European Journal of Physical Education and Sport Science
ISSN: 2501 - 1235
ISSN-L: 2501 - 1235
Available on-line at: www.oapub.org/edu

DOI: 10.46827/ejpe.v12i4.5955 Volume 12 | Issue 4 | 2025

DISASTER RISK KNOWLEDGE AND RECYCLING PRACTICES AMONG SELECTED STUDENTS IN THE UNIVERSITY OF MINDANAO, PHILIPPINES

Waylin, Catubig G.[1],
Jayme, Prim Rose S.[1],
Parafina, Nicolas[1],
Galaura, Lenziel L.[2i]
[1]Student,
College of Teacher Education,
University of Mindanao,
Main Davao City,
Philippines
[2]EdD, Professor,
College of Teacher Education,
University of Mindanao
Main Davao City,
Philippines

Abstract:
This study aims to evaluate the knowledge and awareness concerning resilience in disaster risk reduction and recycling practices among CTE students at the University of Mindanao. A descriptive method with the goal of gathering quantifiable data for use in the statistical analysis of the population sample is a well-known method for conducting market research that enables gathering and describing demographic information (Bhat, 2023). The data gathered for this study came from the total number of 350 CTE students enrolled in the school year 2023-2024. It was gathered using a correlational research design with a convenience sampling method. In interpreting the data, Spearman was utilized to determine the significant relationship between the two variables. The study found that there is a significant relationship between disaster risk reduction knowledge and the recycling practices of CTE students. This implies that students have a higher knowledge in terms of disaster risk reduction knowledge and recycling practices.

SDG Indicator: #3 (Good Health and Well-being)

Keywords: knowledge in DRR and recycling practices, CTE students, Philippines

[i] Correspondence: email lenziel02141977@gmail.com

1. Introduction and Review of Literature

Recycling practices are essential to tackling the growing problem of solid waste generation on a worldwide basis (Ta *et al.*, 2023). Although the goals of sustainable consumption and recycling are to decrease material waste, there are still obstacles to overcome to properly implement recycling (Adeel Shah, 2021). Singapore has been aggressively pursuing zero-waste initiatives by implementing a range of regulations and techniques (Jolene *et al.*, 2022). Bring Your Own Bottle (BYOB) campaigns were implemented in Singapore, where they resulted in considerable reductions in trash and plastic bag consumption, with an improvement in recycling rates of 53.4% (Jolene *et al.*, 2022). Abdulmalek *et al.* (2021) assert that knowledge, awareness, and education are crucial elements that impact individuals' recycling practices. Effectiveness, efficiency, transparency, and community involvement are also critical components of Singapore's excellent governance, which is why recycling programs must succeed there.

Thus, recycling practices are one of the feasible techniques to minimize solid waste throwing directly into landfills; yet recycling behaviors among the general public are poor, which is why many rural areas are struggling to minimize public waste (Ghaedrahmati *et al.*, 2022). In addition, the moral obligation and responsibility to participate in the separation and disposal of household waste are positively correlated with the attitude toward recycling practices, but in order to achieve this, an individual's prior beliefs on the matter of recycling are required, placing the person in a position to advocate for or oppose the actual practice. In this regard, willingness to be involved in recycling practices, environmental awareness, and social activities is influenced by issues such as responsibility (Jo, Gondim, *et al.*, 2023).

Furthermore, disaster risks are increasing in many countries, with more terrible outcomes compounded by climate change. Bang (2023) states that scientific evidence suggests that the ferocity, frequency, and duration of climate threats will continue to rise if the current trend of insufficient action is not reversed. In response to RA 10121, which mandates that all national government entities implement and expand the Disaster Risk Reduction Knowledge (DRRM) rules, programs, structures, and coordination methods enacted to support and strengthen its DRRM system and implement a proactive disaster response strategy to help and save lives if the disaster happens (Lapada, 2022). Hence, the integration of disaster risk reduction knowledge and recycling practices can enhance community resilience, environmental protection, and sustainability in disaster-resilient construction (Gumasing & Sobrevilla, 2023).

