

CAT 4 RESOURCE DEVELOPMENT

Group 4-20

Project Title: Save Our Sights

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ABSTRACT

Project Save Our Sights aimed to create more awareness among lower secondary Hwa Chong students on the dangers of myopia, its causes, and for those who had not contracted myopia, on ways to prevent it. A user friendly card game, Myopuno, was created to convey these messages to students in a fun and interactive way.

1 INTRODUCTION

1.1 Rationale

Many students contract myopia due to long time spent on near work each day, be it on phones, laptops, books or homework. Therefore in the digital era, there was a need for people, especially the younger generation, to combat myopia. In Hwa Chong Institution, this problem was generally similar but many students ignored the harmful effects because of work and usage of electronic devices.

1.2 Objectives

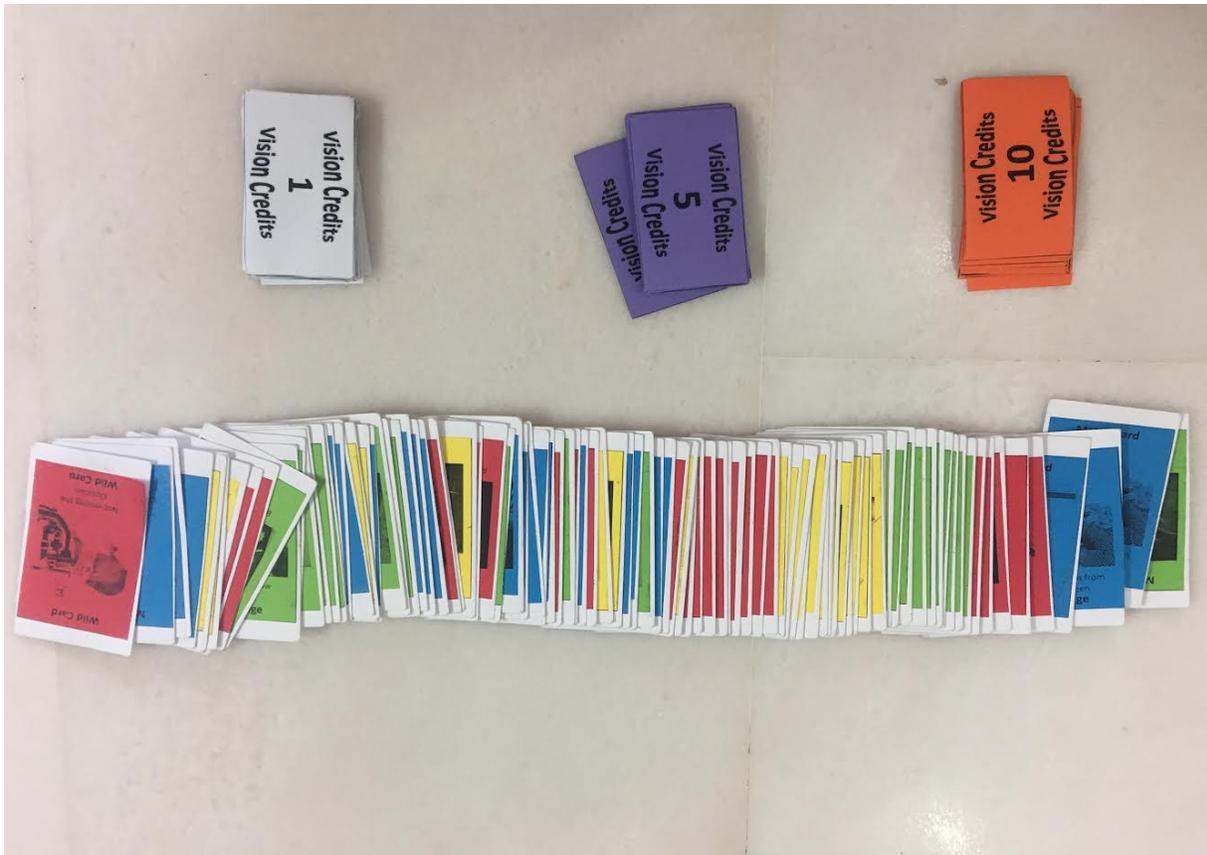
Our objectives were to create more awareness on the dangers of myopia and its causes, hoping that students would be able to learn more about it. As this was a hardcopy card game, it aimed to allow students to take time off on their electronic devices and play this game during recreation.

