

## Environmental Awareness and the Use of Disposable Plastic

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**Abstract:** Disposable plastic pollution has become one of the biggest environmental issues. It is evident that single-use plastic products are cheap, versatile, lightweight, resistant, easily available everywhere, which has made them very popular among people around the globe.

However, in many countries, single-use plastic shopping bags are the main source of rubbish, causing pollution impacting the environment and biodiversity. Although a lot of people understand harmful effects of plastic pollution, most people still keep using single-use plastic products. Due to these problems, our study aims to 1) understand the relationship between awareness about plastic pollution and the use of disposable plastic products, 2) explore students' behaviors, knowledge, and awareness in reducing global warming caused by the overuse of plastic products, 3) observe the students' attitude toward the impacts of disposable plastic pollution, and 4) raise participants' awareness about environmental issues among a group of Thai high school students. Data were collected using a questionnaire asking about participants' global warming knowledge, behaviors, and opinions about plastic usage. Survey samples, including Triamudomsuksanomklao students, were randomly selected through a random sampling method with a total of 307 students (100 males, 182 females, and 25 others). The majority of participants understood how harmful plastic pollution is to the environment. Our results revealed that participants' knowledge and awareness were at high levels. Nevertheless, statistical analyses showed that there is a significant correlation between the level of awareness about plastic pollution and behavioral change, i.e. trying to avoid and reduce the use of one-time plastic bags or stop using plastic straws.

**Keywords:** high school students, awareness, single-use plastic, plastic pollution, global warming, disposable plastics

### Introduction

Wrapping and fast-moving consumer goods (FMCGs) made of single-use plastics are the major contributing factors segment of the plastic economy (Laville, 2019). Plastic is tremendously detrimental to the environment and single-use plastics contribute up to forty percent of the annual plastic use (Parker, 2019). The process of creating plastics also negatively affects the ecosystem as a whole since chemicals such as carcinogenic, neurotoxic, and hormone-disruptive are used in the production of plastics.

One way or another, within the realm of possibility; poster advertisements, environmental campaigners within the community, local podcasts, or even a click-bait on youtube video could possibly spark a sense of environmental awareness inside a person's mind and heart. The perception that plastic accumulation is a contributing factor to environmental problems and detrimental climate change is well-known among humanity. Still, why do we constantly spot the use of single-plastic such as plastic straw and plastic bottles in everyday life? The main goal of the research is to observe and discern the relationships between environmental awareness and the use of single-use plastics. Another purpose is to raise participants' awareness about the environmental issues along with reinforcing participants' behaviors to decrease their use of disposable plastics. The hypothesis of such research is "those aware of environmental issues would utilize less single-use plastics."

### Conceptual Framework

More environmental awareness -> less use of disposable plastics

Problem statement

The targeted population is the students from grades 10 to 12 from Triamudomsuksanomklao school, which are a group of highschool teenagers. The previous research indicates that nursing students from the Royal Thai Army Nursing College possess a high awareness of the environmental issue and also have a behavior of using less disposable plastics, suggesting that the level of



environmental awareness is inversely proportional to the consumption of disposable plastics (Naiyapatana *Knowledge, Consciousness, and Behaviors in Reducing Global Warming of Nursing Students, the Royal Thai Army Nursing College*). Thus, in a similar manner, we desired to challenge the result by conducting a parallel research to observe the correlation between environmental awareness and the use of single-use plastics.

## Research questions

In order to acquire a profound understanding of the relationship between environmental awareness and the use of disposable plastic, the following questions will be addressed.

1. To what extent is it justified to use plastics? How many water bottles per day are considered as high levels of utilizing disposable plastics?
2. How would people with different levels of environmental awareness react to the over-priced environmental-friendly products?

## Review of Literatures

Although students have a high level of environmental awareness, these gains do not turn into active participation and lead them to environmental attitudes (Altim *et al.*, 2014). There is no significant Impact of environmental awareness among secondary schools. Finally the study of environmental awareness among secondary school students has moderate levels of awareness (Danya and Pankajim, 2017). It is also evident that the involvement of students is very much required to combat different environmental issues and problems to make the environment healthy and also to make a stable ecosystem for sustainable development (Medhi, 2018). Plastic pollution has been integrated into the school curriculum in technology, natural science, geography, life science, life skills and life orientation subjects. However, there was a lack of integration of management practices for plastic littering, especially in secondary school. (Dalu *et al.*, 2020). Pro-environmental behaviors need a suitable environment in order to be enforced and practiced. Municipality should as well provide a better recycling environment and firm regulations to reduce this ever-growing problem (Mohammad and Eman, 2017). Nursing students have a moderate (61.53%) knowledge of global warming (Naiyapatana, 2013).