The study is anchored to the Norm Activation Theory of Schwartz (1997), which states that individuals are influenced to recycle when they have knowledge about the environmental impact of waste. Their moral obligation to recycle, individual responsibility, their emotions such as empathy and guilt, and their belief in the effectiveness of recycling are compounded in the said theory. By addressing these factors, such as increasing knowledge and cultivating a feeling of responsibility, emphasizing the effectiveness of recycling, and evoking emotional responses, recycling programs and

campaigns can effectively activate personal norms and encourage greater participation in recycling practices at home. Klöckner (2013) states that the theory of planned behavior (Ajzen, 1991) and norm activation theory (Schwartz, 1977) are the two most often used theoretical frameworks for determining what drives disaster risk reduction and recycling behavior. Whitmarsh, Haggar, and Thomas (2018) used the Theory of Planned Behavior by Azjen (TPB). Which is made up of the following constructs: attitude, social norm, and perceived behavior control, as well as identity, personal norms, and recycling information to predict recycling behavior in home, work, and holiday settings. The Theory of Bandura supports the NAT and TPB; it defines self-efficacy theory as individuals' beliefs in their ability to successfully accomplish activities. It highlights the significance of mastery experiences, vicarious learning, social persuasion, and physiological responses in forming individuals' self-beliefs and influencing their actions (Michael & Gearheart, 2023). Our findings stick to the NAT and TPB in terms of the link between Norm Activation theory and Theory Planned Behavior (TPB), which lies in the incorporation of self-participation and knowledge in disaster risk reduction and recycling practices.

The significance of the study is that it helps to mitigate the impact of disasters by raising understanding and knowledge and implementing strategies to reduce vulnerability. The result of this study could aid the needs of the students and school to participate in sustainable development in our country, and the study also promotes sustainable practices by encouraging recycling and minimizing waste, which contributes to environmental conservation. The beneficiaries of this study are the instructors, students, readers, and future researchers.

This research study aims to ascertain the level of disaster risk reduction knowledge according to disaster preparedness and readiness, disaster adaptation, disaster awareness, disaster risk perception, and disaster-related knowledge, and the level of recycling practices according to knowledge about recycling, awareness about recycling, and recycling practices. Additionally, it seeks to determine the significant relationship between disaster risk reduction and recycling practices. Through this examination, the study provides an understanding of how disaster risk reduction knowledge and recycling practices are important for long-term sustainability. Deepening their knowledge can have the potential to reduce home waste while increasing the country's recycling rate. This research aims to place emphasis on long-term sustainability by gaining knowledge about disaster reduction and recycling practices. Combining these fields could provide valuable insights into sustainable disaster and recycling management strategies.

The study emphasizes the lack of investigation concerning knowledge of disaster risk reduction and recycling practices among the students at the University. While other studies intersect the distinctions between positive behavior, recycling practices, and habitual practices, there remains a noticeable gap in intersecting disaster risk and recycling practices into long-term sustainability. In addition, addressing the gaps could

aid the need for long-term sustainability for future generations (Knussen, 2008; Saphores & Nixon, 2014).

2. Method

2.1 Research Participants

The respondents of this study are currently enrolled students at the University of Mindanao, College of Teacher Education (CTE) of the Second Semester of the School Year 2023-2024. Three hundred fifty (350) people have participated in this study survey through face-to-face. It is a good quantity because the larger the sample size, the more precise the average and the results will be. Larger sample sizes can allow researchers to spot outliers in data and provide narrower margins of error (Charles Worth Author Services, 2022). Convenience sampling is used as a sampling method. Convenience sampling chooses its sample members based on proximity to the researcher. Further, convenience sampling can be used in both qualitative and quantitative study (Obilor, Isaac, 2023). This is ideal for the study since it needs a large group of respondents and is appropriate for the goal of the study.

