Interaction Design
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Lecture – 10
The Modeling Phase in Goal Directed Design Process

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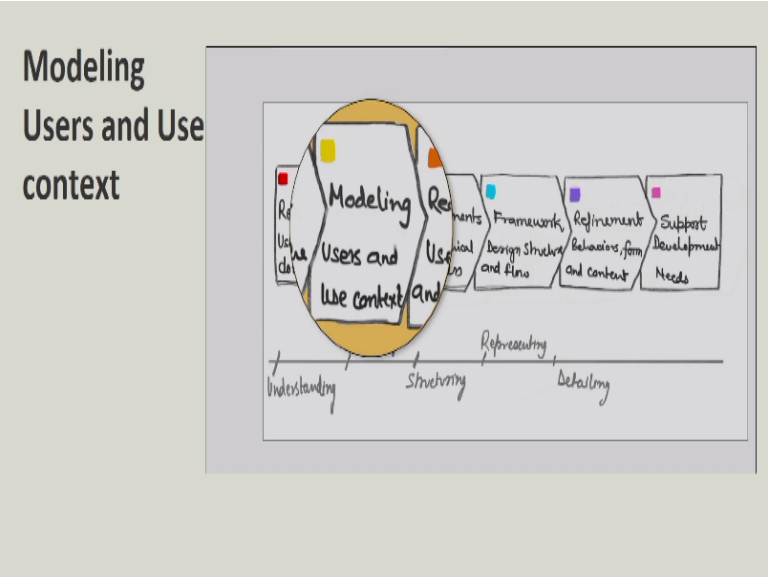

Hello and welcome to the second phase of goal directed design process which is the phase of modeling users and use context. This is the phase which follows the research phase in the goal directed design process and it precedes requirement definition phase, frame for definition phase and then the development phase. So this is the second phase in the goal directed design process and says this is the process you can imagine that we are going to operate on outcomes of the first phase process it to evolve models in the current phase.

And then we will see possibilities of extracting requirements out of the models that we have created. Before we move on further with respect to modeling users and use context let us have the quick walk on the set of activities which we had performed in the research phase. In the research phase if you can see on the screen we begin with.

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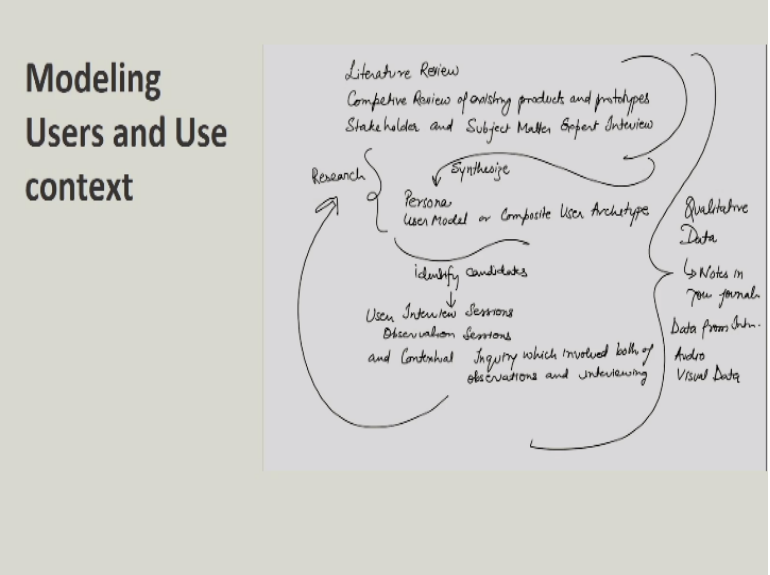

We have several questions basically about the interactive product; you know what the product will do, how users are going to interact with that product, what is the context of use, what is the stakeholder's opinion about that the interactive product. So we essentially carried out literature research, competitive review of the existing products and services, interview, stakeholders, and subject matter experts and this knowledge was helpful for us to generate preliminary ideas about the user model in the form of the persona and why we needed that persona.

We needed that persona to identify for the further steps in the research the users. So persona have does identifying those user groups and once you had an understanding of whom do you go and talk to and it comes to users we carried out user observation sessions, and activities like contextual inquiry and in person interviews. Now once again since you can imagine that we had covered a whole range of activities there is a huge qualitative data that you are generating.

What is this qualitative data? This is the qualitative data about different observations which you have made while you are conducting field data or different notes that you have created while you are interviewing stakeholders or subject matter experts or users and this is also an inclusive data in terms of audio and visual data which you might have created as part of the research phase. So by enlarge you have a lot of qualitative data to process, to analyze.

And that is where the activities which are corresponding to modeling users and use cases or context of use comes into picture and following are the activities which we perform in modeling users and use context phase of goal directed design process. So these are the activities. On your slide 4 different activities which are listed.

