

# How do UMRAH biology teacher candidate students behave regarding the existence of green technology products?

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**Abstract.** Awareness of green technology products has now increased. However, the success of its implementation is highly dependent on the attitudes and behaviour of the community, especially prospective biology teacher students at the Raja Ali Haji Maritime University (UMRAH) as someone who will build a society in the future. This study aims to determine the behaviour of prospective biology teacher students at UMRAH toward the existence of green technology products that are currently circulating. This descriptive study involved 76 new students of the UMRAH Biology Education Study Program in the last two years (2023-2024). Data were obtained using a questionnaire and analyzed on average per item. Based on the results of the research and discussion obtained, prospective biology teacher students at UMRAH behave well toward the existence of green technology products.

## 1 Introduction

The development of rapid technology is at a moment when this has a significant impact on the environment. Technology moment This contributes to the improvement of pollution, the continuous consumption of energy in an excessive way, and the emergence of exploitation sources of power that are not controlled. It pushes emergence. An expected innovation capable of reducing the impact caused by technology created by humans. A wrong business can be done by applying green technology concepts or creating a technology-friendly environment. Green technology is one of the factors important for reaching the objective, namely, to guard a sustainable environment [1]. It is designed to reduce the negative impact on the environment. Green technology products, such as car electricity, solar panels, and other products, are more intensely developed and offered on the market. This action is done as a solution to support a more development-friendly environment, especially in Indonesia.

In Indonesia, awareness of the importance of green technology products has increased. It is in line with global efforts to reach objective development Sustainable Development Goals (SDGs). However, the implementation of the SDGs program still needs to be felt by the community, including prospective biology teacher students. Hence, the need for

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implementation is more deeply related to this program [2]. In addition, the successful implementation of these green technology products is highly dependent on the environmental behaviour of society, including prospective biology teacher students. One of the purposes is for humans to be free from dependence on fossil energy through various innovations that are capable of creating a sustainable environment [3]. Students, this is what will become the perpetrator's main for building society to be more caring and aware of the condition of the environment. Through student prospective biology teachers Are expected to be capable of creating innovative and creative products that have benefits and a sustainable for sustainability environment [4]. Student prospective biology teachers play a role strategically because they not only strive for a broad understanding of the importance of guarding a sustainable environment but also do not have enough answers to plant values in students in the future.

Universitas Maritim Raja Ali Haji (UMRAH), as one of the institutions of education high in the Riau Islands, also has a role in printing competent prospective biology teachers as well as care to issue environment. Students at UMRAH's prospective biology teacher expected a deep understanding of the importance of implementing a technology-friendly environment as well as awareness of the impact of positive things caused by these green technology products. However, there is still no study that examines how the behaviour of prospective teachers towards existing green technology products circulates during this time. A clear understanding of the behaviour of students towards green technology becomes important Because matter This will influence patterns and ways of view integrating issue environment in the learning process.

Therefore , the research aims to know the behaviour of students and prospective biology teachers at UMRAH regarding the existence of green technology products that are circulating at the moment. This research is expected to obtain a better picture of the factors that influence the behaviour of students in a technology-friendly environment. Research results can also become a reference for anyone, especially college teachers, to design curricula and programs that focus on supporting the development of an attitude care environment among students. In addition, the results of the study also made an effort to push the creation of teachers who play a role in actively inviting society to preserve the environment.

Based on the background behind the problem that has been presented, the writer is interested in doing a study with the title " How Behavior UMRAH Biology Teacher Candidate Students Regarding Existence Green Technology Products ?"

## **2 Methods**

This descriptive research involved 76 students from the new UMRAH Biology Education Study Program in two years (2023-2024). Data obtained use a questionnaire. The items and statements used are seen in the Table 1.

The data that has been obtained and processed use statistics to describe the profile behaviour of students. To understand the trend of students in every statement, we count the average score of each statement. The average is calculated by multiplying the students who choose each scale by frequency, adding up all results, and then sharing it with the total number of students who responded based on the grain of the statement being asked. After that, the result will categorized in interpretation as seen in the table following This [5].

**Table 1.** Questionnaire Items

No.	Items
1.	I support activities that promote the use of products, which results in the development of green technology in daily life.
2.	If I have enough income, I will often use electric vehicles to replace my vehicle in daily life.
3.	If I have enough income, I will install solar panels For the House ladder Alone.
4.	If I have enough income, I will build A House Alone with a smart building concept.
5.	I actively looked for source Studies To add an outlook on green technology.
6.	If there are posts about green technology products on social media that have lots of benefits for society, I will be active in spreading them.
7.	I support action preventive by government or party enforcer law to easy green technology products stolen by people like solar panels.
8.	When I am outside My house , more Lots use bottled drinks Alone than buy drinks packed in plastic sold on the market.
9.	When I am outside my house , lots of people use tote bags to shop or bring goods rather than plastic bags.
10.	I will buy a box food-friendly environment compared to one made from base plastic as a place to supply food.
11.	If I own a child later, I will be more active in buying clod ( diaper ) cloth than diapers that have been circulating in the market For used children daily.

