

CAT 4 RESOURCE DEVELOPMENT

Group 4-031

PROJECT SLEEP BETTER

Brandon Lim 2A1 (02)

Isaac Wong 2A1 (13)

Joash Tan 2A1 (16)

Loy Ji Xuan Kyler 2A1 (20)

ABSTRACT

Sleep Better is an integrated, intuitive and user-friendly online platform aimed at assisting Lower Secondary students to recognise the importance of sleep and how to achieve a higher quality of rest. As students become more tech-savvy nowadays, they are likely to access most information from their digital devices. Hence, our resources include a webpage, interactive app, social media pages and videos to better engage and allow them to grasp such concepts effortlessly, from their preferred platforms. We utilise a user-centred 4E approach - Engage, educate, encourage and experience to entice users, promoting a more restful night's rest.

1 INTRODUCTION

1.1 Rationale

Studies have shown that sleep deprivation is getting increasingly prevalent. Moreover, in our needs analysis carried out previously, it has become evident that information about sleep is not readily available on a single platform, resulting in inconvenience and difficulty in finding reliable information. Hence, students are often weary and enervated during lessons, even proving detrimental to their daily lives.

1.2 Objectives

The main objectives of our project is to:

- Raise more awareness about the importance of healthy sleep
- Help teenagers achieve high and improved quality of sleep, practising better sleeping habits through the use of our engaging resources.

1.3 Target Audience

The target audience would be Lower Secondary students. They tend to delay their circadian rhythms during this period as they undergo puberty. Thus, sleep patterns change drastically, bringing about worsened sleep and even sleep deprivation.

FACTORS THAT INFLUENCE SLEEP

Sleep duration tends to decrease during adolescence compared with earlier in childhood. With increasing age, adolescents usually go to bed later due to the convergence of biological and socio-cultural factors (discussed below) ¹, which can result in reduced time in bed for sleep on school nights.

Consequently, many adolescents are exposed to partial sleep deprivation during the school week and exhibit 'catch-up' sleep on weekends (Refer to Figure 1).

The National Sleep Foundation (NSF) in the United States recommends that adolescents get 8 to 10 hours of sleep per night for optimal health and cognitive functioning ².

Based on data collected in Singapore, about 80% of adolescents report getting less sleep than what is recommended by the NSF. This is alarming because insufficient sleep in adolescents has been linked with impaired learning and mood disturbances ³.

Adolescence is associated with biological changes that affect the circadian timing of sleep. There is a phase delay shift in circadian rhythms during adolescence that results in a preference for later bedtimes and wake-up times. Hence, adolescents at a more mature Tanner stage have later bedtimes and a delayed circadian rhythm of the sleep-promoting hormone melatonin ⁴.

The ability to fall asleep also depends on how long a person has been awake, due to the build-up of homeostatic sleep pressure. There is evidence that the build-up of sleep pressure during wakefulness occurs more slowly in adolescents compared with younger children ⁵, which makes it easier for post-pubertal children to delay their bedtime.

Therefore, contrary to popular belief, achieving earlier bedtimes on school nights is not simply a matter of exercising better self-discipline. Rather, adolescents are biologically predisposed to go to bed later than younger children and adults.

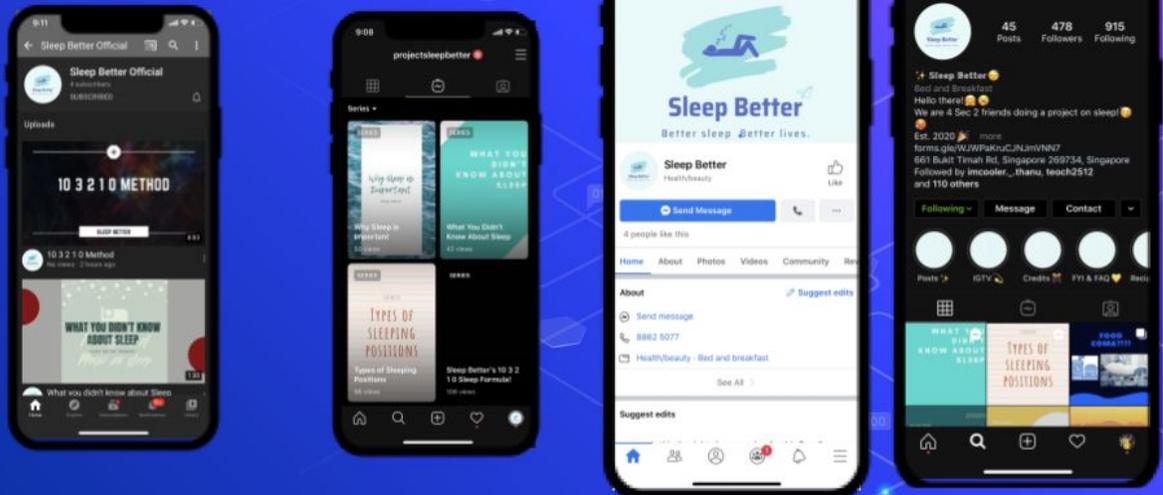
Sleep duration (h)	School nights (%)	Weekend nights (%)
< 7	65	10
7 to <8	25	15
8 or more	10	80

