

## Introduction

We conducted our field observation in the Discovery Hall and UW1 buildings on the University of Washington Bothell (UWB) campus. We've been asked by Alexa Russo, UWB's Sustainability Coordinator, to research on the Lucid Screens found around campus to increase their overall usage. The Lucid Screens are touch screen monitors in each UWB building that shows the energy usage of that building and other relevant information on campus sustainability. The Department of Sustainability is expecting the screens to increase the overall student engagement with campus sustainability. The goal of the user and observation study on the Lucid Screens is to collect enough data to come up with a couple of possible solutions that could increase the overall interactions.

## Approach

### *Strategies*

The Lucid Screens around campus are hardly used. It was impossible for us to observe people naturally using them. We had to find an alternative way to take do qualitative research instead. Each observation session was approximately 30 minutes long or less where we observed general things such as what they did on the Lucid Screens, what tabs they pressed first, and how long they were using the Lucid Screens before asking them detailed questions on their thoughts of it. Our questions that we asked are as followed:

- Did you know that you could even interact with this board before? Why or why not?
- What do you think the purpose of the lucid screens are (post using)?
- Would you ever use the lucid screen ever again on your own volition? Why or why not?
- Have you used anything similar to this? And if so what?
- What do you think about the location of the screen?
- What are your thoughts about the information provided on the screen? Is it useful? Why or why not?

We wanted to observe the area as well during the time between classes to observe how often people would pass by the board. We also wanted to observe how many of those people actually looked at the board while passing by. This way, we can observe to see how popular the area is and how noticeable the Screen is. These observations were done as our last observation day.

Mark Chen (our professor) set up one of his classes, to go look at all of the Lucid Screens around the campus and fill out a worksheet for our first two observations on October 11th. Each group went to a different Lucid Screen around campus and we were able to interview two of the groups. We didn't record them during the interview sessions. The worksheet asked three questions for each group:

- "How did you feel being able to physically engage with the touchscreen and its information vs. if you had just read it in a book?"

- "What tools and or features did you enjoy the most? What did you like the least?"
- "If your group could remake (add, remove, re-do) a feature what would you do?"

### *Group Timeline*

<b>Date</b>	<b>Task(s)</b>
October 11th	Observation #1 & #2 - Mark's class
October 15th	Meeting with Alexa
October 19th	Observation #3 - IMD juniors
October 22nd	One page summary (data analysis)
October 29th	Observation #4 - Location/Context
October 31st	Meeting with Alexa
November 7th	Meeting with Alexa
November 14th	Research presentation
November 19th	Design ideas
December 5th	Final presentation

Our initial observation was done on Thursday, October 11th at around 2:30pm-3:00pm by Julian, Chelsea, Tammy, and Param. In teams of two, we observed UW1 and Discovery Hall. The observation took place during Mark's class when he had his students go to these locations to use these screens and complete an assignment. Our goal for this observation was to see how long they used the screens, which tab they pressed first, how long they spent on each tab and our interview question. Our second observation was done on Friday, October 19th at 12:00pm-12:30pm by Param and Chelsea at Discovery Hall. The observation took place during a lab day for the junior IMD students. Our goal for this observation was to have a compelling conversation and gain more first-hand reactions of the screens. The students were asked the same set of questions and the audio of the interview was recorded. Our third observation was done on Monday, October 29th at around 11:40pm - 1:00pm by Chelsea, Tammy, and Su at UW1, Library and Discovery Hall. The goal for this observation was to obtain data regarding the locations/context surrounding the screens and observe screen usage without requesting screen interactions from users.

### *Data Collection*

We mainly took notes on our laptop during the observation day. For one of the observations, we also did a recording and transcript of what the respondents said. The data that we collected was initially from a distance so that we had as little interaction with the group as possible but also included us having a conversation with them about our interview questions. We took the notes on a google doc to share with the rest of the group since not all of the members could be at each observation date at the same time. After taking the initial notes from each observation session, we compiled them into a more “cleaner” set of notes for us to print out and then code. For passive observations, we blend in as students studying around the area and note down relevant information about screens and student interactions around the area.

## Coding

The following link is the coding of the observation data we have collected. Our approach of data coding will be highlighting the relevant key elements that fit into the AEOUT (activities, environment, objects, users, time) categories that help us to further analyze any potential correlations and patterns.

