

Interaction Design
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Lecture - 08
The Research Phase in Goal Directed Design Process – Part 2

Let us do a quick review of where we are in the goal directed design process and particularly in the research phase.

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Goal Directed Design

- Activities
 - Literature review
 - Product/ prototype and competitive audits
 - Stakeholder interviews
 - Subject matter expert (SME) interviews
 - User and customer interviews
 - User observation/ ethnographic field studies

Research

The diagram shows a central box with the following activities listed around it: Literature Review, Product/Prototype competitive Review, Stakeholder Interviews, SME Interview, Customer Interviews, Ethnographic field studies, and User Observation.

So we have seen that we have understood the following activities, literature review, product prototype and competitive audits, stakeholder interviews, subject matter expert interviews, customer interviews. Now the next topic to consider is user interviews.

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Research

- Stay focused at users
 - Users personally “use” the product

User interviews

- Current or potential users
 - Especially helpful with a redesign assignment
 - Current users have experience using the product
 - This may affect their behaviour with the redesigned product

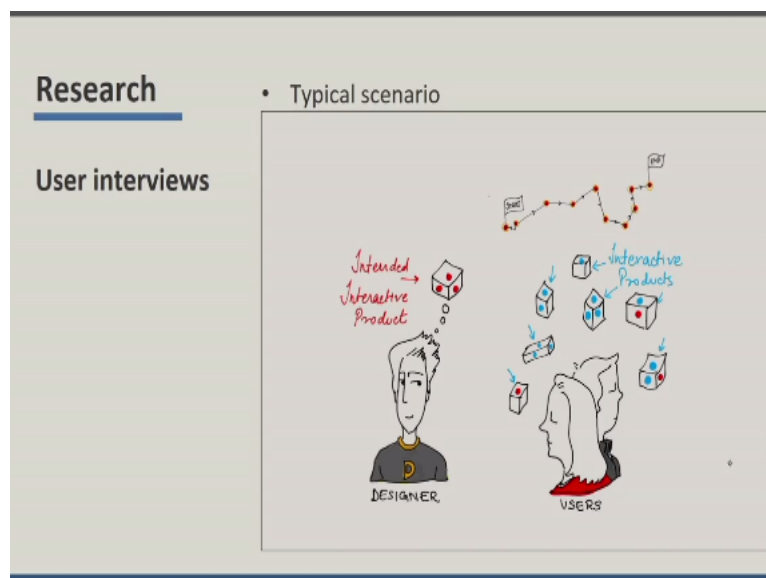
Users are very important in the goal directed design process because they are the one who finally use the product. So it is very important for the design team to stay focused at the users. Now when it comes to users there might be 2 different ways of imagining them. There might be current users or there might be potential users. So current users are basically the users who are currently using the technology or the product that you are set out to redesign.

Remember this phrase redesign because if there are current users and you are about to design interactive product may be you are redesigning it. So that is a redesign activity where you are more likely to have current users and potential users may be the one who are not currently using the product you know, but their needs and their goals are you know kind of in alignment with the other users of the product.

So they are the one who may use the product in the future. So that is why we are calling them potential users. Now current users have experience using the product. So you know it is important to kind of have a good understanding of the current users because their experience of using the product may affect their behaviour with the redesigned product okay.

So they might have certain biases or they might have certain presumptions you know certain you know idea, certain pre-specified ideas about the product that you have designed, so it is important to understand them.

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Now in a typical scenario if you see on your screen, if you are a member of a design team you have an intended interactive product in mind okay. So that box with the orange dots is the

intended interactive product you know something that you intend to design okay, and while your users you know they might themselves be using few other interactive products, so which may or may not be similar to the product that you intend to design.

So that is why let us assume that you know across the user group you have these different boxes which some of them have you know property similar to the intended product. How we are showing that some of them have the orange dot on them. So the point is that you know it is not necessarily a condition that all the products used by your user group may similar to the one that you intend to design.

You know but it is very possible that, so here is a typical scenario. Imagine that you are one of the members of the design team who have been given the task of designing a particular interactive product. Now this interactive product, why we are saying that that the intended interactive product because as a member of the design team you intend to design that product. Now if you approach your users they might themselves be using couple of products okay, which may or may not be similar to the intended product.

So you know the products which are similar to the intended product have the same orange dot, you know somewhere over them, while those who are different to the intended product are all blues in their appearance okay. Now designer's imagination of the product and the product that users are actually using this has to match, this has to correlate in some way, because as far as users are concerned they have a particular way of using the product which is spread across their entire day.

