**Introduction to Human Computer Interaction**
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**Lecture – 12**
**How to understand user needs? Surveys, Questionnaire – Continues**

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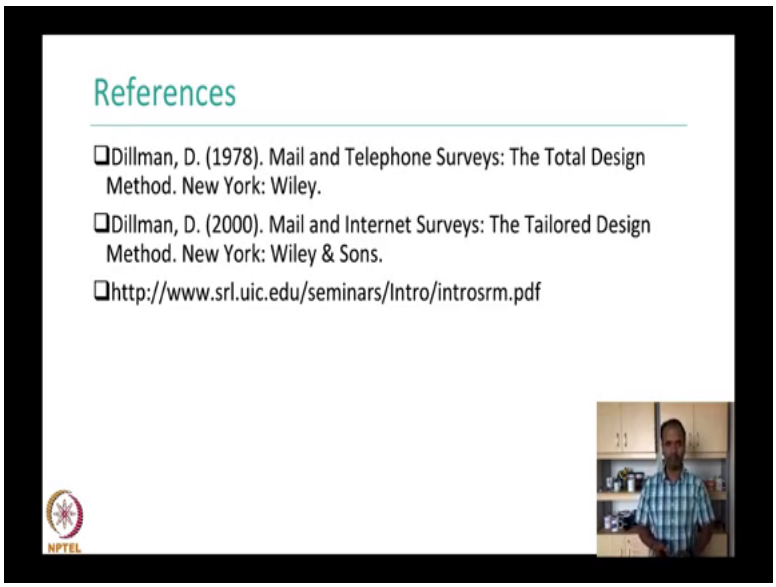


These are the references that I use for creating the lecture on several methodology questionnaires and everything that I spoke in the last 30-40 minutes in the lecture.

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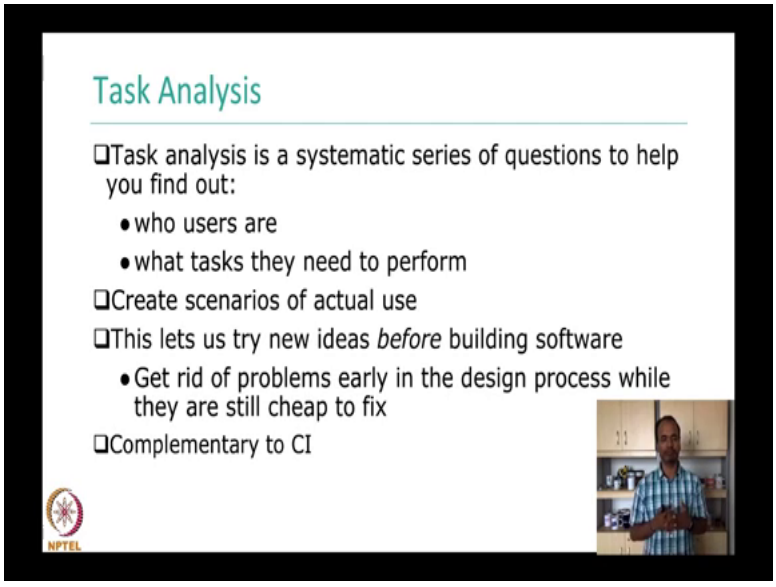

Now, let me introduce you to a very new topic called Task Analysis. So, now, what we are trying to do in the process of designing? They are actually moving forward with understanding the users. In understanding the users, there are multiple ways of doing it. These all think a lot sessions. We saw interviews, we saw focus group discussions, we saw survey methodology and in survey we saw multiple ways of collecting data. Now, I am going to actually contextual is another method that we saw. So, now, we are going to see a methodology called as Task Analysis.

Task analysis is a systematic series of questions to help you find out who users are and what task they need to perform. So, the basic idea for task analysis is that in the process of again going back to the remote for the slide changer or for the uber, the task could be saying that you book a cab to go to the airport in Delhi, you book a cab go to the airport in Chennai or something like that. That is the kind of a task that you will give and you will see how users are performing, right. So, that is task analysis. One interesting thing that you will have to do in task analysis of one necessity, necessary thing that you will have to do in task analysis is create scenarios. I will create scenarios. You have to keep in mind that the scenarios have to capture different actions that you will expect the users to do in your solution.