1.3 Target Audience

The target audience was lower secondary students.

1.4 Resources

The resource created for this project was a hardcopy card game called Myopuno.

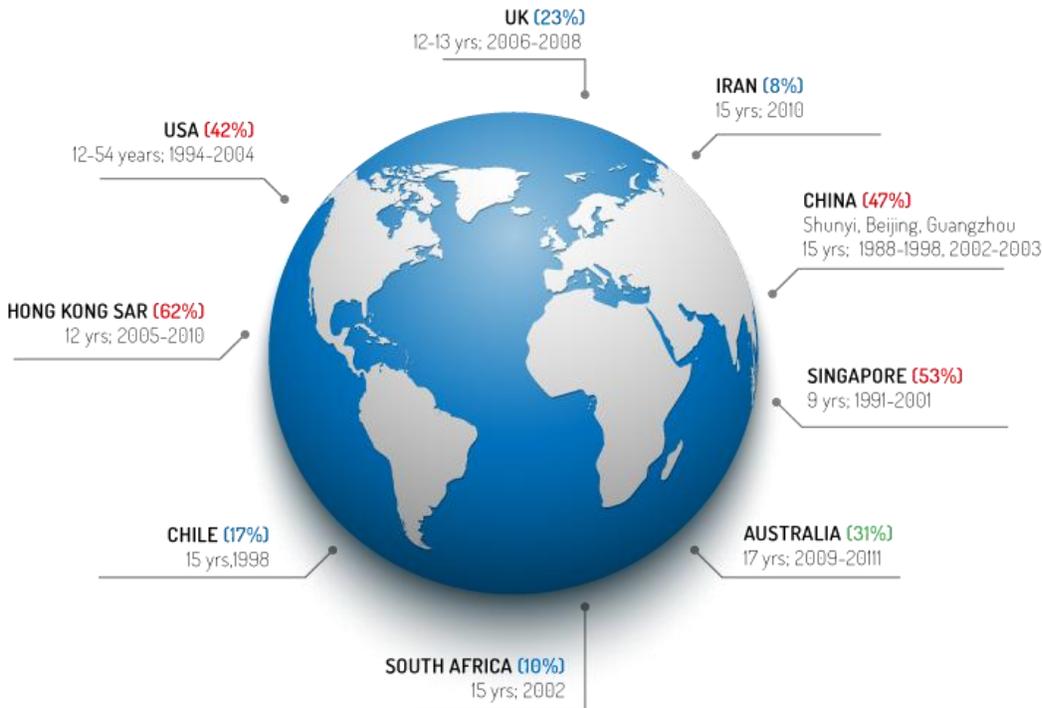


2 REVIEW

Myopia is a refractive error, meaning the eye does not bend or refract light properly to a single focus to see images clearly. In myopia, close objects look clear but distant objects appear blurred.

High myopia is associated with an increased risk of pathological ocular complications and may lead to blinding disorders such as premature cataracts, glaucoma and retinal detachment.

A recent study estimated on average, at the time of writing, 30% of the world was myopic and by 2050, based on current trends, almost 50% would be myopic, a staggering 5 billion people, and almost 1 billion with high myopia. It found that myopia would become a leading cause of permanent blindness worldwide. The diagram below shows the myopia prevalence in some countries.