**Table 2.** Interpretation of Student Behavior

Percentage	Interpretation
0-0.9	Very not good
1.0-1.9	Not good
2.0-2.9	Neutral
3.0-3.9	Good
4.0-5	Very good

### 3 Results and Discussion

Based on Table 3, there are three statements with very good responses given by students. Third, each statement is related to activity, promoting the use of products, resulting in the development of green technology within life, everyday use , bottled drinks, alone when outside the home, and election box. Eat in a friendly environment compared to those made from base plastic. The third aspect is also very important, as it is important to remember the importance of guarding a sustainable environment through things simple like this. For example, reduced use of plastic in some materials like bottles and an-environmental-friendly lunch boxes becomes matter crucial [6–8], so when a student is used to applying a pattern life like this inside life every day, it will be easier To spread habits that are this for just around it.

**Table 3.** Data Recapitulation

Number of Items	Frequency					Average/Item	Interpretation
	1	2	3	4	5		
1.	1	0	15	30	30	4.16	Good
2.	0	3	31	30	12	3.67	Good
3.	1	4	28	25	18	3.72	Good
4.	2	4	18	29	23	3.88	Good
5.	0	2	33	28	13	3.68	Good
6.	1	4	32	31	8	3.54	Good
7.	2	6	22	29	17	3.70	Good
8.	1	1	17	14	43	4.28	Good
9.	3	2	27	19	25	3.80	Good
10.	2	2	18	18	36	4.11	Good
11.	4	6	28	24	14	3.50	Good
<b>Average</b>						<b>3.82</b>	<b>Good</b>

Then, if the results are seen, the analysis in Table 3 also shows that the lowest average value contained in statement eleven is related to the use of clodi. It is reasonable to remember that all students are not yet married, so they do not yet feel conditioned when it comes to their children. In addition, there are possible results the lowest Because of the role of government and practitioners environment that has not been Socialized about the dangerous use of disposable diapers as well as the benefits big use of cloth diapers for parents and the environment [9], so that factors This becomes determinant attitudes and behaviour, someone, including student prospective biology teacher UMRAH.

In addition, all statements given to students were good responses to other green technology products that were asked about. The results show that student UMRAH's prospective biology teachers have responded well to the existing green technology products that have been circulating since this. This result is expected to become a runway for students to cultivate sensitivity and concern for the environment as well as contribute positively to creating a sustainable environment [10].

## 4 Conclusion

Based on the results of the research and discussion that has been explained, it can concluded that students of UMRAH's prospective biology teachers have good behavior toward the existence of green technology products. Research results This is expected to become a runway for teachers and lecturers To develop a curriculum or a learning process that focuses

on aspects of the environment in order to be able to increase awareness and concern for the environment.

## References

1. S. Shan, S. Y. Genç, H. W. Kamran, and G. Dinca, *J Environ Manage* **294**, (2021)
2. A. Nawir, S. Syamsuddin, and J. Jusniaty, *DEMOKRASI* **1**, (2022)
3. I. Desti, *Jurnal Sains Edukatika Indonesia* **4**, (2022)
4. D. S. Nugroho, F. N. Murti, M. D. Rivero, M. Noviandy, S. N. Trisaid, A. T. Purwandari, S. B. Ismoyo, and N. Parwati, *JURNAL AI-AZHAR INDONESIA SERI SAINS DAN TEKNOLOGI* **4**, (2018)
5. A. Fernando and D. Sarkity, in *BIO Web Conf* (2023)
6. D. Martilova, N. L. Sari, N. Nurrahmawati, N. Listari, S. Saputriyani, and N. L. Syahrani, *Kesejahteraan Bersama: Jurnal Pengabdian Dan Keberlanjutan Masyarakat* **1**, 146 (2024)
7. B. Shen, C. Zhu, Q. Li, and X. Wang, *Int J Prod Res* **59**, (2021)
8. A. Hassoun, A. E. D. Bekhit, A. R. Jambrak, J. M. Regenstein, F. Chemat, J. D. Morton, M. Gudjónsdóttir, M. Carpena, M. A. Prieto, P. Varela, R. N. Arshad, R. M. Aadil, Z. Bhat, and Ø. Ueland, *Crit Rev Food Sci Nutr* **64**, (2024)
9. R. D. Astuti, W. S. Jatiningrum, and S. Sumargiyani, *JISI: Jurnal Integrasi Sistem Industri* **11**, 177 (2024)
10. D. K. Harjoko, *JourHarjoko*, D. K. (2013). Analisis Sikap Konsumen Terhadap Produk Ramah Lingkungan (Green Product) Dan Produk Tidak Ramah Lingkungan (Non Green Product). *Journal of Chemical Information and Modeling*, 53(9), 1689–1699. *Nal of Chemical Information and Model* **53**, (2013)