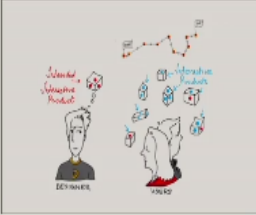
So you know they might perform a set of activities at the beginning of the day and then they go out and you know perform different other activities and they may end a typical day in a particular manner okay. So all these products you know they are somewhere embedded in their lifestyles, you know, they somewhere satisfy different goals that these users have, you know, which help these users to sustain their normal life routines.

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Research

User interviews

- Designers' intent
 - How would the users adopt the (intended) product?
 - How do they deal with other interactive products similar to the proposed one?
 - How does similar interactive products fit into their life routines?
 - How do they learn functions of different products?



Now as far as designer's intent is concerned, so you know he is intended to know how the users adopt the product okay. So it is important to know how do they deal with other interactive products similar to the proposed one okay. So let us say if you are designing music player application you may want to know what are all different applications that your users are using okay.

So how does similar interactive products fit into their life routine. So how do they use these products, you know, whether they use them, whether they listen to the music on the go or it is mostly for the recreation purpose with the family or it is for the entertainment purpose while they are you know thinking about different things or it is more reflective in nature. You know so you will have to find what conditions do they listen to music and how do they learn functions of different products.

So they might be using different you know applications or products how do they learn their function, so that also is important for you to know as an interaction designer. It is also important to know that how do our users orient themselves when it comes to troubleshooting okay. So at times you might have seen that people encounter problems with their product and then you know some of them sort out.

Some of them choose to call the company or the customer care, while others may just go find a local help there. You know so they might solve a product, they might solve a problem by approaching other people who may help them in solving the problem. So how do they orient themselves when it comes to troubleshooting, do they do this individually by calling the

company or do they seek help from other users and what are their goals and motivations, what are their expectations from the product.

So you know this kind of you know sums up your understanding, you are getting closer to what users are actually using, what users are actually interested in using that is what you are trying to get closer to that idea, okay.

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The slide is titled "Research" and "User interviews". It contains a list of bullet points under "Designers' intent" and a diagram illustrating the interaction between a designer and a user.

- Designers' intent
 - Where are the problems in the current product's workflow and information flow?
 - Do they have adequate domain knowledge to use the product?

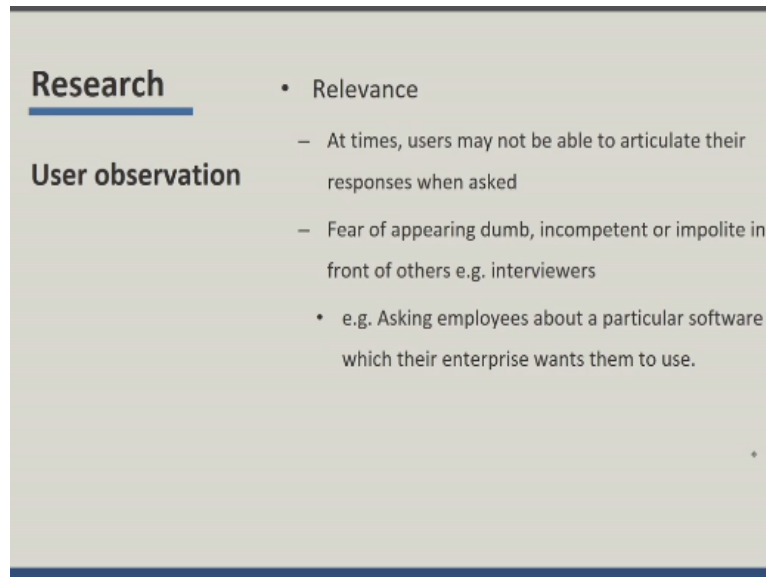
The diagram shows a designer on the left and a user on the right. The designer is labeled "DESIGNER" and has a thought bubble containing the text "Simplify, Streamline, Product". The user is labeled "USER" and has a thought bubble containing the text "Interact, Learn, Product". A red line connects the designer's thought bubble to the user's thought bubble, indicating a flow of information or interaction.

So where are the problems in the current product's workflow or information flow. So if you remember we were saying that there is a domain model okay. Domain model consist of workflow and information flow. So by probing users by doing user interviews you would have an understanding of you know problems with the current product workflow and information model.

So if they are similar products which they are using maybe there are problems with their workflows and information flow through user interviews it would be an interesting finding to know about it. Do they have adequate domain knowledge to use the product okay, that is also one important thing to know. Do they have the sufficient domain knowledge or not? So let us say if they do not have the adequate domain knowledge.

