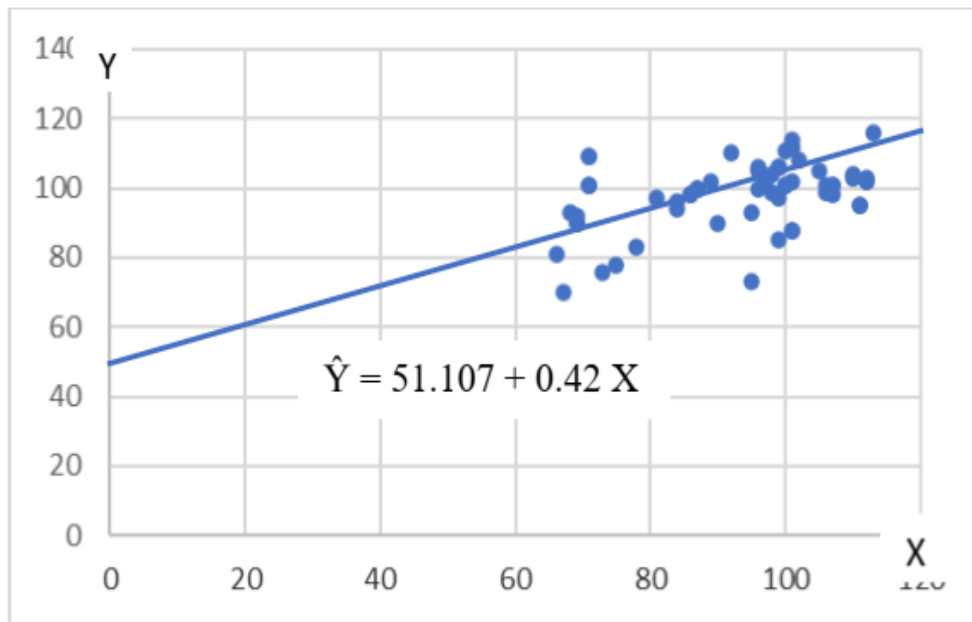


Figure 1:- $\hat{Y} = 51.107 + 0.42 X$ and distribution data.

The equation of $\hat{Y} = 51.107 + 0.42 X$ for the relationship between knowledge of basic ecological concepts and altruistic behavior towards the environment, means that every 1 point change in the score of knowledge about basic ecological concepts will cause 0.42 points change in the altruistic environmental behavior towards the environment, with a constant of 51.107. The correlation coefficient between knowledge of the basic concepts of ecology and altruistic behavior towards the environment (r_{xy}) is 0.681; and the test results are showed in Table 2:

Table 2:- Results of regression significance test.

Sample (n)	Coeffisien correlation	Second order correlation	t _{count}	t _{table}	
50	0.681	0.468	5.113**	0.05	0.01
				2.01	2.68

The results of t count>t tableof $\alpha = 2.68$ means that the correlation coefficient between knowledge of basic ecological concepts and altruistic behavior towards the environment is very significant. It shows that the better the knowledge of basic ecological concepts, the higher the altruistic behavior towards the environment will be. In this context,the student's mastery/understanding of these concepts has an impact on his/her way in viewing the

environment. Veitch and Arkhelin stated that "man always processes and thinks about his environment, and has different qualities of knowledge about the environment and the surrounding nature [13].

Daube and Ulph stated that if individuals behave altruistically, the greater the level of altruism, the more he/she will reduce consumption of goods that damage the environment, and this depends on each individual [14]. The results of this study matches the results of research conducted by Arcury, which showed that environmental knowledge was consistent and positively correlated with environmental attitudes, although the relationship was not very strong. Through the relationship of knowledge and attitudes, low environmental knowledge have disruptive implications for environmental policy [15].

Suama's research explained that groups of students who have low knowledge of the basic concepts of ecology and show egoistic environmental concern have a new paradigm towards the environment that is better than students who have low knowledge of basic ecological concepts [16]. This is not much different from Suhardin's research, which showed that there is a significant correlation between knowledge of basic ecological concepts and concern for the environment [17].

The coefficient of determination obtained from the test is $(0.681)^2 \times 100\% = 46.8\%$; This means that 46.8% of the variation in altruistic behavior towards the environment can be explained through knowledge of basic ecological concepts; while 43.2% is explained by other factors that require further research. Of the various factors, religion is considered a protective factor against antisocial behavior and a positive influence on altruistic behavior, but the association is not clear [18].

Conclusion:-

This study shows that there is a significant relationship between knowledge of the basic concepts of ecology and altruistic behavior towards the environment. This means that the better the knowledge of the basic concepts of ecology possessed by students, the higher their altruistic behavior towards the environment will be. Thus, to increase altruistic behavior and concern towards the environment, it is necessary to teach knowledge of basic ecological concepts through various ways, for example by providing socialization or education.

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