

Understanding Design Thinking and People Centered Design
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Lecture -18
Testing, Refining and Pitching
Conducting the Usability test

(Refer Slide Time: 00:19)



So, we now move on to section 4, sub part 3, which is conducting the usability test. You know, how do you actually conduct a usability test. What goes on? It is a whole set of protocols that, you know, you need to know and follow to the best of usability's, so what and how of usability testing.

(Refer Slide Time: 00:37)

Usability Testing – What and How

PERFORMANCE

1. Put your design early into minds and hands of users
2. 'Pretend' the actual context and activity (from scenario)
3. Evaluate against benchmark performance **15min**
4. Understand how good or not it is
5. Iterate, Refine, Iterate, Refine, Iterate, Refine...

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To put your design early into minds and hands of users, as I told you that is the whole goal of usability testing. So, in order to do that we understood that we work with early prototypes and, what do you as far as the mechanics of what goes on you pretend; right, you pretend the actual context and the activity from your scenario.

So, if you remember, you know like in that corporation website, we had the person is very interested in knowing if the corporation has some ways of advising him, about renewing his license for his restaurant or if it has the ability to advice him in order to form some kind of support communities in his local area. So, things like that. Let us see you would bring a participant, you would tell them. Then, now I would like you imagine that you need to renew your hotel license. Can you tell me how you will do it? So remember, again it was about performance and not about the preference; can they do it not. So, you pretend the actual context and activity from the scenario. So that is why you tell them - imagine that you are in the situation.

And, evaluate against the bench mark performance. What is bench mark? If you remember the example I shared with you about the product that was to be designed for setup by consumers in their homes. So, instead of a service person walking, travelling, instead of a service person traveling to the user's home and setting it up for them, we

were designing it to be a self-install. And then, we went through the entire analysis of who is the user, what might their criteria be, they may be the small business owner. So, therefore, they do not have time in wearing multiple hats, etcetera, etcetera.

So, based on all that we had defined an acceptable set up time of fifteen minutes, that is our bench mark. Is someone able to set it up in 15 minutes or not? If they are taking 45 minutes, which is what our first version of the design took, it is not acceptable. It is not going to work. So, when through if you remember three iterations, and in the third iteration we would manage to bring it down to fifteen minutes. The first one took 45; the second one took about 25. And, in the last iteration we were able to bring it down to 15 minutes to complete that particular task. So, that is the bench mark.

So, any of the tasks, any of the activities that you setup, you must have a bench mark in your mind. And, as you come to know your users, you will be able to identify that on your own. Otherwise, speak to your client in terms of, you know, getting their perspectives as well; as to what is an acceptable bench mark for people to perform or to use the designer to do this particular task that you created.

Understand how good or not it is; understand how good or not based on what the user again, performance was; performance, not base on there on their preference. Understand how good or not it is.

So, when we were creating an application for a library, we had setup like about 9 tasks. So, in the first version users were only able to complete about three of those. And, the rest they could not. That was the bench mark that users have to be able to complete all the 9 tasks. They have to do successfully. And, the reason they could not is because their design was not up to the mark. And then, through revisions you know got it to be better and better. So, that is another bench mark; how much they can complete, how many errors are they making. If out of, you know, 5 users, 4 of them cannot even do it. That is the bench mark. It is unacceptable. So, based on that understood how good or not, your design is. And then, iterate, refine, iterate, refine, iterate, refine.

So as I told you, you know, your cycle goes something like this, until your design becomes just what it is supposed to be or as close as possible. You may not have the time to go all the way, at least get it to here. Do not leave your design like this with all these problems.

Now, in the video that I showed you by Steve Krug, when he was, you know, testing that participant for usability, you saw this piece of paper in his hand that he was waving and he kept calling it the script. So, there is a script that we follow for usability testing. Why do we do that because if we go empty handed in front of the user and then expect to test them I am sorry it is going to be a big waste of time. So, you need to have clarity just like I mentioned to you during user research as well. The amount of what you will get out of it will be based on how well you prepare for it. In this particular case, it is even more important because your product is part of the way there. You are looking to get feedback on it and you want to know exactly how the user is navigating through that product.