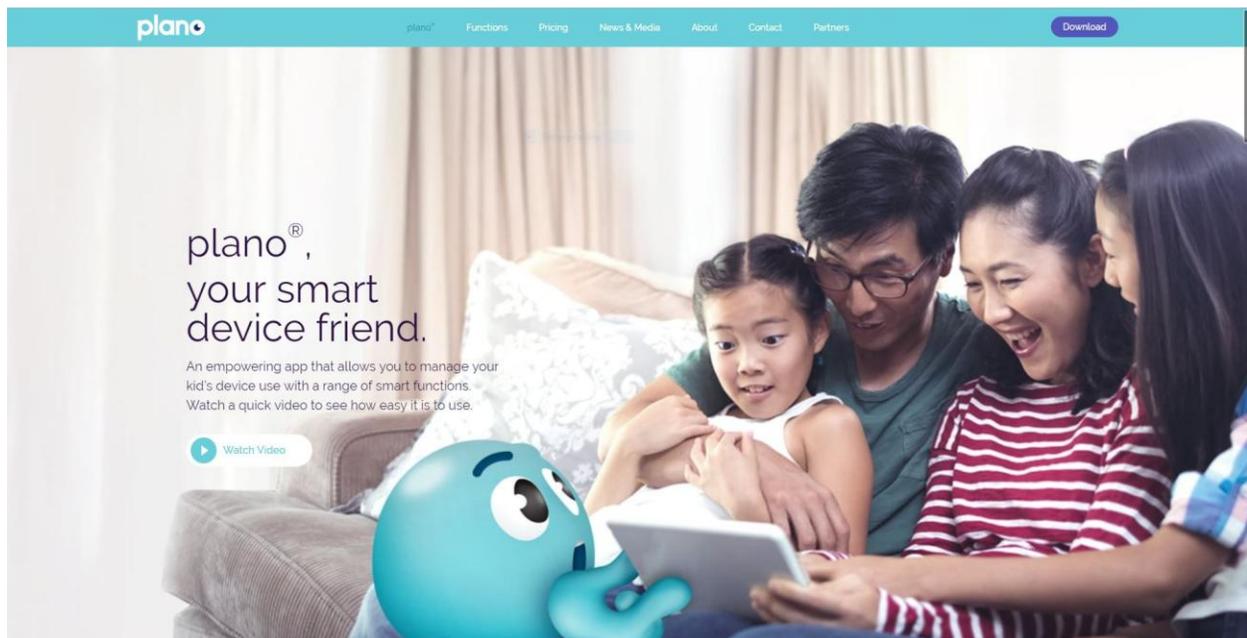


The results of a study called Global Prevalence of Myopia and High Myopia and Temporal Trends from 2000 through 2050, it was estimated 22.9% of the world population had myopia and 2.7% of the world population had high myopia in 2000. It predicted that by 2050 there will be 49.8% of the world population contracting myopia and 9.8% of the world population with high myopia. They concluded that Myopia and high myopia estimates from 2000 to 2050 suggest significant increases in prevalence globally, with chances of vision loss among almost 1 billion people with high myopia.

In Singapore, 65% of Primary 6 and 28% of Primary 1 pupils suffer from myopia, according to the Health Promotion Board. Singapore was also first in the world for the prevalence of childhood myopia in seven to nine-year-olds. However, despite the stable rate of childhood myopia prevalence in Singapore over the past decade, 83% of young Singaporean adults are myopic, showing that it still was a problem in Singapore.

All the above information showed that myopia must be viewed seriously as growing prevalence of myopia increases the chances of more people having eye conditions, such as going blind.

A game, Plano, was created to allow parents to track their children mobile device usage. Plano would also remind children to take breaks and move the device farther from their eyes when needed. Parents could also use Plano to shut down the child's device. Though this seemed like a good idea, one had to wonder if the child would obey the reminders. Also, it did not guarantee the child would ultimately stop playing on their devices in the long run. A fun and interactive way could enable the child to realise the consequences of myopia and learn how to combat it.



3 METHODOLOGY

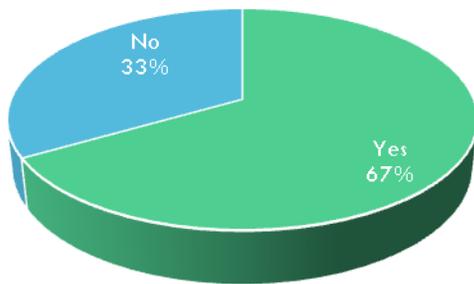
3.1 Needs Analysis

A needs analysis was conducted to ascertain the relevance of this project. Firstly, we realised many of our schoolmates and other students of the same age from other schools and our juniors from our primary schools wear glasses. Thus, this showed our

project is relevant to our peers and juniors as the prevalence of myopia was very high and they could learn how to care for their eyes. We also conducted a survey on myopia for our peers and we realised some did not know what was myopia and near work. Some also did not know which actions in daily life harm their eyes more, showing our project was necessary to help them understand the consequences of their actions.

