UX Foundations: usability testing

1. **What is usability testing**
- Usability testing involves watching representative users working with your product so that you can make improvements based on what you see. Usability testing gives you invaluable feedback about how your users behave with your product. Knowing how users behave helps you create a much more suitable site or application. Rather than just guessing about what people might like on these, you can see their reactions first hand, and then make sure your product contains just the right features.
- Usability testing can be broken down into three stages. You have pretest tasks, like finding and scheduling participants, and working out what questions you need answers to. You have the test sessions themselves, and then you have the possession analysis and reporting, where you work out what you learned, and decide what to do about it. There are three things you need to focus on getting right for the study. Your participants, the tasks you'll ask them to complete for you, and the environment you'll use for running the study.

2. **Recruiting participants**
- It's better to run a small study (less participants). Make some changes and then test again, to confirm your changes have the right effect, then it is to run one big study and just get more confident that you found all the issues.
- There are two ways of finding participants for your study. One, is to do it yourself. The other is to pay somebody to recruit them for you. If you have more time on your hands than available money, you'll probably be doing it yourself. First, you have to work out what attributes your study participant should have. Then, you need to find a large number of people who are interested in helping you out, and match them against your attributes.
- Different usability tests will have different participant characteristics. For instance, if you're testing advanced features, it's likely you'll want to recruit people who've been using your product for a while. If instead, you're interested in how easily people can sign up for your service, you'll want to recruit people who aren't already members. For every usability test, you'll have to ask who is your audience and what subset of this audience do you care about for the current set of questions you want to answer. Lots of

development teams build their software to satisfy the requirements of a set of personas. Personas are fake people who have all the important attributes that the team cares about. If you have personas, you can use them as the basis of your recruiting process. Just work out which personas would be performing the tasks that you care about, and then, recruit people who share your personas' primary characteristics.

- Now you have to find out whether each person who answers your advert is qualified to take part. You do that by having a set of questions that you go through with each potential participant. However, you also don't want to make it clear from the questions you've asked what you want the answer to be. Let's go through some examples of good questions for some common attributes you might be recruiting for. Let's say you want someone who's moderately active online. You might specify that as minutes they spend between 30 minutes to two hours online each day. So, what's the best way of asking that question? Obviously, if we just said, "Do you spend between 30 minutes "and two hours online each day?", we'd be giving away the answer we want. Instead, it's best to get your potential participant to pick from a range of numbers. So, you might ask, "Which of the following best describes "how much time you spend online each day?" Less than 10 minutes, 10 to 30 minutes, 30 to 60 minutes, one to two hours, two to four hours or more than four hours. Then you'd accept anyone who chose the third or fourth answer. To ask how active someone is at online shopping, you'd might ask about purchase frequency using a similar scale. Maybe less than once a month, once or twice a month, once or twice a week, or several times a week. Alternatively, you might care more about how much time someone spends browsing online stores rather than the number of purchases they make.
- There are some other qualifying questions you'll want to ask each potential participant. Unless you're running remote usability studies, the participant will need to be in the same city as you, so they can easily show up for the study. They obviously also need to be available at the times you're running your study. It's good to check if people have any accessibility requirements, like using a wheelchair or not being able to climb stairs, so that you can accommodate them. If the person does qualify, you'll also need to make sure that you have a phone number and email address, so that you can

send study details out, and so that you can contact the person if there are any changes to your schedule.

- Finding qualified participants is only half of the battle. Once you've found them you have to make sure they're motivated to show up for your study. Even with the best of intentions sometimes it's impossible for people to show up. So, although we said 5 people is enough per study, it's worth scheduling a few more in order to account for no-show's, or someone who's available at short notice to cover for any gaps in your schedule. There are 2 main things that you can do to help ensure that people show up. 1, is to schedule your sessions at a suitable time. And the other is to reward people for showing up either with cash or with something else they may value.

3. **Working out what questions to ask**

- Asking your users direct questions doesn't always work very well. People are normally okay at answering questions that relate to things they've done in the past or tasks they perform regularly. These are called behavioral questions. On the other hand, people are not very good at answering questions that are forward-looking and speculative like, do you think you'd use this product? Or, how would you like to be able to do a certain thing? More to the point, they'll still give you an answer, but those answers aren't very believable. There are a couple of reasons for this, one is that people's visualization of the thing you're talking about might be very different from your intentions.

