The Effect of Awareness and Needs on Behavior towards Plastic Waste Management of Students at Department of Management Studies, Yangon University of Economics

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Abstract

The main objective of this study is to analyze the effect of awareness and needs on behavior towards plastic waste management of students at Department of Management Studies, Yangon University of Economics. A sample of 282 respondents out of 598 students from all programs of Department of Management Studies are selected by simple random sampling method. This study applied both descriptive statistics and regression analysis as methods to analyze the data. The results indicated that all respondents have demonstrated high level of awareness needs and behavior towards plastic waste management. According to multiple regression, students' awareness is statistically significant on behavior of plastic waste management. Hence, students' awareness has positive effect on students' behavior of plastic waste management. In addition, students' awareness has no effect on their needs. Based on the findings students' awareness obtained the highest value so that they are involved in plastic waste management. Furthermore, students have knowledge about plastic waste management and know how to preserve the environment. However, having such knowledge and knowing the requirements does not end there, but must be implemented as a behavior to become an action plan.

Keywords: Plastic Waste Management Awareness Need, Behavior.

Introduction

The intensification of the global discourse on environmental sustainability in recent years has led to an increased scrutiny of individual behaviors and choices, particularly within the domain of plastic waste management. This thesis is dedicated to exploring the nuanced dynamics of plastic usage among management students at Yangon University of Economics, acknowledging their diverse behaviors shaped by situational contexts. Despite possessing adequate knowledge about biodegradable plastics, the cohort's responses indicate a complex interplay between awareness and behavioral patterns, especially in adhering to established rules for plastic waste selection.

A distinct aspect emerges within the cohort, with management students assuming a pivotal role characterized by an intricate scrutiny of details related to plastic use. Notably, their preference for bioplastics, even when faced with higher costs, underscores a heightened commitment to sustainable choices. However, a prevalent challenge persists among management students—they grapple with significantly reducing the usage of conventionally prevalent plastics.

Recognizing the gravity of this challenge, the thesis advocates for the formulation and enforcement of specific legislative measures by the state. The imperative lies in augmenting individual efforts toward sustainable plastic waste management. Moreover, the thesis highlights the paramount need for the development of a sustainable plastic waste management system. This system, beyond being effectively organized, should incorporate robust educational initiatives aimed at management students. The objective is to foster a deeper understanding of the

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importance of sustainable practices, not only for individual well-being but also for broader societal and environmental health.

It concludes with key definitions crucial for understanding the study, including bioplastic, biodegradable plastic, plastic waste, and plastic waste management. The concepts of awareness, needs, and behavior are outlined, emphasizing their pivotal roles in shaping individuals' responses to plastic waste management challenges. This sets the stage for the subsequent exploration of management students' dynamics within the overarching discourse on sustainable practices within academic communities.

Bioplastic are plastic produced from renewable biomass sources, such as vegetable facts and oils, maize starch, straw, wood chips, sawdust, recycled food waste, etc.

Biodegradable Plastic Plastic material that can undergo physical, biological decomposition so that it ultimately decomposes into carbondioxide (CO_2), biomass and water, and is, in accordance with European packaging standards, recoverable through composting and anaerobic digestion.

Plastic material consisting of a polymer, to which additives or other substances may have been added, and which may function as the main structural component of final products, except for natural polymers which have not been chemically modified.

Plastic waste refers to discarded, non-biodegradable materials made from polymers like polyethylene, etc., often causing environmental pollution when improperly disposed.

Plastic Waste Management involves various approaches like recycling, reduction, and proper disposal to mitigate its environmental impact.

Awareness refers to having a conscious understanding or knowledge about particular topic, issue or situation. It involves being mindful, informed, and cognizant of various aspects, allowing individuals to make informed decisions or take appropriate actions based on the information or understanding they possess.

Needs encompass the essential or fundamental requirements essential for an individual's survival, well-being, or fulfillment. These can range from basic necessities like food, shelter, and clothing to more complex needs such as emotional support, security, belonging, and self-fulfillment. Needs are the core elements necessary for a person's physical, psychological, and emotional welfare.

Behavior refers to the actions, reactions, or conduct exhibited by individuals, organisms, or systems in response to internal or external stimuli. It encompasses a wide range of actions, from physical movements to psychological responses, reflecting an individual's thoughts, emotions, or interactions within a given environment. Behavior can be influenced by various factors such as genetics, environment, past experiences, or societal norms.

