

Project Clarity

Educating others on Myopia

4-064

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Abstract

Our project, Project Clarity, is aimed to help and educate teenagers, mainly Secondary 1s, in Singapore to be able to protect their eyes better such that they can be able to see more clearly and to reduce the detrimental effects of Myopia, Dry Eyes, and Astigmatism on teenagers in Singapore. We have various interactive resources such as our website, an Instagram Page [@project_clarity], an eye massage video, and an explanation on the eye using a model.

1. Introduction

Project Clarity is a project that is to educate Sec 1 students from Hwa Chong Institution about common eye problems like myopia, astigmatism, and dry eyes. At the start of the year, when we were deciding on our topic, we saw that many students in our class wore spectacles.

When we conducted a survey with teenage students of 13 years old, we discovered that many had a myopic/astigmatism degree of 200-300, and some even had a degree of 1000. We hope that with our resource package, we can educate our classmates and other teenagers will learn about the effects of common eye problems and learn how to avoid their progression. In addition, we have also created a website, which we will continue to improve to make it more interactive and attractive to the teenagers. We also have an eye massage video, an Instagram page and have hosted a meeting with our classmates to educate them on the effects of common eye problems.

2. Review

We looked at many different resources to plan *our* resources. Firstly, we reviewed many websites like the Mayo Clinic (<https://www.mayoclinic.org/>), Healthline (<https://www.healthline.com/>), Singhealth (<https://www.singhealth.com.sg/>).

We also read through a few research papers. We found a few scholarly articles and research papers on google.

3. Methodology

We planned a timeline for ourselves so we could get organised.



Firstly, we conducted a needs analysis survey on teenagers in HCI and other schools. The majority of them have Myopia, some with a degree of above 1000. Most blamed their excessive screen time, lack of sleep, too much near work, lack of proper lighting and their genes for their poor eyesight.

Some of them reported having other eye problems such as dry eyes, astigmatism and glaucoma. We believe that the reason for the eye problems is the result of bad habits, such as watching screens too close and the lack of understanding of eye health.

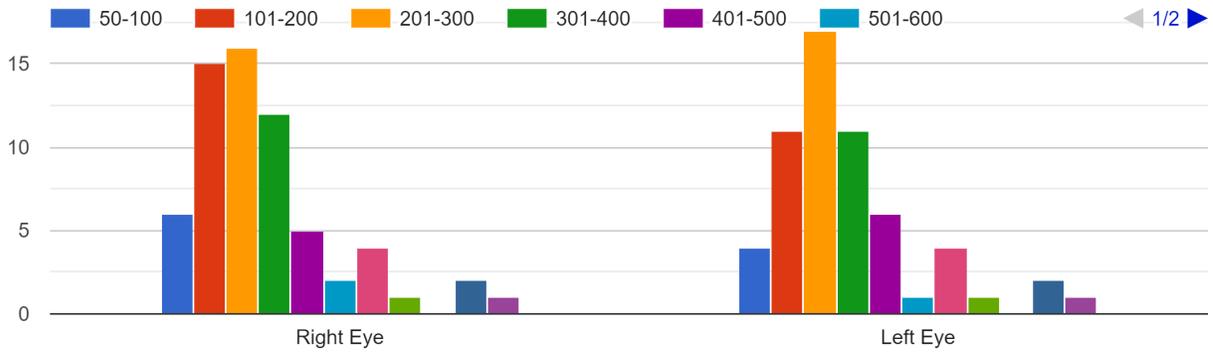
3.1 Needs Analysis:

Our needs analysis consisted of many more questions which helped us understand how much teenagers understand about their eyes.

We conducted a survey on 86 teenagers, the majority of which are secondary 1s, in HCI and other schools.

