GLOBE AT NIGHT

Evaluative Research

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Globe at Night | CSS478

Focus and background of the project.

The domain of study is light pollution and the main effects it has on our society. Light pollution is when there is an abundant use of artificial light. Simply saying, it is an unwanted or excessive artificial light. Just like a more common topic of noise pollution, light pollution is a form of waste energy that can cause adverse effects and degrade environmental quality. The main problem with the light pollution is that it is causing problems with the health of humans, behavior of wildlife, and ability to examine stars and other celestial objects. In terms of human health, light pollution negatively affects people's internal clocks and causes sleep deprivation.

Users

The main personas we looked at were students. Due to the pandemic restrictions we were not able to look at our actual personas that we determined initially, such as a grad student and an entrepreneur. Once we were assured that the student group should be our main focus, it helped us to gain insight from a younger generation and what they know about light pollution. Since students were also online a majority of the day, it was easy for them to navigate our prototype. The students we conducted the study on were all college students around 18 - 23.

Purpose of research

For this study, we were trying to focus on the following research questions:

- How intuitive is the process to enter data about light pollution?
- Is the user interface easy for the user to navigate?
- Does the user understand the different terminology being used in the application?

In our first question we were trying to understand and gain some information about how intuitive the whole process of entering the data is and whether there are any confusions. For the second question, we were trying to see if it's easy for a user to navigate through the interface of a web portal. For our last question, we wanted to know if there is still a confusion between the different terms we might be using. We have realized that Light Pollution is probably not something that most of the people are aware of, so we need to do our research on whether or not the wording is clear and makes sense.