So, the methodology of task analysis lets the administrator to try new ideas because again in the uber scenario, you could actually create the questions which can help you to understand how users are making the decision in different context, right. So, you could actually say now book a cab to go to the airport, cancel the cab. The cab is not arriving in few minutes or you see that the cab is actually very far away, you delete the or cancel the booking that you have done and then, rebook for another one. So, in the process of getting the users to do different types of task, you will also understand how users are making decisions, so that you can actually build your solution accordingly and one of the big reasons why you want to do task analysis early in the stage of actually building your solution is to get rid of problems early in the design process.

So, you can actually think of how users are making the decision and make decisions in your task analysis accordingly, so one another. So, this method come the task analysis methodology is actually a very complementary methodology to contextual inquiry because conduct inquiry what did you do? You actually ended up seeing users doing a particular task in a given context, right; you did not get the task. You went and just

observed users doing different activities in the given scenario, in the given situation where they are working. You ended up only observing the users doing their activities. So, therefore, task analysis and context inquire goes very complementary to each other.

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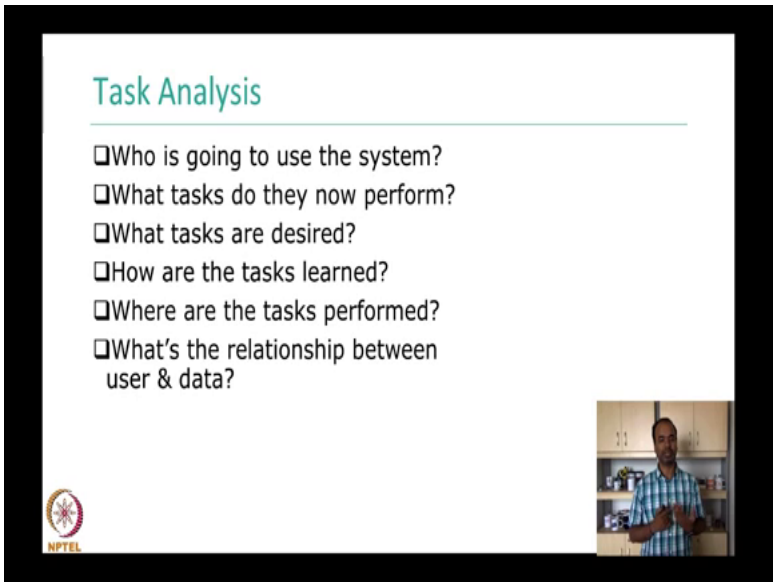


Here are some questions that you want to keep in mind while planning your task analysis who is going to use the system, right. For example, a teenagers versus senior citizens, male versus female, an urban area versus rural area, what tasks do they now perform, right? How do they do it? Now, for slide changer when somebody was trying to build this earlier, the slides were changed only using the keyboard in the laptop or in the desktop, right. So, what tasks do they perform now that will help you to think of tasks that they would perform in the new solution that you are trying to book what task they desired.

Well, how is the task that they are doing is a desirable state? What is that? How are task learnt? Because for example, again for remote I mean you have to learn that what are these buttons, how do I do the activity in the uber app I have to learn. How to actually figure out to book a cab to schedule a cab, right? It is all of this is actually how the tasks are learned, how the how to use the app users are learning that. I think you want to capture where the tasks are performed, right. Booking a cab, this is in a classroom in a lecture hall. Uber standing in the street, trying to go back, home trying to go to the airport, what the relationship between user on the data is, right. So, for example, what

data you are trying to collect, what is the relationship meaning user is trying to perform. It will also see later in the course, there are something called as primary data and secondary data that you can collect, right. There is also many as already I have mentioned something like qualitative data and quantitative data.