Figure 1 Distribution of nocturnal sleep duration in adolescents. Based on self-reported sleep behaviour (n = 2,214), most adolescents get insufficient sleep on school nights and attempt to catch up on sleep on weekend nights.

1.4 Resources

For this project, we have designed various resources, namely our Instagram and Facebook pages, Wix website, Youtube channel, and interactive app. They were chosen because they would be more likely to be utilised by Lower Secondary students, who are comfortable with such platforms.

Social Media Pages & Videos



23

Interactive App & Website



24

Through the wide plethora of resources, we were able to better reach our target audience and cater to their needs.

2 REVIEW

In Singapore, Philip's 2019 sleep study found that Singaporeans are among the world's worst sleepers, averaging only 6.3 hours of sleep on weekdays and 6.7 hours on weekends, lower than the global average of 6.8 hours and 7.8 hours respectively. Zooming in towards our target audience, studies have proven that teenagers are receiving poorer and less sleep due to stresses and heavy school work.

Chronic sleep deprivation has been reported to be associated with greater mortality via a large number of negative health outcomes, including obesity, diabetes, and cardiovascular disease' according to Dr Malcolm von Schantz of the University of Surrey.

As we analyse the current available resources, it is evident that information is being disseminated in a way where the receiver is rather uninterested. Moreover, information remains passive, where readers need to be proactive about learning, a major flaw as people are less likely to know the fundamentals of sleep and methods to improve their sleep quality.

3 METHODOLOGY

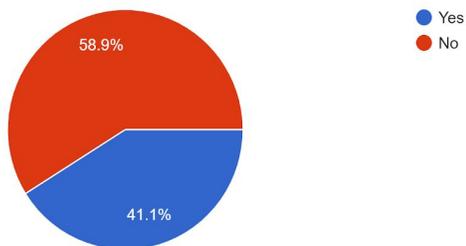
3.1 Needs Analysis

We conducted a needs analysis to ascertain the relevance of our project earlier this year. Our group strategically targeted Lower Secondary students, our target audience. Therefore, all our 56 Lower Secondary respondents were able to provide us with their most constructive and valuable inputs for our project.

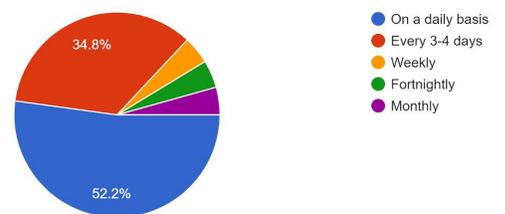
3.2 Survey Results

The results of our needs analysis:

Do you have problems falling asleep at night?
56 responses

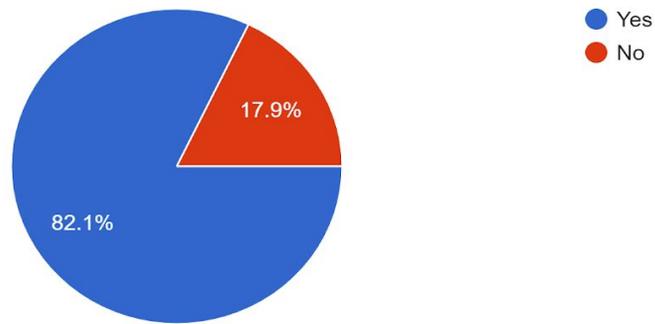


How often does this occur?
23 responses



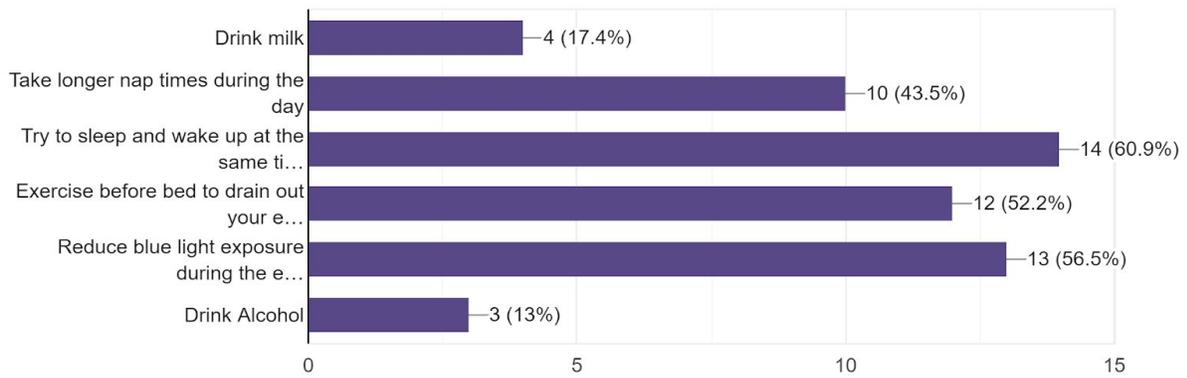
Do you think more awareness should be raised about sleep? (Sleep disorders, bad sleeping postures etc.)

56 responses



Do you know of ways to solve sleeping problems correctly?

23 responses



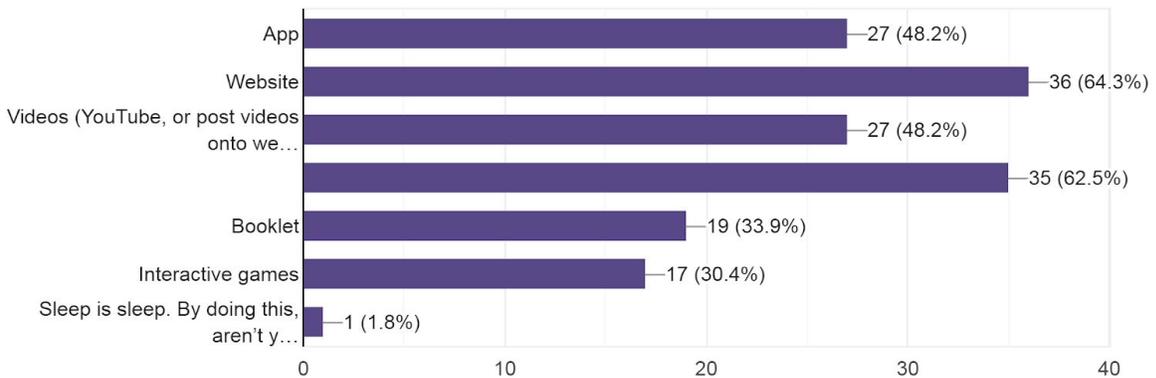
Do you know of ways to solve sleeping problems correctly?

23 responses



How would you like this information about sleep to be presented? (You may choose as many options as you like)

56 responses



Many respondents were unable to provide accurate solutions to solving their sleep problems, reflecting the paramount importance of our project, clearing misconceptions about sleep and in turn achieving a higher quality of sleep.

3.3 Development of Resources

Website [\[Link\]](#)

After many rounds of fact checking, we collated verified information about sleep from a multitude of sources. We added the information into the Wix webpage, splitting them into various categories to incorporate functionality and user-friendliness. Inspired by a clean and minimalistic design, we struck a balance between simplicity and informativeness for our webpage. Our webpage drafts went through rounds of vetting by our mentor, as well as the student population, ensuring that our content was engaging, educational, informative and easily accessible, truly helping teenagers sleep better..

Social Media Pages [\[Facebook / Instagram\]](#)

We worked on our Instagram and Facebook pages, making it informative yet engaging. Templates were meticulously chosen and edited in order to make post designs simplistic, appealing, and informative. Through this resource, teenagers are able to find out about different topics easily and conveniently.