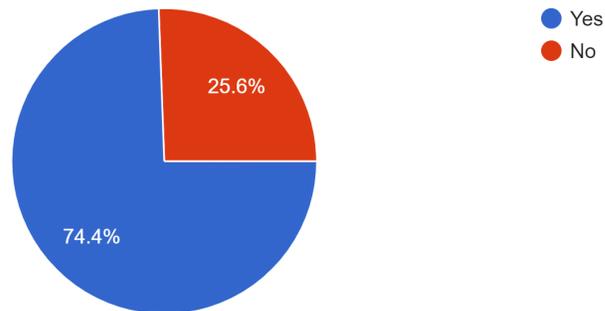
The following are our results for the prevalence of myopia in teenagers.

What is your myopic degree?



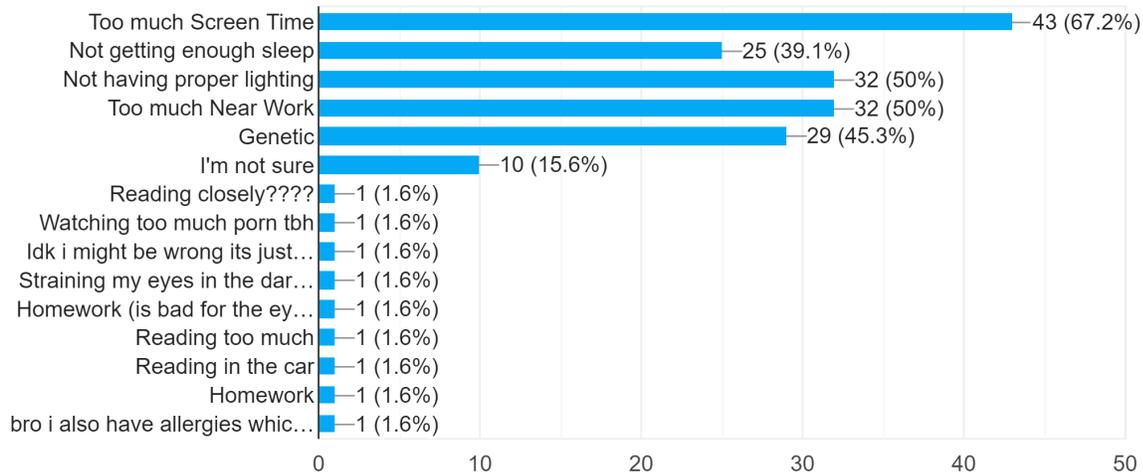
Do you have Myopia?

86 responses



What do you think is the cause of your myopia?

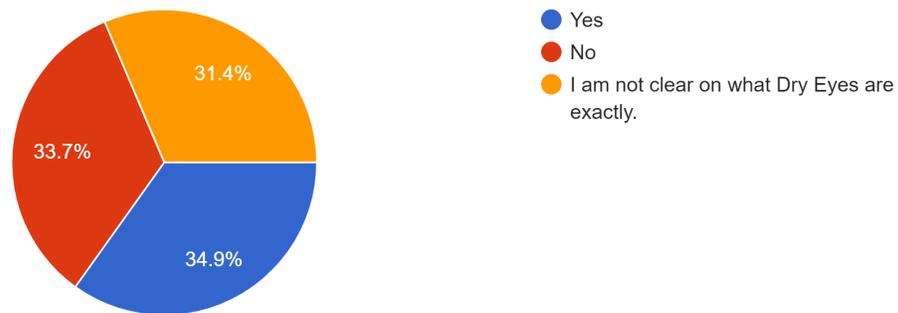
64 responses



Other common eye problems

Have you gotten dry eyes before?