So, really there is also primary data and secondary data. What is the relationship between the user and the data meaning the I am the user, what data can you collect from me by using this remote and what data can you collect from me while doing the uber app are actually very different. So, the relationship between me and the data is actually very relevant.

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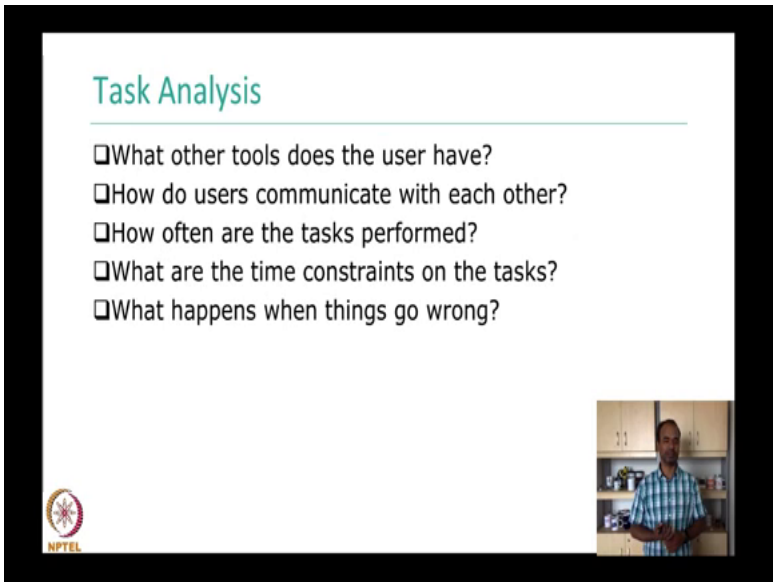


Here are some more questions that you want to keep in mind what other tools does the user have, right. For example, in terms of remote I can go to the laptop, in terms of uber I could actually use Ola. So, for that matter how do users communicate with each other, right? Some way if at all there is communication between users, how do they communicate meaning how do I communicate with the driver in the uber scenario? Meaning I just make a call to them, right. In some situation, there is no calling. You would probably only text the user, you probably only can send a text message to the user or to the other party.

How often are the task performed right mean depending on a frequency of the time, frequency of the number of times the tasks are performed, you could actually design

decide and design the solution that you are coming up with, right. Some tasks that is being performed on and off you want to make it very sturdy, some task that are performed not very frequently you could actually make a decision on design which is depending on the frequency that they are using because if I am not using it very frequently, you could make a decision of saying that or you can keep it light. You can keep it not very steady and around that whereas, if it is frequently done, you want to actually make sure that it is very sturdy and it is actually making sure that the lifetime of the design that you are making is actually longer.

What are the time constraints on the task? I want to go back go to the airport. I just have 45 minutes and it takes about 45 minutes. What is the time constraint that is there in that situation? What is the time constraint that sometimes remote, right it cannot be like I clicked and I have to wait for some time, for the slides to change. What happens when things go wrong? If it does not work out, is there a way to actually fix it? What are the ways to fix it, right? Keeping these questions in mind will help you actually develop the good task analysis, good tasks. So, to say that you can go to users and collect data.

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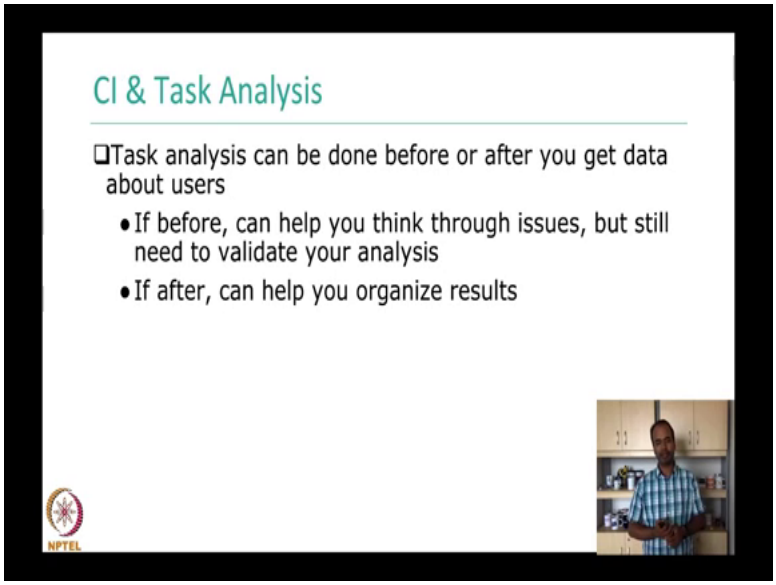


