

Field Study Plan

Jonah Quist – HCDE 313A

1) Goal

How can we improve the experience of waiting for the bus on campus for students and faculty at the University of Washington?

In Seattle and more specifically the University of Washington, public transportation is a large part of many commuters' and students' lives. According to a survey done by Commute Seattle, in King County 397,000 people ride the Metro Transit system daily (Seattle Curbed). Streamlining the experience would help thousands of people every day. An independent organization known as Moovit Insights revealed that, "commuters wait on average 15 minutes, but over 44% wait longer than 20 minutes," for a single bus to come (Moovit Insights). The sizable amount of time spent solely waiting for the bus suggests improvements to the waiting experience could improve a significant number of people's quality of life.

2) Research Questions

- a. How long do most people seem to wait for the bus?
- b. In what ways do people's behavior change the longer they wait for the bus?
- c. Where do people wait at the stop (On benches, standing, wandering)?
- d. What facilities already exist at bus stops?
- e. What technologies or applications are people using while waiting for the bus?
- f. When the bus is late, how do people tend to react?
- g. Who are the demographics or occupations who seem to be using the bus?
- h. Does the average rider tend to be solo, paired, or in a group?
- i. Why do some stops have much more facilities than others?

3) Participants

The primary participants will be students, staff, and faculty members at the University of Washington who utilize the Seattle metro transit system on campus. Many are likely students who live nearby and take the bus to travel distances less than 5 miles from campus. As I will be observing on campus many will likely be using the buses to travel between classes, return home, or move to another location nearby.

Participants should be chosen indiscriminately. They should essentially be every person I observe who are waiting at the Bus Stop locations I chose (Shown Later). Anonymous observation means that I should be able to observe without requiring volunteers. The personal details of any participant will not be recorded.

For ethical considerations I will attempt to be as non-intrusive as I can be in observational portions. Bus stops are places in public so anonymous observation should be considered ethical. For observation-oriented studies I will record data completely anonymously and only report what I see. I will avoid recording identifying details beyond for my own self-recollection. If I need pictures of the location I will wait until no people are in frame both for clarity and respect for the privacy of people

waiting for the bus. Many people waiting for their transportation would prefer to be unbothered so I will maintain general respect and space.

4) Method: Areas of Focus

Family & Kids	<ul style="list-style-type: none"> - Do people riding the bus tend to have children with them?
Built Environment	<ul style="list-style-type: none"> - What structures exist at different bus stops to facilitate waiting? - Does every stop have similar structures or benches?
Possessions	<ul style="list-style-type: none"> - Do people waiting for the bus tend to have a lot of possessions (ex. Backpack, purse, headphones)? - What do people do with their personal possessions while waiting for the bus?
Media Consumption	<ul style="list-style-type: none"> - How often do people use their phones while waiting for the bus? - Do people actively look at the screen or listen to music or call someone?
Tools and Technology	<ul style="list-style-type: none"> - What apps do people use to judge when the next bus is coming? - How frequently do people use or check these if at all?
Demographics	<ul style="list-style-type: none"> - What age groups seem most prevalent in waiting for the bus? - Do people arrive at stops with groups of people or do they tend to wait alone or with others?
Traffic	<ul style="list-style-type: none"> - How do people react to delayed buses or having to wait a very long time? - Do people take routes that mean they have to walk more but wait less time at the stop? - Do people sit on benches as first priority or prefer to stand if it is busy?
Information & Communication	<ul style="list-style-type: none"> - What existing facilities at stops are there to help users know when the next bus is coming?

5) Method: Overall Logic

I will conduct three different observations at two different stops. The first two will be a bus stop deemed to be fairly large or traffic consistent such as the one in the middle of campus at E Stevens

Way NE & Jefferson RD NE. This stop is quite large with multiple benches and a larger covering for the places to wait. I will conduct one observation during a time it may be busier from 12:00-3:00 PM. I will conduct my second observation at the same stop but much earlier in the day, around 9:00 AM.

