



Cat 4 Resource Development

Group 4-004

The Environmental Board Game

Jovan Low Chee Hyun (2P1),

Bolliger Bryce Junyong (2A1),

Goh Qi Yang (2A1),

Chen Guo Ding (2A1)

ABSTRACT

The Environmental Board Game is a resource package for students aged 13-16, providing a fun and interactive resource for students to learn more about the environment. Our resource includes a board game, a website and a quiz for students to easily learn more about protecting the environment in a fun and interesting way. Our resource package teaches students about environmental issues in ASEAN countries, how individuals negatively impact the environment and what they can do to stop it. We also introduce some organisations that are currently working to protect the environment so that people can support them. We achieve this through interactive learning in conjunction with our board game and website, which optimises the learning experience for students.

1 INTRODUCTION

1.1 Rationale

Teenagers do not have the habit of keeping up with current affairs and environmental problems regularly as seen by our survey results below. Only 42% of the 50 respondents keep up with current affairs and environmental problems, this is less than half. Some teenagers are also unintentionally harming the environment due to their lack of awareness. Currently, the methods of keeping up with current affairs and environmental problems are perceived as boring and mundane and cause students to not be motivated to keep up with these serious issues. This is seen in our survey results, where 70% of the 50 respondents agree that using a more interactive method like a board game is more effective than other methods like reading newspapers. Therefore, we want to introduce a new method of using board games to help students keep up with current affairs and environmental problems and let them learn about protecting the environment in an engaging, entertaining and appealing manner.

1.2 Objectives

We aim to raise the awareness of students, aged 13 - 16, on environmental issues caused by human actions in ASEAN countries, how individuals negatively impact the environment and what we can do to prevent it. We also want to inform students about what is currently being done by larger organisations and what we as individuals can do to support and play a part.

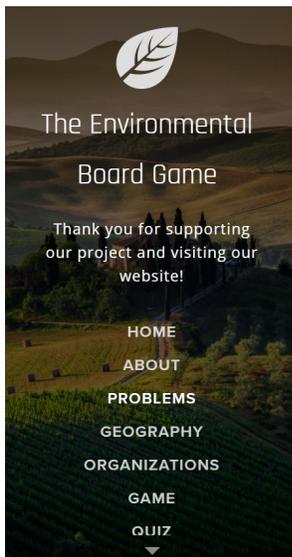
1.3 Target Audience

Our project is mainly targeted at, but not limited to, secondary school students aged 13 - 16 years old of both genders. We chose teenagers as our target audience because our survey has found out that teenagers rarely keep up with current affairs and environmental problems. Board games also appeal to teenagers more rather than newspapers or other reading materials.

1.4 Resources Created

We have created 3 resources, a website, a board game and a quiz.

Pictures of our website:



Problems

Click on the following problems to learn more about them!

[Land Pollution](#)

[Water Pollution](#)

[Soil Degradation](#)

[Natural Resource Depletion](#)

[Deforestation](#)

[Loss of Biodiversity](#)

[Light Pollution](#)

The Environmental Board Game

Thank you for supporting our project and visiting our website!

HOME
ABOUT
PROBLEMS
GEOGRAPHY
ORGANIZATIONS
GAME
QUIZ

Land Pollution

Causes:

- Contamination of Soil
- Mining
- Nuclear Waste
- Construction
- Landfills
- Urbanisation
- Industrialisation

Effects:

- Climate Change
- Endangerment and extinction of species
- Habitat shifting for animals

Solutions:

- Make people aware of the concept reuse, reduce and recycle
- Reusing materials help to reduce the requirement of harvesting resources.

