REDUCE, REUSE, RECYCLE
BUT ARE YOU RECYCLING IN THE CORRECT WAY?

Motivation

As seasons pass, there is an observable trend of spring becoming shorter, while autumn and winter extend in duration. Upon further investigation, we have discovered that the primary cause of global warming is the emission of greenhouse gases. The most effective solution identified thus far is the implementation of proper waste segregation and recycling.

Purpose

By assessing the effectiveness of waste disposal practices and implementation of more accurate classifying methods of waste through education, our ultimate goal would be to mitigate the effects of environmental pollution.

Process of our project

01 **PRIMARY SURVEY**
Sample size:116 (boarding students)

02 **PRIMARY INVESTIGATION**
Total 456 pieces of garbage

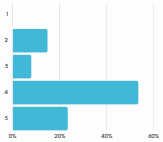
03 **EDUCATION**
Attached posters (guidelines)

04 **SECONDARY SURVEY**
Sample size:116 (boarding students)

05 **SECONDARY INVESTIGATION**
Total 520 pieces of garbage

Primary survey (Google form)

Question: Do you know the correct way of recycling/classifying garbage?



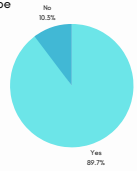
*all graphs out of 116 students
*all bar graphs on the scale of 1 - 5

- **0%** (0 out of 116) strongly disagreed (1 point)
- **14.7%** (17 out of 116) disagreed (2 points)
- **7.8%** (9 out of 116) were neutral (3 points)
- **53.3%** (62 out of 116) agreed (4 points)
- **23.3%** (27 out of 116) strongly agreed (5 points)

76.6% of students responded with either **'agree' or 'strongly agree'**. This suggests that most of the students are confident with their knowledge of recycling.

Question: If additional information (ex. guideline for recycling) is provided, will recycling be easier?

Nearly ***90% (89.7%)*** of respondents **agreed** that educational resources (posters/guidelines) would lead to easier recycling. ***Only 10.3%*** of respondents **disagreed**.



Education process (posters)

Poster created in Korean for boarding students who are more comfortable with their mother - tongue language

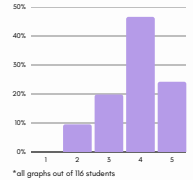
- Reflecting the responses that we have received in the first survey, posters (recycling guidelines) were attached to all garbage cans in the dormitory. We have created the posters based on the guidelines of the Korean Ministry of Environment and were designed to be easily understood by younger students with the use of images, bright colors, and simple language.
- The poster served as a tool to observe the change in accuracy of recycling (waste separation) before and after the implementation. We expected students to gain accurate knowledge on waste separation/classifying and to see an increase of correct recycling rate by over 30%.

Secondary survey (Google form)

Question: Do you believe that the educational posters made recycling easier/effective?

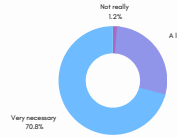
- **0%** (0 student) strongly disagreed
- **9.5%** (11 students) disagreed
- **19.8%** (23 students) were neutral
- **46.6%** (54 students agreed
- **24.2%** (28 students) strongly agreed

70.8% of the the respondents either agreed or strongly agreed that the educational posters made recycling easier and effective. Since this is the majority, it can be said that education leads to increased correctness of recycling.



*all graphs out of 116 students

Question: Do you recognise the importance (need) of recycling after the implementation of the manuals/posters?



The responses to the question 'Do you recognise the importance of recycling after the implementation of the posters?' were ***70.8%*** 'Very necessary', ***28%*** 'A little bit' and ***1.2%*** 'Not really'. The vast majority of the respondents showed a positive reaction towards our education method (attaching posters).

Investigation experience

As well as the surveys, our team conducted an investigation of the garbage bins located in two boarding houses. We were able to check if the survey responses reflected the actual recycling state of the students and see firsthand how accurately waste segregation/classifying has been practiced.

Primary Investigation (2023.01.08):

The most common incorrectly recycled garbage were:
- Single-use plastic forks & wooden forks
- Food-stained plastic bags & masks
- Cup noodles container with plastic coating

Photos of incorrectly recycled garbage:

- Did not separate aluminum can lids and glass bottles
- Did not crush the cans

Secondary Investigation (2023.01.15):

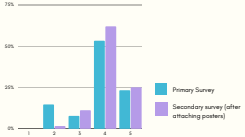
Photos of correctly recycled garbage:

Students practicing correct recycling:
- Cleaning and drying recyclable containers
- Crushed cans
- Separating items made of different materials for disposal

The graph above represents the two types of incorrect recycling from the Primary Investigation period. 112 pieces of garbage that are general waste but mistakenly put into the recycling waste bin accounted for 31.8%. Garbage that was disposed in the incorrect method (eg. not rinsing) accounted for 240 pieces, making up 68.2%. In contrast, during the Secondary Investigation period, the 'Incorrect classifying of garbage' increased to 53.8% while the 'Incorrect method of recycling' decreased to 46.2%.

Survey - Compare and Contrast

Question asked in both surveys: How well do you implement the **correct method** recycling/waste classifying?

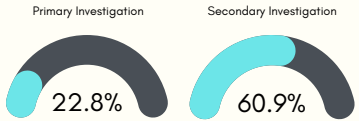


- No respondent selected 1 in both surveys.
- There was a ***13% decrease*** in the number of respondents who have selected '2'.
- There was a ***3.4% increase*** in the number of respondents who have selected '3'.
- There was an ***8.7% increase*** in the number of respondents who have selected '4'.
- There was a ***1.8% increase*** in the number of respondents who have selected '5'.

When analysing the results of the two surveys, the number of positive responses, which stated that they are well implementing the correct way of recycling, increased by a large portion.

Investigation - Compare and Contrast

During the Primary Investigation period (January 8th, 2023), total of 456 pieces of garbage were thrown away by students into the bin. Out of the 456 pieces of trash surveyed, 104 were disposed properly, accounting for only 22.8% of the total. After the implementation of the educational posters, 312 pieces of garbage (60.9%) out of 520 were disposed properly.



Analysis & Conclusion

In the primary investigation, only 22.8% of the trashes were placed into the correct garbage bin. On the other hand, 86.6% of the responses from the primary survey claimed that they are confident in accurately classifying the garbages. This indicates that the respondents had certainty in their ability to recycle, which was ultimately proved wrong. Since the rate of correctly recycled garbage increased significantly after the implementation of the poster, **it is safe conclude that educational programs are appropriate for promoting correct recycling habits.**

Future plans & Long term goals

Our team has not only limited the project to a simple initiative, but also considered long term plans such as creating a YouTube channel related to correctly recycling and sorting garbage. We concluded that it is more important to educate not just in our country but also in other countries around the world on the importance of waste separation and encourage the youth of the next generation to have a future-oriented perspective on the environment. The goal of the YouTube channel is to create short and simple videos, in the form of 'YouTube Shorts', that are easily accessible to young people. Currently, we live in an era where everyone uses the internet, and particularly for the youth and those who will lead the future, the internet is the best way to raise awareness of the dangers of the environment. We should not take the internet lightly, and we need to take advantage of opportunities such as this YouTube channel.

Additionally, we have created a website with the main objective of educating people on why we should care about the environment and how much they know about it. All contents are written in English, so it also can be used not only by people in South Korea but by people from all countries. Each section of the website is arranged in logical orders to provide basic information about current environmental issues and the various ways that individuals can contribute to environmental protection. Users can utilise the 'Test your knowledge' section to check how much they know about the correct way of recycling ... **and so can you!**

QR Code of our website! Please take a look!