Now in the redesigned product you may want to have more help or some instructional design component built-in to provide the domain knowledge. So that helps, this idea that whether they have adequate domain knowledge or not that knowledge that understanding helps the design team.

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Research

User observation

- Relevance
 - At times, users may not be able to articulate their responses when asked
 - Fear of appearing dumb, incompetent or impolite in front of others e.g. interviewers
 - e.g. Asking employees about a particular software which their enterprise wants them to use.

Relevance okay, so you know at times user may not be able to articulate their response when asked okay. So this is very much a common seen most of the time that when you go out and you want to ask users about certain responses they might not be in a position to articulate okay. What does that mean because there are certain activities which are so deep rooted in their daily routines or in the natural way of performing certain activities that they are not really so consciously think about them.

So when it comes to articulating those activities they might fall short okay, so at that time what you should be doing that you should be resolving to, you should be choosing to do user observation and not interview. So this is the moment when you have to do observation, okay, interviews are not the right thing to do at this moment okay, because at times when I am saying that at times users may not be able to articulate their responses when asked.

You know there are our times when users fear you know of appearing dumb, incompetent or impolite in front of others. So let us say as an interviewer you approach the users and you imagine the scenario when they were working in a corporation and under office hours and within office hours and during the office hours you approach them okay. So they might fear of being impolite, they might fear of looking incompetent or dumb in front of others and they might not give you a true sense of reality okay.

So asking employees about particular software which their enterprise wants them to use if you have raised questions like that maybe the employees may feel that this is not the right

time when I should answer this question because I am in mid of several other employees and you know it is the time of the office, so how can I criticize something which is or how can I be critical of something which is provided by my employer.

So there are times when you really cannot interview people or even while interview there are aspects which you really cannot ask or include in your interview, okay.

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Research

- Relevance
 - Asking about the actions removed from context

User observation

- How did you manage to configure the network printer in your office? vs.
- Can you teach us how to configure a network printer in this office?

So now user observations is also very important because there are times when you have to ask about the questions when they are deep rooted in their context okay. So let us say you are asking about the activity without considering the context. So how did you manage to configure the network printer in your office. If you ask that question you know how did you manage to configure the network printer in your office versus if you are asking the question like this; Can you teach us how to configure a network printer in this office, okay.

So what is the difference between these 2 questions. In the first question you see that question looks like as if it comes from a formal session okay, where we are asking them to give us a sense of their way of configuring the network printer in their office. So they are not in the office and we are asking them to reflect on their activities that they perform to configure their printer in an occasion which is different from the location of the interview.

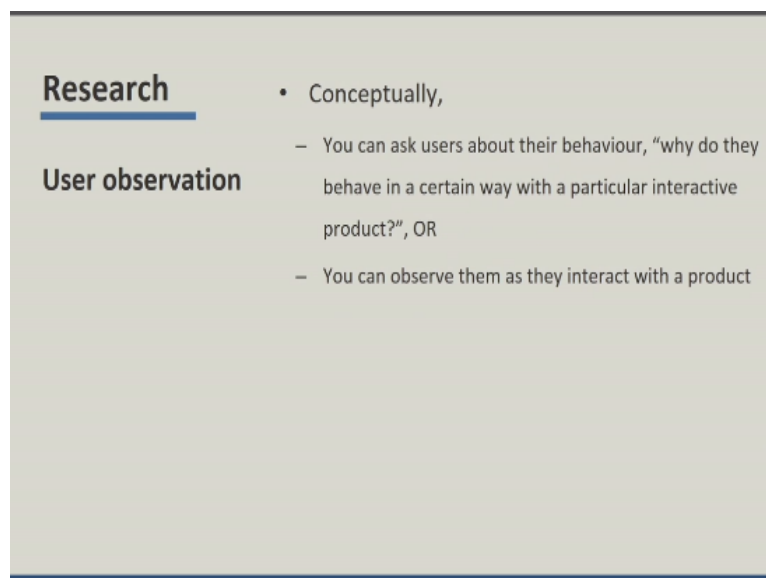
So can you really have a response to this question even if they give you response it is less likely that the recorded qualitative data will give you a true sense of their behaviour, a true

understanding of their behaviour when comes to configuring the network printer in office settings okay.