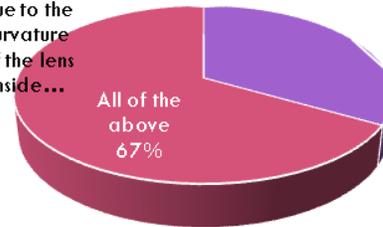
3.2 Survey Results

Q1 Do you know what Myopia is?



The cornea being irregularly shaped due to the curvature of the lens inside...

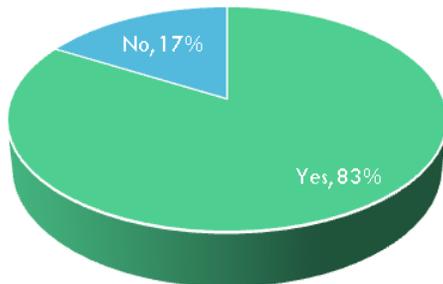
Q2 Myopia is...



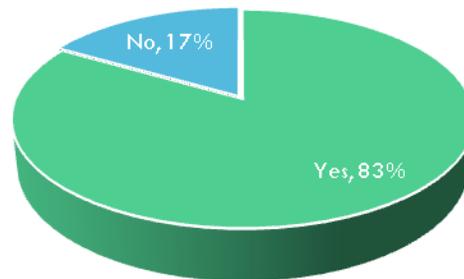
Distant objects appear to be blurred
0%

When light enters the eye, it does not focus directly on the retina, but...

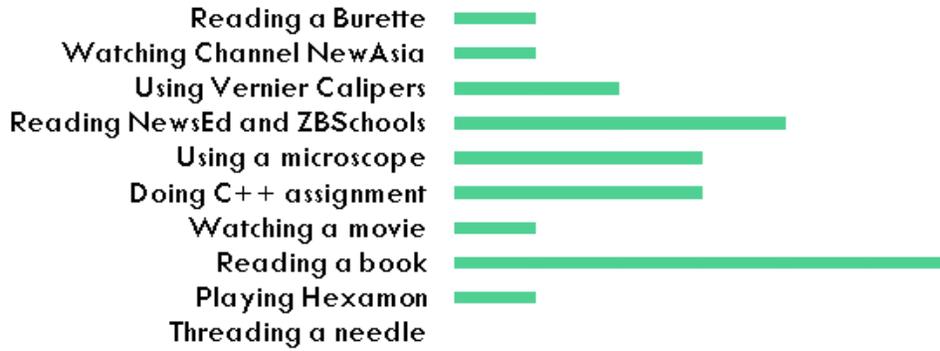
Q3 Have you heard of near work?



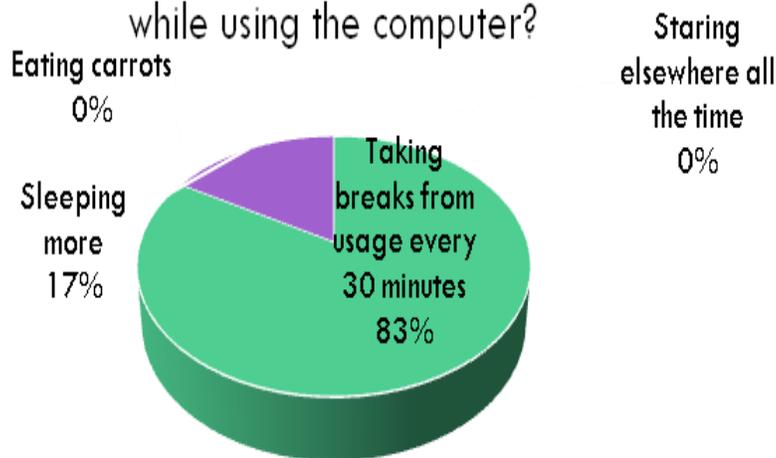
Q4 Do you do any near work?