You can do actually task analysis before or after you get data about users that is if you do it before, can help think through the issues, but still need to validate your analysis. If you do it after, you can actually help organize your results.

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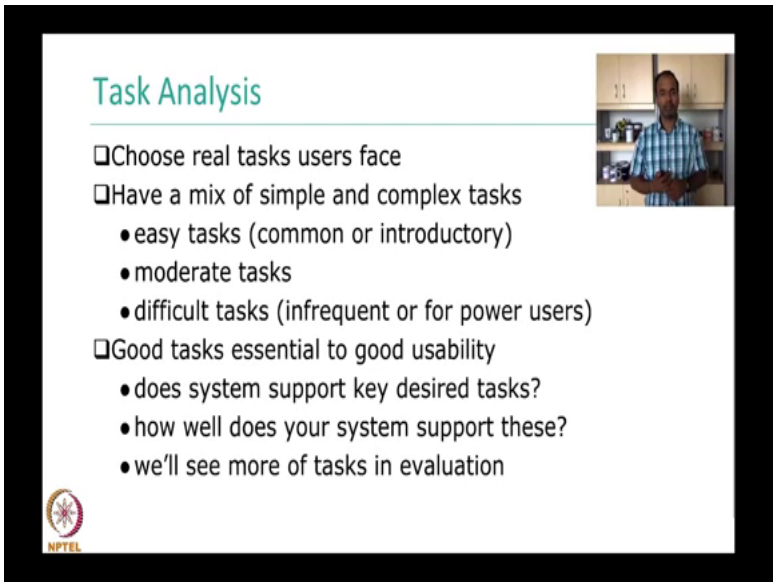


Now, let us look at more details about how to do this task analysis, choose real tasks, right that is you do not have to choose hypothetical task of saying, ok. Now, let us look at going from ah point a to point b in uber while going in the direction, please change the location point b to point c and let us see how the users react. Do not make it very hypothetical situations, but make it real situation that users generally face and user generally do at the maximum number of times in their usage of two and a mix to simple and complex task. I have some examples later to be given what is a simple task, what is the a complex task ah, but easy tasks, common or introductory which create an account on amazon.com, create an account on flipkart, moderate task order book on flipkart and get delivered in my office, difficult task or for probably order a book is. You won't like to return the book and buy another book from flipkart.

So, make it in this way which is easy, moderate and difficult because what does this allow you to do, this allows you to actually figure out that how users behave in different sets of tasks that is given to them. Good task essential to good usability, right. So, if you create tasks that are very precise tasks, that are very specific to the context that you are studying, it will actually make the design also better because they are going to get more useful data from the users and therefore, your design will be very design will be better. So, the question again to ask is does the system support key desire task which is some of the most frequently used? Ask is it supporting how well does your system support? These

tasks will see more of task in evaluation when we actually figure out what task to give and how to actually evaluate the system in the table.