But if you reach, if you do the same thing while being in office yourself okay, and you ask them you know, can you show me, can you teach me you know how do you usually configure the network printer in this location and I am also there in this location as an interviewer. If you ask that they would be giving you responses which are more reflective, which are more indicative of their activities that they perform naturally in the office environment, okay.

So that is why asking about the actions removed from context, you know, this might not be the right thing to do or might not be the appropriate thing to do for the design team if there are times when you need to learn about their actions, you should better consider the context along with the actions.

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The slide is titled 'Research' and 'User observation'. It contains a bulleted list of points comparing the two methods.

- Research**
 - Conceptually,
 - You can ask users about their behaviour, “why do they behave in a certain way with a particular interactive product?”, OR
 - You can observe them as they interact with a product

So conceptually what exactly are we doing. So you can ask users about their behaviors you know what do they behave, why do they behave in a certain way with a particular interactive product that is one thing that you can do, you know, so you can ask them or you can observe them as they interact with the product that is what the conception difference between these two conditions and the later one is what we will prefer in a user observation phase, you know, we will observe them as they interact with the product in their natural environment, okay.

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Research

User observation

- Conceptually,
 - Once you have observed them as they behave with their product, any unresolved question about their behaviour can then be asked to them
- How do you manage to decide so fast your response with dialog boxes? You always tend to click on “OK or Continue” so quickly, amazing it is, but how do you do that? Can you tell me!

So also you know once you have observed them as they behave with their product any unresolved question about that behaviour can then be asked to them, okay. Let us say you have observed a certain behaviour of the user in their natural setting now there are certain questions which you are not able to understand as an observer.

Now you can note down those questions or you can note down those points and you can ask users back you know can you tell me why did you do this thing at that particular point of time, can you tell me about it, I would be more than happy to learn okay. So how do you manage to decide so fast, your response so, an example you can have a look at that. So you know there are times when people are so habitual of using a particular software, they respond to dialogue boxes as if they are not reading the messages okay.

So in that situation if you are one of the observers you may say you know why they are clicking on dialogue boxes and that particular button Ok, Continue, so fast you know they are not really reading those dialogue boxes. If you have observed that if you do not know what is the reason for that you may want to answer, you may want to ask them later, so how do you manage to decide so fast your response with dialogue boxes, you always tend to click on Ok or Continue so quickly.

It is amazing you know, but how do you do that can you tell me that. So you have to raise a question after you have observed if your observation gives you certain unresolved questions okay.

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Research

User observation

- Documenting user observation sessions
 - Notebook and a pen for taking quick notes
 - Audio, or Video recorders
 - Be careful not to make them nervous about “being on the record”
 - Should not obstruct their natural way of responding to different situations
 - An insensible documentation may lead to misleading findings; user may behave differently
 - Designers and not auditors

Now comes to documenting user observation sessions. How do you really document them okay? So often you know when you go out observing users in the environment. You keep a notebook, you keep a journal and a pen you know, that is one of the most handy things to keep you know. So you can make fast notes you know it can allow you to make you know observations, you can note down those small phrases you know key phrases that appear to your mind that define the entire observation.

You can note down those quickly and fast okay. Now there are times when you also carry audio and video recorders. It is a normal practice now a days because we all have audio visual recording facilities in our mobile phones, in our tablets and so many things that we carry. So even a user observation team carries them most of the time. So they may have a very easy access to audio or visual recorders okay.

But be careful not to make them nervous you know, be careful that you know once you set out to recording their behaviour, once you set out to recording their behaviour as if you may want to record what they are saying or you may want to visually capture how they are doing, it might make them nervous okay. So you need to be very careful about that, you know, should not obstruct their natural way of responding to different situations.

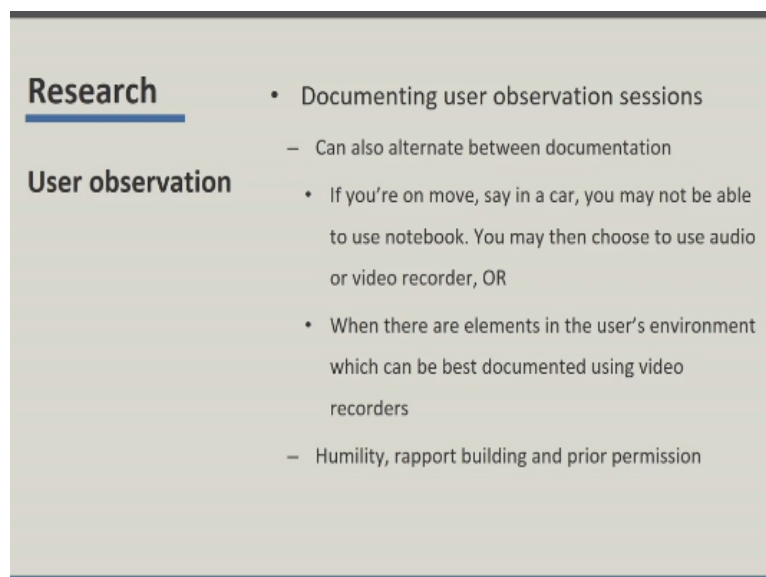
Once they are nervous they are not really responding in a natural way and whatever data you are gathering all the qualitative data that you are gathering is not really the data that you should be looking at okay. So you may risk up by being not careful you may risk making

