Human Computer Interaction

UNIT:3

Lecture : 5

Guidelines in HCI

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Lecture 5:

Contextual inquiry

Introduction

Contextual inquiry is a field based data collection technique employed to capture detailed information about how users of a product interact with the product in their normal work environment or in other words- interact with the product in its **context of use.**

It is a prototyping and user testing dominated method.

- In Human Centered Designing methodology, understanding the users, their needs, the context in which these needs raise and the context in which the user attempts to fulfill needs - is the first step

- Specific techniques have been developed to identify and specify the context of use.

  This process is called "Contextual Inquiry".

- Contextual Inquiry is a scientific way of understanding users needs, their intentions and their practices.

Definition: Contextual inquiry is the systematic analysis based on observations of users performing tasks / activity in a context.

- Hypothesis is made linking cause – effect - based on these observations. The hypothesis are tested in discussion with the users. As a result of this the context itself gets understood in all the dimensions

By 'Context' is meant the anchoring environment /situation/ reference / work activity - with respect to which a designing process (solving a problem or conceptualizing a new product) is underway.

- Contextual Inquiry is predominantly a qualitative method. In some cases it is a qualitative cum quantitative method of research. The techniques used in Contextual inquiry are rooted in Ethnography, Psychology, Ergonomics & Design.

- **Results of Contextual Inquiry** are used to formulate the Users' *conceptual model* based on visualization of the users *Mental Maps* of tasks, intentions, interpretation and action.

Advantages of the Contextual Inquiry method over other user data collection methods.

- Marketing based data or information on the user as a 'customer' or ' consumer' is of limited use for a HCI designer as it does not give mental & psychological insights while the user is using the device .

- This method being open ended makes it valuable deep-mining of tacit knowledge from the user. Tacit knowledge is that knowledge which normally the user is not consciously aware of themselves.

It helps to develop a shared understanding between the device interface creator and the user.

Even though both qualitative as well as quantitative data is involved, this method is reliable and scientific.

Disadvantages of the Method

- Disadvantages are few. Since majority of information is qualitative it is not provable statistically significant.

- The inquirer needs to be highly skilled in multiple disciplines such as Ethnography, Psychology, Culture, Design and HCI.

Some field based difficulties:

- Gaining confidence of shy and suspicious users can pose a problem

- Users may not want to be seen as stupid and hence may exhibit extra smartness (mislead). It is well known that when observed humans do things different from the way when alone.

Methods

In short the method involves:

- Going to the user's environment
- Observe real work in natural conditions
- Seek clarifications and confirmations through questions.
- Conceive the field observed data into a model.

The user is treated as an expert.

- Interviewer observes users in real time as they perform the tasks.
- Questions on the users' actions are asked so as to understand their motivations and approach to a given set of interactions with the interface.
- Care is taken NOT to 'lead' the user by prompting while inquiring or assisting them in completing their answers.
- Interviews /observations are conducted at the users actual work place /environment.

Data gathering processes

- Inquiry alternates between observing and discussing/ clarifying from the user as to what the user did and why.

- In this technique the researcher interprets and shares insights with the user during the interview / discussions.

- Often the researcher's understanding stands corrected by the user.

- Researcher needs to take care that the discussions do not move away from the focus of the contextual inquiry.