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The Script *MENTAL MODEL*

1. I am.....We are working on a project to address.....
2. I will show you our design idea and ask you to use it...
3. As you use it, please think aloud so I understand..
4. We are not testing you but our design...
5. Your responses will help us improve our design....
6. There are no right or wrong responses....
7. If you have questions, I may not tell at first but ask what your answer may be....
8. At any point if you feel uncomfortable, please tell.....

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So, therefore it is very important that you stick to the script and remember to say all the things. It is not just about sticking to the script, but it is remembering to say all the things that need to be said. And, that is all difficult to remember, therefore the script. What do

you say in the script? First thing, you introduce yourself and then who you are and then introduce the project. We are working on a project in which we are trying to understand and how people are able to select menus from a collection or whatever it is.

So, we are working on so and so project. So, first thing is to introduce yourselves; say who you are, then introduce your project that we are working on a project that helps you navigate to your, through your walk away in your city much easier. For example, so, we are working on so and so project.

Next thing is I will show you our design, idea and ask you to use it. I will show you a design and I will; I am going to ask you to use it. This is all happening before you show them the design. I am going to ask you to use it. As you use it, please think aloud. So, I understand. We will speak some more about this think aloud protocol. And, you may have seen it in the video as well. Please, think aloud. You are asking the user as they working through this, you are asking them to tell you what is going on in their head. Again that is related to mental model. They are telling you what is in their head in terms of whatever expecting, what they are confused about, what they did not make any sense to them and all of those. So, please think aloud. Think aloud is a protocol.

Then, to tell them that we are not testing you, but our design; we are testing our design; we are not testing you. Remember, you also have to be sensitive to these things that you need to be telling your user this because people feel very uncomfortable. If they working on something and there is someone watching over them, it is not a comfortable feeling for someone to be watching over them; which is, exactly what you are doing in usability testing. So, make it very clear to them that you are not testing them, but the design. And, there is no right or wrong answer. Your responses will help us to improve our design. The focus is on the design, not on you. You are going to help us improve your design. And, there are right and wrong responses as I just told you.

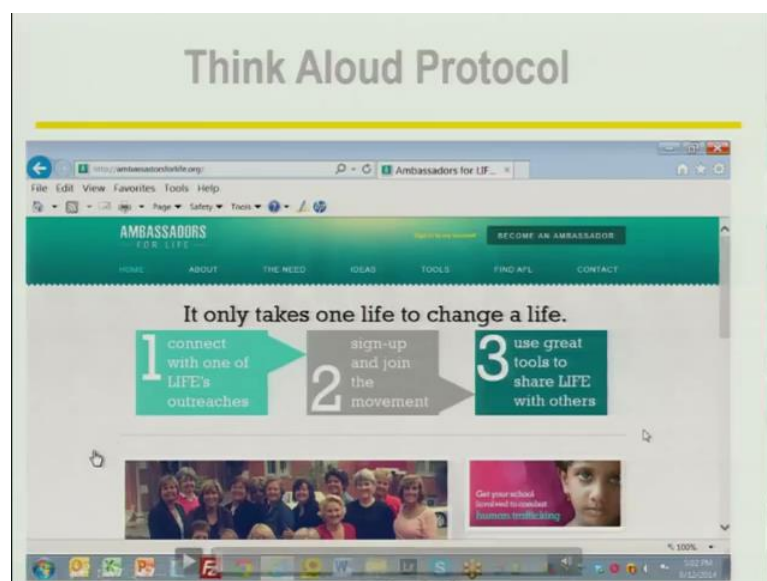
If you have questions like, you know, they asked in the video, 'I do not see anything, do you?' is what he said. If you remember, the moderator did not answer him. He said just do what you would do. If you have questions I may not tell you at first, but I might ask you what your answer may be. So, I will not give you the answer, but I might just ask

you what do you think. If you had to make a choice, if you had to do something what would you do?

And, if you also remember in the video, right in the beginning he showed him the entire, the first screen, first thing that came up of the application and he asked him see what you make out of it. So, that is also one of the most important things. When you have something in front of the user or you are showing them. Let us say that tea making machine or that ATM example I showed you.