Interactive App

Our interactive app includes a blog that entitles users to post information about sleep. This allows information to come from both ends rather than us spoon-feeding users with endless content. To ensure the reliability of information provided by the community, we are able to comment and clarify misconceptions on topics provided by the Lower Secondary students. As such, the blog provides an avenue for people to share and view accurate and verified content.



Welcome to ProjectSleepBetter's app. In this app, you can post information about sleep to benefit the online community.

[Enter](#)

About Us



We are a group of Secondary 2 friends doing a project on sleep! Our group consists of four group member, Joash, Kyler, Isaac and Brandon. Through this app, we would like to educate you about sleep and teach how to sleep better.

[Back](#)



- [About Us](#)
- [Our Website](#)
- [Our Social Media Page](#)
- [Blog](#)
- [SleepBetter Quiz](#)
- [Spotify Playlist](#)

[Back](#)

Our Social Media Pages



Visit our social media websites to learn more about sleep through our fun and interesting posts!

[Back](#)



Type in your message

[Post](#)

[See community post](#)

[Back](#)

TOMyumSoup678



Hey guys, chamomile is sooooo effective to help us sleep better! You guys should try it! Did you know that Chamomile contains a flavonoid called Apigenin and it has anti-stress properties. It binds to receptors in the brain that increase levels of gaba, a neurotransmitter that can have a calming and sedative effect.

Killerrrrboyyyyy

Symptoms:

- Waking up with a very sore or dry throat
- Loud snoring
- Occasionally waking up with a choking or gasping sensation
- Sleepiness or lack of energy during the day
- Morning headaches
- Restlessness during sleep

Videos [\[Link\]](#)

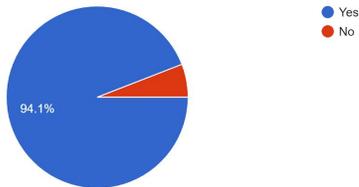
We were set to begin filming our documentaries after proposal evaluation. However, due to unforeseen circumstances, we adapted and filmed from home. We created videos that were easily applicable to teenager's lives, including different sleep postures and the 10-3-2-1-0 method, helping teenager's learn about new techniques when sleeping. Having been uploaded and viewed on various platforms such as YouTube and IGTV, our videos facilitate a broader scope of audiences within the targeted group.

3.4 Pilot Test

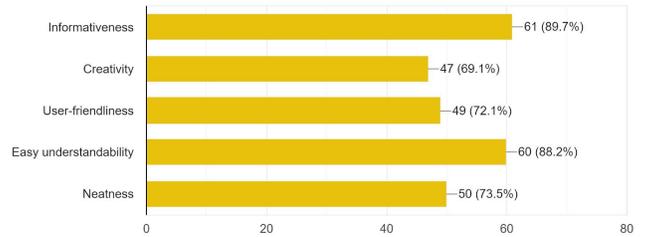
Our pilot test was administered to 68 Lower Secondary students. We sent out links to the pilot test via social media platforms, seeking students' opinions on our project. After an immersive tour of our resources, our respondents provided us with valuable feedback we utilised to improve our resources.

Results of our pilot test:

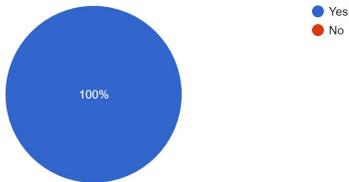
Do you like our Instagram / Facebook page?
68 responses



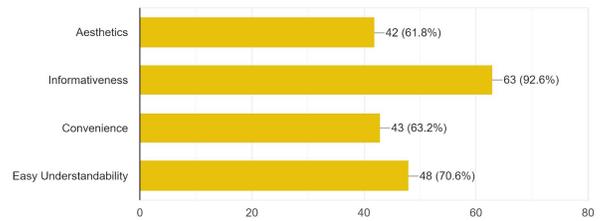
Please select the following you think our social media pages have achieved:
68 responses



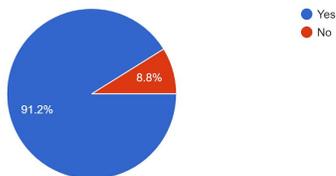
Do you think that the videos is a good source of information?
68 responses