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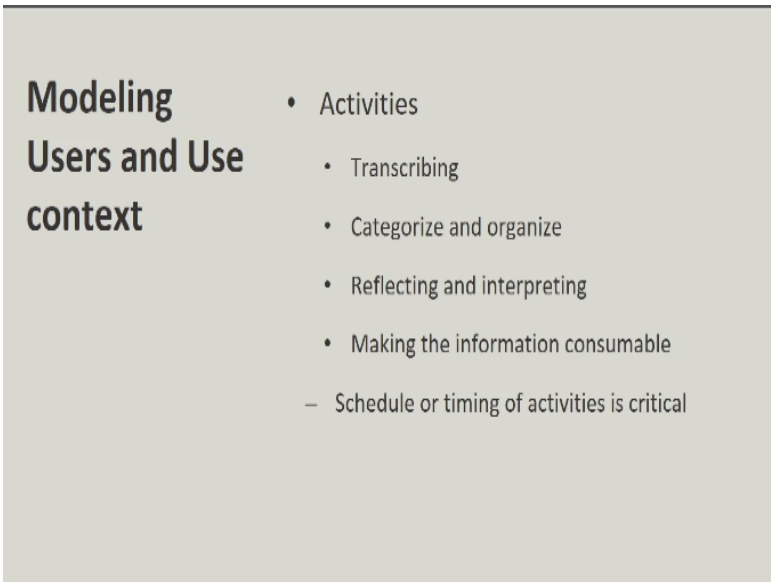

The first one is transcribing. The second one is categorize and organize. Third one is reflect and interpret. Making the information consumable is the fourth one. In the next slide and in this entire session we will pay a good emphasis on details of these activities but at this point of time for this particular slide the most important point is that the schedule and timing of these activities is a very critical aspect. Why would that be the case? Let us look into that.

So in the research phase you were going out meeting people, interviewing them and even performing activities like contextual inquiry where you are engaged with your users personally talking to them and observing them in their context of use. So if you happen to be doing these set of activities believe me even a designer is not a mere recorder of events. He is a human being who is observing or interviewing other human beings.

Or at times making note of the context of use different things in the context of use so there is a good possibility that as an recorder as a person who is taking note you might miss out on a lot of things which you have observed, but if you had a moment right after the search phase where not

with too much of delay you are on to the phase where you are again thinking about your recorded notes as well as a lot of observations which you might have missed if that activity could be performed right after the research phase.

Then things would be fresh in your memory and you would be able to capture a lot of data which would have left which you might have left uncovered if you put a lot of delay in these 2 activities. Once again I hope you are getting the point. You perform the research phase, but it would be a possibility where you might not been in a position to record everything, to note down everything. You might have observed but could not record.

So if you had a session you are consciously recording what all is noted in your journals are in your audio visual data recorders and also you are reflecting on you experience of interviewing users or interviewing stakeholder, observing their context of use then even the observations you might have missed you can make a note of it. So that is why we are saying that infer while things are still fresh in your memory.

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And they would be so many of these things like user quotes, accounts of environment, field narrative, and so many other things which you might missed to pen down or record in your field observations and in the research phase by and large. So it is important that you begin so it is

important that you either begin with modeling phase in parallel with the research phase or right after the research phase. Do not induce a huge delay in between these 2 phases.

The best condition would be that you are in a position to process your data right after the time when you have recorded the data so that would be the ideal condition, but if even that is not possible try not to have too much of delay between these 2 activities and let us look at these activities, the 4 set of activities which we had seen in the first slide, transcribing, categorize, and organize, reflect and interpret, and making the information consumable let us look at these activities 1 by 1.

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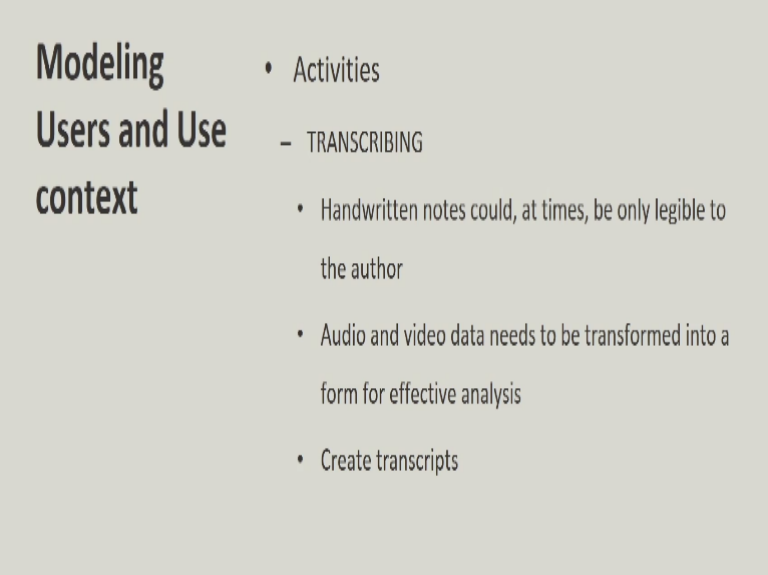

When we have a transcribing what do we essentially mean by that. We mean that there are situations that when you have a hand written note at times it is only legible to the author. Others may not be able to read it and also even a person who is so good with the writing when it comes to recording so many things and so short at time he might not be in a position to write it in a most legible manner so it is important to transcribe to kind of convert those writings.