The inclusion of those who are currently enrolled in the College of Teacher Education. Thus, the students who are dropped and absent during the administration of the questionnaire are excluded. Moreover, when it comes to the withdrawal portion, the respondent can leave the study at any time.

2.2 Research Instrument

In this study, two survey questionnaires were adopted and modified for use in the collection of data, namely disaster risk reduction knowledge by Mamon *et al.* (2017) and Gasparin *et al.* (2023). The study revolves around eight indicators, namely: disaster-related knowledge (three items), disaster preparedness and readiness (five items), disaster adaptation (five items), disaster awareness (four items), and disaster risk perception (three items). On the other hand, the recycling practices by Gasparin *et al.* (2023), have three indicators, namely: knowledge about recycling eight items, awareness about recycling six items, and recycling practices six items.

The questionnaires underwent a validation phase, were validated by experts, and got a mean score of 4.71. After incorporating all the suggestions of the panel, a pilot test was validated by a Cronbach alpha for the disaster risk (.944) and for the recycling practices (.921), respectively.

The study used the following scale to identify the students' level of knowledge on disaster risk reduction and recycling practices: For the range of mean with 4.20–5.00 (very high), the students' knowledge and information are very well collected. With 3.40–4.19 (high), the students' knowledge and information are well collected. For 2.60–3.39 (moderate), the students' knowledge and information are moderately collected. With 1.80–2.59 (low), the students are somewhat uninformed and knowledgeable, and lastly, 1.00–1.79 (very low) means the students are not totally knowledgeable and informed.

2.3 Research Design and Procedures

A descriptive correlational research design was used in the study; it investigated relationships between variables without the researcher controlling or manipulating any of them. A correlation reflects the strength and/or direction of the relationship between two or more variables. The direction of a correlation can be either positive or negative (Bhandari, 2023). states that this type of research is appropriate since the study intends to see if there is a significant relationship between the two variables.

As the primary step in the study, the researchers wrote a letter of request to the deans, signed by the adviser, asking permission to conduct the study. Upon approval, the researchers administered the questionnaire to the identified respondents face-to-face. The data were then collected, tabulated, and submitted for statistical treatment using the mean, standard deviation, and t-test. After the data were treated statistically, a discussion of the findings and the formulation of its conclusion and recommendation followed.

3. Results and Discussion

This chapter contains the tabulated data and findings obtained from the respondents.

3.1 Level of Students' Knowledge in Disaster Risk Reduction

Table 1 presents the disaster risk reduction knowledge level among CTE students, including the indicators such as disaster-related knowledge, disaster preparedness and readiness, disaster adaptation, disaster awareness, and disaster risk perception.

Table 1: Level of Disaster Risk Reduction Knowledge

Indicators	Mean	SD
Disaster preparedness and readiness	4.19	.478
Disaster adaptation	4.17	.539
Disaster awareness	4.03	.622
Disaster risk perception	3.75	.837
Disaster-related knowledge	3.57	.710
Overall	**3.94**	**.504**

Table 1 shows the level of disaster risk reduction knowledge with an overall mean of 3.94 and a standard deviation of 0.504, indicating a “high” level of knowledge. This suggests that the students' knowledge and information regarding disaster risk reduction are well developed.

When analyzed, all five indicators received “high” ratings. However, disaster preparedness and readiness ranked first as it indicated as "high" with a mean score of 4.19 (sd=0.478), showing that student’s knowledge and information are well collected, while the lowest score was disaster-related knowledge, which was still considered "high" with a mean score of 3.57 (sd=0.710), also reflecting well-collected knowledge and information.