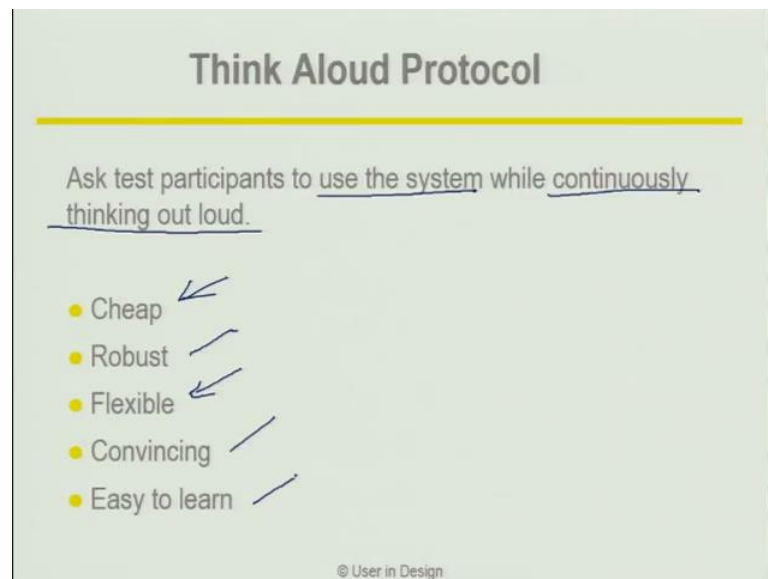
So, when you look at it what is going on in your mind. Before you give them any instruction, find out as soon as they see it, what is the reaction they feel. And, very important to see at any point if you feel any uncomfortable, please tell me. Uncomfortable, in the sense remember your designs are very half baked. So they maybe, you know, in pretty bad shape, some of the things maybe buggy. And, buggy is not the thing. Something may be very difficult to use. So, but if you insist the user must finish all the tasks. And, they are really sweating and uncomfortable. That is not nice. So, if at any point if you feel uncomfortable and do not wish to continue, please tell me, this is broadly what means to go in your script. This is broadly what you must tell the user when they are sitting for usability test. So, I am going to show you a video now.

(Refer Slide Time: 11:56)



So, this is a video on the think aloud protocol. So this video, just listen to it and you will see some movements on the screen that are no people in this video. You just see what they are doing. And, what you will get to experience is what this think aloud protocol sounds like. So, that was a quick video that showed you about this think aloud protocol.

(Refer Slide Time: 13:35)



And, I think there is couple of things that you probably did notice. And that is in the video. You can see that she was wanting to know what is this organization about. So, she said the first thing jumps out of me is those three steps. But I am not; you know that seems to be procedure for something or step by step something. But, she said I want to know what is organization is about.

So, she was not able to figure out. Then, she went into above and then she read the whole thing. And, in the finely, in the second part of the paragraph she was able to find out what the organization is all about. Now in a usability test, remember people do this because they are asking them to do it. But, in reality that is probably a good indication for the design team that particularly an organization like this. That is trying to project itself outwards, so that people are attracted perhaps to donate money to the organization, then that was not a good thing. What your organization is about is probably one of the most

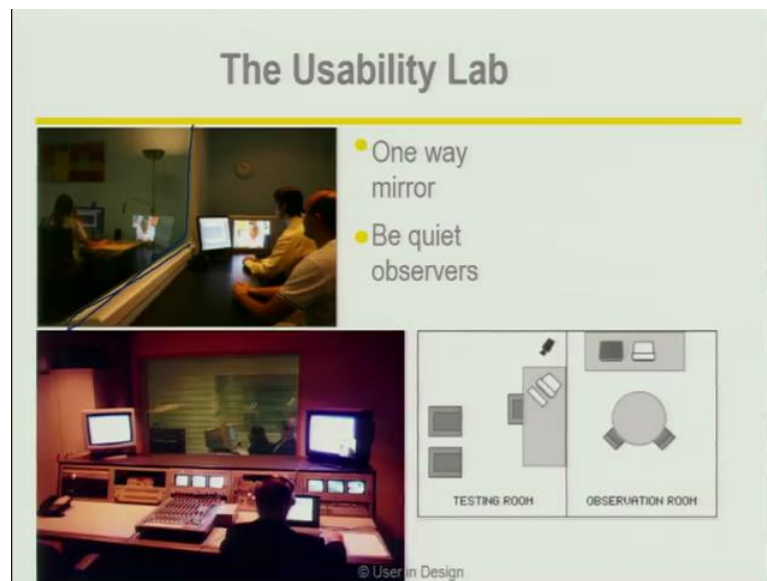
important things for this kind of a, of this kind of s company which wants to project to the people what they are about. And so that people would perhaps donate.