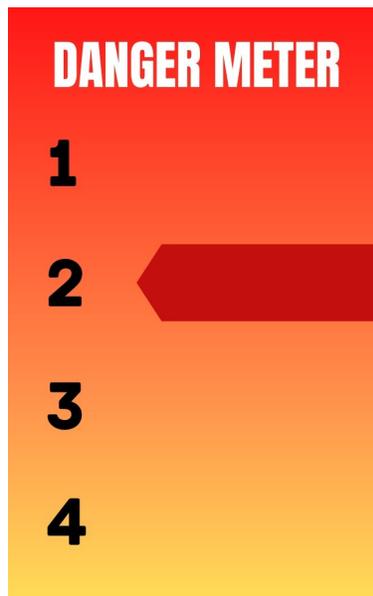
Website link: <https://theenvboardgame.webnode.com/>

Sample Question of Quiz:

What are the main causes of air pollution? * 1 point

- Taking long baths in the shower
- Emissions from vehicles
- Deforestation
- Turning on your aircon

Board Game Pictures:



2 REVIEW

2.1 Comments Made By Experts On The Topic Of Environmental Problems

- Some activists believe that while more Singaporeans are aware of climate change, their level of understanding is still superficial, and that habits are not yet changing enough to make a significant difference. (OH,2019)
- Corporations, government bodies and the wider community are mostly underestimating the seriousness of the issue, and more needs to be done urgently to tackle the crisis, they add. (OH,2019)

2.2 Singaporeans' Views On Environmental Issues

- No matter how seemingly feeble our attempt may appear to be, to do nothing is to encourage the burning (forest fires in Indonesia) to continue every year. In fact, the rather lackadaisical attitude of Singaporeans when the Pollutant Standards Index was in the 100 to 200 range suggests that we have begun to accept the burning. The companies rely on this - hoping that we will forget about the haze once the burning season is over. (The Straits Times, 2015)
- Less than half of those polled (48.3 per cent) said they knew what they could do to address climate change. Still, people here were trying to do their bit by making changes where they could, the survey showed. (The Straits Times, 2015)

2.3 NEA initiatives

NEA has done several initiatives to raise awareness on environmental problems like the The Clean and Green Singapore Carnival in November 2019. However, they were targeting members of the public as a whole and not specific age groups. This causes teenagers to not take note of these events as they are not interested in traveling all the way to these initiatives. (NEA, 2019)

2.4 Comparison Between Past Year Projects

Another Hwa Chong project called “Project Unnoticed Nature” was done by another group in 2019. It focused on promoting the natural biodiversity of Singapore and raising awareness on the importance of conserving the environment. Their target audience were also secondary school students. They created a website, interactive Nature Trail and e-booklet to achieve their objectives. The difference between their project and ours is that we are focusing on games to raise awareness, while their resources mainly use words to raise awareness. Since our survey shows that our target audience prefers learning through games than through articles, our project would be more appealing to teenagers and would receive more attention from teenagers compared to their project.

3 METHODOLOGY

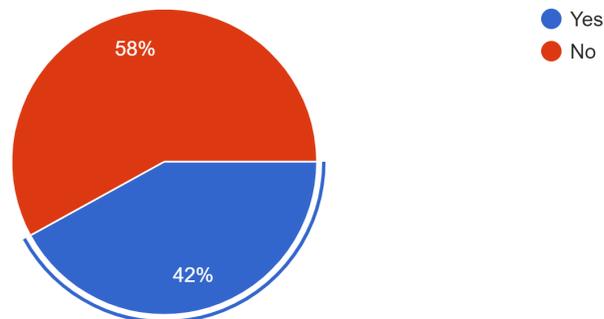
3.1 Needs Analysis

We conducted a needs analysis survey to find out whether our motive was beneficial and important for our target audience. Our survey, only given to people from age 13 - 16, received 50 responses. From the survey results gathered, we found out that many students do not keep up with current affairs and environmental issues, but feel a need to raise awareness on these issues. We also found out that more people prefer learning through games than other platforms.

3.2 Survey Results

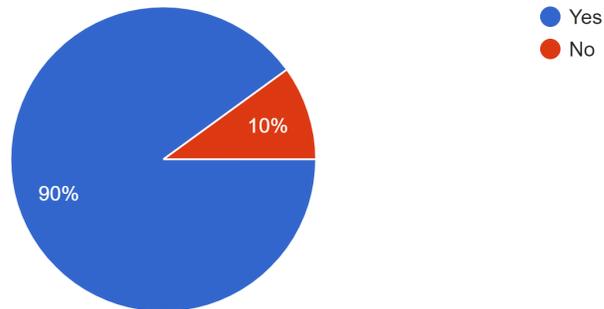
Do you keep up with the current affairs regarding environmental problems?