your users nervous about being on record. So your user might be nervous about being on record and that may obstruct their natural way of responding.

Now an insensible documentation you know people who are not sensible to these things you know they may lead to they may collect misleading findings, because users are behaving anyways differently when they are nervous or when they are you know anxious about certain set of documentation and believe me and always remember that you are the design team member, you are not an audit team member.

You are not an auditor, you are a designer who is set out to understand, who is set out to know himself, you know you are not auditing. So never convey that feeling to your users while you are doing that observation.

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Research

User observation

- Documenting user observation sessions
 - Can also alternate between documentation
 - If you're on move, say in a car, you may not be able to use notebook. You may then choose to use audio or video recorder, OR
 - When there are elements in the user's environment which can be best documented using video recorders
 - Humility, rapport building and prior permission

Now documenting user observation session in between these sessions you can also alternate between documentation okay. So while you have to be careful about using audio and visual aids. There might be times when you have to use them. So for example if you are travelling and if you are observing your users, if you are observing you know how people interact with their interactive devices while they are in a metro train.

Or you know how would they interact with the information system in a moving escalator or how do they interact with the you know lift, while it is good to be careful about audio and visual recording, there are times when you are required to alternate across these documentation modes okay.

So let us say if you are on the move, say you are in a car you may not be able to use your notebook because your car is on the move and it may be vibrating. So it is difficult to you know to write while you are moving at such a high speed, you may then choose to use audio or visual recorder at that time you may tend to use other recording methods okay. When there are elements in the user's environment which can be best documented using video recorders.

So for example if you are documenting people how let us say you are set out on an industrial control room okay, you want to document how people manage machineries from a control room in an industry, now at that point of time you might want to go and actually keep a record of the control room itself if the authorities allow, if the user groups allow, you may want to do that.

So when there are elements in the user's environment which can be best documented using video recorders or audio recorders you may want to use them. Now underlying all of these methods and ways of documentation there are fundamental things that as a member of the design team you need to understand. One needs to keep humility and we need to wait till a sufficient rapport is formed with the user group.


And then when that rapport is formed you can seek for the permissions and you can go on document them through audiovisual methods as well, so keep these things in mind.

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Research

Contextual Inquiry

- Master-apprentice model



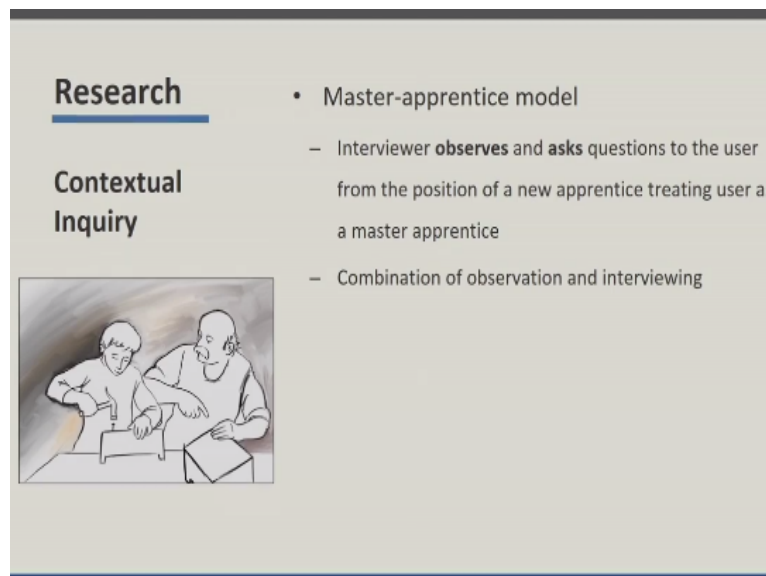
Beyer, H., Holtzblatt, K. (June 15, 2018). Contextual Design. Retrieved from goo.gl/VzDGK2.