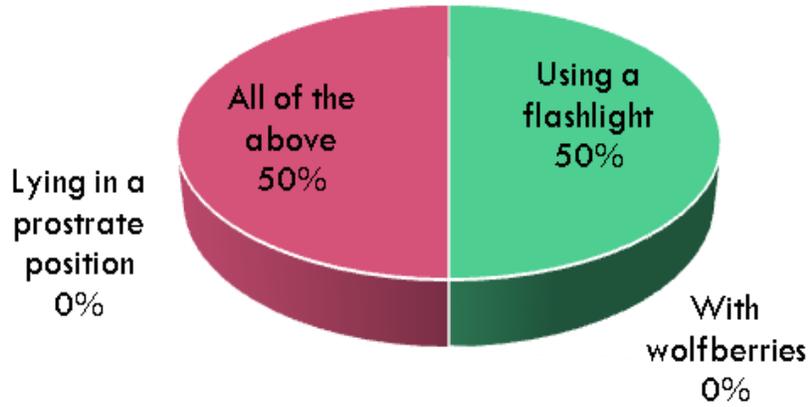
Q5 If yes, please tick which of the below near work activities that you do



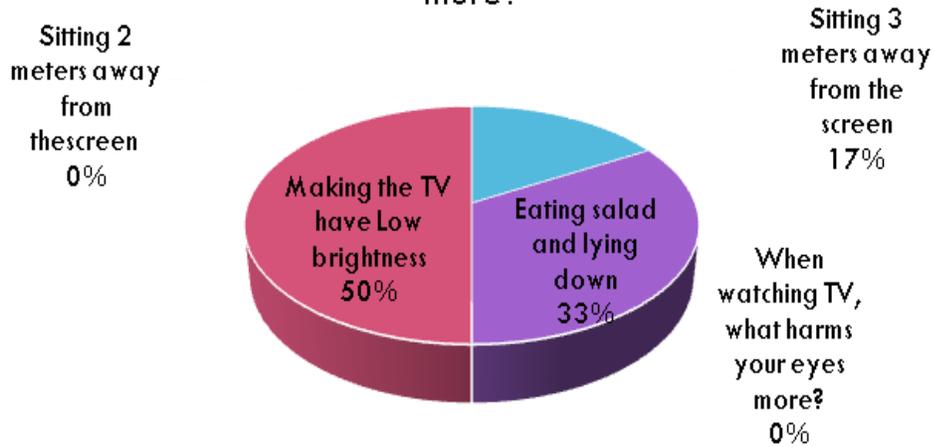
Q6 What best to protect your eyesight while using the computer?



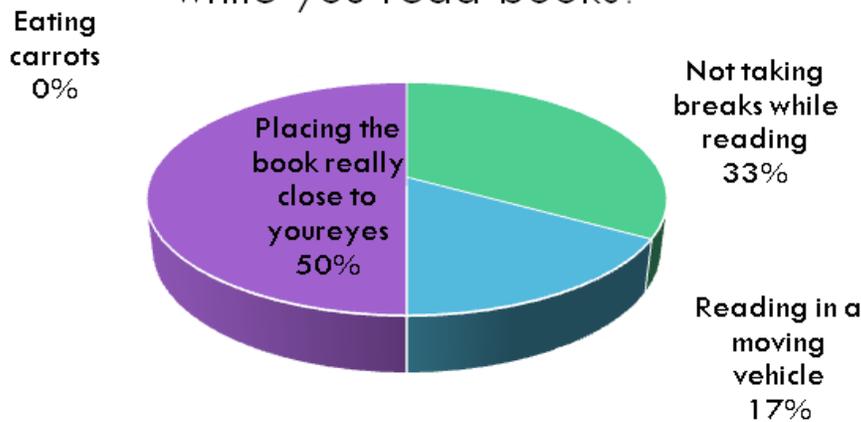
Q7 How best to read at night?