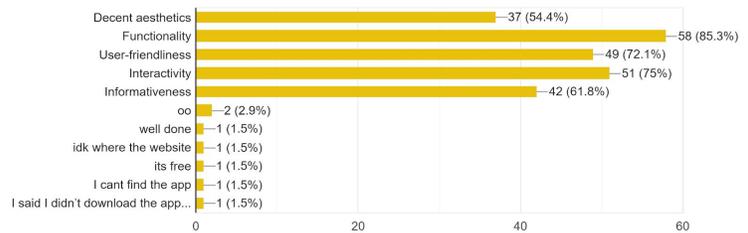
Which of the following have we achieved through this resource? (Videos)
68 responses



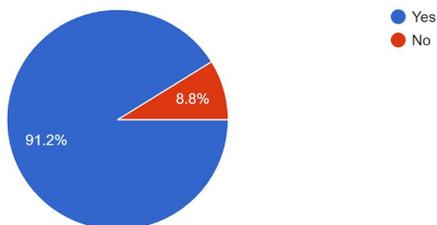
Did you like our interactive app?
68 responses



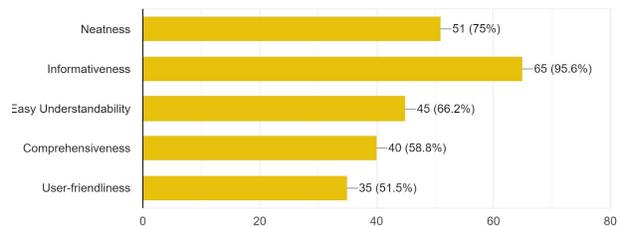
Which of the following have we achieved through this resource? (App)
68 responses



Do you like our website?
68 responses



Which of the following have we achieved through this resource (Website)
68 responses



Pilot Test Feedback



"I learnt more about the importance of sleep and its benefits"

"There is more to sleep than meets the eye"

"Videos helped me to understand the topics better"

"I feel like this project has an interesting and engaging touch to it"

34

Pilot Test Feedback



"I now know more about what to do before sleeping to get a better sleeping experience"

"It is important to take care of my health instead of sleeping at 12 everyday"

"Refraining from using electronic devices helps us to fall asleep easier"

"Sleep is very important, and what we do before sleep can affect it greatly"

35

Pilot Test Feedback

Areas of strength

- Video was entertaining
- The social media pages had posts which were captivating
- Simple yet informative
- App was user-friendly

Areas of improvement

- Video a bit lengthy
- App not aesthetically-pleasing
- Website and social media pages can be more organised

36

Overall, the feedback was positive and they said that our project was easy to follow and easily accessible due to the wide range of resources available. However, there were areas of improvement, including user-friendliness and aesthetics.

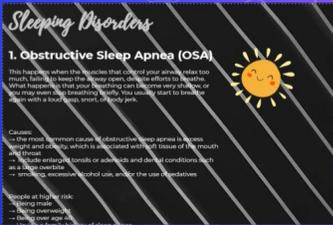
4 OUTCOME AND DISCUSSION

After considering many responses, topics were further simplified and broken down into separate segments, enhancing comprehensiveness. Additionally, we added citations as we had neglected them previously. For social media, we further organised and improved the quality of our posts in accordance with feedback received. We added a new segment called TGIF, where different posts on sleep topics concerning teenagers were added every Friday. We also cut short the video length, maintaining content substantiality and informativeness. For our app, we changed the background colour to a more soothing tone visually, adjusting the elements so that it fits the screen. Additionally, we added another button that brings users to our website to improve the functionality of the app.

Website

After

- Topic was further simplified into simpler terms, as well as broken down into separate segments to enhance comprehensiveness