Those handwriting notes into some kind of a convenient format may be a digital text. So, hand written notes could at times be only legible to the author. So you transcribe that notes. You transcribe your hand written notes. Also, if you see that you are also collecting the audio-visual

data and if you can look into the session where we are talking about relevance of goals and interaction design.

And about the typical teams which are involved in the design of interactive product you would see that it is a team activity so would not just we have to collect the data you are also responsible to communicate the collected data with rest of the members of the team so that is why it important to transcribe and once again you may have audio and visual data may be it is not a possibility for other members in the team to look at your huge archives of audio.

And visual data so you have to also transcribe that audio and visual data and you have to create transcript so that you can take out the very essential episodes out of the whole recording or whole data basically and once you are in a position to do that you are creating transcripts. Transcripts help you let your idea be seen by others let your thoughts be read by others. So it is important to be in a position to communicate with the rest of the team that is why transcribing is a very important activity.

Once you have transcribed the data the next set of activity is categorize and organize.

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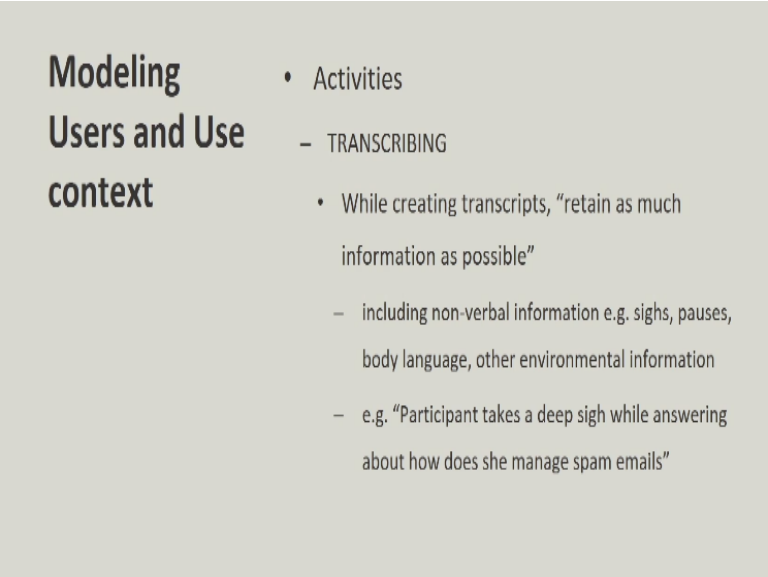

What you are trying to do here? that you are trying to of course when you creating transcript you are trying to retain as much information as possible and while creating transcripts retain as much

information as possible so there would be a lot of non verbal information you know things that you might have observed in the environment you have to retain all of that and let me give you an example.

Imagine that you are talking to a user about managing a spam email and the user there might be receiving so many spam emails all the day and they might once they listen to your question how do you manage and explain email they might actually take a pause or at times even a sigh to answer your question. You have to note down all those nonverbal information and create transcripts and once you have created transcript the next eventual step to arrive at is to categorize and organize the information.

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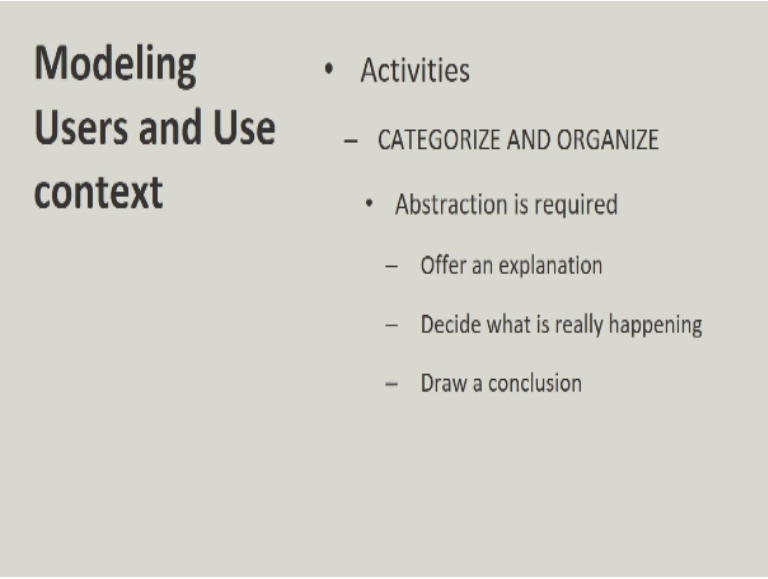

When categorizing and trying to organize the information you have to abstract out the right information from the raw data. So there is an element of abstraction which is required in this stamp. So how do we arrive at abstract understanding of different things that happens when you try to offer an explanation to the observations made by you? So often on explanation and this side what is really happening.