50 responses



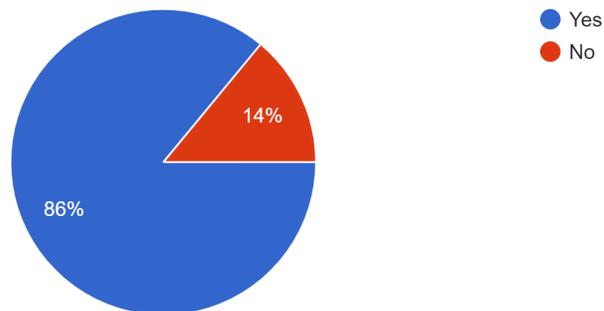
Do you feel a need to raise the awareness of environmental problems and preservation?

50 responses



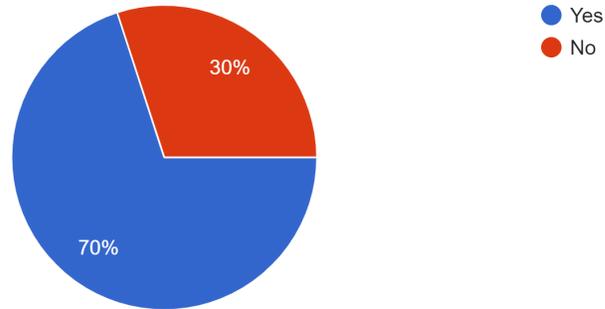
If you have time, are you willing to join activities and communities that aim to protect the earth?

50 responses



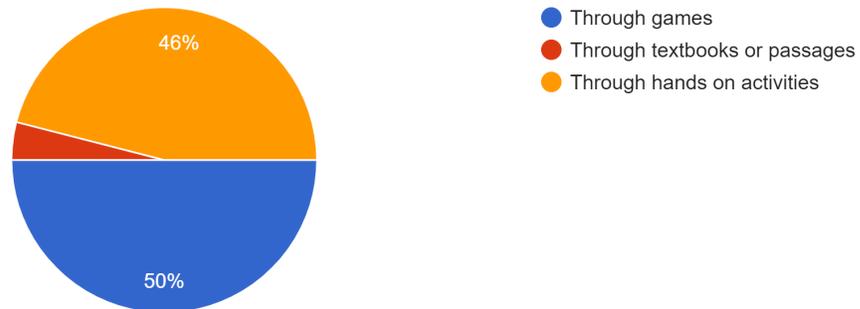
Do you think it is easier and more effective to learn about current affairs through a board game instead of news and newspapers?

50 responses



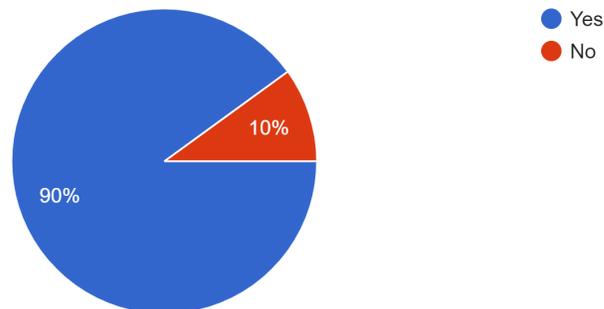
(To students) Which of the below method do you think learning is more efficient and preferable for learning Geography?

50 responses



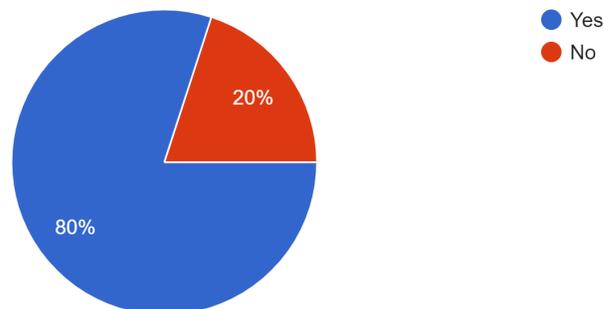
Do you think playing board games can allow you to bond better with your friends and family?