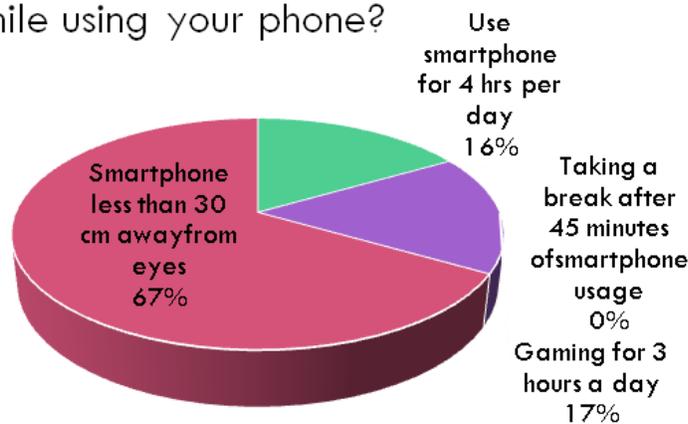
Q8 When watching TV, what harms your eyes more?



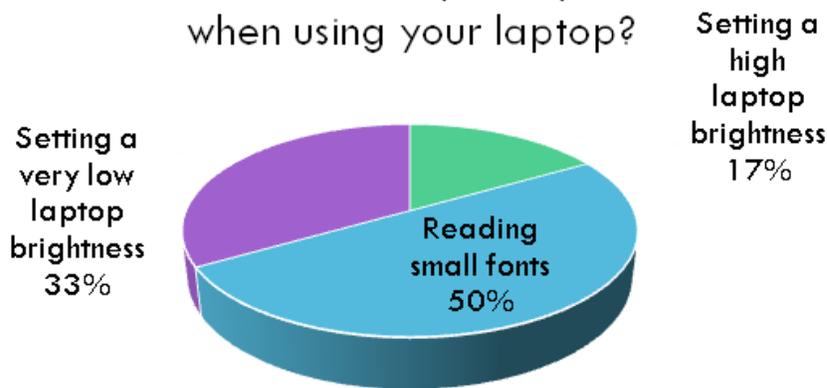
Q9 What harms your eyes more while you read books?



Q10 What harms your eyes more while using your phone?



Q11 What harms your eyes more when using your laptop?



3.3 Development of Resources

Using a wide range of websites, we researched on what harmed eyes more based on four different scenarios, using phone, computer, watching television or reading books. Once we found the different degrees of harmful effects for each action in each scenario, we began to record the information and create the cards. Rectangular shaped pieces each of different colours and designs imprinted with facts on myopia were pasted on rectangular cut-out cardboard paper. In-game currency called vision credits, each of different value and colour were also printed and cut out into 7.4cm x 4.2cm cards. A rulebook completed the game set.

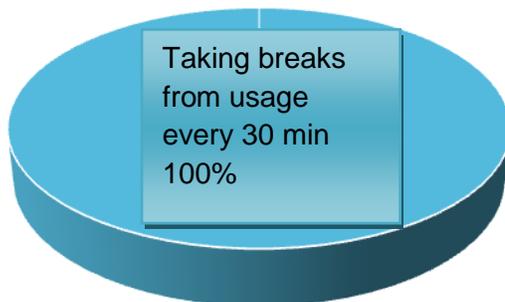
3.4 Pilot Test

2 rounds of pilot tests were administered to students. They were introduced to the game and invited to play them with the group, after which they had to do a post-game survey to provide feedback and what they had learnt.

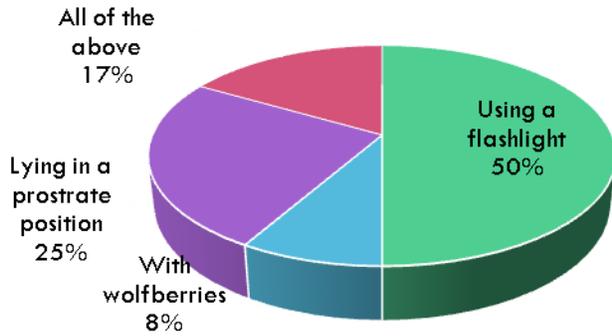
From the post-game survey, respondents, on average, were able to correctly answer 64% of the questions; up from 56% from the pre-game survey.

