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# The Impact of Ecolabel Knowledge to Purchase Decision of Green Producton Biology Students

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**Abstract.** The world needs real solutions to reduce the impact of environmental damages. Students as agents of changes have a role to overcome these problems. One of the important solution is to be a critical consumer who has purchase decisions in a green product. To show the quality of an environmental friendly product, it is then required an ecolabel on the green product which indicates that the product has been through the production process and come from environmental friendly substances. The research aimed at finding out whether there was an impact of ecolabel knowledge with purchase decision of green product on biology students. This research was conducted in Biology Department. This research used a survey descriptive method. The population used was biology students of Universitas Negeri Jakarta while the sampling technique was done through simple random sampling technique with 147 respondents. Instrument used were ecolabel knowledge test and a questionnaire of green product purchase decision. The result of prerequisite test showed that the data was normally distributed and homogenous variance. The regression model obtained was  $\hat{Y} = 77.083 + 0.370X$ . Meanwhile, the determinant coefficient ( $r^2$ ) obtained was 0.047 or 4.7% that mean ecolabel knowledge just contributed 4.71% to the green product purchase decision. These implied that many factors contributed in the purchase decision of green product instead of ecolabel knowledge.

## INTRODUCTION

As a result of human activity, environmental problems had become an international issue since 30 years ago. Various parts of the world are trying to reduce activities that can exacerbate environmental damage. The views and patterns of human life began to change along with the increasing concern and awareness of the environment [1]. Worldwide today, needed a real solution to reduce environmental damage. Students nowadays are under awareness that environmental damage is the result of human activity. Students as the agent of changes had a strategic role in overcoming the various issues of the environmental damages. They have been starting to implement green lifestyle that can be done daily from small things. One of them is to become critical consumers in making purchasing decisions of green product [2]. The increased sensitivity of the Indonesian people, especially students bring them into a decision to buy environmental friendly products [2].

On the other side, the emergence of demand for businesses, especially producers to be aware of the environmental conditions, bring the business activity approach with an in environment conservation based. In order to remain competitive in the middle of the market competition, businesses are required to provide a solution in dealing with the emerging environmental issues through the development of green product. To show that the product has assured environment friendly quality, it would require a guarantee of environmentally friendly, known as the ecolabel [3]. An ecolabel identifies environmentally preferable products based on an environmental-impact assessment of the product compared to other products in the same category

Ecolabel products are marked products that differentiate with other products because it contains information regarding the Environment problem [4]. Ecolabel is a symbol of the green product or label indicating that the product has been through the production process and derived from environmentally friendly substances. Ecolabel can provide information to consumers that some environmental friendly standards have been implemented in the

production process of goods or services which carry a specific label. Thus, green product became easily distinguished from traditional products on the market [4]. Ecolabel or ecological label is a sign of a product that informs the consumers about the problems and environmental pollution [5]. Ecolabel or ecological label is a sign of a product that informs the consumers about the problems and environmental pollution [6].

Environmental friendly information on the product label is widely available on the product packaging nowadays. However, consumers are not fully aware on the truth of the information. Consumers will trust the information provided by the company without further process information because it has confidence in the quality of the product [7]. College student are supposed to know the ecolabel knowledge, since they studied about environmental science. Ecolabel knowledge was consisted of factual, conceptual, procedural knowledge in the ecolabel concepts. By knowing these knowledge student will be able to have decision on purchased green product.

Based on above descriptions, it is necessary to do research on the impact of knowledge ecolabel to green product purchasing decisions on consumers, especially on college students because it is very important to prevent more severe environmental damage. Knowledge of the eco-label as measured in this study is the basic knowledge that should be known by the consumer in this case are students.

## METHODS

The method used was a survey descriptive study with the independent variable (X) was the knowledge of students about the ecolabel and the dependent variable (Y) was purchased decisions of green product. This research was conducted at the Biology Education Study Program, Universitas Negeri Jakarta. The population was students from the fifth semester. Samples were 147 students taken by simple random sampling.

