Green consumerism among students: a survey in campus

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Abstract. Green Consumerism or the use of environmentally friendly products is important in the life of this modern era. Green consumerism contributes to the preservation of the environment for life in the future. The use of green products is part of the pro-environmental behavior that plays an important role in reducing the amount of waste, sustainable development, and saving resources. This is the underlying need to do this research. The purpose of this study is to describe students' pro-environmental behavior, in terms of groups of MIPA and non-MIPA students. Differences in perceived scientific background can be a distinguishing factor. The method used is descriptive method. Pro-environmental behavior data was taken from 130 students of Mathematics and Natural Sciences (MIPA) Program and 130 Non-Mathematics and Natural Sciences (non-MIPA) students in Universitas Negeri Jakarta, in June 2018. The results of t-test showed no significant difference in pro-environmental behavior between MIPA and NON MIPA students. The students' pro-environment behavior score in both groups has averages that do not very much, with an average score above 60. This indicates that in essence MIPA and non-MIPA students have pro-environment behavior that is still relatively good.

1. Introduction
The use of environmentally friendly products among students is one of the focuses of environmental problems that are studied by many parties. This is due to the deterioration of the environment in recent years, one of them on campus. Many students study on campus but have not fully implemented and maintained the environment[1]. In practice, they are often seen in plain sight throwing garbage in addition to classrooms where lectures are held, besides that it is also seen that the trash cans on campus have not been too maximal to make organic and non-organic waste separate. This has become an event which requires an evaluation so that in the future the campus environment will be better maintained.

Students are subjects that play an important role in protecting the environment around campus. Pro-Environmental Behavior (PEB) students play an important role in protecting the environment [2,3]. Students with low PEB will damage the campus environment. In addition, the low PEB in students is a bad example for students who are in school. This is what makes PEB’s research on students important. Although actually environmental learning has been done by every student since childhood [4].

Green Consumerism is very much related to PEB students. The concept of green consumerism has actually been known for a long time. The implementation has also begun to be carried out in several
community groups, especially in community groups that pay attention to the environment, such as carrying out tree planting in the surrounding environment [5]. However, for the students' understanding of green consumerism, it was felt that it was not maximized, this came from the suspicion that there were still many students who carried out actions that were not environmentally friendly as previously told. Green consumerism is always talking about consuming a product, so it's a challenge for producers to make green products and be liked by students [6].

Green Consumerism itself covers several aspects in general such as energy conservation, recycling, and buying green products. All green consumerism activities, in the end, are as a form of one's business to consume green products. Buying an environmentally friendly car, for example, can be categorized as green consumerism [7]. The challenges ahead will also be found in the industry. They are required to make an attractive, inexpensive and environmentally friendly product [8].

Among students, consumption of green products is something that is not commonly done because the needs of students for goods that are environmentally friendly are not too much of their priority. Prices of green products that are more expensive than ordinary goods are also of particular concern because they make it difficult for students to meet their needs, this is because students tend to buy items that are more economical, especially for students who rent a place near campus. This is a challenge for the makers of green products so that they can make environmentally friendly products, but economically and favored by students [9].

Mathematics and Natural Sciences (MIPA) Program is a collection of various study programs that study natural sciences such as physics, biology, and chemistry study programs. While the Non-Mathematics and Natural Sciences (MIPA) program is a collection of various study programs that study the social sciences and humanities. If viewed from the environment-based courses obtained by students, it is clear that the MIPA program is much more subject to subjects that study the environment. Meanwhile, the Non-MIPA program is much less accepting courses that study the environment. This is what is interesting to look at further.

The purpose of this study was to see the extent to which PEB students of Jakarta State University were viewed from the aspect of green consumerism. This research becomes urgent because students are one of the components of society that are quite influential and become role models for the surrounding environment. In addition, in order to maintain the sustainability of the campus environment, the longer it must be maintained, it can be enjoyed by students in the next generation.

2. Method
The research conducted in June 2018 took place at the Jakarta State University. The method used is descriptive method with survey techniques. The sample was selected by simple random sampling, until 130 students were chosen from the Mathematics and Natural Sciences (MIPA) Program and 130 students from Non-Mathematics and Natural Sciences (non-MIPA). Data were analyzed using normality and homogeneity tests then t-test with a 95% confidence level.

The instrument used in this study refers to standard instruments about General Ecological behavior [10]. The instruments used were 15 items consisting of various aspects. The following table 1 contains aspects and indicators of the instruments used.

| 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 |

3. Result and discussion
The data collected is then conducted a t-test with a 95% confidence level. The results of the t-test show that thank Ho, or it can be said there is no difference between the PEB of MIPA and Non-MIPA students. The results of the t-test in more detail can be seen in table 2.