So, let us look at think aloud protocol. Basically it means, asking test participants to use the system while continuously thinking out loud. It is as if you know there is a microphone inside the brain. So, it is projecting out every all the thoughts that are going in their head. So, while continuously thinking aloud. That is what is think aloud protocol is. Why does it work? Because it is very cheap, you are not having to doing anything additional, but just asking the person to speak.

It is very robust. It really works. If you can get the person to speak and it may take a little while that there are some people who do not speak as easily, there are some people who you know speak a lot. Obviously, the people who speak more are much more helpful in such situation like this, but you may have to; to the quite people, you may have to remind them two to three times. Then, they get used to it.

It is a very flexible system. You know, you can stop it and talk to the person and all of those things. It is very convincing because the person is telling you. It is coming out of the person's mouth and, it very easy to learn it. Anyone, if you tell them anyone is sitting on the participant's seat and told that I would like you to think aloud and tell me what you are thinking, tell me what is going on in your head, tell me when you feel confused, tell me when you are not sure what to do. They will tell you. It works very well. So, it is a very robust and very cheap protocol.

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Now, I would like to speak to you about the usability lab. So, a lot of, you know, usability testing is done in a usability lab. What is the usability lab? For those of you who have seen these police shows and all, you can see sometimes where they have a room with a one-way mirror. Where people on the other side they can look through it, but the one who is on this side is not able to see them. So, that is the one way mirror. So, usability lab is exactly like that. So, this part is a one-way mirror. And, the participant is on that side and the people who are observing and monitoring the test are on this side.

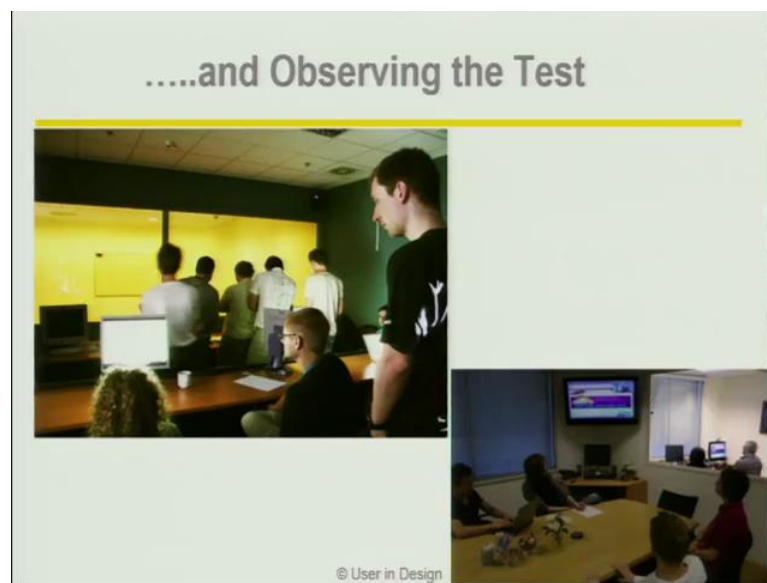
And, the reason to have this one-way mirror as I told you, you know, when people are observed, when they are being watched, it is very uncomfortable situation. So, therefore to give them sense of comfort, even though they are in this situation where you are observing. Observing what they are doing; it is a good idea to give them that space.