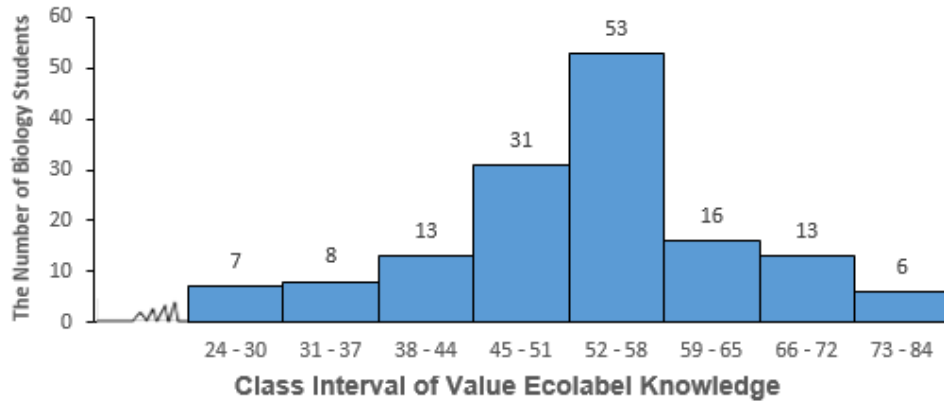
Instrument used were the objective test of ecolabel knowledge consists of 50 statements including knowledge of ecolabel symbols, ecolabel description, ecolabel terminology, impact of environmental damage and government rules. The questionnaire of purchased decision on green product consists of 40 statements including of purchasing reasons, information collecting, product evaluation, purchased decision, post purchasing evaluation. Ecolabel knowledge instrument used the dichotomy scale while the instrument of purchased decision on green product used the Likert scale. Both of the instruments used were valid and reliable.

Data showed in a normal distribution and homogeneous variance. Data were analyzed by a normality and homogeneity test, while hypothesis test was analyzed by a regression model and the coefficient determination between the variables.

## RESULT AND DISCUSSION

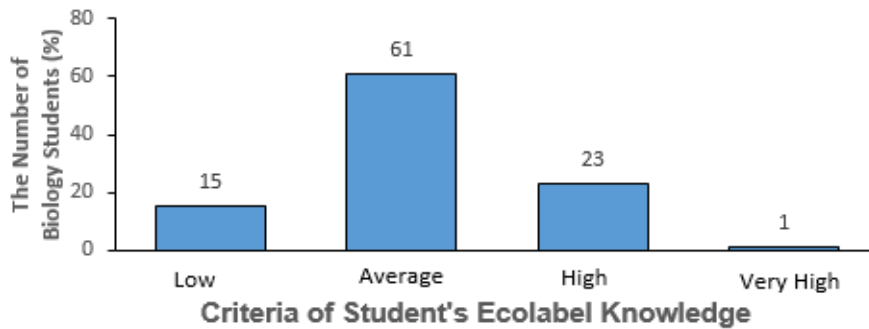
### The Value of Knowledge Category on Ecolabel

Based on the results, the highest value of knowledge ecolabel on Biology Department students was 82, while the lowest value was 24. The average value of knowledge ecolabel on Biology Department students was 52.7. Value frequency on ecolabel knowledge the most numerous lies on the range of grades 52-58, a total of 53 respondents (36.1%) and the least present in the range of 73-84 with 6 respondents (4.1%) (Figure 1).



**FIGURE 1.** Histogram of Biology Student's Value on Ecolabel Knowledge

According to the research, it was known that the majority of students from the Department of Biology has asufficient knowledge ecolabel categories with the number of 90 respondents (61%), and the least category present in very high with 2 respondents (1%) (Figure 2).



**FIGURE 2.**Biology Student's Criteria on Ecolabel Knowledge

Based on the distribution of the ecolabel knowledge aspect showed that the highest percentage was the aspect on the impact of environmental damage (87.5%). The aspects of ecolabel description, ecolabel terminology and government rules showed moderate percentage (70-78%), and the lowest percentage was the ecolabel symbol which was just reach 60%. These result pointed that students really understand about the impact of environmental damage but seem to be not good in knowing the symbol of ecolabel (Figure 3).

