Sprint Three: Usability Testing Protocol

Referenced this dscout resource for usability testing guidance

Objectives

1. Study whether or not a user can use our system for its intended function *(functions to be determined by team i.e. route planning, emergency response, etc).*
2. Evaluate if the system allows a user to reach goals that arise in a shared transportation setting.
    a. Additionally, are they able to achieve their goals without feeling overwhelmed or intruded on by the technology?
3. Understand how users use and expect to use the system.
4. See in real-time how the system functions when there is no human assistance to guide them.
5. Evaluate user preferences and comprehension of in-trip notifications with the target qualities of notifications being both *effective* and *unobtrusive / discreet*.

Participants

The team will aim to test with our target demographic of regular commuters **(n=10)** which we will evaluate with some short screener questions before scheduling interviews such as, **"How do you typically commute to work, school, the grocery store, or other places you regularly travel around your city?"**.

We will aim for ten participants since five to eight is the recommended amount for moderated qualitative interviews where we should start to see overlapping themes and experience data saturation, but we want everyone in the team to have the opportunity to conduct two interviews.

Script

Intro

Thank you for taking the time to participate in our research. Today we're learning about the future of transportation, and testing a few ideas we have for the future of shared vehicles. Your feedback today is valuable to us and will help us improve our designs in the next iterations of this project.

To confirm, this exercise will take about 30 minutes - does that work for you? *[Confirm]* If you need a break or would like to stop at any time, please let me know.

I'm going to start by asking a few questions, then I'll have you use a rough draft of an application we've designed to accomplish a few tasks we will give you. We are in the early stages of this project, so we'll ask for you to suspend disbelief and imagine that you are interacting with a more robust system in the case where we have to fake or act out any of the interactions.

Please be aware that there are no wrong answers. In fact, this is probably the one place today where you don't have to worry about making mistakes! As you go about using the application, I'll ask you to think aloud as much as possible: to describe what you're looking at and what you're trying to do. This will be a big help to us.

Also, please don't worry that you're going to hurt our feelings. We're doing this to improve the experience, so we love to hear honest and candid reactions.

If you have any questions as we go along, just ask. I may not be able to answer them right away, since we're interested in how people do when they don't have someone sitting next to them to help. But if you still have any questions when we're done I'll try to answer them then.

Also, in addition to us testing you completing tasks we will be testing some of the notification systems that will be in place on this future vehicle. They may not look like your typical phone notification you're used to, but we will just talk through them and what the expectations are as they arise.

So before we jump in, I want to confirm that you've signed the consent form we emailed to you earlier.

Warm-Up Questions

1. Have you ever taken a Lyft Line or Uber Pool where you share the ride with other passengers?
2. Do you often take public transportation?

Interviewer: Great, thank you! So this test will be around the concept of autonomous vehicles that take the form of an Uber Pool or Lyft Line, so you'd be sharing the ride with up to 3 other people that you potentially don't know. We're interested in how people's needs and goals change in an environment like this, so try to suspend disbelief if you can and put yourself in

the situation of a self-driving car you're sharing with these three strangers. We'll give you a few scenarios to imagine and tasks to try to complete and we'll just ask that you "think out loud" while doing them so we can understand your thought processes as much as possible.

Do you have any questions before we get started?

Tasks

Here is a dscout resource on writing usability tasks that I used for the example task

Task One

[Main Flow]

Task scenario: You just boarded a vehicle and found out your meetup location has changed from the Bakery to the Cafe. You want to figure out how to change your dropoff point using this app.

Remember to think aloud.

What we will measure / want to learn:

- Qualitative comments / think aloud
- Are participants able to change their destination without any human intervention? Does the mental model of how they access to change it make sense?
- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither agree nor disagree
- Somewhat Agree
- Agree
- Strongly Agree

- Quantitative question such as “I felt confident in modifying my trip through an app in a self-driving car” that participants rank their response to on a Likert Scale

John Choi: neither agree nor disagree (qualitative answer)
Tony Scialo: strongly agree
Jaffe - Agree
Pablo - Strongly agree
Stella - Somewhat agree
Dai - Somewhat agree (4/5)
Rolly - Strongly agree
Christine - Solid 4

Task Two

[Main Flow]

Task scenario: You’re on your way to the cafe but see your friend walking on the street! You want to join them and walk over together. Can you figure out how to get the vehicle to immediately come to an unplanned stop for you to exit?