And then it would be a possibility to arrive at a certain conclusion and extract inferences from you observations and we will see an example what do we mean by an observation and an inference but at the same time let us go through what do you mean by observation. An

observation is an awareness of something. So you once again imagine that you are interviewing traffic policeman in the traffic control room.

Apart from different interactive artifacts which they use to control the traffic there would be other things which might be there on their table. If you could observe it, it means that you are getting aware of the presence of other things on the table. So an observation is an awareness of something and what is an inference? Inference is an attempt to explain your observation. What is the reason behind that observation that is the inference?

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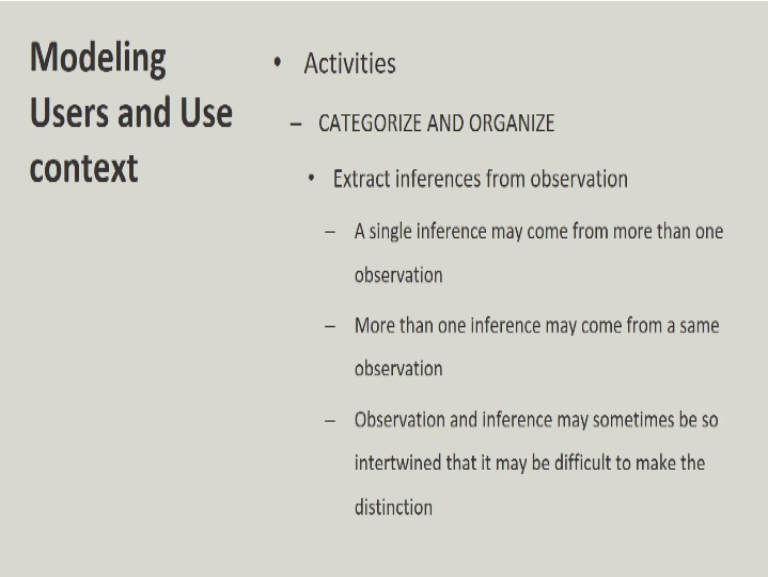

So a single inference may come from more than 1 observation or even more than 1 inference may come from a same observation. An observation and inference sometimes it might be very difficult to kind of separate these out, but if you encounter those moments it would be nice to again approach back your team and try to take different opinion in terms of how they would like to infer the observation.

If you at all fall at those moments so let us see an example what you are seeing on the screen as a very usual case of mirage.

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You observe that there is a huge patch of land and across the horizon there is a possibility of some water body so this is let me see let us see what is an observation here. So we see a reflection of light that is an observation. Across the horizon we see a reflection of light that is the observation and how do we infer it that reflection is happening from the water surface and hence there must be some water body. So this is an inference.

Your inferences once again might be true or false, they might be close to the actual condition or they might be little far away from the actual condition, but you have to arrive at inferences and you discuss these inferences out to kind of book them and find out the most relevant of these inferences, but this is a very famous example just to got a sense of difference between an observation and an inference.

So in this example, once again we see a reflection of light that is the observation made by us and some of us may interpret it as that since there is water body the reflection is coming out of that water body. The reflection is happening because of that water body so that is the inference. So there are inferences that there is a presence of a water body across a certain distance from you.

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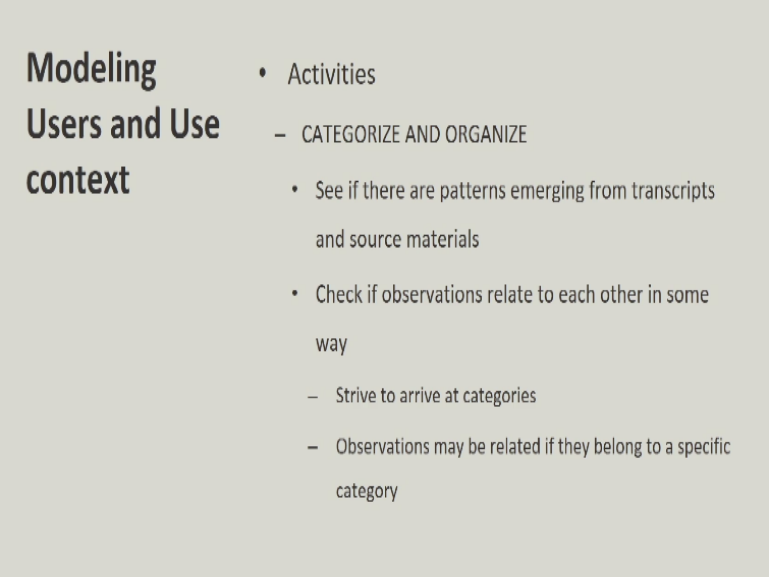

So when you are categorizing and organizing see if there are patterns which are emerging and from your transcripts and source materials so you might want to circulate these inferences across some of your peers and then this is a collective exercise where you are trying to see if patterns are emerging out of those inferences or not. Check if observations relate to each other in some way and strive to create categories.