My final observation will be conducted at a smaller stop on campus with less facilities such as the one at West Stevens Way NE & Asotin Place. This stop is much smaller than the previous one, with one bench, a small covering, and a sign noting the routes. I will observe this during the busier time frame of 12:00-3:00 PM. Both stops service the same buses and routes. I plan to observe in all 3 sessions for a time period of 1 hour. I will sit somewhere close to but not inside the bus stop so as not to take a spot where someone could interact with the stop.

6) Method: Specific Logic

In order to get ready for each session I need to remember to bring all the necessary supplies to observe such as notebooks, my list of questions, and water. I will go to the site 30 minutes before hand and take note of the surroundings mentally and get acclimated to the environment. As the session begins, I will find a suitable place to observe that does not disturb the places where people waiting may want to wait. I will make a note of when the session began. During the session, I will take careful notes of how people are waiting, and I will timestamp each observation and bracket any assumptions or biases. In addition to timestamps, I will record the total observed time of how long they were waiting for the bus. I may periodically record (15-minute intervals) how many people are present at the bus stop at a time. At the end of each session, I will remember to gather all my belongings and take final note of the surrounding to see if anything changed. I will make note of when the session ended. After each study session is over, I will clean up my notes and format them in a way I can use to refer back to them later.

Sun	Mon	Tue	Wed	Thu	Fri	Sat
10	11	12	13	14	15	16
Field Study Plan Due		12:00-1:30 PM Structured Observation Session 1		9:00-10:30 AM Structured Observation Session 2	12:00-1:30 PM Structured Observation Session 3	Write Report Draft
17	18	19	20	21	22	23
Write Report Draft	Finalize Report	Finalize Report	Field Study Report Due			

7) Method: Data Collection

I will record most data using digital collection and use the timestamp feature. Digital will be easiest to record time sensitive data with. I intend to ensure that my computer is fully charged and prepared and will make a custom note template. I will compile all observed data into a cleaned and presentable form of notes at a later point to make referencing or drawing conclusions easier.

Works Cited

<https://seattle.curbed.com/2017/9/21/16346824/seattle-commute-data-bus-drive>

https://moovitapp.com/insights/en/Moovit_Insights_Public_Transit_Index_United_States_Seattle_Tacoma_Bellevue_WA-522

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Interview Plan:

Improving the experience of waiting for the bus on campus

Goal

The goal of the interview phase of this research is to look into qualitative areas that were difficult to investigate during the field work phase. Through field work alone, we reached several recommendations and conclusions, however there are still several gaps in the data. One such gap is people's usage of technology. Many people utilized their phones or laptops while waiting for the bus, but it was difficult to ascertain what they were doing without making large assumptions or violating their privacy. Asking participants to self-report their usage through interview should solve this. Another missing piece is understanding the reasoning behind the actions we saw in the Field Study. Again, beyond assumptions, we cannot know why a student may have decided to sit, why they stood in the rain, or so on. Through interview we can uncover this. Finally, without interviews the current sum of data lacks context. We have no recorded understanding of not only why people are deciding to interact in a specific way, but we also are missing what they were doing before and after.

With the goal of filling these gaps in mind, our Design Question has been refined to better address the data the interview study will collect (Note that the participants have been narrowed to just students):

How can we improve the experience of waiting for the bus in terms of technology and built environments for students at the University of Washington?

Research Questions

From the previous field study's results, it is clear the we lack a defined understanding of why people interact with the bus stop in a certain way. Additionally, we want to gain insight into specific situations that were difficult or impossible to observe. The following questions are tailored to inform our design question and ultimately help us achieve our goal of improving the experience:

- a. How do participants use technology to track buses?
- b. Why might a participant be hesitant to utilize the existing built environment, such as benches?
- c. When do participants feel as if the waiting time is failing to meet their expectations?
- d. When and where are participants going when they utilize the bus or public transportation systems?
- e. In what ways do participants use public transportation, following what specific situations?
- f. Do participants already have complaints about the current experience and if so, what are they?