- Before you run a usability study, you really need to know what you're trying to find out. Different types of answers you need will require different types of participant tasks within the study. You might have general questions, like how well can people work with the shopping pages on your site? Or you might have specific questions, like how long it takes someone to find your contact information if they need to call you. Knowing how you'll use the answers you get from a usability study to improve the product ensures that you ask the right questions in a measurable way. There's nothing worse than finishing a usability test and then realizing you can't do much with the findings. Doing the plumbing up front means that you can move straight from the usability test findings to making positive changes to your product. When we get people to perform tasks with the product, we can capture

three distinct types of metrics. **Efficiency**, that's how long it took them to do the task. **Effectiveness**, which is how many errors they made. And **satisfaction**, how they felt about the task, frustrated or happy with the outcome. Pretty much any question you want to answer will fall into one of these three categories.

- Observe the behavior that leads to problems.
- Ask people to perform a directed task.
- After a usability session you are likely to have a couple of questions for the participant. Some of your questions may be to do with what the participant said or did during the session. Others may be about how the participant does this task in their daily life. You may also want to ask questions about the participant's satisfaction with the task they performed. These are all things that you obviously can't create tasks for. Instead, the questions are more interview style. However, it's important that your questions stay behavioral. In other words, remember to only ask about things the participant has already done not about things they may do in the future.
- -Whenever you ask questions, you have to work very hard not to introduce bias. Bias is where you tell people your expectation of the answer in the question you ask. For instance, an obviously biased question might be, "You liked that experience, didn't you?" Slightly less obvious but still biased would be, "Tell me how much you liked that experience." What if they didn't like it at all? A bias free question might be, "Tell me how you feel about the task you just completed."

4. **Making a task list**

- once we understand what questions we have, we need to turn those into tasks that participants can perform for us. Remember, because we are doing behavioral research, we're using these tasks as a way of getting people to show us how they behave in certain circumstances. In turn, that behavior, answers our questions. Because the tasks are written down for the participant to read out loud, it's best to keep the instructions quite short. Normally, we do this by making the task quite broad. We don't want to give step-by-step directions, because that would just lead participants through the process, and we wouldn't learn much from them. Instead, it's normally best to set a scene where you describe the output you want or the end result, you're looking for. That way, participants can choose their own

method to get to the end result, without feeling like they're being guided through.

- We normally present tasks to participants on a piece of paper for them to read, that way, the participant can refer back to the task if they get confused, and we make sure that every participant gets the same instructions, which keeps the study variables the same between participants. We put each task on its own piece of paper for a couple of reasons. One is that it prevents participants from reading ahead, and maybe finding a way to do something from clues in subsequent tasks. Also, by handing tasks to someone one by one, it stops them from feeling overwhelmed. If you have a particularly slow participant, they won't leave the session feeling like they failed, because they only got through a couple of tasks. For the same reason it's sensible not to number the tasks, and not to give them labels like Task, or Instructions. A good task should feel like it's setting the scene for someone to carry out an action that they would happily do in their normal lives. It's important to make sure the wording of your tasks is different from the terms used in the products interface

5. **Room and equipment preparation**

- you need is a quiet place where you can interact with people from outside the company without being disturbed. Somewhere close to your reception area with easy access to restrooms tends to work best. That way, you don't have to bring people through your work environment or down miles of corridors to get to the place where you'll run the study. Try not to have too many distractions like marketing posters, toy collections, and so on. A small conference room often works best.

- The minimum setup you need for running a usability test is access to participants, the system you want to test, and a pencil and paper to record notes.

- Sometimes you're going to want to watch users working with the system in its actual environment. For instance, people use their mobile phones when they're on a train, in a waiting room, or sitting in front of the TV. They don't use them so much in an office where they have other tools available to them with bigger screens and faster data access. Early in a product development cycle, you might need to see naturalistic behavior so you

understand how people's environment affects how they work with your product.