**Table 2.** Test results for PEB MIPA and Non-MIPA students

|       | F      | Sig. | t    | df | Sig. (2-tailed) | Mean Difference | Std. Error Mean |
|-------|--------|------|------|----|----------------|-----------------|-----------------|
| MIPA  | 1.626  | .203 | .342 | 258| .733           | .35885          | 1.05007         |
| Non-MIPA | 8.78271| .203 | .342 | 258| .71365         | .71365          | .77029          |

More specifically, it can be seen that the average PEB score between MIPA and Non-MIPA students is not very different. This is shown in table 3 below.

**Table 3.** Average PEB score of students

| Program    | N  | Mean   | Std. Deviation | Std. Error Mean |
|------------|----|--------|----------------|-----------------|
| MIPA       | 130| 62.7586| 8.13687        | .71365          |
| Non-MIPA   | 130| 62.3998| 8.78271        | .77029          |

The absence of significant PEB differences between MIPA and Non-MIPA groups indicates that environmental learning for students is not too maximal. Especially for the MIPA group. We all agree that students of the MIPA group should better understand the environment than the Non-MIPA group. Understanding of environmental material that is still low is the key to the cause of this [11]. Whereas in the implementation of learning, the MIPA group has more subjects and fields of study about the environment than the Non-MIPA group. In addition to understanding the environment students are also asked to be responsive in responding to environmental issues [12,13].

MIPA students get environmental learning during the first year. Usually, they all get Biology lectures in general. In more detail, it is not taught about more profound environmental concepts. However, environmental concepts, in general, remain taught in the Biology lecture. At the very least, this should have an impact on improving students’ environmental knowledge in the MIPA program. However, the perception factor of a student who was embedded since childhood turned out to also have an influence on understanding the environment [14–16].

Non-MIPA programs do not get Biology lectures specifically, but they get a special course that examines Natural Sciences in one semester. Usually, the course is called Basic Natural Sciences (IAD). This course examines natural phenomena that occur in nature in general. This course is not explained in more detail about the concepts of science and the environment. However, the subject matter generally still contains concepts of science and environment. Students who take this course should also be asked to do activities directly related to the field because if done directly it will better understand the lesson [17]. Learning science if explained using the right learning media will make students interested in the material being discussed [18–20].

Green Consumerism learning at the student level is the key to this problem. Green consumerism concepts can actually be invested in students in various ways, one of them through learning media. Learning media are of many types ranging from audio media, visual media, and audio-visual media. Now even more learning media can already use highly advanced technology [21]. Modern and appropriate learning media such as the web, E-book, Augmented Reality, Virtual Reality and many more [22–24]. Learning can also be done from various places and is not limited to only being done in class [25]. All learning media can basically be used as a means to deliver Green Consumerism material to both MIPA and Non-MIPA students. Students can also take information from various sources, by exploring various sources. This method can affect the behavior of students in environmental aspects [26,27]. Still, the learning media used to instill a green consumerism understanding in students must still be principled on student center learning [28,29].

The learning media used must be interesting. This is because students will be more enthusiastic in learning if the learning media and learning model used to attract their attention [30]. Besides being interesting, learning media must also be easy to use. Especially in this modern era, where gadgets have become commonplace for students. The use of social media, websites, and other information sources on the internet is one form of innovation to convey the concept of green consumerism [31]. In students with a younger age, learning media can be used with characteristics that have many
images so that environmental material is easily understood [32]. Learning media in the form of games can also be an option to overcome this problem. Games developed by the instructor can be used to convey environmental material [33].

The campus environment also shows that PEB students are not too high. Facilities such as trash cans, for example, are still not separated between organic waste and non-organic waste. This is of course very unfortunate, because the campus is a place of higher education in charge of developing science as well as being a center of educational development, in this case, environmental learning [34,35]. A good campus certainly should have facilities and programs that support the creation of environmental awareness of the students in it. The program in question is like requiring students to bring their own food and beverage to reduce plastic consumption [26].

The campus also contains a variety of organizations, one of which is a nature lovers organization for example. This kind of organization can actually be used as a gathering place for students who care about the environment. This organization can accommodate and accommodate various proposals regarding environmentally sound programs that can be implemented on campus. One of the activities that can be done is for example by doing waste processing activities [27,36]. Unfortunately, such activities and the use of this organization as a promotional event to protect the environment are still very little done, there are still many points on the campus that have not been maintained which should be the focus of the organization's movement. Promotion can also be done through social media, with images that contain an invitation to protect the environment. This is possible because students are learners who can learn independently from various sources [37–39].

4. Conclusion

Based on the results of the study, it was found that there were no significant differences between PEB students of MIPA and Non-MIPA programs. This is due to the fact that the topic of environmental discussion has not been discussed in the subjects they receive. Even Non-MIPA students should continue to study environmental topics because this is one of the things that is important for the life to come.

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