The second reason is that all the other people in the room, let us say the design team, and let us say that there is a pretty big design team. They can all assemble in the room and they can talk to each other. And they; as the user is going through different things on the design and they are getting insights about the design, they are getting, you know, strong feedback etcetera. They can be discussing with each other by making notes and all of

those things. So, this is how a usability testing lab is typically like. You would have a testing room and an observation room with a one-way mirror in between.

So, on the other side of the one way mirror you are expected to be quite observers. So, this is another picture of the same thing. You can see there is lot equipment over here, recording equipment and all when the testing is going on the other side.

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So, this is a usability lab. And these remember, I was telling you about a large design team. So, this is an example of a very large design team that is observing the test. And, you know they have several monitors. And, on the monitor what they are seeing is the same thing on the screen that these guys are seeing is the same thing that the participant is seeing. So, that everything that the participant does, they are able to see. And, obviously this works really well for interactive product. And, you can even have a lab like this where there is feed into a large monitor that is everyone is looking at together.

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So, that is the usability lab. Now, can you not test if you do not have usability lab? Absolutely not, you can see this is an example of usability test in a large class room setting with many people in there. Of course, it is a friendly group. And, it is the people that you are reasonably comfortable with. But, it can be done. It can still be done in a usability lab; you get the best conditions to do this.

But, you can also do it outside. And, the important thing is you know to give the person the instruction and then tell them that, you know, tell me what you are thinking. And, what you find typically is people get so involved in the task. They are trying to complete the task. They are trying to set an alarm or they are trying to calculate their mileage or they are trying to, you know, pick an item from a menu or whatever it is, that is the task they are trying to do. They get so involved in that often times they do not notice, you know, all the other people around them, provided, you, the rest are quite.

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You can do this kind of testing at where the user is. So, this is for that project that I showed you, which was based on creating a platform for crafts people. This is where our design team; this is a member of the design team, who is the moderator. He has created his paper prototype design and he taken it to the craft person. And, he is trying to do the design over there. Likewise, over here when they moved, the design moved from the paper version to a digital version, its next revision or the third revision, then they took it again to crafts men and tried to have them do the task that were designed on the system.

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Here is another example. And, you can see that this is of course, a make belief system situation where on the board, the dash board of a car has been drawn. And, what is being tested is the car entertainment system; the car radio and basically the entire music system. And, there are various cards, various pages, sheets that have been put. And, the user is pressing buttons on paper to show what they are pressing. You can see that is camera recording over here.

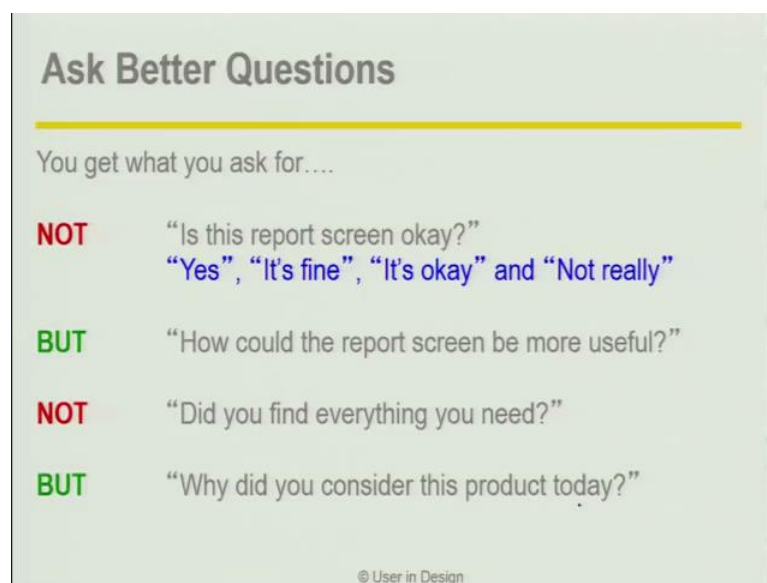
So, one of the important thing I suggested and advice things to do is to record your usability test. You will invariably not have captured everything that is going on while the user is testing. Even though, you would also have a note taker here; just like when you were doing here in your research. But, it is very hard to capture every single thing live. So, you may very likely want to go back and look. So, therefore the video camera is very important.

