SOPHY HUANG

Design Portfolio

I'M SOPHY HUANG.

Creativity and innovative thinking matter a lot to me.

I love arts and music. I think the passion for creativity and arts really helps me think outside of the box and challenge myself.

With both in mind, I have been learning about design as a hobby.

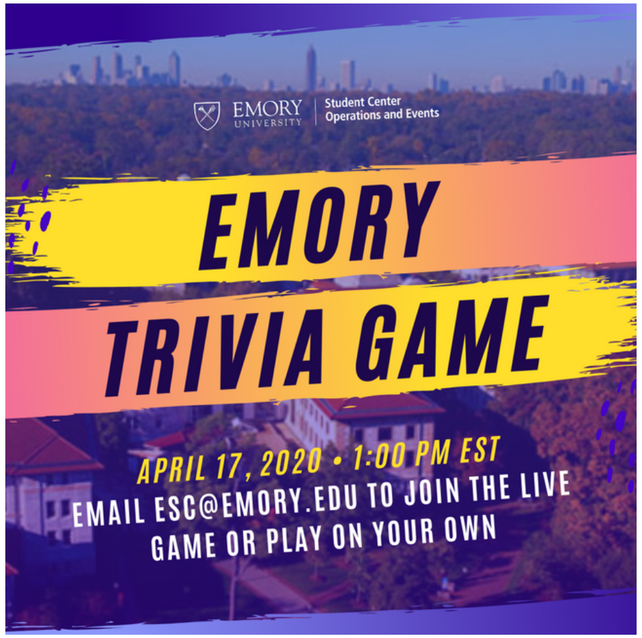
I consider design as one of my favorite hobbies. It enhances the visual aspect of my work across all disciplines.