86 responses



Number of responses: 86 responses

3. 2 Construction of Resources

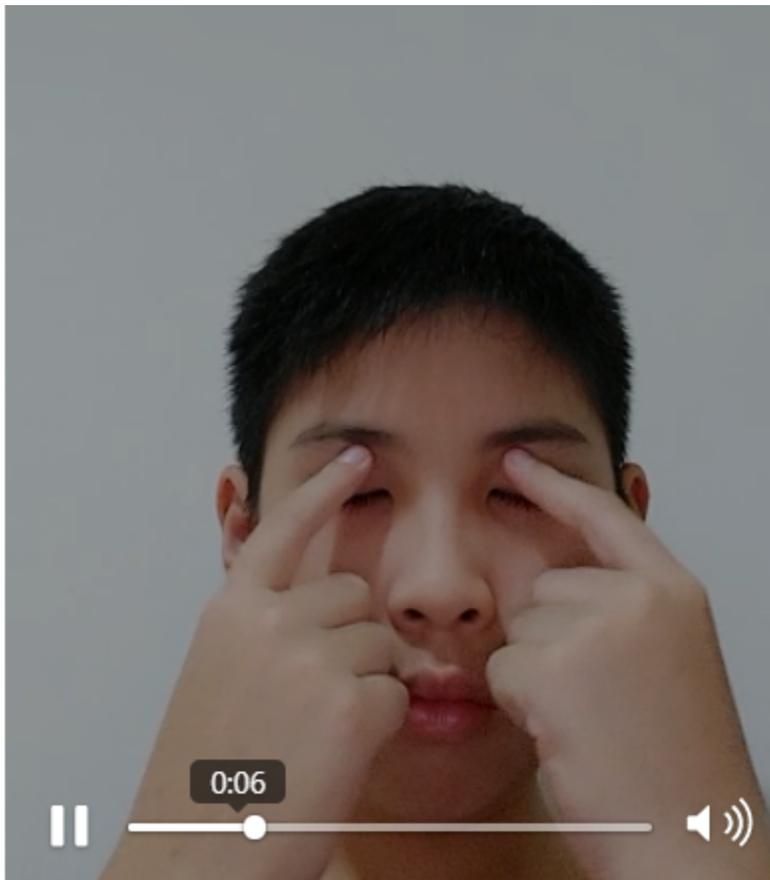
We mainly researched the causes, symptoms and ways to avoid the progression of Myopia, Dry Eyes, Astigmatism. We looked up some scholarly articles online (e.g. Myopia: a growing global problem with sight-threatening complications). We also reviewed a few websites like Singhealth or Mayo Clinic.

After our needs analysis, we decided on our resource package. We have created the following:

Creating the resource package that includes: (2) An Instagram page (3) An eye model to help to explain common eye problems. (4) Eye Massage Video and (5) a Kahoot Quiz.