<https://docs.google.com/document/d/1NYM8dST-kFV5x-emOc56gbj030zpM6jrd3RX97b7qVQ>

### *Color guide*

activities	environment	objects	users	time	comments
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## Analysis

### *Informants and Observee*

There are two types of groups that we have observed. For observation #1, #2 and #3 the observed group is informants who are being asked to interact with the screen and answer questions afterward. For observation #4, the observed group is students or visitors on campus in the areas of the screens' locations. The second group was unaware that they are being observed. The users from observation #1, #2 and #3 are students from another class with an assignment that requires them to participate. Majority of the students were not interested and only a few were genuinely interacting with the screen and paying attention to the contents. Most students left after they thought they have satisfied the assignment requirement. The students who were interested stayed and were being interviewed. The observed group from observation #4 were students hanging out, walking by or studying in the areas where the screens are located.

### *Interactions and Activities*

As mentioned previously, the group of students who were being asked to interact with the screen are mostly not interested in the activity itself. They were more concerned with finishing the assignment of being present in the activity. They were taking pictures and putting names down, assuming those are the evidence they need to prove they have participated. When the students interacted with the screen, they went through each feature listed on the navigation tab

quickly and moved on to the next section. Some students would question the features that were currently dysfunctional due to data failure from the backend. Most students left after they have briefly used or not used the screen. Some of the students also discussed about the screens and their content during their interactions. The students who were more interested in the screens stayed after they interacted with the screens and were answering questions from the interviewers.

The other group we performed a passive observation on are the students and visitors walking by the areas where the screens are located. Unlike the groups from the previous observations, this observed group was not being asked to interact with the screens. Majority of the students were sitting in the areas either studying, on their electronic devices or doing homework. When people walked by the screens, majority of the students do not notice its existence. Occasionally there will be a few who would glance at the screen, but no one has stopped and interact with the screens. An important thing to point out is that the screen placed near the entrance of the library seems to have its attention taken away by the bus time screen that was placed on top of it. We had one or two researchers act interested in the screens and start interacting with it to see if it will attract people's attention, but the result remained similar, only a few students will look at the screen, but no one was willing to come up to play with the screens.

### *Screens and Feedback*

The screens are located in places with a decent student population except for the screen located in the library third floor. Each screen also has a sticker with a message to welcome the students to touch them. However, the screens are unable to get the attention from the surrounding and unable to attract the students to interact with them. Majority of the students who have participated in the interviews stated that they were unaware of the screen's interactivity for reasons such as the message on the sticker is too long, the interface does not seem interactive or they were just completely unaware of the screen's existence. Some students did previously learn about the screens from their sustainability classes.

The Library's first floor is a study area (even though it is loud) it doesn't encourage the use of the screens. The screen is actually sitting below a screen that shows bus times. We believe the bus schedule screen draws more attention not from how it looks, but because of its purpose.

According to the observations, students were suggesting the screens to include information beyond sustainability as attention grabbers. For example, more student life related information such as food trucks, events and clubs. Some students also suggested that the screen needs a more apparent message or eye catching elements to show its interactivity—the message on the sticker is way too long at a glance and no one wants to spend time reading it. A positive result to be pointed out is that students who interacted with the screen are well aware of the purpose of the screens. They think that the screens are educational and they are able to learn about campus sustainability and energy conservation. Most students think the information is useful for classes that are related to sustainability.

## Reflection

If we had a chance to do these observations again, We think it would be smart to create a more organized plan. For example, we should think about how long we want to observe them using the screens and do different variations of questions that are catered towards specific questions or topic of concern we come across. Having a proper idea of how we want to observe would allow us to have better and in-depth notes and hopefully find more consistent patterns with our data. Also because this is a group project, the production of each turn-in would have gone much more smoother and more equal in terms of workload if every member took the initiative to do the work or ask what they could do.

## *Obstacles*

We've come across several challenges as a team over our observation weeks. Prior to doing our observation, we should have looked at examples from prior qualitative projects and analysis to organize a better method of taking notes. Our original method of taking notes were mostly taking bullet point notes, obscuring details that we didn't think were important enough to include. We were vague with the notes and we didn't even take notes on each person we observed using it. Whenever something pertaining to a certain person in the observation would come up (i.e. touching the screen or saying something interesting), we would then describe them, but not much else of the other non-active people. Because of this, we had to go over our notes and rewrite them in more detail below in order to code and analyze them in greater detail.

We've discussed before that because there isn't an active use of the Lucid Screens from the UWB community, it was difficult to observe people naturally using it. Though qualitative observation is usually done by us the observer interacting with the observed environment as little as possible, we had to stage people to use the Lucid Screens so that we could observe and take notes before following up with open-ended questions about their use with the screens. Because of this, most of our observation includes us interacting with the observants.