EMORY STUDENT CENTER

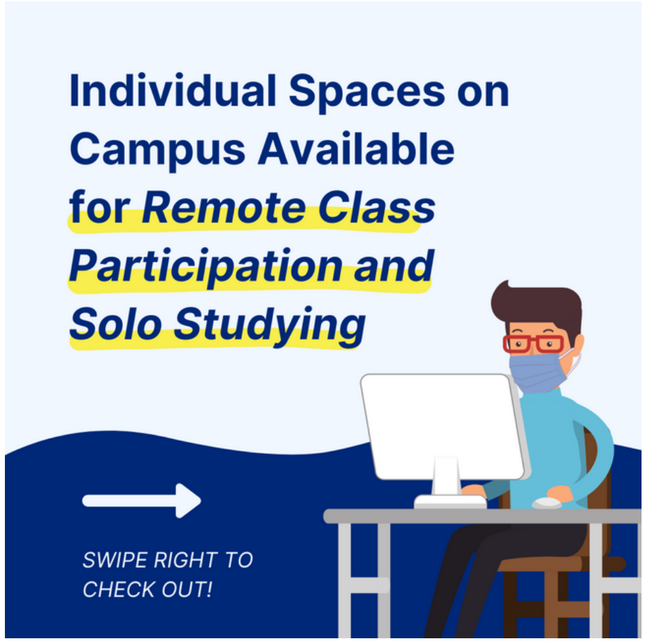
A resource hub for students

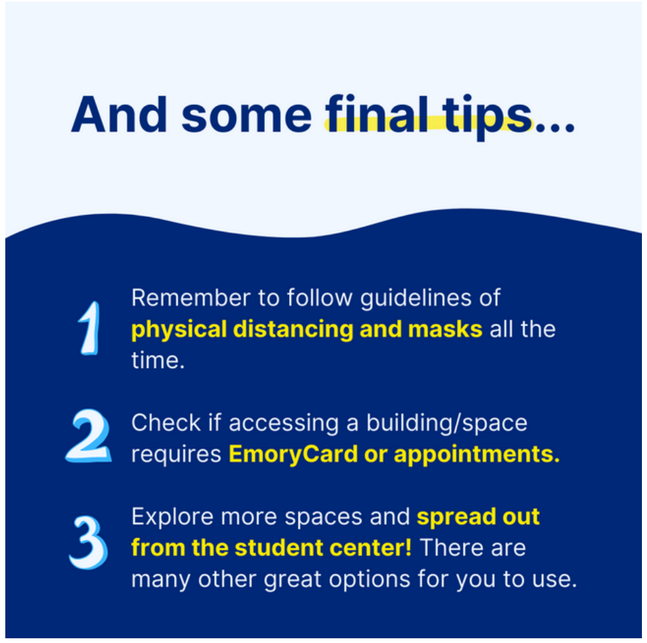
The Student Center Operations and Events Office provides programs and services that are culturally engaging, diverse in nature and support the educational mission of the institution in an environment that is conducive to learning and personal growth. By providing these programs and services we hope to impact student recruitment, satisfaction and retention/progression.

Social Media Posts



Virtual Projects





EMORY STUDENT CENTER

WE ARE OPEN!!!

Emory community members who have completed the on-campus onboarding process can access the facility during building hours with their Emory ID.

EMORY

The building is open to members of the Emory community who have completed the on-campus onboarding process. Members of the community and public who have not completed these steps should not enter.

Link to check your onboarding status:
https://returntocampus.emory.edu/

Building Hours

Monday-Friday:

7 am-10 pm

Saturday-Sunday:

10 am-10 pm

Emory community members who have completed the on-campus onboarding process can access the facility during building hours with their Emory ID.

Building Signages

Digital Screen Signage

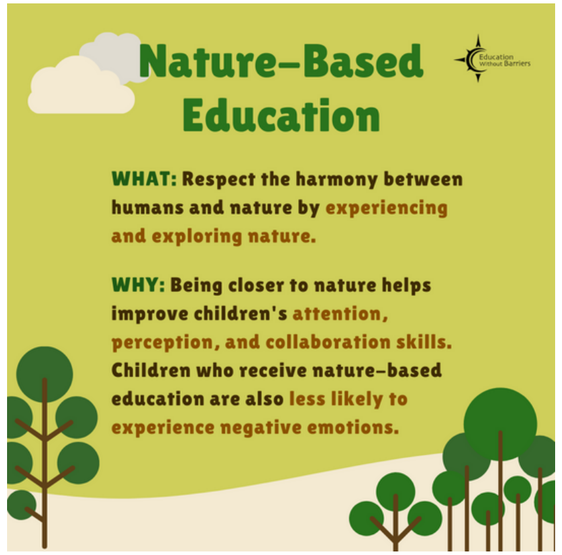
EDUCATION WITHOUT BARRIERS

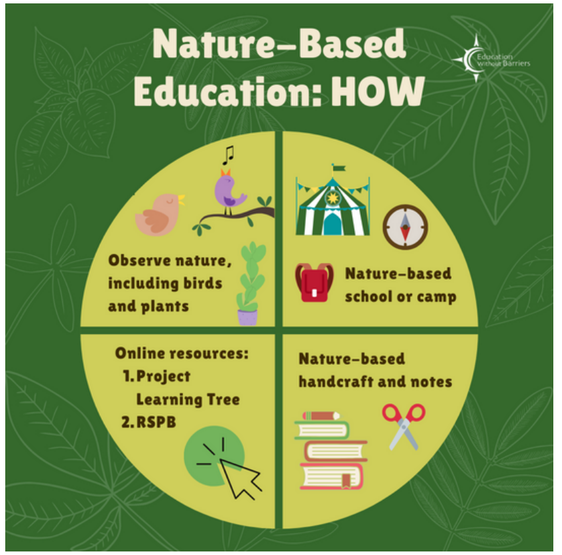
A nonprofit organization

Education Without Barriers is an end-to-end online tutoring and mentorship platform aiming to empower and improve access to education for underprivileged children across the world. I lead the digital marketing team of American Chapter to elevate our influence through different channels.