Rationale of the Study

The rationale for this study lies in the transformative role of plastic in society's evolution, revolutionizing daily lives and contributing to practicality, convenience, and safety across various sectors. Plastic's historical trajectory, as seen in old films, reflects a marked shift in population habits and materials. In the past, devices were heavier and more robust, crafted from materials like glass, wood, or metals, with a lifespan spanning generations. However, the literature underscores a significant increase in the use of plastics, leading to a shift in societal habits.

As society rapidly embraced plastic applications, a disparity emerged between the speed of habit changes and the durability of plastics. This disjunction gave rise to serious issues,

particularly the accumulation of plastic waste. In response, global public policies aimed at controlling this problem were instituted, varying in engagement levels and encompassing initiatives to raise awareness about the consumption and disposal of post-used plastics. Ineffectual disposal of these residues exacerbates environmental problems, posing socio-environmental challenges and adversely impacting public health.

The intensification of the global discourse on environmental sustainability underscores the imperative to scrutinize individual behaviors and choices, particularly in the domain of plastic waste management. This thesis responds to this imperative by delving into the intricate dynamics guiding the choices made by management students at Yangon University of Economics during the 2022-2023 academic year. The study focuses on understanding how these management students navigate and respond to the environmental impact of plastic in their daily lives. This exploration is grounded in the broader context of heightened global awareness and concern regarding the environmental consequences of plastic use, making it a timely and relevant area of investigation.

Objectives of the Study

1. To analyze the effect of awareness and needs on behavior towards plastic waste management of students at Department of Management Studies, Yangon University of Economics.

Scope and Method of the Study

This study is limited to the students at Department of Management Studies, Yangon University of Economics. The focus is specifically on their awareness, behaviors and challenges concerning plastic waste management. The research employs a quantitative approach, utilizing surveys to gather in depth insights into awareness, needs, and behaviors of management students. The sample size is 315 of 598 students by using Raosoft sample size calculator, and simple random sampling method with 5% margin of error, 99% confidence interval, and response distribution (50%). However, complete data are collected from only 282 students. The response rate is 282/315 x 100 = 89.5%. Data collection methods use online survey and questionnaire survey. The study also delves into existing literature, providing a comprehensive foundation for the exploration of plastic waste management dynamics. Through this approach, the research aims to derive valuable insights contributing to the ongoing discourse on sustainable practices within academic communities.

Theoretical Background

Theories and Concepts

The exploration of theories and concepts related to plastic waste management reveals a global scholarly focus on understanding the complexities of this issue. Researchers worldwide are actively contributing insights into knowledge, needs, attitudes, behavior, and awareness to enhance students' environmental education.

Environmental science students demonstrate superior knowledge and behavior compared to social science students, possibly due to more comprehensive curricula coverage. Studies, such as that by Situmorang et al., emphasize the positive impact of environmental education at the undergraduate level in increasing students' awareness of plastic waste problems. This suggests that enhancing students' awareness through educational initiatives is a potential solution to addressing plastic waste issues.

Research by Harman and Yenikalayci highlights students' awareness of the effects of educational activities on plastic recovery, reuse, recycling, and zero-waste practices. Uehara et

al.'s findings indicate that learning the rules of plastic waste separation leads to improved separation behavior among campus students. Bennett et al. argue for the importance of educating students about plastic recycling to equip them with the knowledge and skills for future consumer roles and professional implementation of recycling systems.

Studies on students' plastic waste sorting intentions, such as Aikowe and Mazancova's, underscore the influence of factors like environmental awareness, volunteering, and study programs in shaping these intentions. The global nature of the plastic waste problem is evident as students worldwide grapple with similar challenges. Owojori et al. identify weaknesses in students' knowledge of waste management in South Africa, suggesting a need for motivation, potentially through economic incentives, to enhance participation in recycling projects.