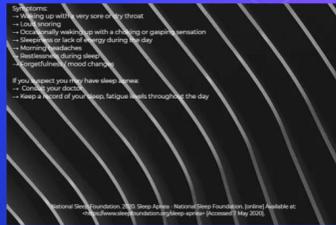


38

Website

After

- Added citations at the bottom instead of in a new page

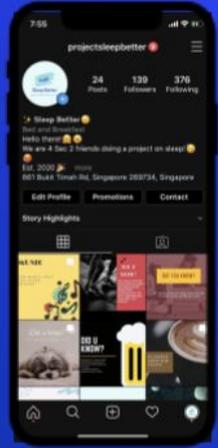


39

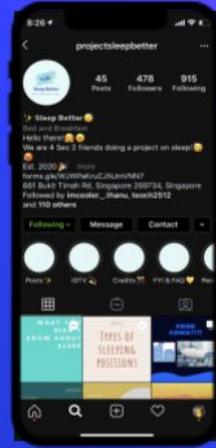
Social Media Pages

Website and social media pages can be more organised

Before



After



40

Videos

Video a bit lengthy

Before



After



8 minutes and 2 seconds → 1 min 15 seconds

41

Interactive App

App not aesthetically-pleasing

Before



After



42

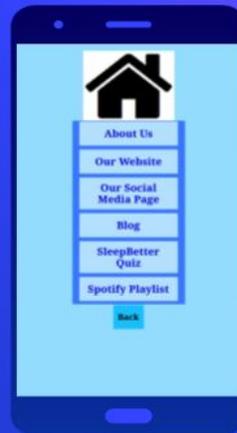
Interactive App

App not aesthetically-pleasing

Before



After



43

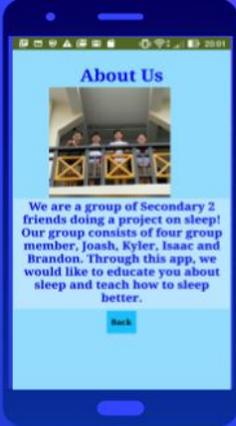
App not aesthetically-pleasing

Interactive App

Before



After



App not aesthetically-pleasing

Interactive App

Before



After



Interactive App

App not aesthetically-pleasing

Before



After



46

Interactive App

App not aesthetically-pleasing

Before



After



47

Limitations of our project include the issue of sleep covering an extensive range of topics that cannot be fully covered. Moreover, app-building softwares has constraints in design customisation. Due to COVID-19, we were unable to get professional opinions from experts such as Dr Auslia Lim, a mental psychologist from the Ministry of Health, to comment on our project, as well as survey respondents to assess our improvements implemented.

5 CONCLUSION

Sleep Better has enabled us to benefit teenagers from all walks of life, guiding them towards improving the sleep aspect of their lives. Although it required rigorous effort to design our resources while searching for and compiling gathered information, it was an enriching learning experience overall. The joy of being able to help students achieve better sleep motivated us to keep going despite the various challenges we had faced. From this project, everyone of us was able to make use of a multitude of soft skills and techniques to make the best decisions during the process. We were able to harness various critical thinking skills and methods, including elements of thought and the decision matrix, helping us open new doors moving forward. We encountered new challenges, faced numerous arguments on certain ideas, but these intangible experiences truly built our character through firsthand experience. Perseverance, teamwork, and commitment are essential for the final stretch of completion as we tied up loose ends meticulously. Despite our differences in personality and opinions, we learnt to accept, step into others' shoes, giving in at the right time, and seeing how the collective ideas of everyone can equate to a desirable outcome.

6 REFERENCES

- Green, E. (2019, July 31). Study finds Singaporeans are among the world's worst sleepers. Retrieved August 19, 2020, from <https://ergoworks.com.sg/article/blogart10>
- High school students getting less sleep. (2020, July 28). Retrieved August 19, 2020, from <https://www.sleepfoundation.org/articles/high-school-students-getting-less-sleep>
- [Digital image]. (n.d.). Retrieved March 23, 2020, from <https://pluspng.com/img-png/green-tick-png-green-tick-png-file-570.png>
- SingHealth Duke-NUS Sleep Centre. (n.d.). Retrieved August 20, 2020, from <https://www.singhealth.com.sg/news/medical-news/sleep-in-adolescence>
- Philips. (2019, November 08). Singaporeans among the world's worst sleepers. Retrieved August 20, 2020, from <https://www.philips.com.sg/a-w/about/news/archive/standard/news/press/2019/20190315-singaporeans-among-the-worlds-worst-sleepers>
- Roomer, J. (2019, August 06). 8 Scientifically Proven Steps To Get A Better Night's Sleep. Retrieved August 20, 2020, from <https://medium.com/personal-growth-lab/8-scientifically-proven-steps-to-get-a-better-nights-sleep-bfc31a263a>