(Refer Slide Time: 22:45)



And, using quick prototypes; as I told you they can be done in various setting. It does not have to be a room or lab; you know here someone doing usability test at the Star Bucks. This is quickly setting it up in someone's office or home. So, it can be done in other situations as well. But, it is important for you to know what is the purpose of the usability lab and what it does.

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Now, let us speak about the questions, asking better questions. You will get what you ask for. If you ask better questions you will get better answers. So, is this report screen? You have created a design and you are asking the user is this report screen? Ok. Most likely, what would the user say? Yes, it is ok. What would you have learnt from it? Nothing. They will say “Yes” or “It is fine”, “It is okay” and “Not really”. How could be the report screen be more useful for you? If you ask it in this way, you are much like clear open it up to get a much more insightful answer. Did you find everything you need? Yes, maybe what the user was saying. Why did you consider this product today? Why did venture in to looking at this product today?

(Refer Slide Time: 24:19)

The Tasks

Wellesley Foodie Rescue application, meant to help students see the menus easily and provide a more satisfactory comments procedure.

1. It's almost lunch time and you want to see what's being served but you also want to eat with your friends



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So, the questions that you ask are extremely important. Think carefully just like in your research and even more so in this. Think carefully to what questions you have to answer.

Now, let us look at what tasks are so the earlier prototype that we saw. It is Wellesley Foodie Rescue application. And, we saw it in the context of the paper prototype. And, I shared it with you as an example of how with paper and an over lay, you can show a sliding screen. Now, what is its application? It is meant to help students see menu easily and provide a more satisfactory common procedure.


Now, let us look at some of the tasks on this design. You are telling the user you have gone through script, the initial protocol; you told them to think aloud, you told them that this not about you, we are not testing you, there are no right and wrong answers and all of those good things you have told them. Now, you are saying that now what I would like you to do is it is almost lunch time. After you explain this; it is almost lunch time and you want to see what is being served, but you also want to eat with your friends. Can you tell me how you would go about it? How you would do it on this app? And, please point on an area of the screen to show me what you would do. That is, what you would tell them. So, this is the first task you have given them.

(Refer Slide Time: 25:58)

The Tasks

Performance Like?

- (a) You just downloaded the application and you know that you will only eat at the Lulu or at Tower because you live in Tower. (b) You were showing your friend the app and she deleted Tower from the view. She is panicking, you tell her its ok and bring Tower back into view.
- It's after lunch and you're in your room procrastinating. You decide to check what's being served for dinner around campus and coordinate a dinner date with your friends.
- You are looking at Tower's menu and are confused as to why they have apostrophes on "tacos" and you want to ask them



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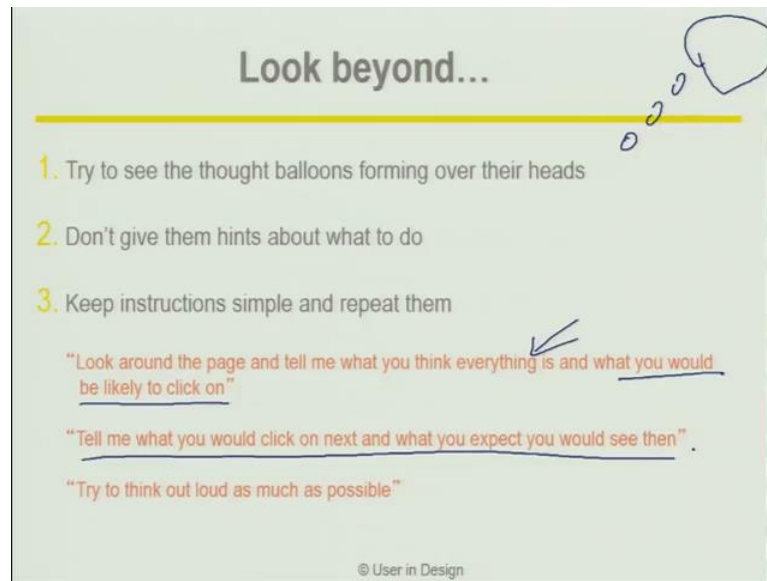
The second task is you just download the application and you know that you will only eat the Lulu or at the tower, this is the two places perhaps; because you live in tower. You were showing your friend the application and she deleted tower from the view. She is panicking. You tell her it is ok and bring tower back into view. Can you show me how you will do that? You are not asking them do you like this design or not. You are saying can you show me how you will do that. So, again we are gauging the user's performance. Not, whether or not they like it or not does not matter.