So if they are related you bunch them as 1 category. Observations maybe related if belong to a specific category once again you talk about different props and friends across your peers, try to see if you could create categories of those observations and you move forward with the act of organizing your inferences.

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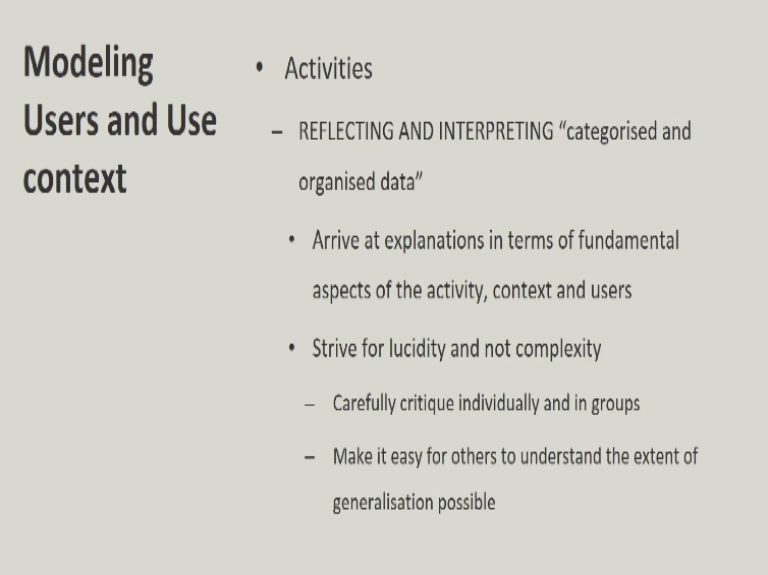

Now the third activity that you are performing is reflecting and interpreting the organized and categorized data. So once gain you have to arrive at explanation in terms of fundamental aspects of the activity, context, and users. Keep these 3 things in mind. If an explanation could relate or give an indication of the fundamental aspect of the activity performed by the user, his or her contexts and about the users.

Or herself then that explanation is a good to have explanation with respect to interaction design and is strive for lucidity and not complexity. Simplicity is often required when you are interpreting your data. So arrive at simple lucid explanations not the complex ones and make it easy for others to understand the extent of generalization which is possible. So this is actually true like if you may have few observations.

And make it easy for others to understand the extent of generalization possible. So you also not only draw inferences, but you also communicate to the others that this is a limit of this inference. This inference is only generalisable up to this extent so that is a specification that you make and you tell it to rest of the peers.

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And making the information consumable once again interactive, design is a pretty much a collective process where a different members of the team are responsible for the overall development and design of the product so whatever you have collected you have to make it consumable arrive at a form choose a format may be a digital text or may be a set of printed papers, but you have to arrive at a format which is helpful to make the information consumable by others.

So that others can use the information that you are arriving at and results leading to few relevant and feasible design ideas. So once again this is not the difficult you have observations you try to explain those observations, your explanations are lucid, not complex, and when you are trying to explain you are also trying to draw conclusions or inferences you are categorizing those inferences and conclusions as different categories.

You communicate whole of it with the rest of the team and then you think are there design ideas possible in these references. So it is an evolving process from observations to design idea it is a pretty much evolving process. So come up with relevant and feasible design ideas and you may also say that these are different design opportunities which are possible so in terms of work flows, information flows, and the overall design of the product.

You have to identify and communicate to the rest of the team all the different design ideas and possibilities which are coming out as a result of inferencing, interpreting, categorizing, and organizing the data. So that is where as a method we are trying to evolve design ideas from the raw observations. Now the next you might be wondering, that we have done observation, we have then categorization, we have interpreted, we have so many things, we have evolved design ideas, but what are basically these models.

So you can understand that you know a model is you can understand that a model is an abstract view of a complex structure.

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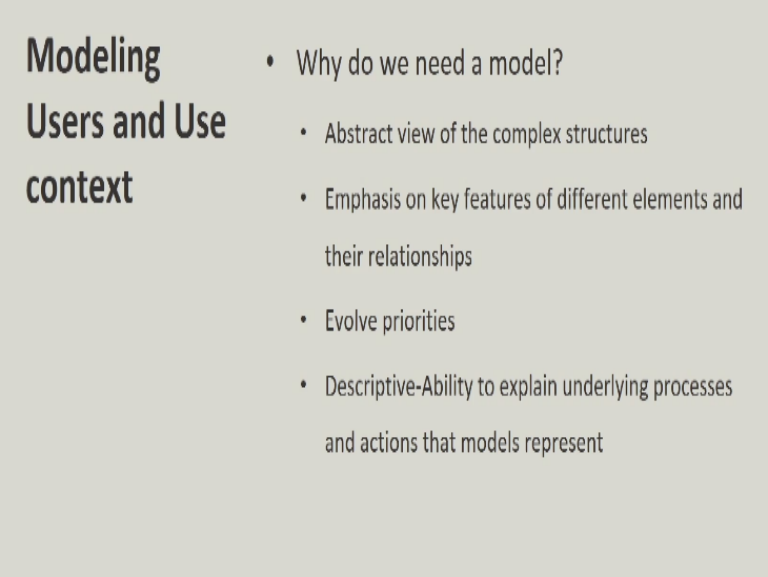