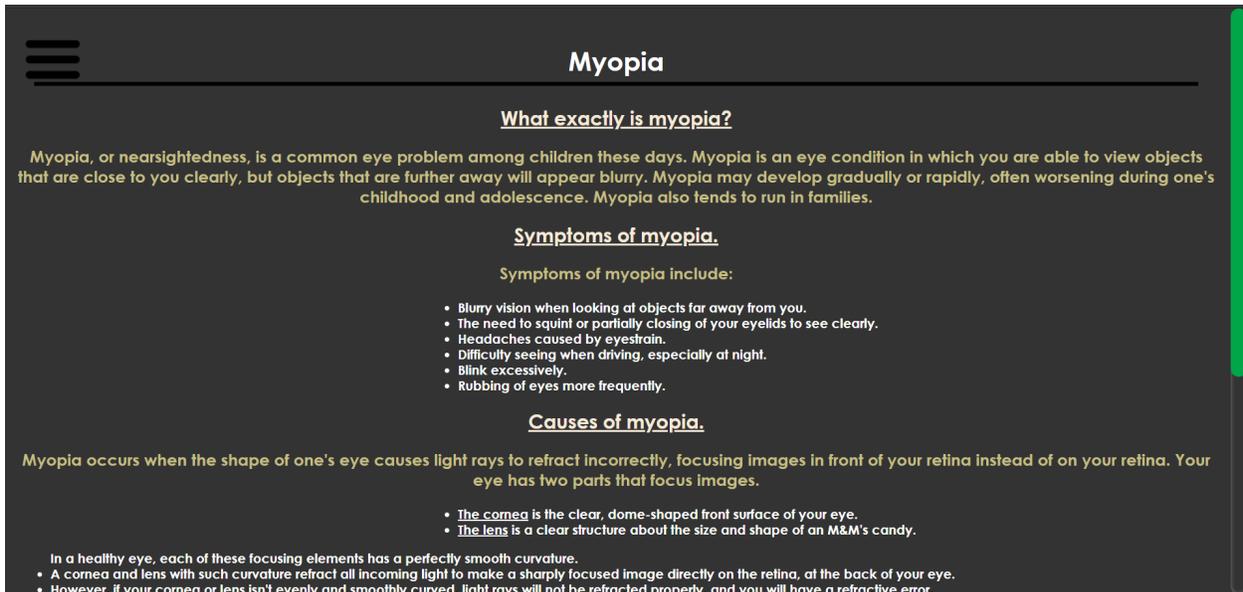
Eye massage

Our eye massage video is based on what we have seen and learnt from other videos and websites. We hope that with our eye massage video, we would be able to encourage teenagers in Singapore to pick up the habit of massaging their eyes regularly.



Website

We created a website that collates information about common eye problems and ways to prevent them.



The screenshot shows a website page with a dark background and a green vertical bar on the right. The page title is "Myopia". The content is organized into sections: "What exactly is myopia?", "Symptoms of myopia.", and "Causes of myopia.". The text is white and yellow, with some words underlined. There are three horizontal lines in the top left corner, likely a menu icon. The page is framed by a dark border.

Myopia

What exactly is myopia?

Myopia, or nearsightedness, is a common eye problem among children these days. Myopia is an eye condition in which you are able to view objects that are close to you clearly, but objects that are further away will appear blurry. Myopia may develop gradually or rapidly, often worsening during one's childhood and adolescence. Myopia also tends to run in families.

Symptoms of myopia.

Symptoms of myopia include:

- Blurry vision when looking at objects far away from you.
- The need to squint or partially closing of your eyelids to see clearly.
- Headaches caused by eyestrain.
- Difficulty seeing when driving, especially at night.
- Blink excessively.
- Rubbing of eyes more frequently.

Causes of myopia.

Myopia occurs when the shape of one's eye causes light rays to refract incorrectly, focusing images in front of your retina instead of on your retina. Your eye has two parts that focus images.

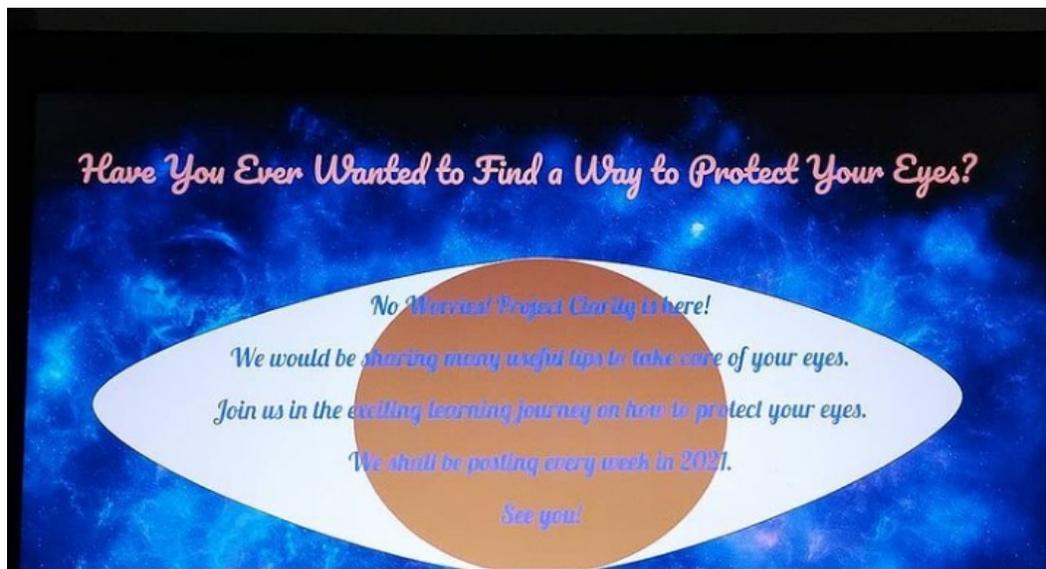
- The cornea is the clear, dome-shaped front surface of your eye.
- The lens is a clear structure about the size and shape of an M&M's candy.