Participants

Due to limited resources, the number of participants has to be restricted to three. With only a few interviews, we must be careful to try to select participants that are representative of people who wait for the bus on campus. With the refinement of our design question to solely focus on students, participants will only be included if they are in an undergraduate or graduate program at the university. The inclusion criteria will only extend to people who claim to ride the bus, ideally more than five times a week. This is to ensure that they will have enough material to discuss during the interview. We will exclude people who do not use public transportation often as the target of this research is regular commuters. We will otherwise attempt to pick participants of varying demographics (Year, Sex, Major, etc.).

In order to recruit participants, we will politely and briefly ask students who seem to be waiting for the bus if they would be interested in being a part of the research. We will get some basic confidential contact information to set up an interview at a later time. If this fails or is too difficult, we will move on to 'Snowballing' or asking people we know if they know people who seem to fit the inclusion criteria and would like to participate.

The interviews will be conducted inside the Library or the HUB, both of which are public spaces on the University of Washington's campus.

Method

The overall method will involve the usage of semi-structured interview format. The use of a semi-structured format will permit the flexibility desired to gain the information being looked for. The interview questions will be tailored to answer the research questions detailed above and ultimately provide insight into how to solve the design question. They will be a general guide to the interview, however, taking advantage of the format, additional relevant questions may be asked depending on the situation. The questions planned below will cover a comprehensive number of topics and specificity ranging from personal details to feelings on a subject. Personally, I will try to avoid incorporating my biases and refrain from creating questions that show or lead the participant to an answer. Questions will be as neutral as possible and avoid using language that is leading. Information and responses that contradict my expectations are important and it is key to ensure my questions allow for the opportunity of that to happen. Coming into the interview, I expect people to be using applications to track the bus and to find waiting for the bus to be unpleasant. But I realize people may not share these feelings so the questions will not include language that may guide them to those answers. The final, main interview questions are listed below:

1. Are you comfortable providing some basic information about yourself and how you commute?

- a. How long have you been a student here at the University of Washington?
- b. About how far would you estimate you live from campus?

This question simply attempts to provide more context as to the way the participant engages with public transportation at the University. It tells us where participants are coming from and how far.

2. What is your primary method of transportation when it comes to commuting from where you live to campus and vice versa?
 - a. How many times a day do you tend to ride the bus?
 - b. Do you use the bus to travel *within* campus?
 - c. Given the option, would you rather walk more in order to get somewhere earlier, or wait longer for a bus in order to walk less?

This question will provide insight into what role public transportation plays in the participants daily life. It will tell us, as well, what situations prompt the participant to use the bus system.

3. Prior or during waiting for the bus, do you use any sort of technology to find when the bus will arrive?
 - a. For instance, Google Maps, One Bus Away, or Metro's official time tables?
 - b. Do you feel that these applications are accurate?
 - c. What else do you use your phone for while waiting?

This question will tell us about how the participants use technology in relation to waiting for the bus. We will find out if the current technology is satisfactory to participants.

4. Could you tell me about what the last experience you had waiting for the bus was like?
 - a. Would you describe this experience as typical?
 - b. Did you sit at all or stand? Do you usually sit or stand?
 - c. How long did you have to wait for the bus?
 - d. How would you say you felt while waiting for the bus?

This question will provide specific data about what the typical bus waiting experience for the participant may be like. It will also go further into how they engage with built environment and reveal their perceived wait times.

5. Aside from your most recent experience, are there any other experiences in the past waiting for the bus that stick out to you?
 - a. What was the weather like?

- b. How many people were at the bus stop?
- c. How did you feel during this experience?
- d. Before ending the interview, are there any changes or suggestions you may already have in mind for improving the experience? It is ok to say no.

The final question attempts to look into irregular experiences and understand what the participant felt or complained about. It opens the participant to discussing any sort of notable experiences that might not be happening all of the time but nonetheless affect the entire experience as a whole.