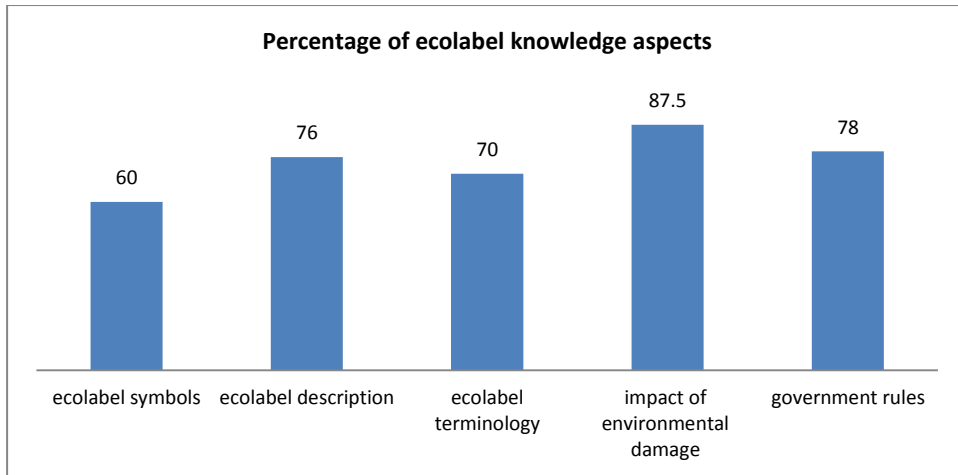


FIGURE 3. The Percentage of Ecolabel Knowledge Aspects

### The Value of Categories on Green Product Purchasing Decisions

Based on the results obtained the most numerous frequency value on green product purchasing decisions were in the range of grades 72-76, a total of 53 respondents (36.1%) and the fewest were in the range of 92-96 grades by 1 respondent (0.7%). While the average value of green product purchasing decisions is 72.9 which was included in the medium category (Figure 4).

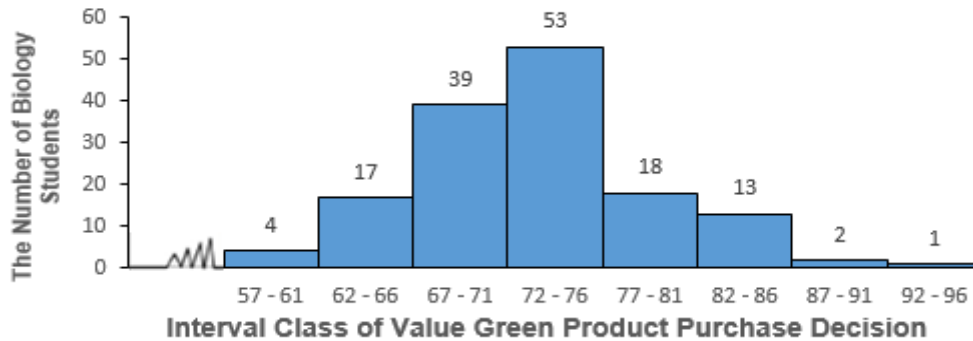


FIGURE 4. Histogram of Biology Student's Values on Green Product Purchase Decision

According to the research, it was known that the majority of students of biology UNJ value on green product purchasing decisions with average category of 105 respondent (71.4%), and good categories with the number of 42 respondents (28.6%) (Figure 5).

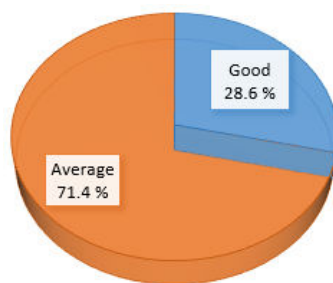
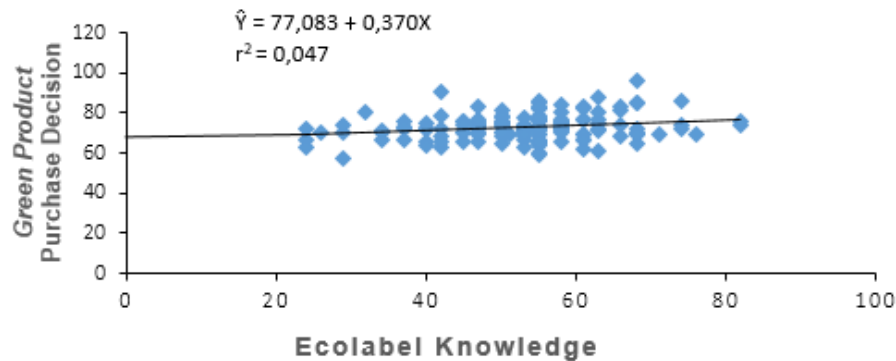


FIGURE 5. Biology Student's Criteria on Green Product Purchase Decision

The results of this research showed that there was a positive correlation between knowledge of ecolabels and green product purchasing decisions. The result showed that the higher student's knowledge about the ecolabel then the green product purchasing decisions will also increase. If a person does not have sufficient knowledge of ecolabel, it will cause a lack of understanding and awareness of the information relating to the environment when purchasing a product. The coefficient correlation obtained was 0.217 and the coefficient determination obtained was 0.047, showed that the correlation strength and the impact were in a low level. These indicated that ecolabel knowledge was not the only factor that support green product purchasing decisions. There might be many factors supporting a person in making a green product purchasing decisions.