The Sticker Set

Infographics

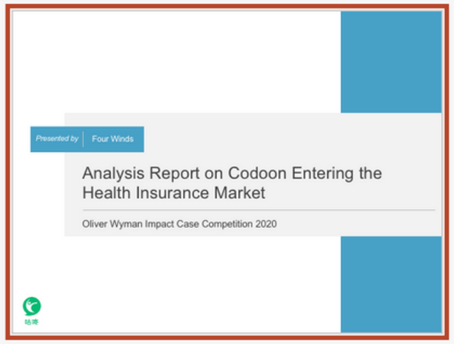




Social Media Posts

OTHER PROJECTS

Academic, Freelance, or Extracurricular



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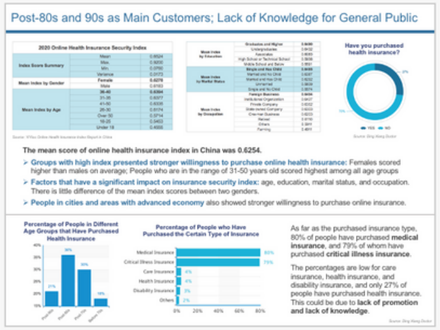

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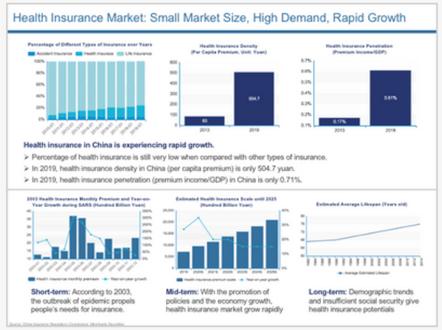

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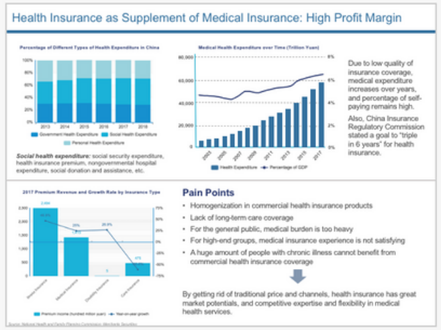

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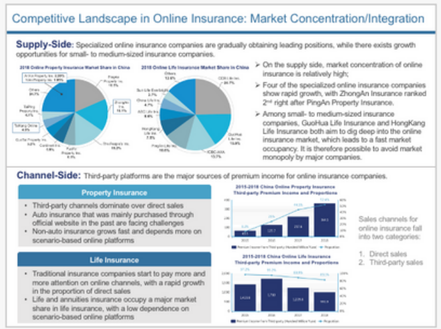

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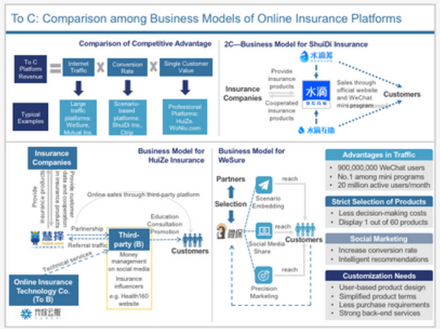

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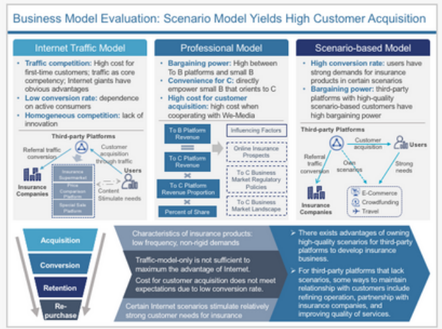