Third task; it is now after lunch and you are in your room procrastinating. You decide to check what is being served for dinner around campus and coordinate a dinner date with your friends. So, you want to know what is being served for the dinner around the campus. So, probably there are two or three different locations. You want to know what is being served at each of them. And, you want to also coordinate with your friends and say “Hey! Let us all eat together at this so and so place; because menu sounds good. That was your third task.

And, your fourth task is you are looking at tower's menu and are confused as to why have apostrophes on “tacos” and you want to ask them. Does that mean that it is not real tacos or whatever it is that are going on in your mind. But, you are looking at the tower menu and you want to ask them why they have put apostrophes on the tacos.

So, when you are testing participants with these tasks, you just give them the task. And then, you keep quite. When you saw the video in the morning, you noticed that is in the beginning he was speaking a lot. When he was explaining the protocol, when he was giving the initial script and all of those things; however, after that you must have noticed that he kept very quite. So, that is what you need to do. Once you give them the task, be very quiet and just let the user do the talking, let the user think. Give them space time to think and consider, give them time to frown, so that you can see those frowns and then you can ask them I noticed that you have frowning. Can you explain to me whether something bothers you or something confused you? If you ask them they will tell you; if do not ask them you will never learn, so this is what task are.

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And, you need to look beyond. You have done due diligence with your script, you have done due diligence with your task, you have taken notes, you have recorded and all that you need to look beyond. Just like what I have mentioned to you a moment ago about the frown. You know, if they are frowning try and understand. Try to see the thought balloons forming over their heads. You can make out that they are thinking. You must know what they are thinking. Do not give them hints about what to do. You have to control yourself, which sometimes can be difficult. And, that is another reason why we have the entire team in another room; because sometimes they just cannot control themselves. They are so deep into the design that they will blurt out the answer.

So, do not give them hints about what to do. Let them work with it. Let them try it out. Let them ask questions. And, they will probably ask you is this the way it works. Do not answer that as well. Tell them that what do you think, what would you do. And then, of course in the end you can answer. And, of course if they are struggling too too long and too much, stop it. Cut it out. If they are struggling beyond the reasonable point, you know that there is something wrong with your design.

Keep instructions simple and repeat them. Look around the page and tell me what you think everything is and what you would be likely to click on". This is one of the most

valuable opening lines. It is the first thing that the person sees. And, you tell them look around the page and tell me what you are thinking everything else. At that point you are not giving them any more instructions. There is no questions, no task nothing. Just look at it and tell me what do you think all of these things are. And, what you would be likely to click on is the, you know if they do not understand they start clicking. They will try this, try that. So, what is that you need to know? Tell me what you would click on next and what you expect you would see then.

So, once they click and you are so thrilled, if you are the designer that they clicked on the right button, you are just excited that when they move to the next screen, you are just busy with you know seeing what they are going to do next. Are they going to get it? Are they going to get it; that is what you are thinking?

But, before you get in to that you know when a new something comes up, a new instruction, new screen, new error message, new, whatever it comes up, just take a pause and ask them is this what you expected to see. And, before you move them, you know before you move them to next screen, tell you I would click on so and so, ask them what do you then expect to see, before you show them. Before you show them, ask them what you would expect to see when you click this. Then, you get the clarity of their mental model. And, once they had told you what they expect to see, and then you show it to them and tell them is this what you expected to see. So, it confirms to you both of those things.

Try to think out aloud as possible. You may need to remind your user two or three times to think aloud because people forget. It is not a natural thing that we talking to, talking aloud when we are doing something. So, that was about conducting the usability test; the mechanics of actually conducting the usability test and the different places and ways and context in which we can conduct the test.