The feedback received was generally positive. All respondents found the game interesting, with 70% finding the game quite interesting and very interesting. All respondents also rated the game as an effective learning tool, with 50% finding it effective and 50% quite effective. 90% of the respondents will recommend the game to others.

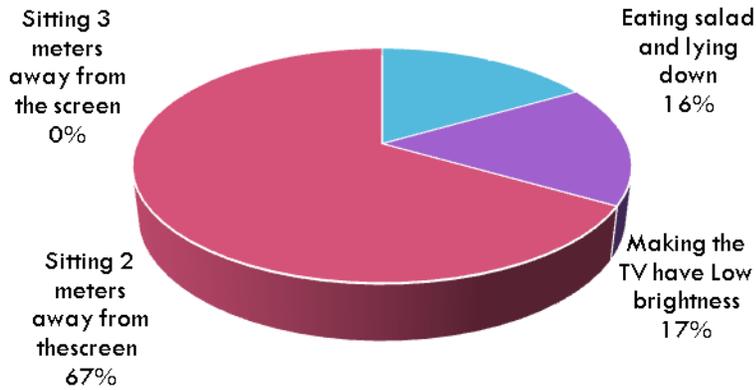
Q1 What to best protect your eyesight while using the computer?



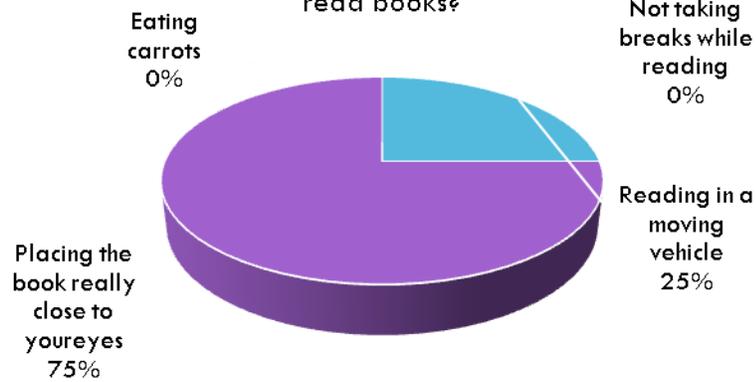
Q2 How best to read at night?

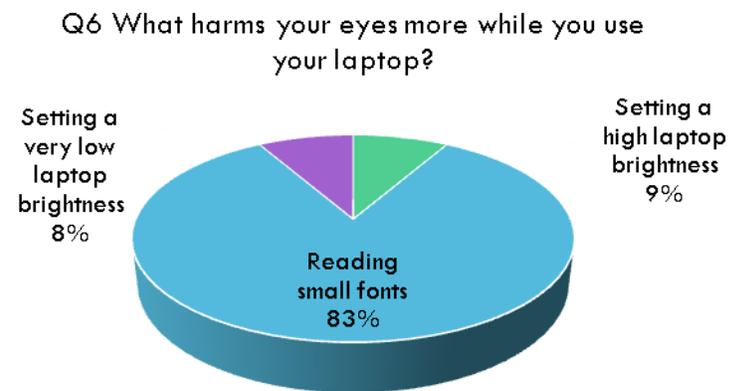
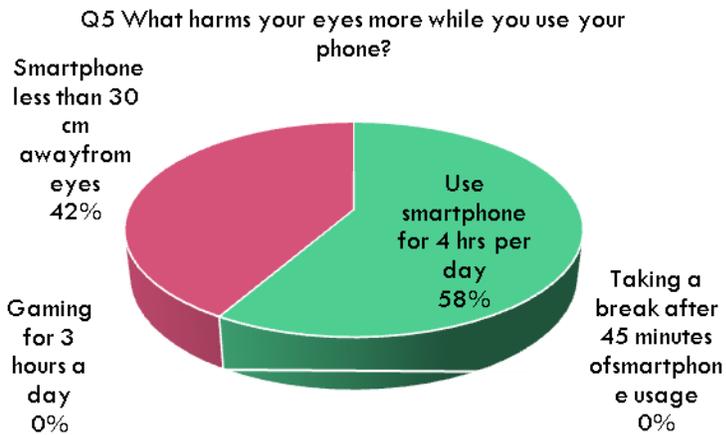


Q3 When watching TV, what harms your eyes more?