Now if you see that user interviews perform one set of activities, they are relevant in one particular way then user observations are relevant in other particular way. Now can there be method which combines both of these okay. So that method is what we call contextual inquiry okay, that method is called contextual inquiry. Through the use of contextual inquiry, we can actually combined both 1-on-1 interviewing and observation okay.

So that method employs a model called master-apprentice model okay. So what you are seeing on your screen is the master telling an apprentice you know how to hammer a nail on to a wooden block okay. So master is telling apprentice very carefully do this, do that, you should hold the wooden block like this, you should hold the hammer like this and there comes the nail and that is how you strike the nail okay.

So there is a very careful transfer of knowledge you know under the supervision of the master craftsman to the new apprentice is happening. So in the contextual inquiry we adopt this model.


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Research

Contextual Inquiry

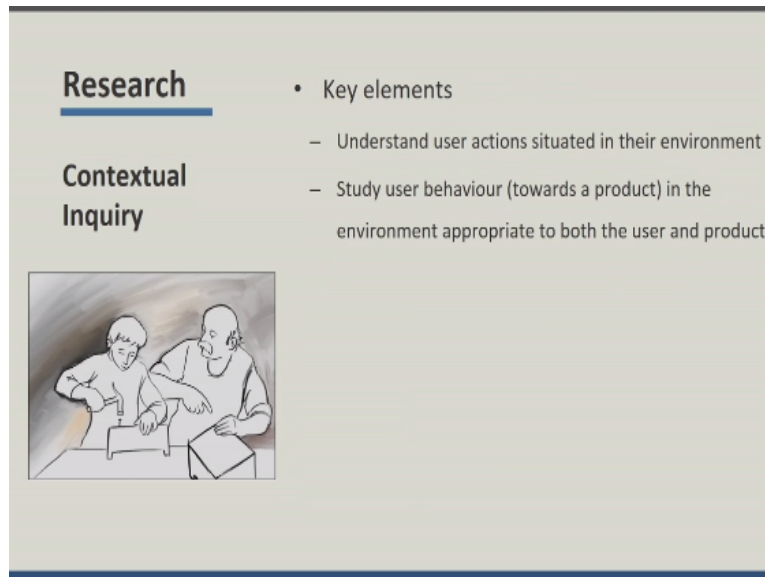
- Master-apprentice model
 - Interviewer **observes** and **asks** questions to the user from the position of a new apprentice treating user as a master apprentice
 - Combination of observation and interviewing



So interviewer observes and ask questions to the user you know from the position of a new apprentice treating user as a master apprentice. So as an interviewer you know remember the first thing that we have you know acknowledge in this session is that as design team member we are not auditor okay, rather what we should be, apprentice okay. We should treat our users if they are the master craftsmen and we are the ones who have come to learn a particular craft or skill from them.

So we take that position of a new apprentice treating our users as master-apprentice. So combination of observation and interviewing is possible in this model.


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Research

Contextual Inquiry

- Key elements
 - Understand user actions situated in their environment
 - Study user behaviour (towards a product) in the environment appropriate to both the user and product




Now what are the key elements of this model, that it lets you understand user actions situated in the environment. So you are working collaboratively so you are exploring the activity space along with the user in partnership you know that is kind of a partnership that is happening and you know you are trying to study their behaviours in their environment of work and in their natural settings.

So you are understanding user actions which are situated in the environment. You are trying to study user behaviour may be towards the product or towards a set of goals in mind in the environment appropriate to both the user and the product. So you basically set out to an environment where the user is habitual of doing those activities you know, you basically understand user behaviour in an environment where the user performs those activities on a very natural, on a very day-to-day basis.

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Research

Contextual Inquiry



- Key elements
 - e.g. Observing and working with traffic policeman in his natural work environment (may be a busy junction) in order to understand his behaviour while managing traffic, (Vs.)
 - Probing him in a laboratory space or in a cabin about his ways of managing the traffic

Now example could be that if you were to set out to you know design a traffic management system let us say for a traffic policeman then it is a good idea to observe and work with traffic policeman in their natural environment which may be a busy junction in a city okay. In order to understand their behaviour while managing traffic you know this is one way of doing that versus probing him in a laboratory space or in a cabin about his ways of managing the traffic.


The first where you are working with the traffic policeman where you are being his apprentice and he is the master craftsman who knows the trait of managing traffic in a busy junction in a city in that situation as interview you would learn much more than when you probe him in a very normal laboratory or office setting and you want him to reflect on his ways of managing the traffic.