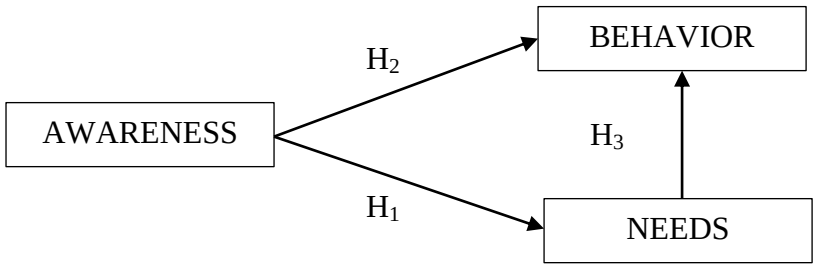
Surveys conducted by Kaushik Dowarahey et al. in India and Qu et al. at the Henan Institute in China assess students' awareness, attitudes, behaviors, and opinions regarding plastic and microplastic pollution and waste separation, respectively. These studies emphasize the role of knowledge in influencing students' behavior. Ilic-Zivojinovic et al. delve into medical students' behavior and attitudes concerning waste, contributing to the broader understanding of waste management education.

Education emerges as a pivotal factor in shaping consumer behavior and attitudes toward plastic waste, as noted by Singh Chachan and Punia. Sandu et al. advocate for educating society about plastic waste, emphasizing the importance of awareness and appropriate actions to motivate environmental responsibility. The intersection of environmental sustainability and plastic waste management is recognized as a critical concern for academics and students, positioning universities as key players in fostering a sustainable society, as highlighted by Dagiliute and Liobikiene and Fissi et al., who explore the concept of a "green university." This comprehensive literature review sets the stage for understanding the multifaceted dimensions of plastic waste management and the role of education in addressing this global challenge.

Empirical Study

The conceptual framework of previous paper is shown in Figure (1).

Figure (1) Conceptual Framework of the Previous Study

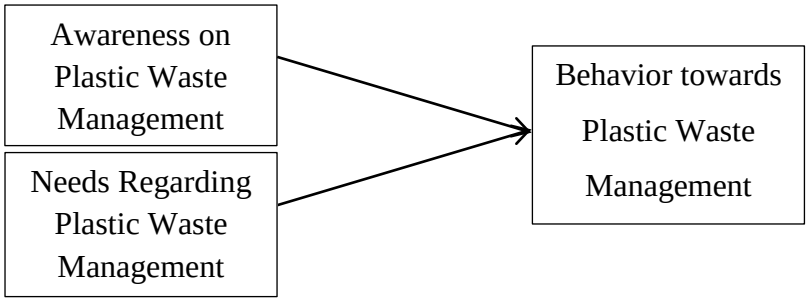


Source: Boca and Sinan Saracli, 2023

In the previous study, researchers determine the dimensions of students' behavior and identified students' needs and awareness about plastic waste and bioplastic in Romania.

Conceptual Framework of the Study

The conceptual framework of the study is shown in Figure (2).



Source: Own Compilation Adapted to the Model of Boca and Sinan Saracli, 2023

Figure (2) Conceptual Framework of the Study

Sustainability Values of Yangon University of Economics

Yangon University of Economics often emphasize sustainability through various means like incorporating eco-friendly practices into campus operations, offering sustainability focused courses, conducting research on environmental issues, promoting green initiatives, reducing carbon footprint, and fostering a culture of environmental responsibility among students and stuff.

In practically, planting grass inside the Padamyar campus, systematic planting or Thapyae Buta trees, collecting and disposing of waste plastic in a systematic manner, collecting leaves and twigs as manure without fire, opening programs that will benefit the environment in the long term, such as MSESI, conduct research, plans are being made to continuously encourage students and teachers and staff to become people who care about the environment.

Plastic Waste Management Attitude of Students from Yangon University of Economics

According to research findings, most students tend to participate in environmental and sustainable activities. It is understood that plastic items take a very long time to biodegrade. Students understand that bioplastics should be replaced as a suitable for single-use plastics in the future. The desire of most students is to buy and use bioplastic products even if there are expensive. Students see that the use of traditional plastic products causes pollution. Therefore, students often attend conferences related to nature conservation.

Mean Score Interpretation

Mean Score Interpretation developed by Landell (1997) & Najib (1994) is used in examining the respondent perception towards students' awarenss, needs and behavior, which is shown in Table (1).