The ecolabel knowledge directly influence on purchase intention [2]. More findings propose that most consumers have spoken a great interest in the protection of the environment and they are strongly concerned about the environment and its disgrace [8]. Environmental knowledge and eco-label knowledge positively influence consumer attitudes towards environment in driving ecologically conscious consumer behavior [9]. Eco-label and green product value contributed the largest in influencing consumers' green purchase intention among consumers in Sabah [10].

Based on the research result, the coefficient of determination showed that the changes variation of green product purchase decision was caused by the student knowledge about ecolabel for only by 4.7%, while 95.3% were influenced by the other factors through the regression model equation of  $Y=77.083+0.370X$  (Figure 6).



**FIGURE 6.** Scatter Diagram of Linearity Correlation and Regression between Ecolabel Knowledge with Green Product Purchase Decision

Ecolabel knowledge was supposed to give contribution to the purchased decision of green product. Students had already got the environmental science on their course. Since the coefficient determination was in low criteria so that possibly causes of low student knowledge acquired ecolabel was suspected because of the forgotten factor in the subject or information about ecolabels obtained previously. Forgetting is closely associated with a person's memory. This is in accordance with the explanation which said that one of the factors that affect a person's knowledge is memory. If a person's memory is reduced, then the old information will be eliminated by the new information [11].

Result of this research also showed that the green product purchasing decisions based on gender was indicated that more female students to bought products ecolabel compared with male students. This was due to the female consumers have a positive attitude towards the environment which is higher than male consumers. Female consumers have a more serious perception toward environmental problems than male consumers. Women are more concerned about the negative impact of environmental damage than men. The more damaged or negative environmental impact, woman will be more seriously thinking about environmental problems because women have a sympathetic nature, expressive, and maintain things [12].

Female consumers are more involved or influence the buying behavior of green products than men, because it was influenced by the process of the formation of self-concept and lifestyle that ultimately affect women's decision-making process of consumers to buy environmentally friendly products [12] (Figure 7).

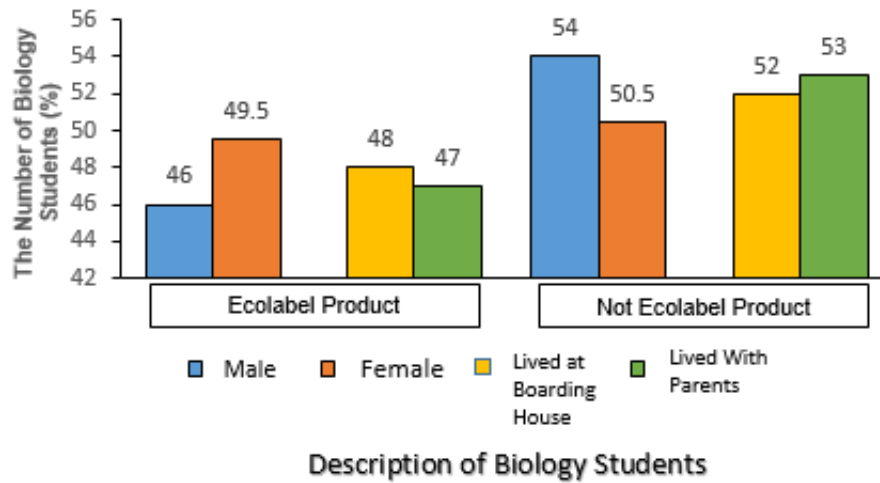


FIGURE 7. Description Purchasing Decisions of Ecolabel Product of Biology Students

Another factor that can affect the level of green product purchase decisions are social factors such as family [13]. Factor of with whom the students lived also indicated the results of this study. Most of the students lived with their parents (77.6%), were still in control and influenced by the parents. Family is the first to be known and to be someone who accompanies an individual from birth to adulthood. They are likely to be able to give direction or orientation for the individual to make decisions. One of these is to determine their decision.