It tells you the more about the priorities in that structure and it tells you the bear essential details about the structure the basic minimum things which are required to define that structure. So it is an abstract view of the complex structures and emphasis on key aspects and key features of different elements and their relationships. It helps you evolve priorities and it is descriptive in nature which means that it has the ability to explain underlying processes and actions that models represent so this is 1 general understanding of models in the interaction design.

Now you might be wondering what these models are and with respect to modeling users and use context. So a model is an abstract view of the complex structure and it puts emphasis on key aspects of different elements and their relationships. It helps you evolve priorities and it is a

descriptive model which means that it has the ability to explain underlying processes and actions that the model represent.

So this is a generic understanding when we say modeling users and use context. We are trying to evolve structures which are simple enough which are lucid enough, but at the same time, have enough descriptive power to explain all the essential features and functionalities of that structure. So let us see what are the types of these models? So there are 4 different types of model in this particular phase.

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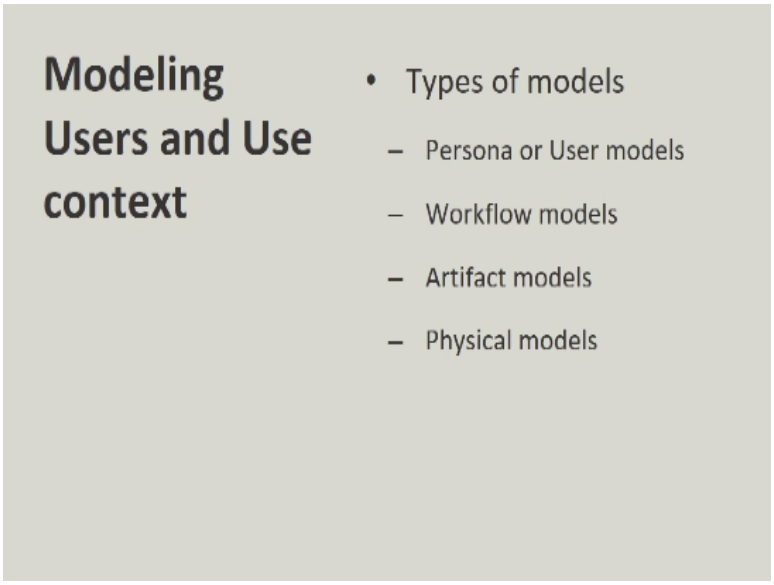

The first one is persona or user model. The second one is workflow model. Third one is artifact model and the fourth one is physical model. Now we are not touching again on the topic of persona or user model because we had already covered this in earlier session the research phase and we are now going to pay and phases on workflow model, artifact model and physical model. So the first model to study is the workflow model.

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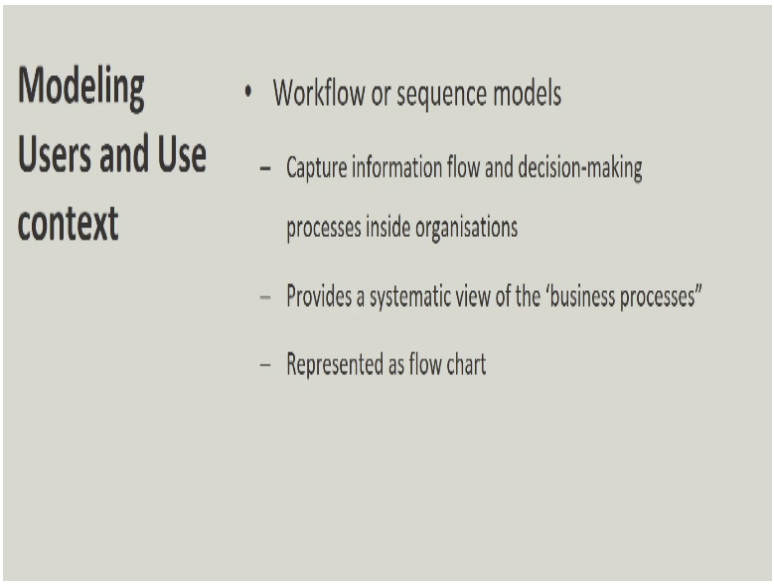

Now a work flow or a sequence model is helpful in the sense that it helps you capture information flow and decision making processes inside organizations. It provides a systematic view of the business processes and it is represented as a flow chart. For example, if you are designing a particular software which has be to be utilized by a employee of a particular organization then you have to arrive at a workflow model or sequence model which explains how people in that organization are taking decisions.