In a healthy eye, each of these focusing elements has a perfectly smooth curvature.

- A cornea and lens with such curvature refract all incoming light to make a sharply focused image directly on the retina, at the back of your eye.
- However, if your cornea or lens isn't evenly and smoothly curved, light rays will not be refracted properly, and you will have a refractive error.

Instagram page

We have decided to use Instagram to promote eyecare online on social media, where many students could access it. We can share many good eye care tips and reduce bad habits. We hope that by doing this, students will take care of their eyes and reduce eye illnesses.



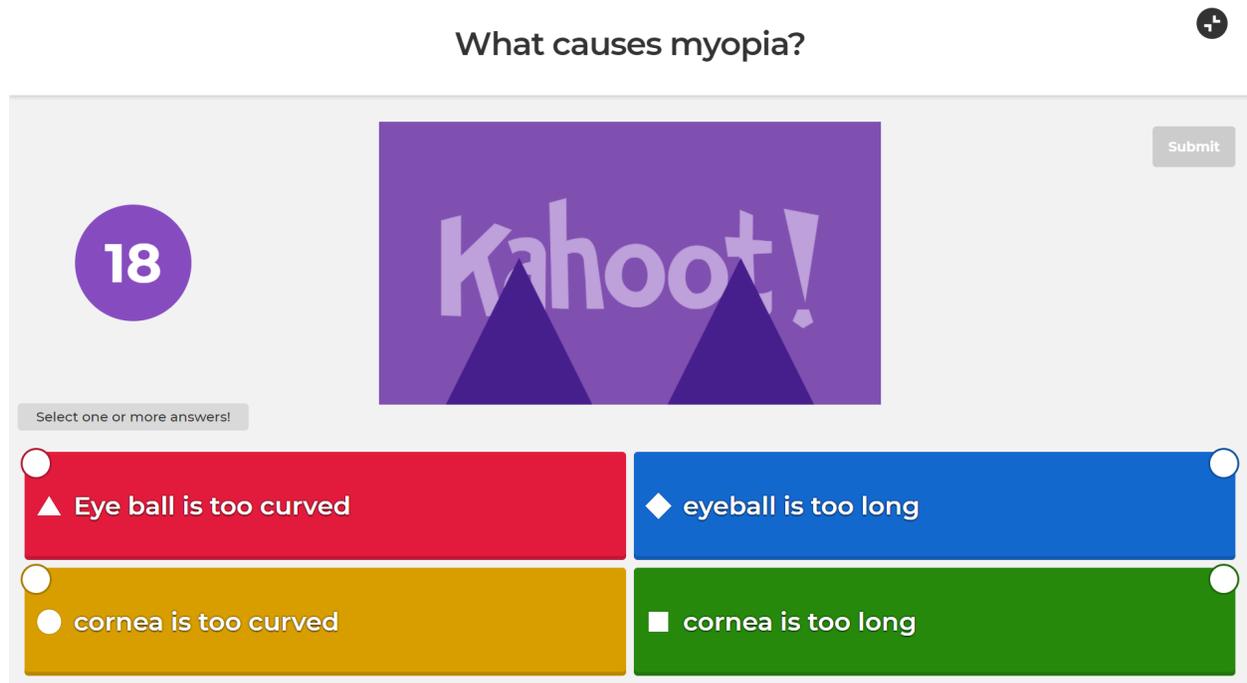
Astigmatism



Blurred or distorted Vision	Eyestrain or discomfort	Difficulty with night vision
Unlike Myopia, Astigmatism can give you blurry vision at all distances, not just for far objects.	Astigmatism affects the muscles around the eyes, causing stress on your eye's cornea.	An irregularly shaped lens or cornea obstructs the light that should focus correctly on the retina, worsening night vision

The meeting was our first pilot test to teach our classmates and schoolmates on the prevalence of common eye problems in

The Kahoot was created to make the game more interactive and interesting for the participants, as well as test their knowledge to see if the meeting has been useful.