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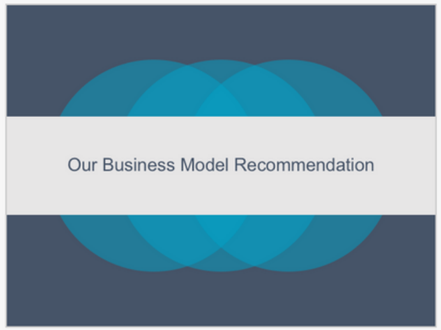

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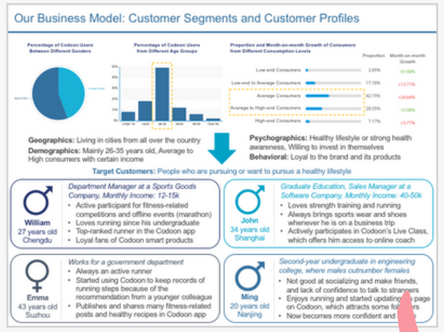

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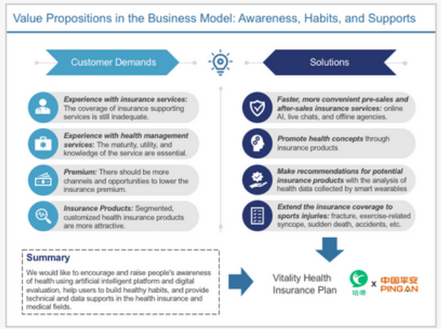

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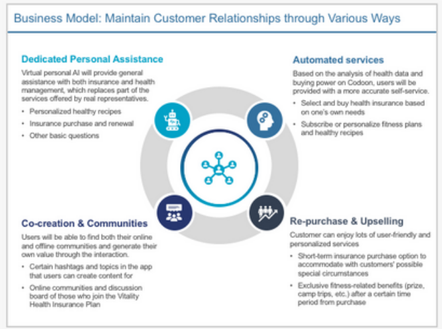

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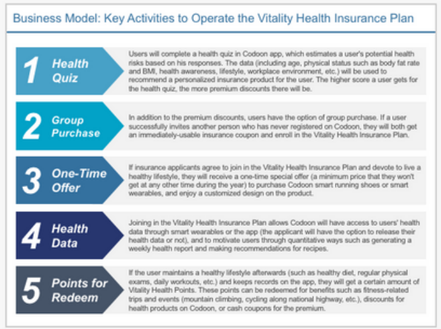

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PowerPoint Presentation

PlayLingua: An App Designed for Children from Bilingual Families

WHO IS THIS APP FOR?

PlayLingua is an iPad app targeted towards **children who are 2 to 7 years old in bilingual households.** As children easily lose their second language ability during development, we designed this app to help children capitalize on the critical period for language development in order to retain their knowledge of a second language beyond childhood.

WHAT CAN YOUR KID GET OUT OF THIS APP?

You will see improvements in your child from the following 3 aspects:

- Maintain the native language
- Improve languages skills in different dimensions and expand the use of the native language
- Apply newly acquired language in real world contexts and enhance social skills

HOW DOES THE APP WORK?

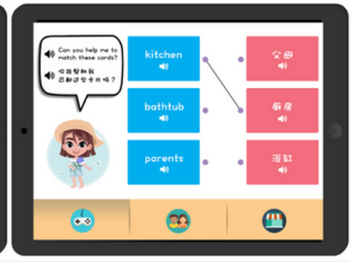
PlayLingua teaches children language using game-based learning techniques.

First, children select their languages and complete a pre-assessment that determines their language level. Children then customize a character and navigate through language-centered games (e.g., word matching for young children, conversational games for older children). Stories follow the character under real-life settings such as home and school. Audio sounds recorded by native speakers are also embedded in the games.

As children progress in levels, they also get points that can be used to do things such as buying clothes for the character. The difficulty of the game increases when children achieves a higher level.

WHY DOES YOUR KID NEED IT?