Work Back Schedule

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
	Interview Plan Due	Search for Participants to Interview				Interview Participants
7	8	9	10	11	12	13
Interview Participants						Write top Line Report
					Write Top Line Report	
14						
Interview Top Line Report Due						

This schedule is designed to give participants the ability to schedule a time on every possible day of the week (Sat-Fri). I will use calendly to schedule my interviews.

Data Collection

In order to collect the data, we will use both audio and notes, as long as the participant is comfortable with that. Prior to beginning, I will have participant in writing and verbally acknowledge that they are okay with being recorded. I will ensure that all data remains confidential and is only used for the sake of the research. I will take notes digitally but mainly focus on the interview so the participant will hopefully feel comfortable and conversational. The recordings can be used later to extract key quotes, sentiments, or ideas to build findings off of.

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Survey Plan:

Improving the experience of waiting for the bus on campus

Goal

The purpose of the Survey phase of this study is to gain quantitative insight into the design question that was difficult to obtain before. The interviews conducted prior provided valuable anecdotal points of observation, rich with detail and explanation, however it lacked in terms of the size of the data set. The Field Study offered broad and diverse information and observations, however, as discussed in previous reports, misses areas such as participants motivations or the context of the situation. The goal of the Surveys is to gain that data that was limited in the other formats.

Through the previous phases of research, the design question (the question we are trying to answer) has been refined, iterated, and altered based on each stage of findings. Based on these previous phases, the survey phase of this study will attempt to build upon the results discerned earlier. This includes looking further into users' opinions on the current built environment, expanding the dataset regarding technology usage, and querying/ranking issues users may have with the current experience of waiting for the bus.

Though the interview provided valuable insight into many aspects of the design question, I still feel that there are parts of the original question that were left unanswered. Rather than moving uneasily into a more specific question that may restrict the options of responses of participants, I would like to learn more about and attempt to answer more thoroughly the same design question posed in the interview phase. However, there is one change. The inclusion criteria of participants have been further extended to faculty and staff due to the survey format being conducive to collecting data from many sources.

How can we improve the experience of waiting for the bus in terms of technology and built environments for students and faculty at the University of Washington?

Research Questions

To answer the design question posed, several research questions have been developed to help target specific aspects of the questions. The questions are intended to target one of three broad options. The first is confirming the results gained from previous phases of the study. The interview specifically lacked numbers behind the data; confirming results from this should be a top priority. Next is elaborating upon the results from both previous phases. We want to know more about the participants technology habits, how built environments vary across a larger range, and the context behind participants usage of the bus system in the first place. The final goal is exploring concepts that are best suited to being studied through survey. This includes learning more about people who may commute from further from campus or how faculty/staff interact with the public transportation systems.

- a. How do participants use technology to track buses?

- b. Why might a participant be hesitant to utilize the existing built environment, such as benches?
- c. When do participants feel as if the waiting time is failing to meet their expectations?
- d. When and where are participants going when they utilize the bus or public transportation systems?
- e. In what ways do participants use public transportation, following what specific situations?
- f. Do participants already have complaints about the current experience and if so, what are they?

Participants

The main desired quality for participants is that they ride the bus with a somewhat regular frequency. Ideally participants would be from a diverse group of demographics to avoid any sort of biases. Inclusion criteria is that they ride the bus more than once a week and are a student or are employed by the University of Washington. Exclusion criteria may be people who do not intend on participating in the study or feel as if they are not familiar enough with the subject to be able to participate. I plan to recruit participants through personal connections, as well as snowballing through those I know. I will also ask for participants on online message boards or politely ask people waiting for the bus if they would like to participate in a quick survey about the experience of waiting for the bus.

Method

Questions:

The following questions are designed to answer the previously developed research questions and ultimately bring us closer to an answer to the design question.