The result is supported by the study of Bang (2023), which states that understanding disasters helps society improve disaster risk reduction (DRR) skills, reducing their socioeconomic and cultural impacts. It also offers valuable insights for adapting to climate change (CC). It enables people to be aware of disaster risks and acquire the necessary skills, knowledge, and attitudes to cope with, resist, prepare for, or recover from disaster impacts. Additionally, Henry emphasizes that this knowledge motivates communities to act to reduce vulnerabilities to disaster risks. Students have ample knowledge of disaster risk reduction, especially in disaster awareness, which means that they are ready, aware, adapted, and prepared for the risks inflicted by disasters (Lapada, 2022). The students are aware of the location of their shelter areas, evacuation centers, and open spaces; they are confident that government institutions can aid during the disaster; they obtained sufficient information on disaster adaptation implemented by local government units and nongovernmental organizations; and they are aware of the evacuation system and plan of their locality (Mamon *et al.*, 2019).

Moreover, a willingness to learn about disaster risk reduction is a sign that students have a favorable attitude toward disaster preparedness. It suggests that a city or school needs to provide disaster planning instruction because of their appreciation of the importance of sharing information and personal knowledge regarding disasters. CTE students are equipped to handle any danger related to events. In addition, delivering high-quality instruction, training, conferences, and outreach initiatives aids in raising students' knowledge and readiness for artificial or natural disasters. Also, showing a positive result means that attitude and willingness towards disaster risk reduction were also significantly associated with their knowledge (Polistico *et al.*, 2024; Safa, 2023)

3.2 Level of Recycling Practices

Table 2 presents the level of recycling practices among CTE students. Including the indicators such as knowledge about recycling, awareness about recycling, and recycling practices

Table 2: Level of Recycling Practices

Indicators	**Mean**	**SD**
Knowledge about recycling	4.47	.402
Awareness about recycling	4.45	.426
Recycling practices	4.14	.562
Overall	**4.36**	**.347**

Table 2 shows the level of recycling practices with an overall mean of 4.36 and a standard deviation of 0.347, indicating a very high level. This suggests that the students' knowledge and information regarding recycling practices are very well developed.

When analyzed, all three indicators received “high” ratings. However, knowledge about recycling ranked first, as it indicated as "very high," with a mean score of 4.47 (sd=0.402), reflecting that students' knowledge and information are very well collected, while the lowest score was recycling practices, which was considered "high," with a mean

score of 4.14 (sd=0.562), indicating that the students' knowledge and information are well collected.

The study of Hussein (2022) showed that knowledge has a direct impact on recycling; this proves that increasing knowledge will enhance the behaviors of society. Furthermore, the result proved that different attitudes could work together toward a common goal, such as recycling management (Buil *et al.*, 2019). Based on the study of Aksan *et al.* (2019), the students' knowledge is high for recycling. It is thought that individuals with high knowledge of recycling will be more likely to show recycling behavior. From the moment an individual is aware of the consequences of his behavior and opts for friendly actions, such as recycling, which has good results, this individual tends to repeat such behavior responsibly and frequently. Thus, it is possible to infer that individual knowledge influences the habitual behavior of individuals. (Gondim *et al.*, 2023). The results of the study proved that the majority of CTE students had a deficient level of knowledge of recycling awareness and practices; they showed a significant increment in knowledge, practices, and awareness (Angelaki *et al.*, 2023). According to Madrigal (2019), the high scores for recycling practices among respondents indicate that they are highly aware of recycling, are knowledgeable about recycling, and have high recycling practices. These results also indicate that the respondents frequently exhibit these factors.

3.3 Correlation of Disaster Risk Reduction Knowledge and Recycling Practices

Table 3 shows a significant, but low positive relationship between disaster risk reduction knowledge and recycling practices among CTE students at the University of Mindanao, with a correlation of 0.401 ($p < 0.001$). This indicates a positive correlation that rejects the null hypothesis at a 0.001 level of significance.