What is the business process? and where are the different modes were inputs are arrived process? decision making happens and certain directives are issued to the rest of the employees. So that is what we are calling the workflow or sequence model. It gives you a sense of the business process. It gives you a sense of the hierarchy the organization. So it becomes very much essential when you are designing products for used by a particular group of employees of a particular organization.

Or may be like enterprise software development typically falls into this range. So they once again work for a sequence models become very much an essential aspect of modeling users and use context. So workflow or sequence model help you get a good understanding of goals of the process, constituent actions of the process, outcomes of the process, the frequency and importance of the process and the constituent actions and preconditions for process and constituent actions.

These are all different in nuance understanding of processes which are possible to capture through workflow or sequence model and it also gives you a set of inter-relationships and dependencies. So when we are talking about decision making these inter-relationships and dependencies play a huge role even in a workflow or in an organizational flow in a particular process there might be dependencies unless you have information on these, these, these aspects one is not arriving at a decision.

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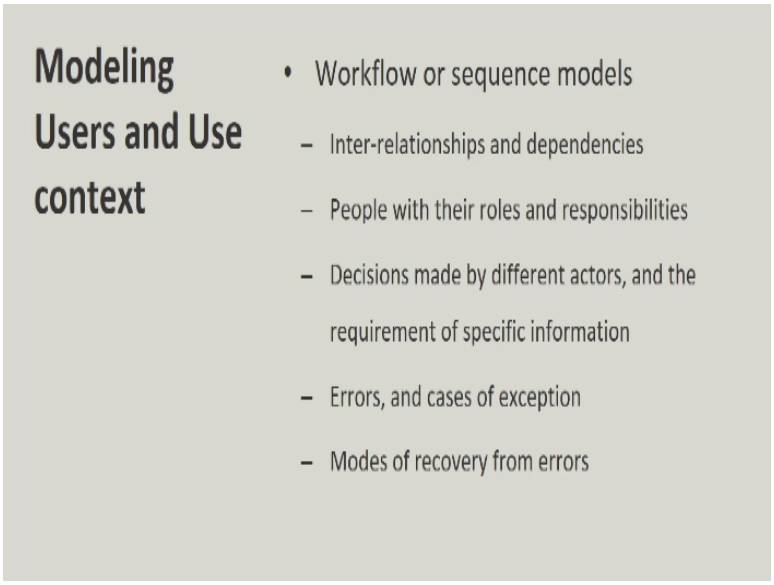

One is not moving forward so interdependencies, interrelationships what are the different aspects of different elements and how the decision making is happening by different actors, requirement of specific information that are is captured by the work flow or sequence model. What are the most typical set of errors which gets occur? How do they recover from are there exceptions and modes of recovery once again all of these things gets captured in the work flow or sequence model and then comes the artifact model.

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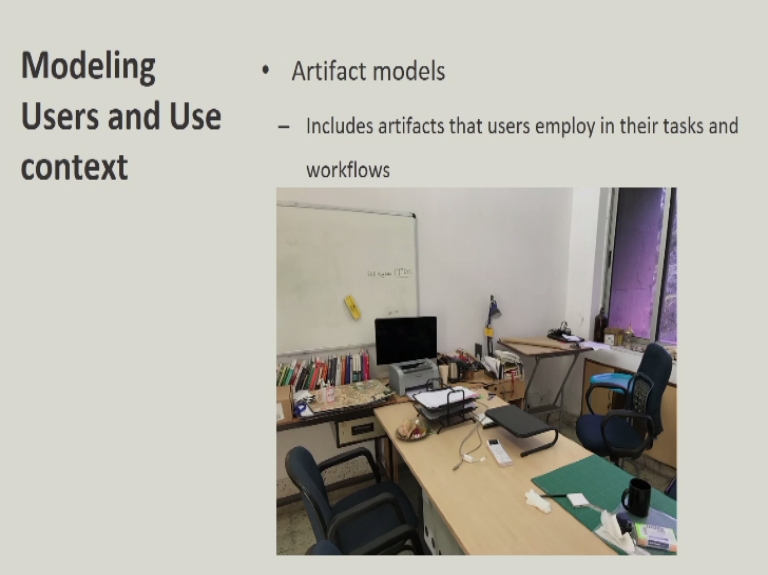

So include artifacts that users employ in their tasks and workflows. Once again it becomes an important tool in the end of designer and then comes the artifact model which includes artifacts that users employ in the task and workflows. Why you are doing the user observation you might come across several of these instances when people are using an interactive artifact, but at the same time they have several others things kept next to them which is defining their environment which is defining all the artifact which are placed in their environment.

So artifact model captures that information.