Q4 What harms your eyes more while you read books?





- No (2)
- Nope it's too good.
- Faster
- Better art will be better
- maybe have higher quality cards
- pace too slow, please make the game mechanics more player-interactive
- Game is fun and unpredictable

However, it was clear that though feedback had been positive, there could be improvements for the game.

4 OUTCOME AND DISCUSSION

Although the pilot test was a success, with most participants giving positive feedback, we agreed to continue improving our game to appeal to more people in the future. One negative aspect of our game was that the pacing may be slow and some players may feel bored after some time. With regards to this, we decided not to use the 50 vision credits for game play so the game would not drag and could end faster.

Now that Myopuno had been introduced to lower secondary students, we were confident that it could be introduced to a younger audience, like primary school students, especially when Myopuno was easy to learn and that it was more important for the younger ones to be educated on myopia. Creating more copies of Myopuno and introducing it to our former teachers could allow primary school students to play it.

Also, after the game, some players could forget information on myopia, undermining the main aim of Myopuno, which was to teach players on myopia. This could be solved by inserting questions on myopia in the middle of the game, with players having to answer them in a specific time limit to gain more vision credits or vice versa.

These improvements could be accomplished if we had the chance to follow up on this project and upgrade our game in future project works. We were optimistic that it would be achieved.

5 CONCLUSION

Project Save Our Sights had been a test of our mental and physical bounds. In the completion of this project, though we hoped that we could continue improving on it, we had learnt many skills and overcome many challenges. The main challenge, and the most dangerous one, was procrastination. We successfully overcame it by encouraging each other to work harder. We also had many setbacks, the one that actually shaped the project to what it is today, is when we received feedback that using a digital game might actually worsen the player's myopia and not improve it. This caused us to change course, setting a new one in which we decided to make a physical game, just like the final product. Creativity and critical thinking helped us in the original and second design stage especially the second one, when everyone else had already finished planning and designing. Perseverance and the determination to complete drove our desire to

succeed as some of our classmates refused to help us with the pilot test, resulting in many wasted recesses waiting in the classroom looking for people to help us. Learning to give way was the final piece of the puzzle as there were frequent arguments over whose idea to use. Overall, though we encountered many obstacles, we were proud that we had successfully completed our project.

6 REFERENCES

- Boyd, K. (1 September, 2013). *Nearsightedness: What Is Myopia*. Retrieved from <https://www.aa.org/eye-health/diseases/myopia-nearsightedness>
- HealthHub. (n.d.). *Myopia- A World We Don't Want for Our Kids*. Retrieved from https://www.healthhub.sg/live-healthy/487/myopia_aworldwedontwantforourkids
- Toh, S. (16 August, 2017). Myopia rate here stable amid rising levels worldwide. *The Straits Times*. Retrieved from <https://www.straitstimes.com/singapore/myopia-rate-here-stable-amid-rising-levels-worldwide>
- Cheow, S. A. (26 September, 2017). App sets sights on addressing myopia in kids. *The Straits Times*.
- Holden, B. A., Fricke, T. R., Wilson, D. A., Jong, M., Naidoo, K. S., Sankaridurg, P., . . . Resnikoff, S. (11 February, 2016). *Global Prevalence of Myopia and High Myopia and Temporal Trends from 2000 through 2050*. Retrieved from [https://www.aaajournal.org/article/S0161-6420\(16\)00025-7/abstract](https://www.aaajournal.org/article/S0161-6420(16)00025-7/abstract)
- Foster, P. J., & Jiang, Y. (February, 2014). *Epidemiology of myopia*. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3930282/>
- Brien Holden Vision Institute. (n.d.). *Myopia- Growing Prevalence* . Retrieved from Brien Holden Vision Institute: <https://www.brienholdenvision.org/myopia-prevalence.html>

Images

- Plano*. (n.d.). Retrieved from <https://www.plano.co/>
- Brien Holden Vision Institute. (n.d.). *Myopia- Growing Prevalence* . Retrieved from Brien Holden Vision Institute: <https://www.brienholdenvision.org/myopia-prevalence.html>