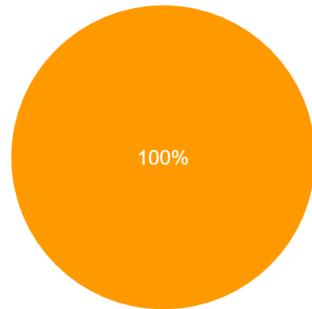
3.3 Pilot Tests

We aim to conduct two pilot tests throughout the year with our participants and gather their feedback. With the feedback, we would improve and work on our resource package.

For our first pilot test, we received the following feedback:

This meeting has taught me how to efficiently prevent common eye problems.

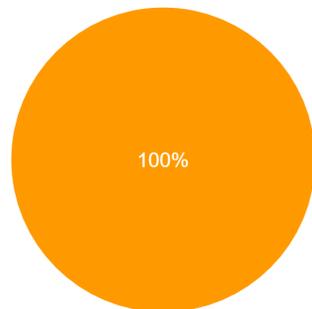
2 responses



- Strongly disagree
- Disagree
- Agree
- Strongly agree

This meeting was useful in teaching me the symptoms of Common Eye problems.

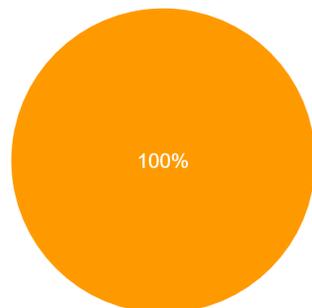
2 responses



- Strongly disagree
- Disagree
- Agree
- Strongly agree

I will use some or all of the methods/habits taught in the meeting.

2 responses



- Strongly disagree
- Disagree
- Agree
- Strongly agree

They said that we should add more infographics, videos and pictures to make the meeting and website more interesting and interactive.

Pilot Test 1:

In week 3 of the June holidays, the first pilot test was held. We conducted the pilot test through a google meet. We have 8 participants from Sec 1. We went through the common eye problems, their prevalence in teens in Singapore, how to avoid their progression and different good habits they can adopt.

4. Outcome & Discussion

4.1 Final Outcome

The feedback form from the pilot test showed that the meeting was effective. In the feedback form, most of them agreed that they had learnt how eye problems would affect them, how they are caused and how to reduce their progression. Some of the participants said that they would use the tips we taught them. We also included some Kahoot quizzes to make the meeting more interesting. We had a website that we sent to our friends, schoolmates and people from other schools. The website included a few Powtoon videos that we have created ourselves. As for our Instagram, we have been posting various comprehensible pictures and slides to our followers so that they can understand more about common eye problems. As for the meeting we did not have as many participants as we would have liked to have. However, I think the attendees had really learnt a lot from our meeting. We also created an eye massage video which has been uploaded on the website.

5. Conclusion

5.1 Skills Acquired

We picked up many new skills through the process of creating this project. For example, we learnt how to cite sources in the APA format. We also learnt how to create a website using Html, CSS and JS as we wanted to be able to customise our website to better attract the Secondary 1s. Furthermore, we learnt how to work as a team better and to take communication among ourselves more seriously.

We also learnt how to create videos with Powtoon which would be a handy skill as creating videos would be useful for projects in our future. As we wanted to make our website more interactive.

5.2 Challenges

In the process of creating our resources, we of course met a lot of problems along the way. For example, there were many challenges faced, mainly on setting aside time to complete the project and making our resources more appealing to the target audience, especially the videos. We had to think of more ideas to better attract the audience, in this case, the Secondary ones in Hwa Chong Institution, to make our resources more useful and yet fun and interactive at the same time, which is quite hard to balance. In the end, we worked together as a team to create digital platforms for our audience to learn from and benefit from such as our Instagram account. Since almost all teenagers now have Instagram, we decided to set up an Instagram account to share information about common eye problems and how to prevent the worsening of such problems. We also have a Kahoot quiz and google forms to check on the knowledge of the Secondary ones at the start, and see how much they have learned after reading through our resource. Through the feedback given, we will be able to improve our website and other resources.

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