

Ways to Protect the Seas of Nara

1. Motivation behind Research Paper

Most people go on social media to see beautiful pictures of nature, places, and people. Personally, I have noticed the increase of pictures of dirty oceans, plastic waste, and injured animals. How has society decided to respond to this situation? Social media has made it apparent that people's trash is endangering marine life. I thought about how to clean that garbage because I want to protect it, but I currently live in Nara where there is no sea. Therefore, I thought, "there are some dirty rivers in the city. If people could reduce the number of garbage flowing from the river to the sea, it would be clean." In addition, I thought that I wanted to change the consciousness of people who throw away the river.

2. Introduction

The aim of this research paper is to raise awareness about changing the consciousness of people who throw away the river by experiment. In a study conducted by Mori Yasuhiro and Nakamata, they said that people can make it a hard-to-throw environment, so I searched for a river near my school, and I decided to do various studies. In this case, I thought I wanted to set up something like a signboard at the river. Most of the information was collected from essays on the internet.

3. Results and Analysis

Experimental method:

- One section (Fig. 1) was defined from end to end of five trees. They were prepared for comparison.
- We set up an eye signboard in one area (Fig 2) and we didn't set it up in another area.
- We divided the experimental area into four and we named A1, A2, A3 and A4 respectively (Fig 1) . The aim is to investigate whether the increase or decrease in the amount of garbage in the area is related to the distance from the eye signboard.
- We recorded garbage of the number and locations in the small sections once every about two weeks.
- We picked up garbage once every four weeks, however it didn't it other weeks.

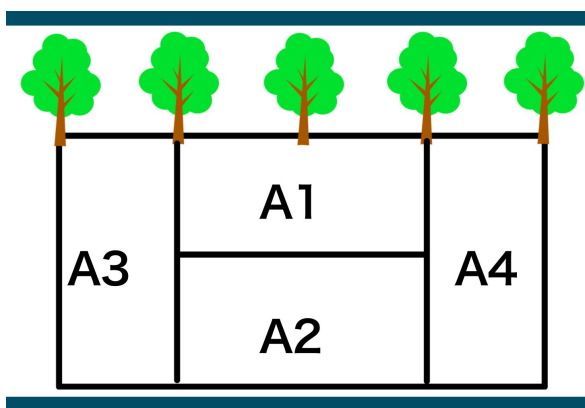


Figure 1. Section one of the experiment zone.



Figure 2. The eye signboard.

Results:

Date: 2022, 04, 02

The corresponding areas did not change the amount of garbage. Also, There is no trash in A4.

Analysis:

Date:2022, 04, 02

We believe that we could not confirm that the results were because of the signboards that we posted around the area. At that time, we did not pick them up.

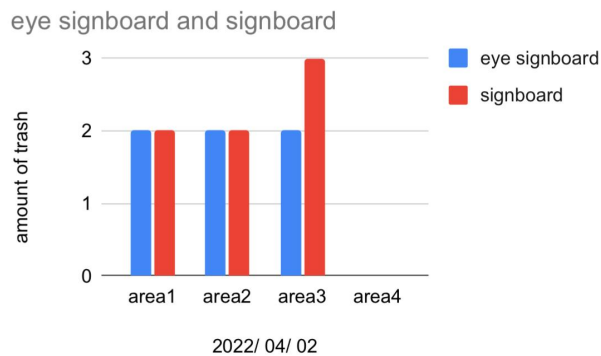


Figure 3. Graph showing amount of trash in each section - Week 2

Results:

Date:2022, 04, 16

We found that garbage increased at A1 with the eye signboard, A2 without it, and A4 without it.

Analysis:

Date:2022, 04,16

We discussed why the number of garbage increased. There were many pieces of styrofoam, so we thought of one possibility. It is possible that a big styrofoam object had been pulverised by some external factor and had fallen together in the same place. At that time, we picked up garbage.