1. **Language development is crucial.** It is what facilitates communication among people.
2. **Practice makes perfect.** Children need more exposure to both reading and listening in order to maintain their second language.
3. **Home language plays an important role.** With our app, children can simply open the app and learn from the comfort of home.
4. **Cartoon and games are attractive for kids,** which makes game-based learning more easily accepted by children. They also help memorization of the content.
5. **Our app has all the above functions to make language learning fun, interactive, and engaging!**



Sophy Huang, Val Pacheco, Alexa Capo

Colored Paper Provides UV Protection in Yeast

Sophy Huang, Qiao Jiao, Omer Kirmaz, Deborah Boboye, Dr. Cristy Tower-Gilchrist
Emory University

Introduction & Background

Ultraviolet light (UV) has been known to be detrimental to human health. UV exposure can lead to a severe damage of the skin and cause premature aging, which can be characterized by pigmentation difference of the skin, wrinkles, etc. (Cohen et. Al. 2016). The reason why is that it causes damage in the DNA that may lead to various health complications. One study found that UV radiation in Australia has been increasing by 2-6% annually since 1990 (Deschamps et. Al. 2011). This is an important finding as in the study they also mention that Australia has the highest rates of skin cancer in the world. Moreover, another study found that UV radiation is the source of adverse effects on the stability of the human genome and causes DNA lesions, including breaks in the DNA strand (Rastogi et. Al. 2010). It is suggested that colors like red and blue are more effective in UV protection than yellow (Riva et. Al. 2009). Our research went a little deeper as we explored the effectiveness of the shades white and black in UV protection. We want to know: Does colored paper protect organisms from UV light? And is black or white color more protective?

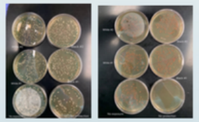
Yeast is a common laboratory experiment subject for students studying the effect of UV light on cells. Its genes possess significant mammalian homologs, reflecting the functional domains of proteins, which can be used to model humans (Botstein et. Al. 1997). A research conducted by researchers at the University of Kentucky Medical Center suggests that an abrupt improvement in survival rate may occur when the radiation exposure reaches a well-defined threshold level of UV exposure, which may explain why we observed a population growth in the Rad1 yeast population in the first experiment (Calkins et. Al. 1978). In the two experiments overall, we aim to see the effectiveness of paper in blocking UV light from penetrating the skin; as well as the differential protective ability of the colors black and white. Our study will utilize two types of yeast for measuring the effectiveness of the protectants; these are Rad1 and Wild Type yeasts.

Objectives

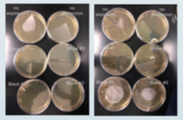
The purpose of this experiment is to determine whether black and white paper have an effect on the yeast population when exposed to UV light.

Methods

Plates were labeled with yeast type: wild type (WT) or Rad1. Each was labeled with color of the paper that covered it (black-B or white-W) or "no exposure" (positive control) or "no protection" (negative control): 2 black, 2 white, 1 no exposure and 1 no protection for both yeast types. Each was plated with 100 microliters of 6-fold dilution onto 6 WT plates and 6 Rad1 plates. 4 plates labeled "W" for white were placed agar face-down on white paper, and the 4 plates labeled "B" for black were placed agar face-down on black paper. Plates, all except the "no exposure" ones were exposed to UV light for 5 seconds in the first experiment and 25 seconds in the second. Plates were immediately placed in brown paper bag and stored agar side-up. Data was collected one week after the exposure.



Experiment 1
left, wild type yeast; right, Rad1 type yeast



Experiment 2
left, wild type yeast; right, Rad1 type yeast

Results

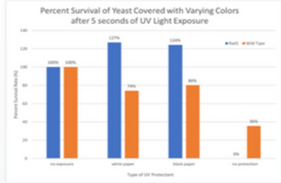


Figure 1: Wild type and Rad1 type yeast yield different percentage of survival when applied with different UV protection
White-paper-covered and black-paper-covered conditions were graphed based on average of 2 replicates each.