50 responses



In general, do you think it will be more beneficial to learn through an educational board game as compared to textbooks/long passages or any other platforms of learning?

50 responses



3.3 Construction of Resources

We did some research on various environmental issues happening around the world and found the causes, impacts and solutions of it. We also found organisations in Singapore that are currently helping to protect the environment. We then built our board game online using a software called canva and created quizzes for the participants to test out their knowledge.

Sample of Research:

Land pollution

Causes:

- Contamination of soil
- Mining
- Nuclear waste
- Construction
- Landfills
- Urbanization
- Industrialization

Effects:

- Climate change
- The endangerment and extinction of species
- Habitat shifting for animals

Solutions:

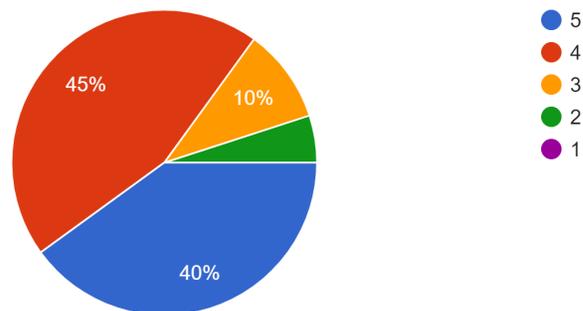
- Make people aware of the concept of reuse, reduce and recycle
- Reusing materials help to reduce the requirement of harvesting resources. The products that cannot be reused can likely be recycled.
- Reduce the use of pesticides and fertilizers in agricultural activities.
- Reduce the use of non-biodegradable materials. By simply switching to a reusable cloth bag for groceries instead of plastic shopping bags will help cut down on the need for non-biodegradable materials.
- Avoid buying packaged items as they will lead to creating garbage and end up in the landfill site.
- Ensure that you do not litter on the ground and do proper disposal of garbage.
- Buy biodegradable products.

3.4 Pilot Testing

We sent the board game to 20 different friends / classmates to go and try out the board game with their respective families. After they have tested out the board game, we then sent them a survey to find out if they enjoyed the game and if the game helped them learn more about the environment. The pilot test results showed that our games was fun and engaging and would interest people into playing it again.

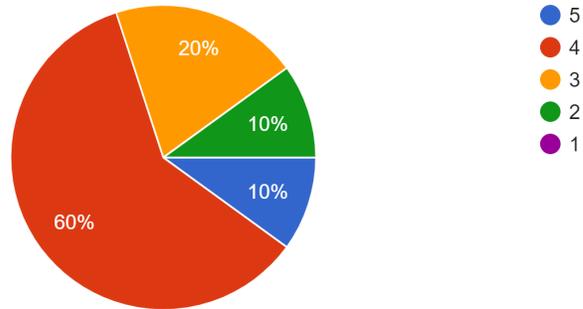
Did you have fun playing the board game? (5 being you had lots of fun and 1 being you were bored.)

20 responses



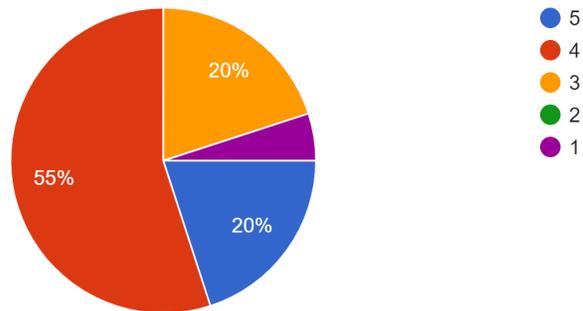
Did you learn new knowledge about environmental problems? (5 being you learnt a lot and 1 being you learnt nothing)