Coming into this project, all of us were in an agreement with how unnoticed the Lucid Screens were and had already started to analyze the problems and coming up with solutions to fix it before observing. It might have been better to come into the observations with unbiased thoughts. It might have also benefited us to analyze our first observation day and do more specific observations and ask more specific questions. That way, we could start forming a more concrete idea of why the Lucid Screens aren't being used and create an answer to this problem.

## *What Went Well or Didn't*

Overall, we believe that the observations went well given our circumstances. We collected a lot of valuable information with what our observants liked and disliked about the Lucid Screens. We plan to take the information and start creating possible recommendations for Alexa on what she should do to increase the usage of the screens.

### *What We Did & Our Next Steps*

Our next steps are going to include us working with the Lucid Screens and test out different UI's of the screen. We were asked to work on designing a solution within the given specifications from Alexa. We've already received permission from Alexa Russo to start figuring out how to use the Lucid Screen's backend and document for her how to use it properly. However, because of the restraints from Alexa (we can only use Lucid Screen's website to design and test out possible solutions). We've started looking at other schools and campuses that has Lucid Screens and see what they did but we still need to figure out how to use the backend of Lucid Screens.

Param Hehar - I participated in two of the observations, the first with Julian and the other with Chelsea at Discovery Hall. The first observation with Julian consisted of observing the users, then interviewing them and taking notes on everything. With the second observation, Chelsea and I were able to get a audio recording which Su later transcribed for the group. I helped to set up the coding data document and reviewed our revised observations. I also commented on important insights within the observations that can be main points to focus on later on in the project.

Su Li - In addition to studying the management system of the Lucid Screens, I participated and took notes for Observation #3. I also transcribed the audio recording of the interview conducted by Param. I helped Julian to put together and edit the writing for the coding data assignment and the data compilation document. We also worked together to code all of our field and observation notes in the compilation of data document. After that I evaluated the data and wrote the data analysis. I also created the digital mock ups for the locations of the screens.

Julian Ngo - I took notes on the first observation with Param and wrote a more in-depth description of that. I helped with coding most of the observations and went over everyone's notes to organize them in a neat document. I wrote a lot of the Coding Data document, specifically setting up the organization of the document, the Introduction, parts of the Approach, and the Reflection. I then went back and edited both this document and the Coded Observation Notes to fix spelling and grammatical mistakes and make everything sound team-oriented.

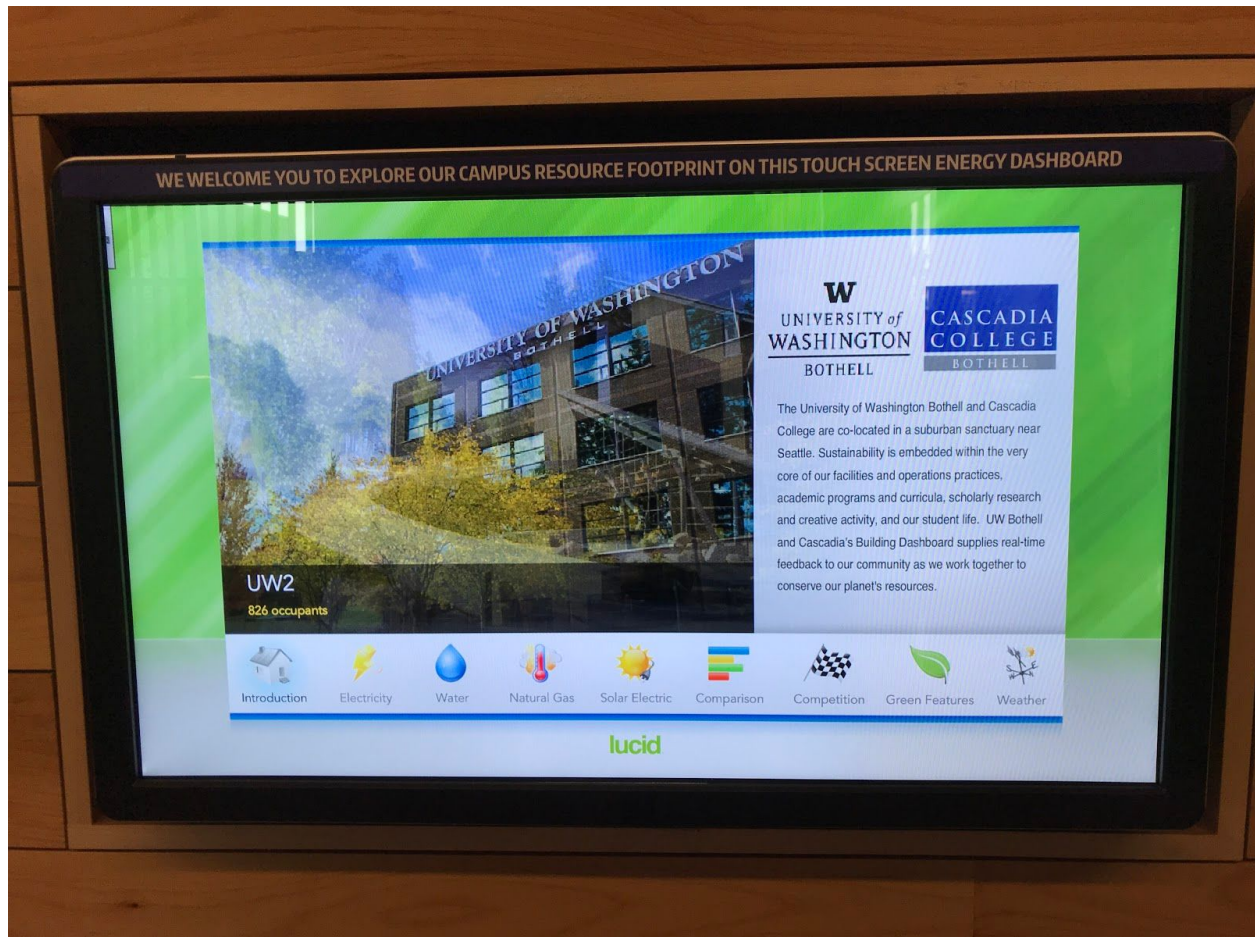
Chelsea Tao - I participated in many of the observations. They were the second observations and interviews in UW1 with Tammy, observation three with the audio recorded interviews at Discovery Hall with Param, and lastly the passive observations (number four) at every Lucid Screens location with Su and Tammy. I also helped edit and revise the Coding Data document and Coded Observation Notes. I have researched other schools and their experiences with Lucid Screens or other similar energy dashboards and compiled my findings in the Other Screens Research document.