Planning for a Contextual Inquiry

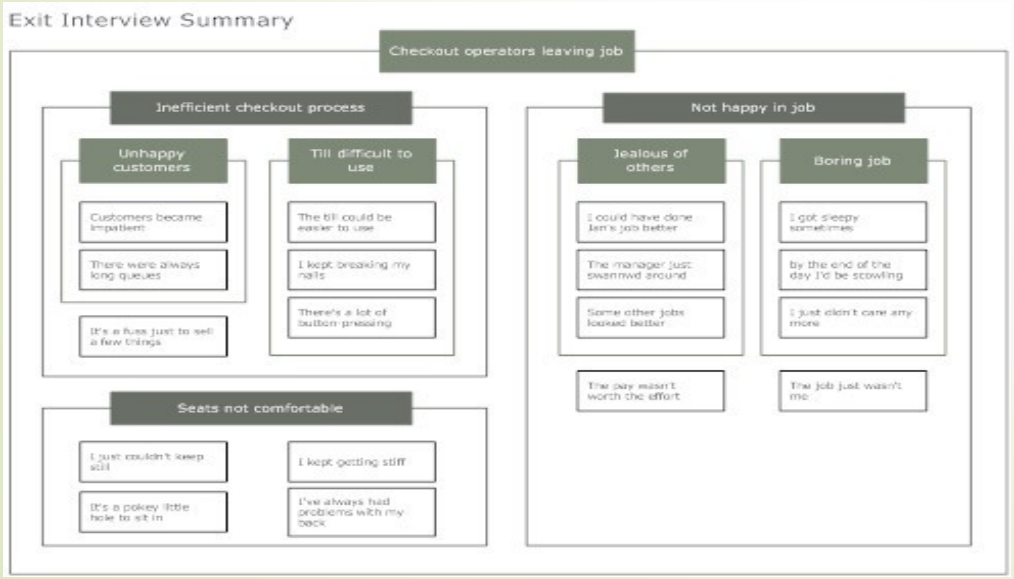
- Define the issue / problem /context as well a suppose well for which the Inquiry is being planned.
- Plan for identifying users, their location, their numbers, and their willingness to cooperate.
- Work on the briefing that will be given to the participating users. Prepare a list of possible questions to start the dialogue with the users.
- Prepare documenting mediums such as cameras, voice recorders etc.

Tools / Instruments used in Contextual Inquiry

- Open ended questioning based on observations
- Pre-prepared Questionnaire (User Survey)
- Ethnographic observation dairy with notes

(These notes are converted into Affinity diagrams)

- Focus group interviews
- Structured discussions
- Photo / video documentation.
- Hierarchy diagrams
- Story boards
- Mind maps



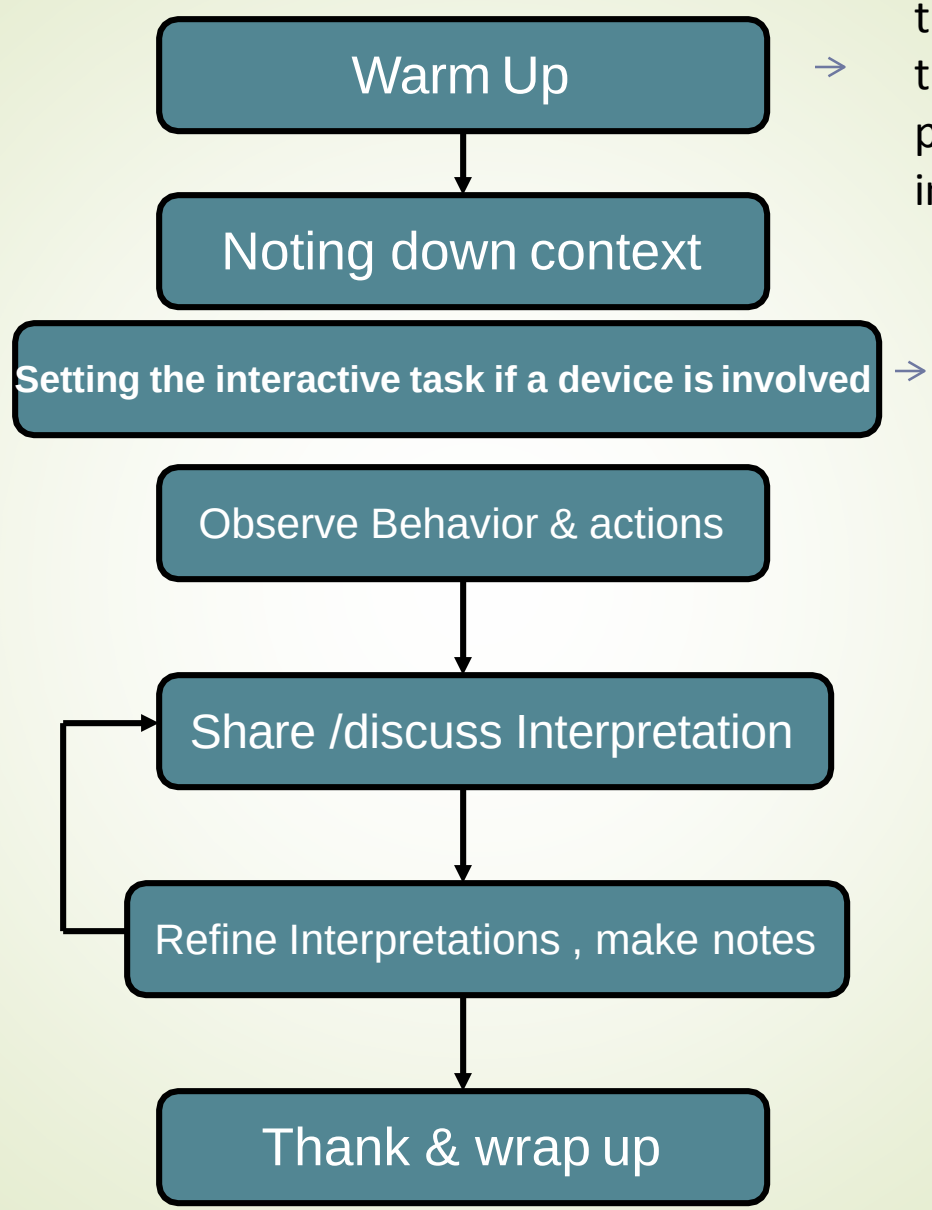
- Affinity diagrams : Data that have affinity to each other based on are grouped together to form a category.