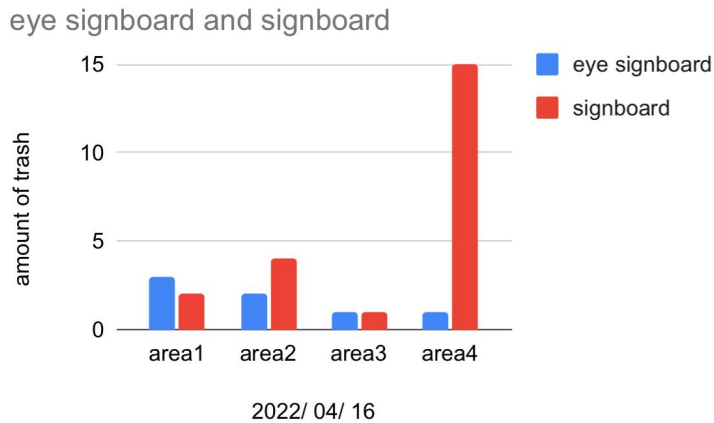


Figure 4. Graph showing amount of trash in each section - week 4

Results:

Date:2022, 05, 01

This data is a tally of newly discarded trash since the previous trash collection. There was no garbage found in A1, A2 and A4 without the eye signboard. A3 was newly dumped with garbage.

Analysis:

Date:2022, 05, 01

It is difficult to make a judgement based on this number alone, because it is possible that the garbage was washed away by rain from the previous day.

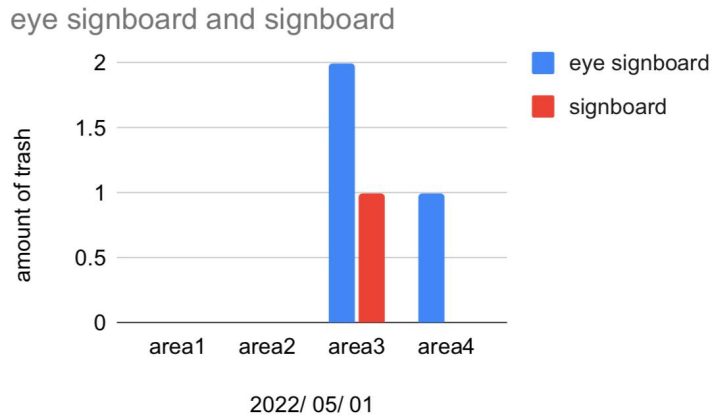


Figure 5. Graph showing amount of trash in each section - week 6

Results:

Date:2022, 05, 21

The amount of trash area without the eye signboard greatly exceeded the number of it with the eye signboard.

Analysis:

Date:2022, 05, 21

From this result, we could see the effect of the experiment remarkably. Also, we thought about the reason to increase the garbage overall.

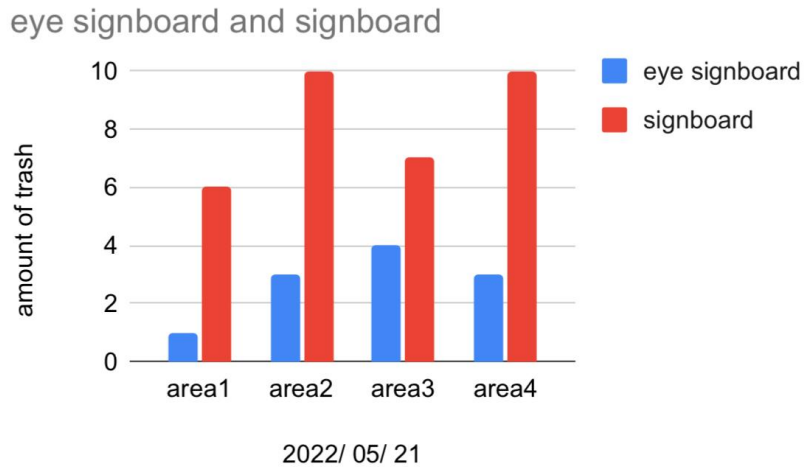


Figure 6. Graph showing amount of trash in each section - week 8

Results:

Date:2022, 06, 04

There was not any garbage in A1 and A2. There was garbage found in A4 without the eye signboard, but there was garbage in A3 with the eye signboard too.