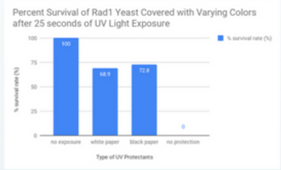


Figure 2: Covering with paper helps protect against UV exposure, but black and white colors show similar effects as UV protectants
Percent survival rates are calculated based on yeast colony counts after one week of the UV exposure. White-paper-covered and black-paper-covered conditions were graphed based on the average of 2 replicates each.

Discussion

There seems to be an abnormality with the results of our first experiment. By definition, a survival rate cannot be more than a 100%, and we percent survival rates higher than 100% for Rad1 type yeast. These were based on comparing the number of colonies on our exposed plates with the positive control (no exposure). We already know that UV light exposure kills yeast, and that the time yeast are exposed to UV light is inversely related to their survival rates. It is likely that this error was caused by the exposure time for the first experiment being insufficient at 5 seconds. 5 seconds may be below the threshold that was mentioned in the introduction. Therefore, what caused the discrepancies between the exposed and the positive control were other factors that were intended to be overshadowed by the effect of UV light and not impact the data as much as they did. Due to this flaw in the first experiment, it is unclear from this data alone which color of paper is more effective in protecting against UV light (if any), as discussed in the conclusion.

However, we increased the exposure time to 25 seconds and obtained more informative results for the second experiment. Unfortunately, we ran into a systematic error that caused us to observe zero colonies for all the plates that contained wild type yeast. Because we had trials in the past where this error was not present, we saw it fit to disregard the data that seemed erroneous as it is almost certainly inconsequential in respect to our question. For Rad1 type yeast, on the other hand, we had the most colonies on the plate that was our positive control (no exposure). This demonstrates that we successfully worked the mistake that caused the first experiment to be problematic. It seems that the minimum exposure time required to affect yeast colonies negatively is between 5 and 25 seconds.

Conclusion

Based on the data presented, there is no obvious correlation between the survival rates of yeast and the type of colored protectants used in the experiment. It is possible that the five seconds of exposure time in the first experiment reaches below the threshold level of UV exposure for population reduction, causing an abrupt improvement in survival rate of the population. Therefore, the experimental results are inconclusive because of the lack of evidence to prove that variations in the colors of colored paper contribute to yeast population survival rate when exposed to UV light.

As a result, UV light exposure time was increased to 25 seconds in experiment two. The same conclusion was drawn: based on the data, it cannot be confidently concluded that either color is more effective than the other in protection from UV light damage. It should be noted that the wild type data from experiment two has been discarded due to a significant amount of error that was most likely introduced during the process of dilutions. While it is unfortunate, the data retrieved from Rad1 yeast is sufficient enough to carry on with the experiment as both yeast types are very similar in nature. The difference in population survival rate indicates a statistically significant difference between the positive control group (no exposure), negative control group (no protection), and experimental group (black and white paper protection). The application of colored paper significantly increases the survival rate of Rad1 yeast population when exposed to UV light. However, according to the data, variation in colors is not correlated to the survival rates of yeast since the experimental groups yield similar percent survival rates.

Future Direction

When looking towards the future, the next step for this project would be to increase the number of trials in order to more accurately gauge the true trend of the data. Exploring the possible differences in UV light protection in other colors such as reds, blues, and yellows might prove to be useful because perhaps, the color theory is at play. In physics, white and black are not technically colors. Black is the absorption of all colors and doesn't reflect any back to the eye, while light is the reflection of all colors. Maybe, a certain mix of colors need to be absorbed in order to combat the penetration of UV light. Furthermore, it would also be beneficial to discover if the thickness of material plays a role in UV light protection.

Acknowledgements

Special thanks to Dr. Gilchrist for providing us with a working space for this experiment. We also acknowledge Niharika Dighe's help in facilitating this experiment.

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Class projects
(Fact Sheet & Research Poster)