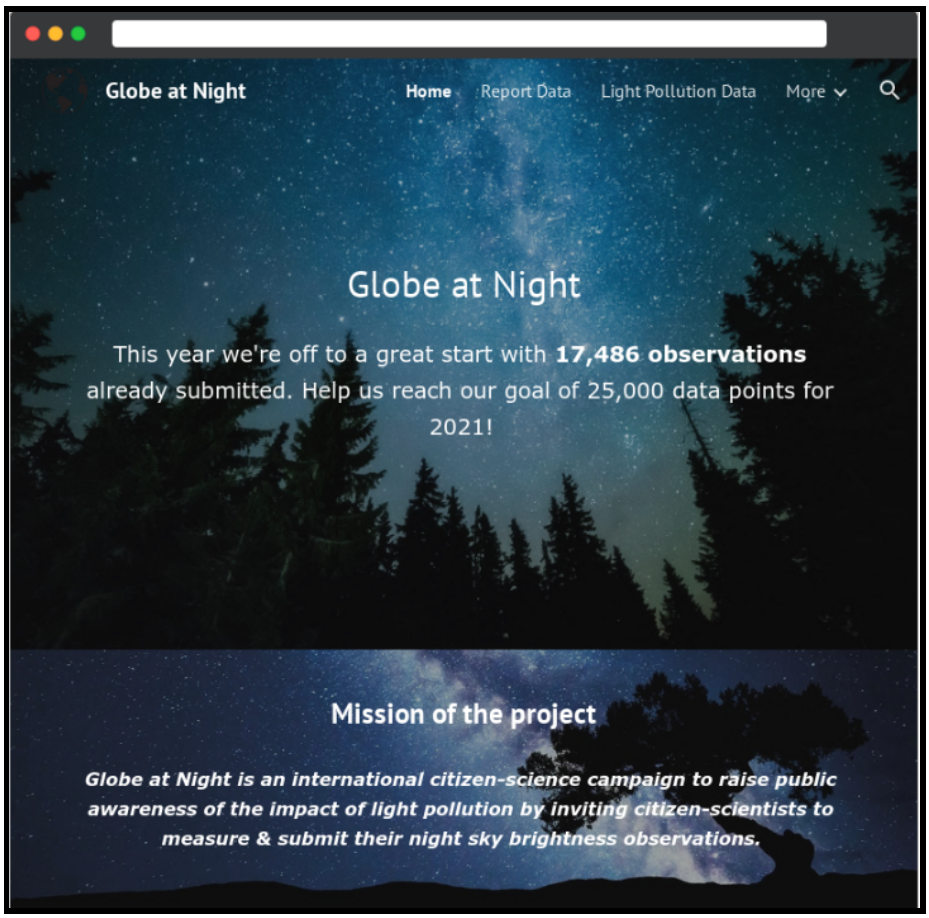
Methodology

To accomplish these tasks, we had to divide our team into different roles, but at the same time conducting a usability study together. At the moment of us conducting this study, we had certain complications due to COVID, so we had to do it through Zoom. We asked our participants to turn their cameras on and also asked for permission to record the session, for note-taking purposes. We have provided them with our prototype of a webportal and asked them to do certain tasks on the page.

During the usability study, we have mostly recorded qualitative data, such as their feelings and problems or difficulties they had while accessing the portal. We have been conducting both qualitative and quantitative analysis. For the quantitative analysis, we noted how long it took a user to complete a task and how many clicks to find a page of the website. For qualitative analysis, we analyzed things such as the body language of the participant during the study and how frustrated they were while performing a given task.

Results

Our findings suggested that navigating through our webportal could have been more intuitive. Specifically, we have realized that our constellations page was difficult to find. Certain date formats were not appropriate due to the project being used globally. Some countries are having different date formats and there is a need to use an international format, rather than the one we are using in the US. Lack of back-end development has also played a big role.



Pic. 1. A Screenshot of a Globe at Night portal

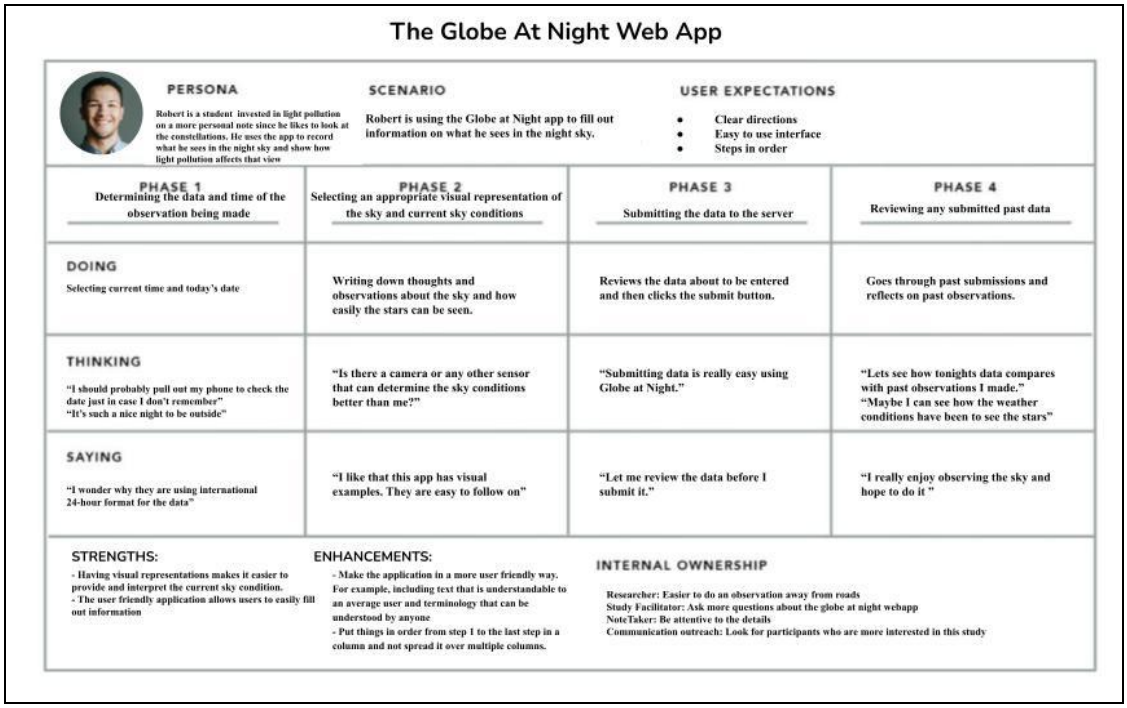
We have been trying to use user journeys to see how the person would engage with our product. The main stages of the user journey as the persona engages with the product were the following:

1. Determining the data and time of the observation being made

2. Determining what the weather looks like at the moment and select an appropriate visual representation of the sky and current sky conditions

3. Submitting the data to the server

4. Reviewing any past data that has been submitted to the server and displayed in a form of summary table and a map.



The Globe At Night Web App

PERSONA

Robert is a student invested in light pollution on a more personal note since he likes to look at the constellations. He uses the app to record what he sees in the night sky and show how light pollution affects that view

SCENARIO

Robert is using the Globe at Night app to fill out information on what he sees in the night sky.