- Affinity diagram contains one or more categories .

- Cards on which labels / words describing a characteristic are moved around on a board to ultimately result in 'groups'. Groups are given labels.

Affinity Diagram

Stages of a Contextual Interview



Greetings. Explaining the purpose. Rights of the subjects for protection of personal information.

Prejudging the user. Gathering usage data & experience data of the user.

Analyzing the data collected in Contextual inquiry

Data collected from contextual inquiry is analyzed , interpreted and finallyvisualized and represented by the researcher using one or all the following models which are part and parcel of the HCD process.

- Flow Model
- Sequence Model
- Cultural Model
- Artifact Model
- Physical Model

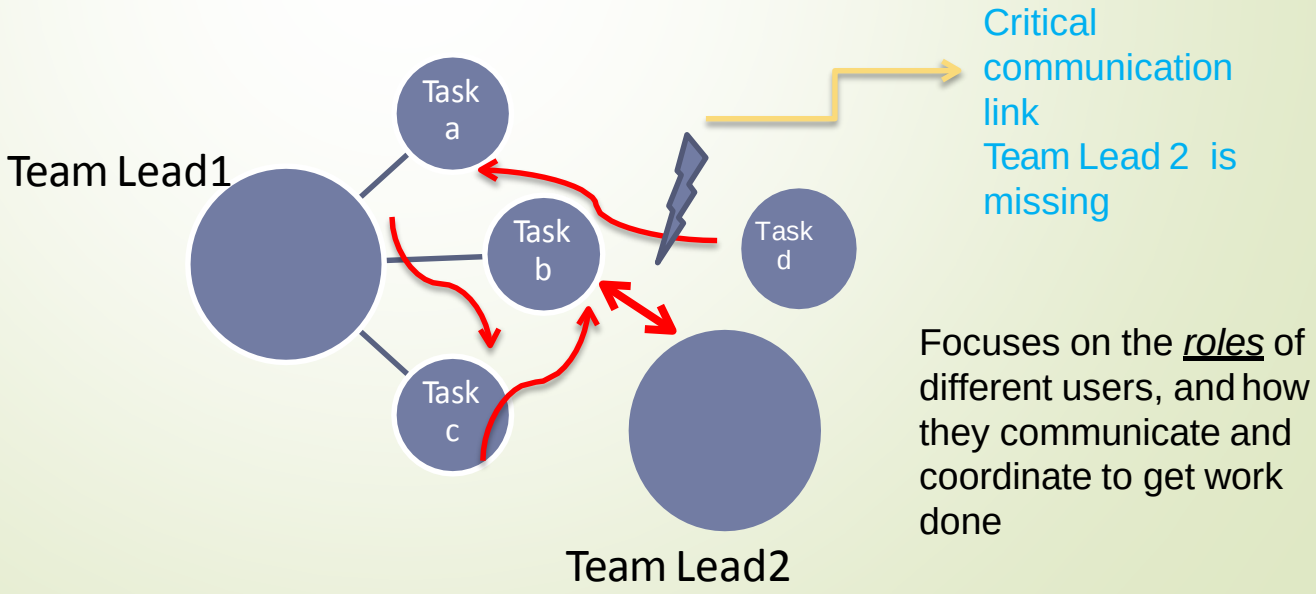
Descriptions of the Models

Flow Model

Flow model represents the coordination, communication, interaction, roles, and responsibilities of the people in a certain work practice.