Tammy Tran - I took part in the second observation with Chelsea in UW1 by observing the users, interviewing them, then wrote more detailed descriptions of our observation notes. I also

participated in the fourth observation along with Chelsea and Su to observe the area of all of the Lucid screens (Discovery Hall, Library area in the first floor and third floor). After doing observation and doing simple note taking, I went more in depth with my notes. During the end of our fourth observation, I took pictures of the area to add to our observation notes. Also, I ended up taking picture of the screen and each of the features in it to use for further research.

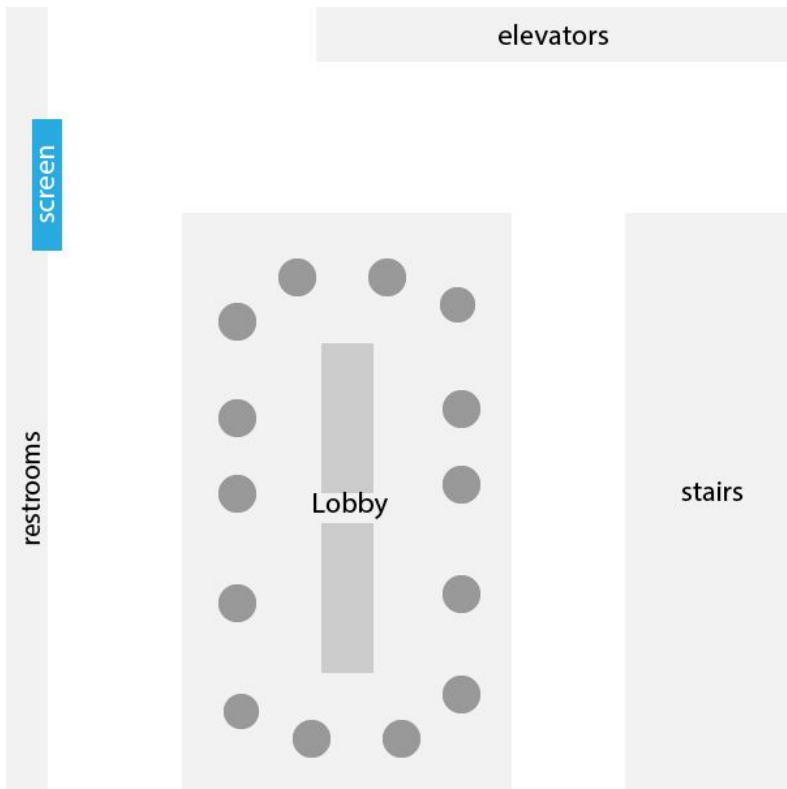
## Maps/Pictures

Lucid Screen

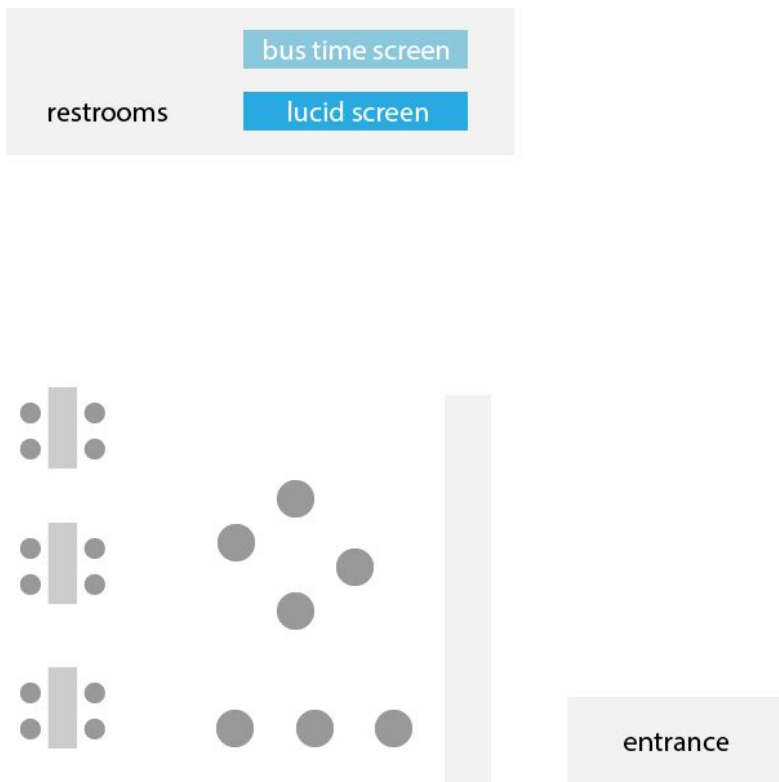




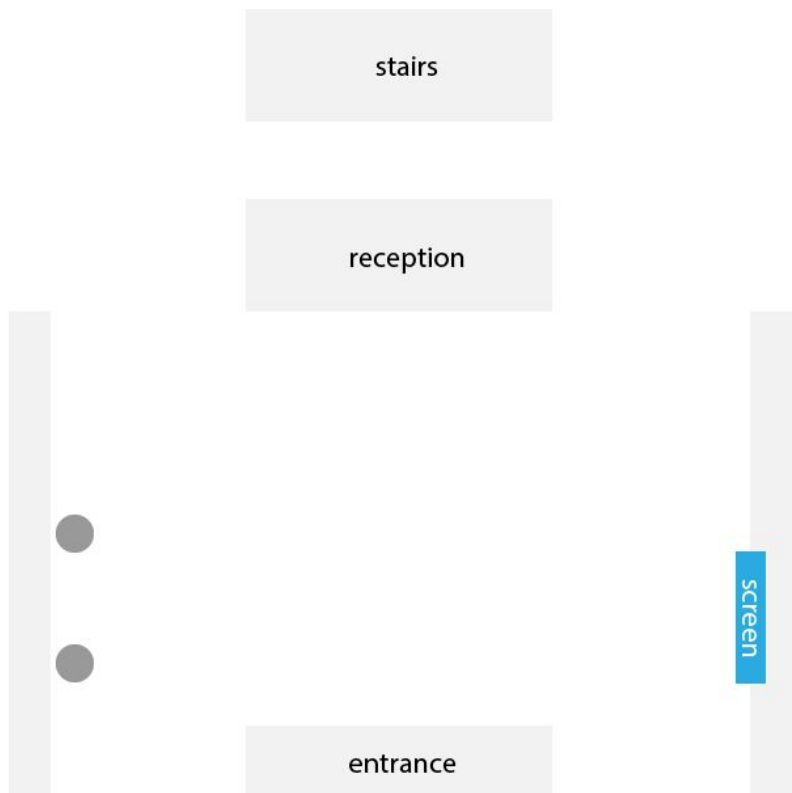
Lucid Screen Location (Discovery Hall First Floor)



Lucid Screen Location (Library First Floor)



Lucid Screen Location (UW1 First Floor)



Lucid Screen Location (Library Third Floor)