USER EXPECTATIONS

- Clear directions
- Easy to use interface
- Steps in order

PHASE 1 Determining the data and time of the observation being made	PHASE 2 Selecting an appropriate visual representation of the sky and current sky conditions	PHASE 3 Submitting the data to the server	PHASE 4 Reviewing any submitted past data
DOING Selecting current time and today's date	Writing down thoughts and observations about the sky and how easily the stars can be seen.	Reviews the data about to be entered and then clicks the submit button.	Goes through past submissions and reflects on past observations.
THINKING "I should probably pull out my phone to check the date just in case I don't remembee" "It's such a nice night to be outside"	"Is there a camera or any other sensor that can determine the sky conditions better than me?"	"Submitting data is really easy using Globe at Night."	"Lets see how tonights data compares with past observations I made." "Maybe I can see how the weather conditions have been to see the stars"
SAYING "I wonder why they are using international 24-hour format for the data"	"I like that this app has visual examples. They are easy to follow on"	"Let me review the data before I submit it."	"I really enjoy observing the sky and hope to do it "

STRENGTHS:

- Having visual representations makes it easier to provide and interpret the current sky condition.
- The user friendly application allows users to easily fill out information

ENHANCEMENTS:

- Make the application in a more user friendly way. For example, including text that is understandable to an average user and terminology that can be understood by anyone
- Put things in order from step 1 to the last step in a column and not spread it over multiple columns.

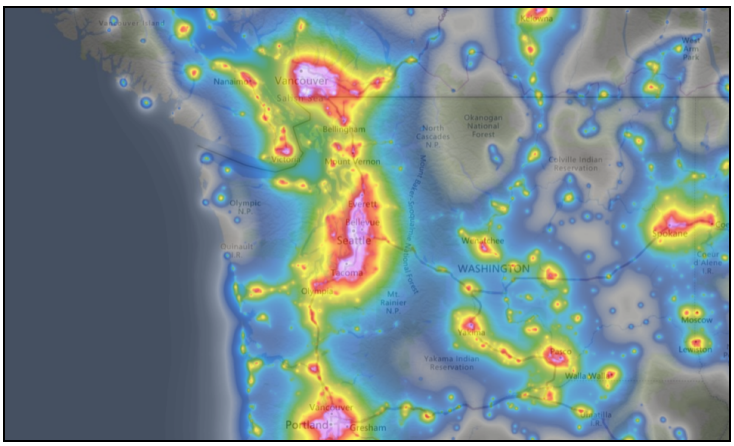
INTERNAL OWNERSHIP

Researcher: Easier to do an observation away from roads
Study Facilitator: Ask more questions about the globe at night webapp
NoteTaker: Be attentive to the details
Communication outreach: Look for participants who are more interested in this study

Pic.2 . A user journey used for the Globe At Night project

Throughout our study, we were looking at these user stories:

1. As a user, I want to submit the data on one webpage, so that this process won't take too much time.
2. As a user, I want to be able to see the constellations and identify them.
3. As a user, I want to know the level of light pollution in my area, so that I'm aware of the negative effects it might have on my health.



Pic. 3. An example of a light pollution map used for the project

Our main conclusion was that the UI we designed for reporting light pollution data and looking at past data observations is essential for providing the user with an overall positive experience using the application. The technology should focus on making it easy to understand what type of data the user needs to submit. If the users are too overwhelmed, participation will drop. One idea to help with engaging more people would be to show people photos of how gorgeous the night sky is when there is no light pollution interfering. Doing so would hopefully get more people participating as they would want to preserve the beauty of the night sky.