Table 3: Correlation of Disaster Risk Reduction and Recycling Practices

Recycling Practices				
Disaster Risk Reduction Knowledge	**Knowledge about Recycling**	**Awareness about Recycling**	**Recycling Practices**	**Overall**
Disaster-risk knowledge	-.002	-.034	.320**	**.158****
Disaster preparedness and readiness	.372**	.331**	.350**	**.468****
Disaster adaptation	.268**	.276**	.461**	**.465****
Disaster awareness	.160**	.199**	.476**	**.400****
Disaster risk perception	.007	.010	.376**	**.209****
Overall	**.169****	**.165****	**.498****	**.401****

**p<0.05*

The outcome shows the relationship between disaster risk reduction and recycling practices; it implies a significant positive relationship with a low correlation. This means that disaster risk reduction and recycling practices are correlated among CTE students. In addition, improvements in recycling practices may not necessarily lead to significant reductions in disaster risks or vice versa. Several studies have shown that moral obligation and responsibility to participate in the separation and disposal of household waste are positively correlated with the attitude toward recycling practices, but in order to achieve this, an individual's prior beliefs on the matter of recycling are required. Willingness to be involved in recycling practices, environmental awareness, and social activities is influenced by issues such as responsibility (Jo, Gondim *et al.*, 2023).

Moreover, several studies confirm that the relationship between disaster risk reduction and recycling practices is crucial for understanding how positive recycling practices, such as awareness about recycling and knowledge about recycling, could help CTE students achieve long-term sustainability (Lapada, Aris, 2022). Further investigation found out that recycling practices are indeed important, especially in urban areas where most of the landfills are clogged due to the volume and not segregated waste disposal (Ghaedrahmati *et al.*, 2022). This study further supports the evidence presented that disaster risk reduction knowledge and recycling practices, despite attempts to raise people's understanding, skills, and sensitivity toward caring for the environment, there are uncertainties regarding the effectiveness of some of these programs in contributing to sustainability (Pilar *et al.*, 2019). By having a willingness to participate in recycling practices, we can make a huge impact on our society. By having knowledge of disaster risk reduction and recycling practices, we can create long-term sustainability (Jo, Gondim, *et al.*, 2023).

4. Conclusion and Recommendation

After a thorough analysis, the researchers established that the level of disaster risk reduction knowledge among selected students from the College of Teachers College is high, as well as the recycling practices. Thus, the findings show a relationship between disaster risk reduction and recycling practices, which implies a low positive correlation. This means there is some tendency for areas with better recycling practices to also have lower disaster risks, but the relationship between the two variables is weak. This means that improvements in recycling practices may not necessarily lead to significant reductions in disaster risks or vice versa.

Norm activation theory (Schwartz, 1997) supported the result of this study. This approach highlights that individuals are influenced to recycle when they have knowledge about the environmental impact of waste. Their moral obligation to recycle, individual responsibility, their emotions such as empathy and guilt, and their belief in the effectiveness of recycling. Furthermore, the supporting theories, such as the Theory of Planned Behavior (TBP) of Ajzens 1991 and Bandura's Self Efficacy Theory (1970), can provide insights into human behavior and decision-making in CTE students (Natasha *et*

al., 2022). The contribution of correct separation can increase the chances of decreasing the threat to human health (Doris Knickmeyer, 2019). Integrating these two principles into reality can lead to more holistic and effective approaches to disaster- resilience and recycling awareness. Overall, we reject our null hypothesis, as the result shows that they do have a significant correlation.

By understanding the potential risks posed by natural disasters and taking proactive measures to mitigate them, communities can safeguard their lives and livelihoods. Similarly, embracing recycling practices helps minimize waste, conserve resources, and reduce environmental pollution. Together, these efforts contribute to building resilient and eco-friendly societies. By integrating disaster risk reduction education with recycling initiatives, CTE students can foster a culture of sustainability, resilience, and environmental stewardship, ensuring a safer and more sustainable future for generations to come.

Based on the results, disaster-related knowledge got the lowest mean, and the researchers suggest that students need to be equipped with knowledge through conducting seminars and symposiums that will be included as part of their Dasig program. On the other hand, recycling practices also got the lowest mean, and researchers also suggest that recycling practices must be included in their household as part of their habitual practices. It can create a long-term solution to sustainability by preventing and mitigating disasters. Having disaster-related knowledge does not only guarantee resilience; it also builds awareness and self-mitigation that could help them lessen the effects of natural disasters. In addition, recycling practices could be beneficial for them towards sustainability, especially nowadays when waste production is higher and very widespread. Having knowledge of recycling practices and resilience in disaster risk reduction management could be beneficial to people and to the community.