6. **Ready to test**

- A test plan is a great reminder and to-do list. It's a way to keep track of everything you need to do to ensure you have the right participants at the right time in the right location with the right setup and the right set of tasks to perform. Having a test plan is also important when you communicate with the rest of the team. It's one document that tells everyone involved what's going on, when, and why. The term "test plan" sounds quite formal, but really all that your plan is doing is listing out the decisions you've made and the things that need to happen for the usability test to take place. This helps you keep track of what's going on and what still needs to be done. Most of the information in the test plan is stuff that comes from other documents you use during the planning and execution of the study. For instance, your participant profile and recruiting criteria, the study schedule, and your task list You'll also pull in information that might not be written down anywhere, such as the research questions that led to your task list.

- A Dry Run of the process, is a great way of finding out what you've forgotten. That's especially true when you are new to usability testing, but it's always good practice to iron out potential pitfalls, by running a pilot study. You'll find out which tasks have strange or confusing wording, which areas of the system still have development bugs that might throw users off, and whether you have all the documents and information you need, to run the study. Do a Dry Run close to the time you'll be running the actual sessions, so that you work from the same code base. The easiest way to do this, is just to have a team member play the role of the participant. Preferably, choose someone who isn't intimately aware of how the software works, so you can catch things like terminology in your tasks, that you would use every day, but which end users may not be aware of. Do a Dry Run of every stage of the process?

7. **Moderating a session**

- It's incredibly hard to moderate usability sessions well. It requires a combination of patience, empathy, professionalism, and relationship building that only comes with practice. On top of that, you must also be a

good observer, recording participants' actions and thinking ahead so you know how you'll deal with their next moves.

- Any question you ask, interrupts the participant's concentration. It might even make them change their behavior. For instance, if you were to ask: "Which option are you thinking of choosing?", you draw the participant's attention to the options. They may have been looking at and thinking about a completely different part of the screen. Even when participants are following the Think-Out-Loud protocol, there will be quiet times. That's okay. Your idea of an uncomfortable silence is based on regular conversations. When a participant is thinking, you should wait quite a bit longer than you normally would, before interrupting them.

- At the end of each session, be sure to ask the participant whether they have any questions. The things they ask at this point are a good indication of whether they understood their progress through the study and what they think of the thing they were testing. For instance, it's always gratifying when participants ask how soon they'll be able to have the features they worked with. That shows they were engaged or want the functionality you showed them. On the other hand, if they ask questions that show they didn't really understand the philosophy behind the application, then you probably still have a way to go. Remember though, this isn't the time to be selling your product to someone. They've just given you some really useful feedback.

8. **Observing a session**

- Observers have a very specific role in usability test sessions. In fact, you might want to show them this video, so that they understand what's required of them. There's a big difference between passive and active observation. Passive observation is what we do when we're watching TV. We sit back and let the images on the screen entertain us. Active observation is different. When you're actively observing, it's more like being in a classroom, where you're learning things and taking notes. Usability sessions are all about active observation. You're watching for certain behaviors, and taking notes on the things that you see the participant doing. At the end of a usability session, your writing hand should hurt, and you should have several pages of notes. Your head should be full of all the interesting things you've seen. The best way of doing active

observation is just to write down what you see without processing it too much. Focus on the participant's actions and quotes, what they do and what they say. Stay away from trying to write down your interpretation of the reasons they did things or any potential fixes. If you're thinking about fixes, your mind isn't on the session anymore, and you're no longer actively observing.

- There are three main ways of helping observers track the things they see. A notepad and pen, an observer copy of the task sheet or a shared online document. If you let observers use their own notepads, then they can transfer those observations to Post-it Notes, so you can stick the notes up on the wall. By working as a team to rearrange, those notes into themes, you can identify common issues that several observers noticed. Pulling observations from the notes into Post-it Notes is also a great exercise for getting all observers to work together and discuss what they saw during the study sessions. Alternatively, you might decide to print off copies of the task sheets for observers to use. Often, in this situation, you show the task wording then add what you hope to learn from this task, and leave some space for observers to write their findings. This helps organize the findings in peoples' minds, because they know what the aim of the task is, so they can keep their notes task-centric. Be very careful, not to mix up the observer and participant copies of the task list.