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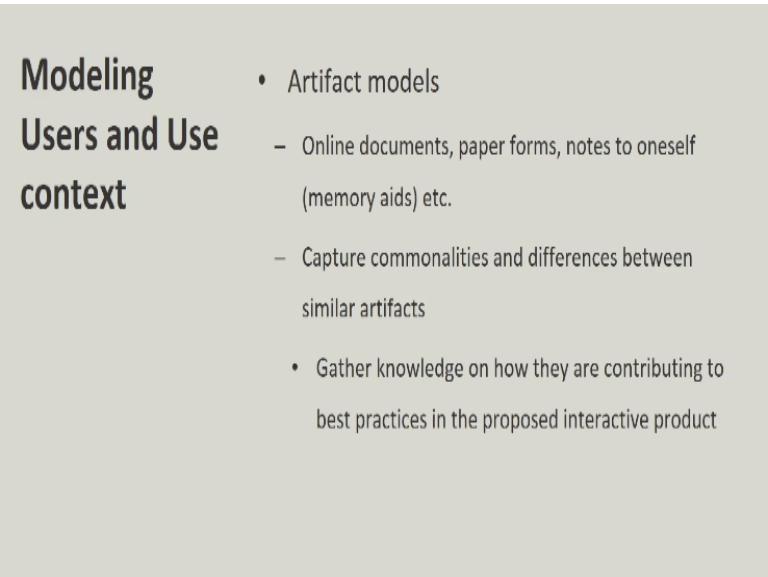

Online documents, paper forms, notes to oneself, memory aids. You might have seen that people who are doing multitasking would have sticky notes on their monitors that is 1 information which you need to capture in the form of artifact model. So capture commonalities and difference between similar artifacts that is also you have to find out. What is the usual pattern of appearance of these artifacts?

Are 20 of these users using similar set of artifacts or they are different set of artifacts that understanding of similarities or dissimilarities in the appearance of these artifacts across different user groups that understanding is also crucial and you can capture it by using artifact model. So gather knowledge on how they are contributing to the best practices in the proposed interactive product.

So you might also be required to gather and understanding that whether the presence of these artifact state helpful for the users to achieve their goals so that estimation is also something which is crucial to arrive at. Once again consider the same example then you have a sticky notes on the monitors and you might see that the people open up their digital calendars and then they look at the sticky note and then they make an entry into the digital calendar.

So a sticky note although it is not an interactive product itself but it is helping the user to achieve his goal of being on time it is helping the user to write a specific entry into the digital calendar so as a designer of the interactive artifact even these small, small details you have to capture and you can capture these details through the definition of all. You can capture these details by defining the artifact model and now comes the last model in the series is the physical model.

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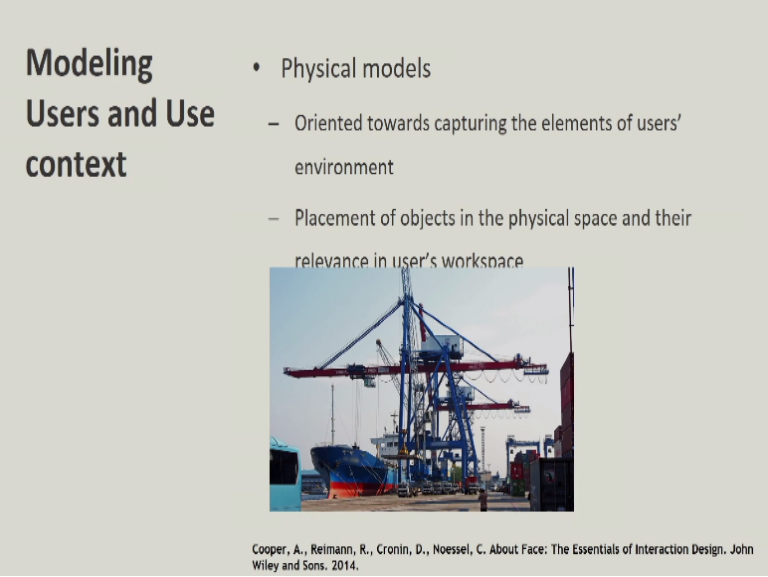

Here we are interested in knowing about different barriers which are present in the environment of the user in the context of use. So oriented towards capturing the elements of user's environment we want to know what all is there in the immediate environment of the user, placement of objects in the physical space and their relevance in the user's workspace. Let me give you another example.

If you are developing an inventory management software which has to run on a hand held small interactive artifact, then you might have to imagine a whole lot of details about the physical model. Here you might have to imagine how people are moving in warehouses because in warehouses there will be so many things kept here and there which might obstruct or which might create barriers for users to move from 1 location to other location you have to imagine all of those things.

You have to imagine all the details of the environments of the user and those details we are calling as physical models. You can capture those details through defining physical model. Let me offer you a summary of today's session. In the first half we understood the typical set of activities we had to perform in modeling users and use context phase.

Then in the second half we understood what these models are and from persona model to work flow sequence model to artifact model to physical model this is the sequence of different topics

that we had considered in this session. I would leave you with this understanding of modeling users and use context. Thank you very much.