Table (1) Mean Score Interpretation

Total Mean Score	**Level**
1.00 – 2.33	Low
2.34 – 3.67	Moderate
3.68 – 5.00	High

Source: Landell (1997) & Najib (1994)

Analysis on Awareness of Students towards Plastic Waste Management

Table (2) Students' Awareness Regarding Plastic Waste Management

Sr. No.	Item for Awareness	Mean Value	Standard Deviation
1	Preferring products that are less harmful to nature.	4.17	.990
2	Using low-damage objects such as paper and glass.	3.87	.805
3	Recognizing the recycling logos ♺ on the products.	4.06	.866
4	Preferring the products obtained from the bioplastics industry because they are renewable.	3.93	.809
5	Preferring to avoid products that increase global warming.	4.20	.790
6	Preferring bioplastic products because they do not harm nature when they decompose.	4.01	.798
7	Preferring bioplastic products as they do not harm human health when degraded.	3.95	.825
8	Preferring bioplastic products because they degrade earlier in nature.	3.93	.758
Overall Mean Value		4.02	0.62

Source: Survey data (2023)

Table (2) shows the students' perception of awareness regarding plastic waste management. In terms of students' awareness, since the students are realizing themselves having good qualities and feeling satisfied with their awareness, it is observed that the students have the same awareness about plastic waste management. The highest mean score is 4.02 for the statement that "I prefer to avoid products that increase global warming." because plastic waste takes a long time to decompose and demages the environment. Consequently, it is found that students' perception is high awareness about plastic waste management.

Analysis on Needs of Students towards Plastic Waste Management

Table (3) Students' Needs Regarding Plastic Waste Management

Sr.No.	Item for Need	Mean Value	Standard Deviation
1	Being like to get new information about the use of bioplastic (i.e. bio-based plastic produced from renewable biomass sources) products.	3.98	.850
2	Bioplastics should replace conventional (single used) plastic in the future.	4.09	.830
3	Thinking that studies on the pollution of traditional plastic products should be increased.	3.85	.976
4	Thinking that bioplastics should be used in mass social events, involving large numbers of people.	3.84	.994
5	Thinking that bioplastics should be used in takeaway/disposable products.	3.87	.957
Overall Mean Value		3.93	0.73

Source: Survey data (2023)

Table (3) shows students' perception or needs regarding plastic waste management. According to results, in terms of individual attitude, the students have the knowledge about conventional plastic in the future so that they would like to replace with plastics in the future.

Analysis on Behavior of Students towards Plastic Waste Management

Table (4) Students' Behaviour Regarding Plastic Waste Management

Sr. No.	Item for Behavior	Mean Value	Standard Deviation
1	Buying bioplastic products, even if they are more expensive.	3.49	.806
2	When seeing plastic being burned, thinking it will cause air pollution.	3.78	.847
3	Using recycled bags for my grocery shopping.	3.79	.867
4	Making an effort to use a small number of bags in my daily life.	3.96	.804
5	Not throwing plastic products into nature.	3.96	.872
6	Throwing the recycling products into the relevant boxes.	3.82	.833
7	Using mesh/cloth/paper bags instead of using disposable bags while shopping.	3.73	.848
8	Informing the people around me about the use of bioplastic products.	3.66	.794
9	When seeing plastic in the green area, will clean it from there.	3.92	.783
Overall Mean Value		3.79	0.59

Source: Survey data (2023)

As shown in Table (4), the overall mean of students' behavior regarding plastic waste management is 3.79. It shows that the most students not only try to reduce the use of plastic bags as much as possible in their daily lives, but also do not throw away plastic products easily. Students' behavior is only 3.79, so many actions are needed to encourage plastic waste management. It is clearly seen that not only education but also implementation is needed.

Analysis on Effect of Awareness and Needs on Behavior of Students towards Plastic Waste Management

Table (5) Effect of Students' Awarebess and Needs on Behaviour

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.361	.185	-	7.351	.000
Awareness	.642***	.057	.668	11.285	.000
Needs	-.039	.048	-.048	-.808	.420
R	.639[a]				
R Square	.409				
F - value	96.366***				

a. Dependent Variable: Behaviour

*** = significant at 1% level

Source: Survey data (2023)

According to Table (4.7), this model explains, that the dependent variable, behavior changes depending on the independent variable awareness and needs. Therefore, it was found that only awareness has a significant effect on behavor. It can be seen from the research that awareness is statistically sinificant at the 1% level, indicating effect on behavior. It means that as awareness on plastic waste management tend to increase, behavior towards plastic waste management increases. Because as soon as the students have the awareness and the knowledge, skills and respective requirements about plastic waste management, students will have a better and unique awareness for that thing.