## Methodology

A questionnaire contained 21 general questions and was designed to capture some of the main dimensions of the relationship between environmental awareness and single plastic-use in Central Thailand. It was anonymously conducted as an online survey sent to high school students. A survey consisted of 4 organized sections representing general information of respondents, environmental awareness, plastic dilemma, and influence of plastic in daily life.

In terms of sampling procedure, a convenience sampling method was taken in this study.

Initial participants were 222 students from one particular school in order to test a hypothesis about the characteristics of a population. Sampling included all students in grades 10th to 12th. Respondents were given approximately 5 minutes to fill in the survey blindly, and 307 responses were collected for data analysis. Each statement was measured on a scale of 1 to 5. Our questionnaire contained multiple choices with Likert-type scale answers that allowed the respondents to express how much they agree or disagree with a particular statement or how frequency, importance, and likelihood, ranging from “very low” to “very high” scales. Questions that had Item-Objective Congruence (IOC) scores higher than or equal to 0.5 were inspected and revised by three specialists. Finally, the reliability of the questionnaires was determined using Cronbach's alpha to ensure that the survey results were reliable and the Cronbach's alpha value must be at least 0.8.

## Instruments

The following questions were sent to participants to collect the survey data.

1. What is your gender?
2. What is your highest education level?
3. What is your parents' monthly salary?
4. Are you aware of the drawbacks of the use of disposable plastics in the environment?
5. Are you actively aware of how much plastic you use on a regular basis?



6. How often do you avoid using single-use plastics because of their impact on the environment?
7. How often do you avoid using single-use plastic bottles? I.e. bring your own bottles.
8. How often do you take your own reusable bags when going shopping?
9. How often do you separate the waste?
10. How often do you recycle?
11. How much would you rate the necessity of single-use plastics in your daily life?
12. How often do you participate to support the less use of disposable plastic?
13. How many plastic bottles do you use each day?
14. Except for the use of plastic bottles, how often do you use other disposable plastic products?
15. If the prevention of utilizing disposable plastics brings an inconvenience lifestyle, are you willing to sacrifice?
16. If the environmental-friendly products are more expensive than disposable plastic products, are you willing to sacrifice?
17. How much would you rate the importance of single-use plastics?
18. Is it necessary to switch from using disposable plastics to environmental-friendly alternatives?
19. How much do the environmental-friendly products influence your decisions when shopping?
20. If a business that you frequent stopped providing single-use materials, how likely would you be to stop patronizing the business?

**Results and Discussion**

**Table 1.** The number and percentage of samples regarding participants’ personal information: gender, educational level, and average income. (N = 307)

Personal information	Number of participants	Percentage
<b>Gender</b>		
Male	100	32.6
Female	182	59.3
LGBTQ+	25	8.1
<b>Total</b>	307	100
<b>Educational Level</b>		
Grade 10th	88	28.7
Grade 11th	109	35.5
Grade 12th	110	35.8
<b>Total</b>	307	100
<b>Average Income</b>		
< 25,000 THB	30	9.8
25,000 - 50,000 THB	132	43
> 50,000 THB	145	47.2
<b>Total</b>	307	100

According to Table 1, the majority of samples was female, consisting of 182 people, accounting for 59.3%. Most of the respondents studied in grade 12th, consisting of 110 people, accounting for 35.8% and their parents had average income about more than THB50,000 per month, consisting of 145 people, accounting for 47.2%.

**Table 2.** Pearson’s correlation coefficients among the following variables: environmental awareness, plastic usage, and influence of plastic in goods and services decisions.

Variable	1	2	3
1. Awareness	-	.248**	.221**
2. Usage	.248**	-	.216**
3. Influence of plastic	.221**	.216**	-

\*\*p < 0.01



Table 2 indicated the Pearson Correlation coefficients among all three variables. At the significant level of 0.01, plastic usage and environmental awareness had a Pearson's correlation coefficient of 0.248. Meanwhile, plastic usage and influence of plastic in goods and services decisions had a Pearson's correlation coefficient of 0.216. Influence of plastic in goods and services decisions and environmental awareness had a Pearson's correlation coefficient of 0.221. These data suggested that the common sense of environment protection could be related to the limited use of disposable plastic products. However, the importance of plastic use in everyday life could potentially increase the usage, which might be detrimental to the environment. Thus, our data revealed a dilemma about participants' awareness of plastic use and their use of plastic in daily life due to its impact (influence).

## Conclusion

Our study revealed that high school students tend to use plastic bags and products less frequently if they are aware of the damaging effects of plastic. This indicates that teenagers and high school students are aware of the effect of non-reusable plastic products which can harm the environment. This might be a good sign, since our world is majorly affected by a rapid accumulation of plastic wastes. Our results support the hypothesis that individuals with high levels of environmental awareness tend to use plastic less often. In the future, we could extend our study to a larger scale and implement these new studies to educate the public or to enact a law to protect our environment.

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