So in the first is the master-apprentice model it is important to basically understand their behaviours in their natural work environment.

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Research

Contextual Inquiry



- key elements
 - “The interviewer and the user” collaboratively explore the activity.
 - Alternate between observation, and discovery of the underlying structure and details of an activity through discussion

The interviewer and the user collaboratively explore the activity. So you know again refer to that image where the master craftsman is telling the new apprentice you know how to do a particular task. So they both in partnership are exploring the task or exploring ways of doing that task, accomplishing that task so it is a collaboration between partnership between the user and the interviewer okay.

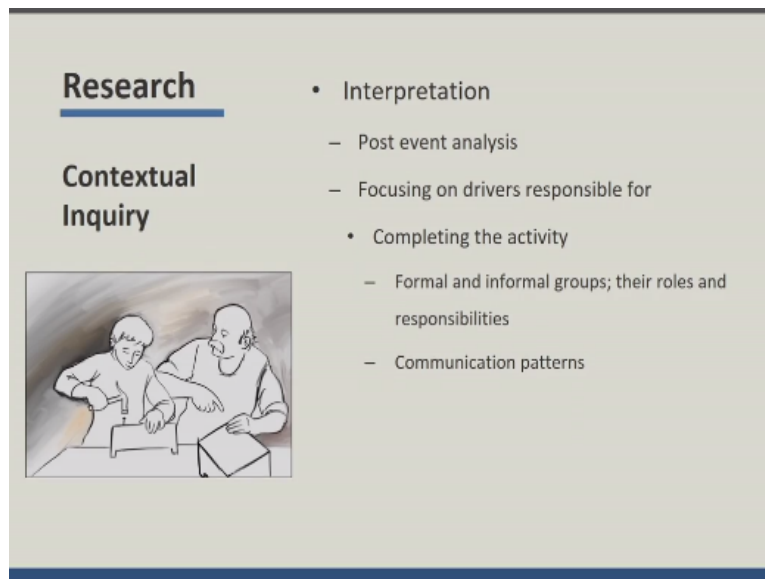
So you can alternate between observations and discovery of underlying structure and details of an activity through discussion. You know so at times if you are apprentice you are required to first observe you know then practice and then maybe if you have further following questions you may want to probe them. So consider the same example of a traffic policeman first you may want to observe how does he do it and you may tell him can you show me how do you manage the traffic.

And once you have seen how does he manage the traffic you may want to try it out yourself although on the supervision of the master craftsman which is our traffic policeman and if there are times when you have not understood you know if you have certain challenges that you have not understood even after the policeman had shown you how to manage the traffic you maybe want to ask him further, probe him further, that will let you understand the nitty-gritty of the trade.

Now this understanding, this nuance understanding of the task or the activity that is relevant for the design of the interactive product is much easier to do, is much easier


to gain with contextual inquiry, which employs a master apprentice model. Now there are things that we should be interested in knowing about contextual inquiry.

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The slide is titled "Research" and "Contextual Inquiry". It features a list of bullet points and an illustration of two people working together at a table.

- Interpretation
 - Post event analysis
 - Focusing on drivers responsible for
 - Completing the activity
 - Formal and informal groups; their roles and responsibilities
 - Communication patterns



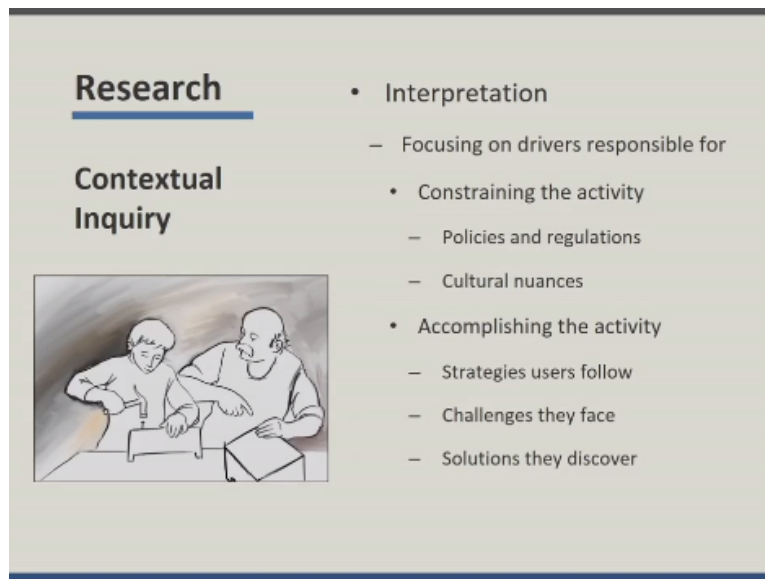
So after you have performed this observation and one-on-one interviewing in the form of master apprentice model you may want to interpret your observations and interpret your finding and interpret your notes. So it is a post even analysis and you know different teams of designer can do that. So and what are the objectives of doing this interpretation because you want to focus on certain drivers that are responsible for resulting set of things.