One of psychological factors is the perception. When someone observes a product, then the individual will react not only on the apparent factors on the product, but also on other instructions that found on products such as shape, size, weight, material, color and brand name which will stimulate motivation, direction of thought and certain emotions [13]. Act of a person which is motivated will be influenced by their perceptions of certain situations. Perception can be defined as a process by an individual to select, organize, and interpret input information to create a conception. Perception does not only depend on the physical stimulation but also associated with their surroundings and circumstances of the individuals concern to make the individual decision to buy a product after the process of perception.

Based on questionnaire result of green product purchasing decisions, the respondents who decide to buy ecolabel product on detergent products, multifunction paper and instant noodles is categorized as follows. As for other products, more students do not decide to buy a product ecolabel. It can be concluded that the majority of students are decide to buy non ecolabel product (Figure 7).

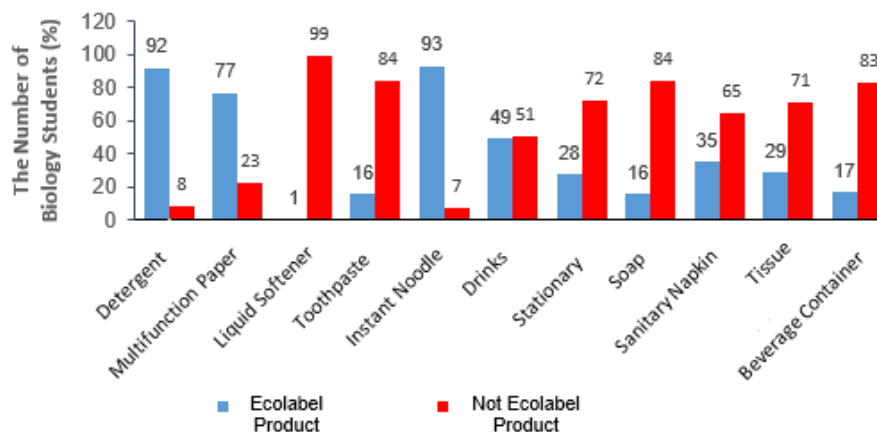


FIGURE 8. Distribution of Biology Student in Purchasing Ecolabel Products

The cause of the low number students who purchase a product ecolabel is affected by a consideration in the quality of purchased product. Generally, good quality product is certainly durable to be used. Perception that received by students can be influenced by the advertisements. Advertisement is often seen by consumers in this case the student will be continuously stored in memory. Consumers will tend to buy products that are renowned though not environmentally friendly products [14].

Promotion in the form of advertising is one factor that is quite important. A purchaser would be interested to buy a product when the promotion can attract the customers. Promotion is one of marketing strategy to give the information about products to the consumers. The better promotions of ecolabel products can attract a person to make a better ecolabel purchased decisions [14].

The product knowledge includes brand awareness of the product category, product labels and beliefs about the types of products in general and on specific brands [15]. Consumers tend to buy the same product if the consumer has used the product and provide high benefits beyond consumer expectations [16]. Consumer knowledge is important for several reasons [16]. Consumers had less likely to buy a product if they do not have enough information regarding the product. Marketing efforts that are designed to target consumers on how to use the product is also very necessary. Therefore, advertising is supposedly giving effect to the perception received by consumers about a product. So, consumers tend to buy the same product even though the product is not environmentally friendly. Other research found that there are consumers who will buy green products even if they are lower in quality in comparison to alternative products, but would look for environmental information on labels. With respect to price sensitive green consumers, there appears to be a relationship between price sensitivity and "always" reading labels as well as indicating that there is "sufficient" information on product labels to make informed purchase decisions [17]. Although general consumers are highly aware of the publicly valuable information that ecolabels provide, privately valuable information exerts far greater power over their purchasing intentions. Therefore, a supplementary policy that converts public value to private value could promote the purchase of ecolabel products [18].

## CONCLUSION

Based on the results of this research and hypothesis testing that has been done, it can be concluded that there was a low impact of ecolabel knowledge to the green product purchasing decision which knowledge ecolabel contributed 4.7% to the green product purchasing decisions on students from the Department of Biology Universitas Negeri Jakarta. These implied that many factors contributed in the purchase decision of green product instead of ecolabel knowledge such as gender, perception, information, promotion, beneficial and satisfactory.

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