What we will measure / want to learn:

- Qualitative comments / think aloud
- Are participants able to stop the vehicle without any human intervention? Does the mental model of how they access it make sense? Does this change if this is more of an emergency situation?
- Quantitative question such as “I felt comfortable stopping the vehicle through an app in a self-driving car” that participants rank their response to on a Likert Scale

Task 2.1

What happens if you're trying to get off the vehicle, but the doors won't open?

Tony: neutral

Jaffe - Agree
Pablo — Agree just because of the word "emegrency" and scenario. Emergency is too strong of a word for it to be strongly agree
Stella—Strongly agree
Dai - Somewhat agree (4/5) - wish there's more information and notification for assurance

Task Three

[Main Flow]

Task scenario: You lost your wallet in the car. Can you show me how you would go about locating your missing item?

[don't read aloud] **Task goal:** Get assistance with finding something that you misplaced along the way.

What we will measure / want to learn:

- Qualitative comments / think aloud
- Do participants feel satisfied reporting problems without any human intervention? Where is the threshold when they turn to a human?
- Quantitative question such as "How likely or unlikely would it be that you report a lost item through an app?" that participants rank their response to on a Likert Scale

John: Very likely (depends on what the item is)

Tony: Very likely

Jaffe: Likely

Pablo: Very likely

Stella: Very likely

Dai: likely (4/5)

Rolly: Strongly likely

Scenario Four (destination notification)

[Notification Flow]

Scenario 1.1: So now these last two scenarios will be a bit different and will be based around notifications from the vehicle, versus you seeking information or having a goal. In this scenario I want you to imagine you are riding in the shared self-driving vehicle and you receive a notification to your phone. Can you talk me through what this is like and any thoughts or preferences you have around it?

Scenario 1.2: What are your thoughts on the next notification screen where another passenger is exiting the vehicle? [ask participant to click to access next screen]

What we will measure / want to learn:

- Qualitative comments / think aloud
- Do participants understand that it is their time to get off the vehicle? Do they want more or less feedback?
- Quantitative question such as "I understood that my stop was coming up", and "I would take a self-driving shared ride again" that participants rank their response to on a Likert Scale

TOny: strongly agree

Jaffe: Strongly Agree

Pablo: Strongly agree & strongly agree

Stella: Strongly agree

Dai: agree (⅘)

Rolly: Strongly Agree

Scenario Five (trip stopping notification)

[Notify Detour Flow]

Scenario 2.1: For this last scenario, it will be similar to the previous one but the situation will be a bit different. Sometimes autonomous vehicles come to unexpected stops due to aspects like unknown road blocks - even construction zones often require them to evaluate the situation.

So put yourself in the scenario where your self-driving vehicle stops while you're sharing it with 3 other people you don't know. Walk us through what this experience is like.

[Camera Flow]

Scenario 2.2: You view the potential roadblock during your trip through the home screen toggle. What are your thoughts on these screens?

What we will measure / want to learn:

- Qualitative comments / think aloud
- Do participants feel confident that the vehicle is in control of the situation? Do they like being given more information or the ability to talk to a remote operator?
- Quantitative question such as "I felt confident staying in the car while it stopped momentarily" that participants rank their response to on a Likert Scale

Tony: strongly agree

Jaffee: Neither agree nor disagree - "It would depend *why*"

Pablo: Agree "It's an autonomous vehicle because it doesn't assess the judgement like a human being would. I would be a little freaked out in the beginning.

Stella: I mean... Agree.

Dai: Neutral (3/5)

Rolly: Strongly Agree

Wrap-up

If you could summarize your experiences today, what would be the top 3 takeaways that stood out to you?

Do you have any questions for me?