Conflict of Interest Statement

The authors declare no conflicts of interest.

References

Abdulmalek, K., Badraddin, Rahimi, A., Rahman, Saud, Almutairi, Muneera, Esa (2021). Main challenges to concrete recycling in practice. *Sustainability, 13*(19). http://dx.doi.org/10.3390/su131911077

Adeel, S. (2021). Sustainable consumption and recycling practices. In book: *Sustainable Production and Consumption Systems* (pp.191-204). http://dx.doi.org/10.1007/978-981-16-4760-4_10

Aksan, Z. & Çelikler, D. & Yenikalaycı, N. (2019). The determination of the science teaching candidates' awareness about recycling. Retrieved from https://files.eric.ed.gov/fulltext/EJ1219358.pdf

Angelaki, F. Bersimis, T. K., Christos D. (2023). Exploring the awareness outcomes of educating ICT students on the environmental implications of e-waste recycling and energy consumption in data centers. Retrieved from https://ieeexplore.ieee.org/abstract/document/10327682/authors#authors

Bang, H. (2023). Strengthening disaster management discourse: An evaluation of disaster education in Africa's regional platforms for disaster risk reduction. *African journal of education and practice, 9*(3),1–29. https://doi.org/10.47604/ajep.2030

Bhandari, P. (2023). Correlational research & how to use it. Retrieved from https://www.scribbr.com/methodology/correlational-research

Buil, P., Roger-Loppacher, O., & Tintoré, M. (2019). Creating the Habit of Recycling in Early Childhood: A Sustainable Practice in Spain. *Sustainability, 11*(22), 6393. https://doi.org/10.3390/su11226393

Charles Worth Author Services (2022). The importance of having large sample sizes for your research. Retrieved from https://www.cwauthors.com/article/importance-of-having-large-sample-sizes-for research#:~:text=The%20larger%20the%20sample%20size,provide%20smaller%20margins%20of%20error

Cristian A, Klöckner (2013). A comprehensive model of the psychology of environmental behaviour - A meta-analysis. *Global Environmental Change 23*(5) Retrieved from https://doi.org/10.1016/j.gloenvcha.2013.05.014

Esezi O., I. (2023). Convenience and purposive sampling techniques: Are they the same? Retrieved from https://www.semanticscholar.org/paper/Convenience-and-Purposive-Sampling-Techniques%3A-Are-Obilor-Isaac/443c8b6a4b79a0319e659f6d273eb5b5fa3bb432?fbclid=IwZXh0bgNhZW0CMTEAAR3H7MzQTrYbHsFSmAJEp74h1iemRo41uS8O8W_v0NTeTYn_tOKE7ThxhO0_aem_Jj4FBauWLASTodNKFHkk7A

Ghaedrahmati, Z., Ghaffari, M., Mehrabi, Y., Alavi, N. A., Fatemeh, R., K., & Rafiee, M. (2022). Urban informal waste recycling in Tehran: Knowledge, attitudes and practices towards health risks during recycling process. *Cleaner Waste Systems* 4. https://doi.org/10.1016/j.clwas.2022.100064

Gondim, J.; Formiga, N.; Marques, G.; Akaliny, S. (2023). Recycling habits, recycling attitudes and beliefs and awareness of individual consequences in Brazilians living in Portugal. *Research, Society and Development 11*(5). https://doi.org/10.33448/rsd-v11i15.37543

Gumasing S. & Sobrevilla F. (2023). Determining factors affecting the protective behavior of Filipinos in urban areas for natural calamities using an integration of protection and motivation theory, and ergonomic appraisal: A sustainable disaster preparedness approach. *Sustainability 2023,* 15. https://doi.org/10.3390/su15086427