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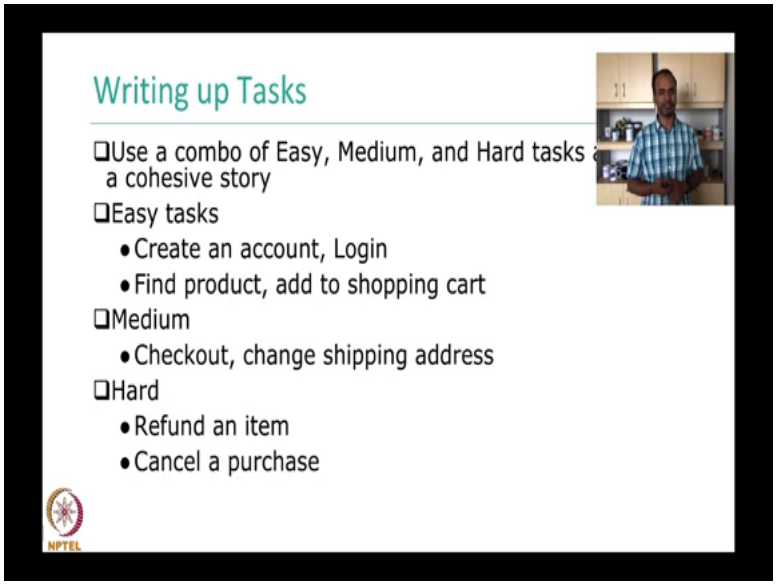


So, use a combination of easy, medium and hard task and form a cohesive story because story could be something like now you want to go to point a to point b and create a scenario. I mean someone scenarios are tell you that I will made in the past is one of the scenarios is for a user study, we created the scenario like you are person who is working in a company ah. You are the assistant to the CEO of the company and you will get these kind of emails, generally about appointments, about actually food that you have to order, about some packages that are arriving and topics around it and will actually see how you react to these emails.

So, that is the kind of scenario if you create scenarios which are very possible. So, to say and if you create tasks that are very specific and very contextual in that scenario, you will actually get a lot of very useful data. So, easy tasks create an account, find the product, add to the cart medium, checkout, change shipping across, hard refund the right time and cancel a purchase right something service.

So, now with this you have an idea about what does task analysis mean. I am assuming that what the context inquiry exercises that you have done and with the task analysis that talking about now please do a task analysis for yourself of project of an idea that you want to do and share. What you are finding out in the mailing list or just to us also I will

be happy to actually review whatever you are finding through your task analysis and giving you feedback on whether it is making sense or not.

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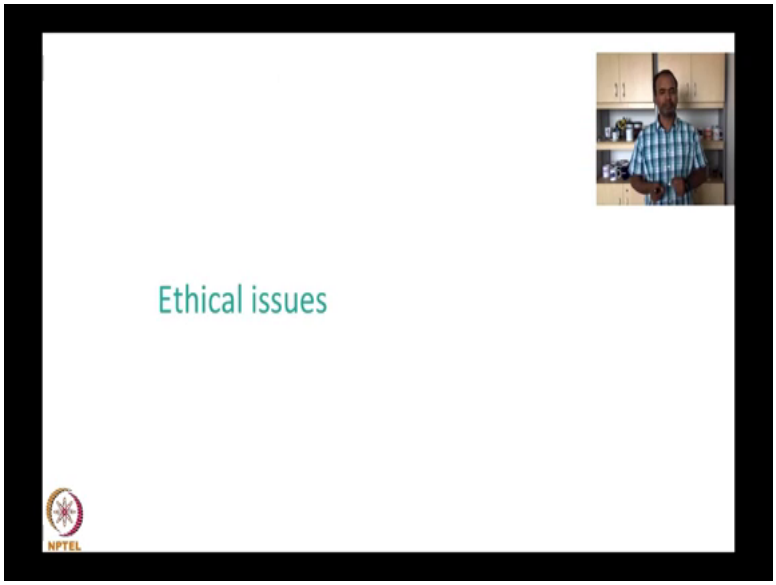


So, now let me tell you actually interesting things, interesting. So, to say point in time two studies that I will mention to you which are the phenomenal studies or the studies that made how human subjects studies are done. After these point and time I do not know whether we have got about it the two studies and I am going to talk about one a Stanford experiment and the other one is Milgram experiment.