So what are these things, so we need to focus while in interpretation mode, drivers responsible for completing the activity. Now there might be formal and informal groups their roles and responsibilities. So we understand that you know there might be some formal elements or informal groups, user groups which also come in and play their roles you know.

So for example managing a traffic maybe it is not just the traffic policeman maybe there are some other informal user groups as well so for example like a home guard so responsible for completing the activity. So this may be about formal and informal groups their roles and responsibilities and how these formal and informal groups communicate with each other, what are their communication patterns.

And then you are also interested in knowing drivers responsible for constraining their activities.


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Research

Contextual Inquiry

- Interpretation
 - Focusing on drivers responsible for
 - Constraining the activity
 - Policies and regulations
 - Cultural nuances
 - Accomplishing the activity
 - Strategies users follow
 - Challenges they face
 - Solutions they discover




So maybe there are policies and regulations, maybe there are cultural nuances which constraint users to perform those activities in a certain way and there are drivers which are responsible for accomplishing those activities. So there are like strategies that users follow. You know what are the strategies that users follow. You know do they improvise on their strategies; do they adopt to different strategies when new challenges arrive you know.

And they discover new solution, so how do they basically accomplish their task. So what are the drivers responsible for that and then there might be also be drivers responsible for creating their environment.

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Research

Contextual Inquiry



- Interpretation
 - Focusing on drivers responsible for
 - Creating their environment
 - Organise their environment to make their work easier
 - Creating intermediate artefacts
 - Artefacts users create while performing the activity

So for example how do they organise their environment to make their work easier, you know, so you might have seen a lot of people like in India they would open up their shop, the first thing that they would do is not really the business that they have arrived for you know, the shop is meant for doing a business, but the first thing that they do is they open up the shutter, they wipe out the floor and then they worship their Shrine.

There might be a small Shrine in most of the shops. So these are the activities which precede the activity of business, when comes to the example of small business owners in India. There might be things that they are doing to the environment which make their work easier. So all the shopkeepers they might be believing that you know doing those things earlier in the day help them do a better business and that is the ultimate goal.


Now creating intermediate artefacts, now artefacts users create while performing the activities. So you might have seen that lot of us you know keep a small notebooks you know small pocket books where we write down different things which are not really the ultimate, which are not really the end means, which are not really the end goals, but they are different intermediate goals, they are different intermediate objects and things that we write to accomplish a larger goal.

So we also create artefacts while performing activities. So contextual inquiry has that potential to deliver designers that kind of understanding.

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Research

Contextual Inquiry



- Specific recommendations
 - Shorten the interview session
 - Maintain a smaller interviewing team
 - Identify goals first
- Essentially a task focused method
- Determine goals (first) which may lead to the relevant tasks

Now there a specific recommendation when it comes to contextual inquiry. Since this is very immersive enquiry like you go out and you observe users in their field, in their natural environment, you become the apprentice, treat them as master craftsman, it is a very impressive experience, but you must know how to shorten the interview session.

In general, an interview which may last up to an hour it gives you a good enough set of insights to go further with the design process and you know maintain a small interviewing team, maybe if you are in a team of let us say 8 designers, you may want to create further teams of 4, where you may want to create further 4 teams with 2 designers in each team.

So that you can alternate between note taking and probing and you know alternate their roles as a member of the design team, you can alternate your roles while you are on to contextual inquiry. So team of 2 designers is often followed. Now identify goals first. You might have seen that you know contextual inquiry as an activity, as a method focuses essentially on task, you know how would you do a particular task.

So you might ask in the example as we have seen you might be in a position to ask our master craftsman, the traffic policeman how does he manage the traffic. So managing the traffic is the task. So contextual inquiry essentially considers the task, so it is the task focus methods, but before we understand a task we need to determine

goals because there might be certain task which are linked with the particular goal okay. So it is good to determine goals which may lead to relevant ask before we set out for contextual inquiry.