1. *How many times a week do you ride the bus? (One Way Trips)*
 - a. Multiple Choice (0, 1-5, 5-10, 10+)
 - b. The point of this question is to get a gauge on the participants transportation habits. When it comes time for analysis, we can contrast rider frequency with other data and see if they are related at all.
2. *Rank the following from least to most of which is most important to you when it comes to waiting for the bus*
 - a. Ranking (Nice Facilities, Timeliness, Safety, Accuracy of arrival time)
 - b. This question will help me understand what participants value the most and least about the bus waiting experience. Learning what people prioritize the most will make future recommendations more in tune with participants actual desires.

The data from this question will be gathered and averaged to see which is most important on average.

3. *How satisfied are you with the duration of time you have to wait for the bus?*
 - a. Rating (Very Satisfied – Not at all Satisfied)
 - b. This question gets at the participants satisfaction in terms of the waiting time for the bus. This will validate or contradict findings from the interview, where it seemed that most participants were fairly satisfied with the waiting time aspect of waiting for the bus. Satisfaction/Perceived time is more important than the actual time in terms of participant experience. This data will likely be plotted in some sort of bar chart.
4. *Select any of the facilities at a bus stop you use regularly*
 - a. Multiple Choice – Pick multiple (Benches, Covering, Sign with Routes, Trashcan)
 - b. This question attempts to uncover which parts of the built environment are most utilized and which are used less. This will help us decide how we would like to allocate resources if we decide to alter the built environment. We can use this specific data to analyze which facilities are actually the most used by summing responses.
5. *For any responses you did **not** select in the previous questions, please explain why you do not use those facilities*
 - a. Open Ended
 - b. This question will give more insight into why some parts of the current built environment are underutilized. It seemed to be a prevailing idea that people think the benches are dirty so I would like to extend beyond that information and understand all of the reasons behind the apprehension. I will leave it open ended so that people can give me new ideas I may not have thought or considered. I will analyze it by themes of the responses.
6. *Rate the condition of the built environment of the bus stop you use most frequently*
 - a. Rating (1 – Broken Glass, Litter, Graffiti – 5 – Spotless, Clean)
 - b. Through this question we will get a better understanding of how people perceive the condition of their stops. It explores further the idea that the condition of some stops can be poor (mentioned in interview phase). This one again would serve well in bar chart so I can see what the general sentiments are around condition.
7. *Pick out of the following applications which you use the most for route information (Timing, routes, etc.)*
 - a. Multiple Choice (Google Maps, Transit, OneBusAway, Other, I do not use any apps)

- b. This question gets into the applications that used by participants. It will help me get a better understanding of whether people actually use the apps and if they do which ones they use. During analysis, these apps can be contrasted against other questions to see if there are any trends.
- 8. *Please rate the accuracy of the app you selected (If you selected None pick N/A)*
 - a. Rating (1-5, N/A)
 - b. There was mixed sentiment among interviewees about the accuracy of the apps they used. This will reveal further if people are content with the level of accuracy of the app. It can also be contrasted with the previous question during analysis to see which apps appear to be more accurate more often.
- 9. *Would you use a digital display at bus stops that displayed route information such as timing?*
 - a. Multiple Choice (Yes, I would – No, I would not)
 - b. This question is a validation question targeted towards a specific recommendation that previous interviewers suggested as well as result derived from those interviews. I would like to get more opinions on this specific recommendation. We can analyze this and see what percentage of people would actually want this.
- 10. *Please briefly describe the worst experience you have had waiting for the bus*
 - a. Open Ended
 - b. By exploring the extreme experiences users have had while waiting for the bus, we can find recommendations that may try to alleviate the severity of these very bad experiences. This question will also benefit from thematic analysis.

Survey:

The survey will be implemented through Google Forms. This is due to my own familiarity with the product as well as its ability to easily export data to spreadsheets for analysis. I also believe most participants will be familiar with Google Forms.

Workback Schedule:

Sun	Mon	Tue	Wed	Thu	Fri	Sat
28	29	30	1	2	3	4
Survey Plan Due	Send to Participants					
5	6	7	8	9	10	11
Create Survey Presentation			Survey Presentation			