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So, here is a first experiment which is Milgram experiment. It is called Milgram experiment and it was done at Yale in 1961. The idea here was there was a person given. So, administrator there was a user and then, there is the employee on the other side or the person who is actually working with you which is on the other side of the wall.

So, here we can see there is a wall, there is an l, there is t and there is an e. So, t and e are in the other side of the wall and l is on this side of the wall. So, l is what is the user who is getting the output of what t is doing, right. So, participants to obey the experimenter, right. So, t experimenter e is actually telling the participant to do some things and the experimenter is giving instructions and the participants have to follow the instructions according to what he is saying. Interestingly what happened was the experimenter was telling the participants do some things and in the process, the participant where ended up actually giving shock to people.

On the other side, even though there was not any human being on the other side, 65 percent of them can give 450 volts of electricity to the other side of the person, right. So, the point here is that user studies were done and the users were told experiment third told the users to do certain activity and in the process, the participant gave shock to people on the other side which is the person on the other side of the wall about 450 volts. This was an interesting experiment where users behaved even though they think that or they thought that they were giving a shock to the other person. They did not stop at some minimal value. They went to up to 450 volts. Here is another experiment.

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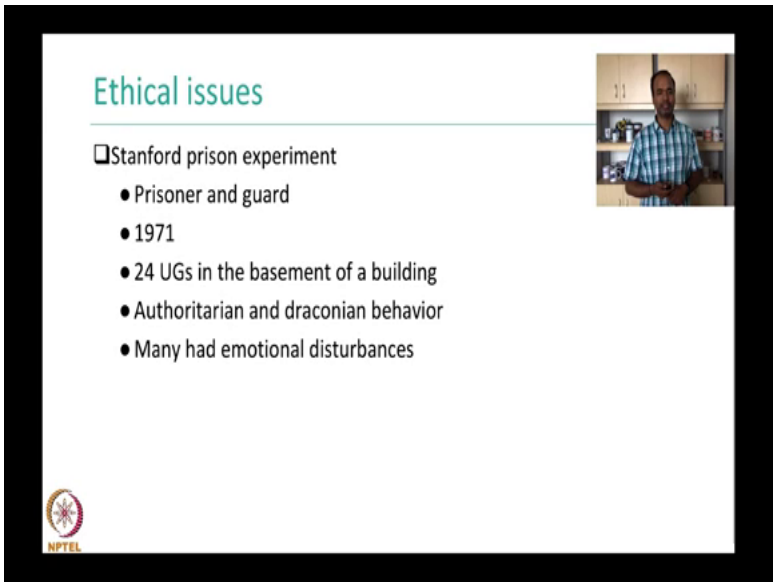


This experiment actually changed the way that human subjects were handled, right. Stanford Prison experiment. So, the idea here is a twofold which is the prisoner on the guard 1971 was a study in stanford 24 under graduates in the basement of a building and the idea was half of them were made as prisoner, the half of them were made as guard for some time and they saw that the prisoners and the guards had certain type of behaviour when they were prisoners in guard and they changed after sometimes. They changed the road and they saw that the participants in the study had emotional disturbance which is basically the guards were meeting the prisoners and they were showing arrogance to the participants, all right.

So, what does this, what is these two experiments tell us? These two at least the Sanford experiment definitely shows us that the data that you collecting from users if you put users into a certain scenario, they start behaving. Actually both the study shows that if you put users into a certain scenario, they start behaving as though they are part of that scenario itself and the other one is of course, human subjects data.

When you collect, you should be very careful, right. So, these experiments helped create the more. So, the IRB that I discussed before where you are actually getting approval for collecting uses subjects data and all the data that you are any data that you collect through users, it is getting, actually it should be approved, right. So, the reason was some of these experiments. With that I will stop this weeks lecture and hopefully you are kind

of getting into the groove of studying users and understanding what user needs are and the next week what we will see is keeping this user needs, what can you start building, right? What kind of designs that you can come up with and how you want to use the things that you are getting out of this context very task analysis. All of this into building something that you can actually start prototyping and actually evaluated.