Analysis:

Date:2022, 06, 04

In the results, you can see the number of garbage in the area with the eye signboard was less than in areas without the signboard.

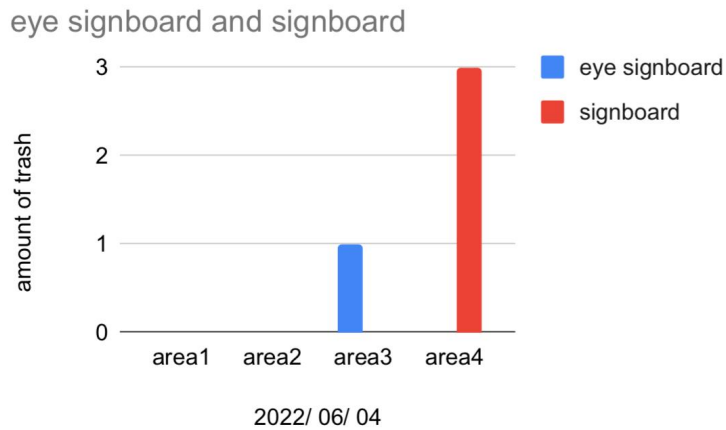


Figure 7. Graph showing amount of trash in each section - week 10

Results:

Date:2022, 06, 18

There was no garbage in the A4 and A3 with the eye signboard. The number of garbage in A2 with the eye signboard is more numerous than in A2 without the eye signboard, however focusing on A1, garbage was only in the area with the eye signboard.

Analysis:

Date:2022, 06, 18

Overall, we could see that the eye signboard had the effect of decreasing some garbage.

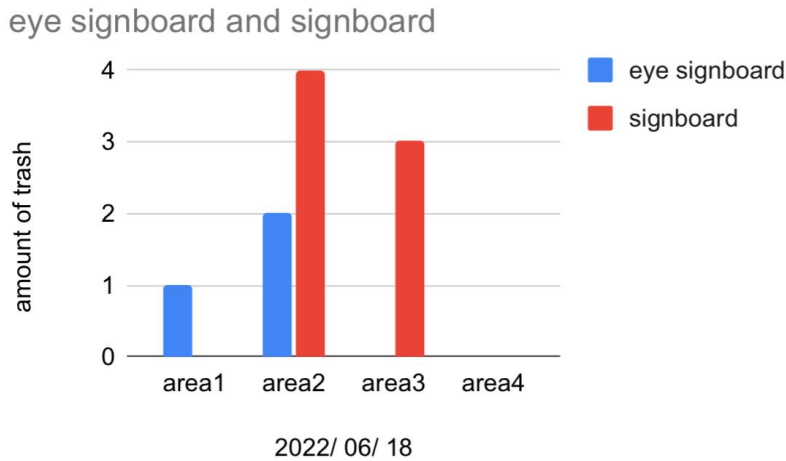


Figure 8. Graph showing amount of trash in each section - week 12

4. Conclusion and Future Problems

According to the results, we could see that garbage was reduced by 59.52% at the beginning and end of the experiment. From these, setting up the signboard has the effect of reducing garbage. As months passed, the number of garbage decreased at the experiment section. I am worried about the other experimental version. In Particular, we want to replace the experiment sections, because if the locations changed, the effect of eye signboard might disappear. These results may also be affected by other people in the area, so we cannot fully rely on these results.

5. Reflection

I realised that cooperating with people who have the same idea is the most important, because it shows that a group's efforts can cause influential change. By myself, I could not manage a lot of data and experiments. Then, I did it in my group. In the process, I cooperated with a lot of people and found it easier to conduct the experiment. Therefore, I was reminded that cooperating with a lot of people is essential. I was moved by the actions and thoughtfulness of a lot of people.

6. Work Cited

Mori, Yasuhiro and Nakamata, Tomoko. "Decrease littering in the river!" J-STAGE.
2020. Web. 2021.

https://www.jstage.jst.go.jp/article/jenvpsy/8/1/8_26/_pdf