Conclusion

Findings and Discussions

The main purposes of this study are to analyze on the effect of awareness and needs on behavior of students towards plastic waste management at Department of Management Studies, Yangon University of Economics.

The results obtained after filling and the questionnaire led to the creation of the new model and identifying common elements of students' awareness and students' needs regarding plastic waste for other studies, students' awareness obtained the highest value so they are involved in waste plastic waste management.

Students also verified the influence of the opinion questions, in this case most students think themselves as environmentalists. Then 219 students take part in environmental and sustainable activities organized within the program. After that, 275 students know that petroleum product (plastic) takes a long time to biodegrade. In practically, depending on a results of Mean value, students perception of awareness to more valuable than need and behavior.

According to the result, if the students have awareness of plastic waste management, students will change their behavior. Therefore, those who will support needs, the people who will lead for the needs are still assigned to the teams. It will be implemented until there are needs.

Suggestions

From the result of the study, students have knowledge about plastic waste management and know how to preserve the environment. However, having such knowledge and knowing the requirements does not end there, but must be implemented as a behavior to become an action plan.

According to the study, awareness on plastic waste management has a significant effect on behavior towards plastic waste management. Consequently, educational programs related to plastic waste management to raise awareness, giving workshops from experts, and distribution of pamphlets should be done continuously to keep students informed. In order to reduce the use of plastic in the societes around students, and provide examples of recycling plastic substitutes, it should be done more continuously.

Limitations and Needs for Further Research

In this study it was found that only two variables such as awareness and needs influencing behavior were used. If there are other variables that influence behavior, the research should be extended. In addition, this data had collection been only collected from management students, data collection should be inclusive of all students across Yangon University of Economics. In addition, business organizations should be surveyed to gain awareness about plastic waste management. Company employees should be distributed questionnaires and gained more awareness about plastic waste management.

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References

Aikowe, L.D.; Mazancova, J. Plastic Waste Sorting Intentions among University Students. *Sustainability* 2021, *13*, 7526. [CrossRef]

Ana G.R., Oyenibi A. Oluseyi, Hammed T. B. "Novel Methods of Plastic Waste Management among Students of Secondary Schools in Ibadan, Nigeria.

Babayemi, J. O.; Nnorom, I. C.; Osibanjo, O.; Weber, R. Ensuring Sustainability in Plastic Use in Africa: Consumption, Waste Generation, and Projections. *Environ, Sci. Eur.* 2019, *31*, 60. [CrossRef]

Bennett, E.M.; Alexandridis, P. Informing the Public and Educating Students on Plastic Recycling. *Reclyling* 2021, *6*, *69*. [CrossRef]

Islam, M.T.; Dias, P.; Huda, N. Young consumers' e-waste awareness, consumption, disposal, and recycling behavior: A case study of university students in Sydney, Australia. *J. Clean. Prod.* 2021, *282*, 124490. [CrossRef]

Legea anti-plastic-Mai bine pentru mediu, mai provocator pentru firme. Available online: http://www3.deloitte.com/ro/ro/pages/tax/articles/legea-anti-plastic-mai-bine-pentru-mediu-mai-provocator-pentru-firme.html (Accessed on 16 February 2023.

NewsWaste Recycling — European Environment Agency. Plastic Waste and Recycling in the EU: Facts and Figures.Availableonline:https://www.europarl.europa.eu/news/en/headlines/society/2018212STO21610/plastic-waste-and-recycling-in-the-eu-facts-and-figures (accessed on 1 February 2023).

Peng, Y.; Wu, P.; Schartup, A.T.; Zhang, Y. Plastic Waste Release Caused by COVID-19 and its Fate in the Global Ocean. *Proc. Nat! Acad. Sci. USA* 2021, *118*, 32111530:18. [CrossRef]

Plastic Waste and Recycling in the EU: Facts and Figures. Available online: http://www.europarl.europa.eu/news/ro/headlines/society/2018212STO21610/deseurile-din-plastic-si-reciclarea-in-ue-in-cifre (Accessed on 13 February 2023).

Prasetiawan, T.; Wasisto, A. Students' Perceptions and Attitudes in Waste Management: The Role of Internet Literacy and Sustainability Programs. In Proceedings of the Second Asia Pacific International Conference on Industrial Engineering and Operations Management, Surakarta, Indonesia, 14-1b September 2021.