- the hassle of setting up video recording just isn't worth it. Recording on video also makes the observers lazy. You think that the video camera is doing all the watching, so you don't have to. That leads to poor quality notes, so you'll miss important observations. The other downside to video is that it makes participants more nervous. The video camera is a barrier between you and them, and it just makes an already stressful situation even worse.

9. **Analyzing and reporting your results**

- As soon as each session is over, each observer should go back through their notes and make sure that everything they have written is understandable. Working together, the observers and the moderators should quickly discuss what they saw and whether there is anything that needs to change before the next participant arrives. Normally, we try and keep the environment the same for all participants in the study. But if there's an obvious problem

in the wording of the task or something in the product that has prevented the participants form continuing, then it makes sense to fix it, if possible. After each participant, you can write up on a whiteboard or a flip chart any quantitative metrics that you're tracking for the study. For instance, you might be keeping count of the number of times the participants have errors in certain tasks or the number of times participants refer to help text. You might be capturing rough timings for specific tasks or asking participants to give you a satisfaction rating. Writing those numbers down while everyone is in the room means you have to reach consensus on what things actually were errors or how long a task actually took. After you have run all of your participant sessions, it's time to gather the qualitative information together. This information is all of the observation notes that your observers took, include what went well and what needs improvement. Now is the time to pull out all the quotes and behavioral descriptions, and write down each one on an individual sticky note. Then, start grouping them into themes. As you do this, each observer will be reminded of what they saw during the sessions, will be able to recreate in their minds the issues and events that lead to the user quote or behavior.

- Although usability testing gives every observer a better appreciation of what real users is like, people's memory of what happened in each participant's session and each usability study will get cloudy over time. writing formal usability reports are not so much useful, because they seldom get read. However, quick summary document that describes what happened and what the team plan on doing about it is very valuable. what you're normally trying to remember is what the interface looked like when it was tested, and what the participants did with it. For that reason, the best report is sometimes just a set of screen shots of the interface with problem areas circled and called out.

- User testing isn't a one-off thing and it's not something you should necessarily do just before you release because you won't have time to make any changes. Instead, run multiple sessions with a small number of participants throughout the development cycle to give the team feedback on how well things are going. Retest problem areas once the team has made changes to the code but also, run some regular exploratory tasks during each test session, too. Just to make sure that the changes didn't

introduce new issues to areas that were working well before. User-centered teams start to rely on the information from usability test sessions to see how well they're meeting their release goals for efficiency, effectiveness, and satisfaction. You can encourage your team to be user-centered by putting up a poster with these measures on the wall in the team area, and tracking changes in the key measures from test to test. Once teams see the benefits of usability testing, they typically start scheduling regular tests either every month or every couple of iterations on agile projects. This frequency gives them enough time to make changes between test cycles but not go so long without user feedback that they get too carried away making untested design changes.

- If you want good job security, it's important to keep track of the changes that were implemented as a result of user testing. Even more importantly, you want to track how much money those changes potentially saved the company. It's hard for anyone in the organization to argue against a process that saves money and makes the product better. Tracking this isn't too hard. You just have to extrapolate from your usability test findings to your whole user population. For instance, if you found that a usability fix saved an average of 10 minutes or a certain proportion of help desk calls, those figures have dollar values associated with them. Extrapolating to the whole user population and turning the figure into dollars per year is likely to yield some impressive statistics. It also helps if you have quotes from well-respected people in the development team saying how usability helped them. And from important customers who have seen the benefits of usability testing in improvements in the product. The best thing to do is to seek out this information by asking people what benefits they've seen from usability testing. Archive that information away in a presentation deck that's always evolving. More recent, more awesome comments replace older remarks. Having the data in presentation format means you can quickly share it at a moment's notice. And you can easily copy and paste into your annual performance review or resume. You might also find that this information is useful when the team needs to produce a business case for making changes to the product. Having quick access to the benefits you've gained from previous usability enhancements will help demonstrate

that the team cares deeply about users and will be making the changes for the right reasons.