Hussein Ali *et al.* (2022). The impact of environmental knowledge on recycling intention: the mediating role of perceived behavioural control. Retrieved from https://icams.ro/icamsresurse/2022/files/lucrari/II_biomaterials_biotechnologies_01.pdf

Icek A. (1991). The theory planned behavior, *Organizational Behavior and Human Decision Processes.* Volume 50, Issue 2, https://doi.org/10.1016/0749-5978(91)90020-T

Knickmeyer D. (2019). Social factors influencing household waste separation: A literature review on good practices to improve the recycling performance of urban areas. *Journal of Cleaner Production, 245.* https://doi.org/10.1016/j.jclepro.2019.118605

Lapada, A. (2022). Disaster risk reduction knowledge among Filipino senior high school students. *Social Work & Social Sciences Review 2*. 56-73. http://dx.doi.org/10.54183/jssr.v2i1.27

Leow, J.; Liyi, L.; Yixuan, L., Lita, C. (2022). Towards zero waste in pharmacy: Challenges and opportunities in Singapore. Proceedings of Singapore healthcare, 31. https://doi.org/10.1177/20101058221146323

Madrigal, D. V. (2019). Solid waste management awareness, attitude, and practices in a Philippine catholic higher education institution. *Recoletos Multidisciplinary Research Journal 5*(2). Retrieved from https://www.researchgate.net/publication/327177428_Solid_Waste_Management_Awareness_Attitude_and_Practices_in_a_Philippine_Catholic_Higher_Education_Institution

Mamon, C., Suba, V., & Son (2019). Disaster risk reduction knowledge of Grade 11 students: Impact of senior high school disaster education in the Philippines. *International Journal in Health and Disaster Management*, Retrieved from https://www.ijhsdm.org/article.asp?issn=2347-9019;year=2017;volume=5;issue=3;spage=69;epage=74;aulast=Catedral

Michael, C., Gearhart. (2023). Mutual efficacy, self-efficacy, and collective efficacy Theory: An examination of empowerment and activism. *Social Work, 68*(3):192-200. https://doi.org/10.1093/sw/swad018

Natasha, J., Suddin, L., Brahim, C., Azaze-Azizi, A., A. (2022). Exploring determinants shaping recycling behavior using an extended theory of planned behavior model: An empirical study of households in Sabah, Malaysia, *Sustainability, 14*(8). https://doi.org/10.3390/su14084628

Polistico, Lacat, Sinoy, & Potenciando, M. (2024, January 31). Disaster awareness and preparedness of senior high school and college students: A comparative study. *Journal of Environment and Earth Science 14*(1), http://dx.doi.org/10.7176/JEES/14-1-04

Safa H., A. (2023). Knowledge of and Attitude Toward Disaster Preparedness Among Secondary School Students in the Western Region of Saudi Arabia, Retrieved from https://www.cureus.com/articles/133368-knowledge-of-and-attitude-toward-disaster-preparedness-among-secondary-school-students-in-the-western-region-of-saudi-arabia#!/

Saphores J. D. M., Nixon H. (2014). How effective are current household recycling policies? Results from a national survey of U.S. households. *Resources, Conservation and Recycling, v.92*, p. 1–10, https://doi.org/10.1016/j.resconrec.2014.08.010

Schwartz H. S. (1997). Normative Influences on Altruism. *Advances in Experimental Social Psychology, 10.* https://doi.org/10.1016/S0065-2601(08)60358-5

Wee, S.; Lim, W.; Sulzakimin M.; Radzuan M.; Syahrul I.; Abas, M. A. (2022). Good Governance Practices in Recycling Programmes. *Environment and Ecology Research. 10*. 260-266. http://dx.doi.org/10.13189/eer.2022.100215

Whitmarsh, L. E, P.; Thomas, M. (2018). Waste reduction behaviors at home, at work, and on holiday: What influences behavioral consistency across contexts? *Frontiers in Psychology*, V. 9, 2018. https://doi.org/10.3389/fpsyg.2018.02447