20 responses



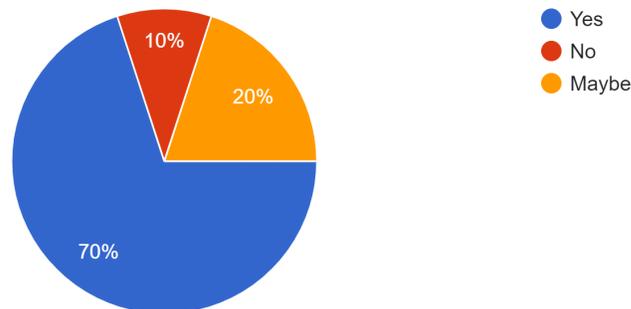
Do you now know the steps you can take to protect the environment? (5 being you are confident you can do your part to protect the environment and 1 being you are clueless.)

20 responses



Would you spend time to play this game again?

20 responses



3.5 Effectiveness Of Game

To make sure that participants that tried our game learnt something from it, we gave them the same quiz after and before trying out our game to test their knowledge learnt from the game. We also did not release the answers of the quiz until after the second try to ensure that the participants could not cheat. We would compare their quiz results our classmates had done prior to them trying out the board game and the quiz results after trying out the game. From the quiz results, we found out that the participants had gotten more questions correct after playing the game, showing that participants gained some knowledge about environmental problems after playing our game and that our game is effective. The average points scored before trying out the game was 5.6. After trying out the game the average points scored was 7.8.

4 OUTCOME AND DISCUSSION

4.1 Final Outcome

We hope that after playing our game, students will think about how their actions will affect the environment and will continue keeping up with current affairs on environmental issues so that they can play their part in protecting the environment. Our game was well received and we also hope that more teenagers could try out our game.

4.2 Limitations

Due to the COVID-19 pandemic, we could not collaborate with teachers or introduce our game in programmes such as sabbaticals like we planned to. Thus, we could only send our game to students to test out and could only get online feedback. The lack of physical meetings also reduced our team's productivity and we could not have face-to-face discussions with our team members. As a result, we had to use online platforms such as Zoom or Google Meet to discuss our project or meet for short periods of time.

4.3 Future Expansions

We could have promoted our project by expanding to more social media platforms such as Twitter, Instagram and Facebook to increase the number of people we could reach with our project. We could have also made more resources such as infographics and posters to allow more ways for teenagers to learn about environmental issues. We are also planning to collaborate with the Geography department or in school to let students learn through our game, and also making the game accessible online so as to let the public benefit too.

5 CONCLUSION

Completing our project was not easy due to the COVID-19 restrictions, however we had a good time making the board game and other resources together. Although we experienced many challenges due to the pandemic, we learnt to adapt and overcome these challenges so that we could finish our project and achieve our aim of helping people learn about environmental issues. The whole project journey had enabled the group to pick up many skills. We learnt how to make a website and improved our artistic skills in designing the board game. We also improved our creativity and critical thinking. Overall, it was a really fun experience for all four of us, and we hope people who play our board game will find it useful and educational and will be motivated to learn more about protecting the environment from our website.

6 REFERENCES

- (Tessa Oh. [2019] *More S'poreans aware of climate change but not doing enough to slow crisis, say activists* [Online]. Available:<https://www.todayonline.com/singapore/more-singaporeans-are-conscious-climate-change-awareness-enough-slow-unfolding-crisis>. Retrieved: 23 March 2021.)
- (The Straits Times. 2015. Exercise consumer power to fight the haze [Online]. Available: <https://www.straitstimes.com/opinion/exercise-consumer-power-to-fight-the-haze>. Retrieved: 3 April 2021.)
- (The Straits Times. 2019. More in Singapore aware of climate change, and willing to bear costs and inconvenience to safeguard planet: Survey [Online]. Available: <https://www.straitstimes.com/singapore/environment/more-in-singapore-aware-of-climate-change-and-are-willing-to-bear-costs-and>. Retrieved: 3 April 2021.
- (NEA. 2019. Caring For Our Environment As A Way Of Life [Online]. Available:<https://www.nea.gov.sg/media/news/news/index/caring-for-our-environment-as-a-way-of-life>. Retrieved: 29 March 2021.)