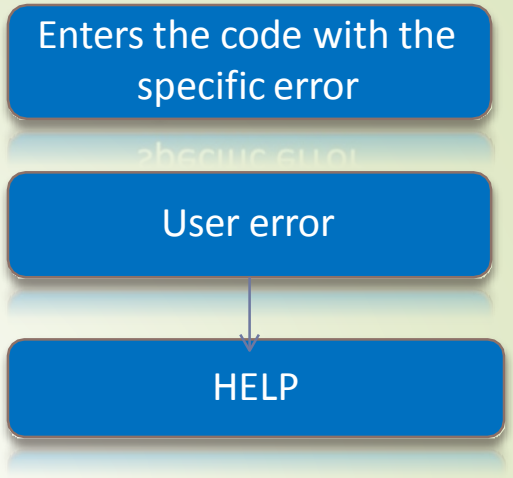
It is based on the logic of flow of information between different entities making up the system within the context.

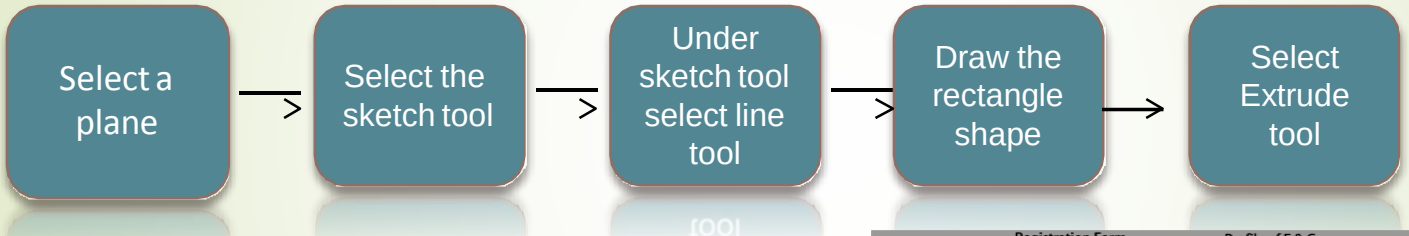
This model is mainly use to depict the logic behind the flow of information



Sequence model - represents the steps users go through - to accomplish an activity.

Sequence models are liner and sequential in nature. Sequence models of a number of smaller tasks when integrated represent the interconnected sequence within a larger system as shown in figure :

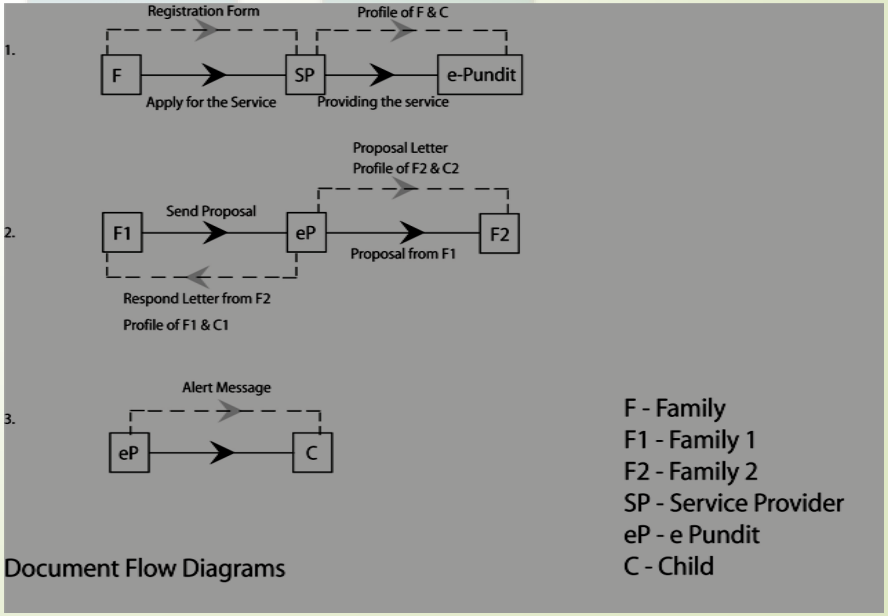




Low-level, *step-by-step* information on how work is actually done"

Includes the *intent* behind the action, the *trigger* that led the user to this action, and *breakdowns* that create problems

Document flow in an Indian Matrimonial pre exchange is shown on the right.

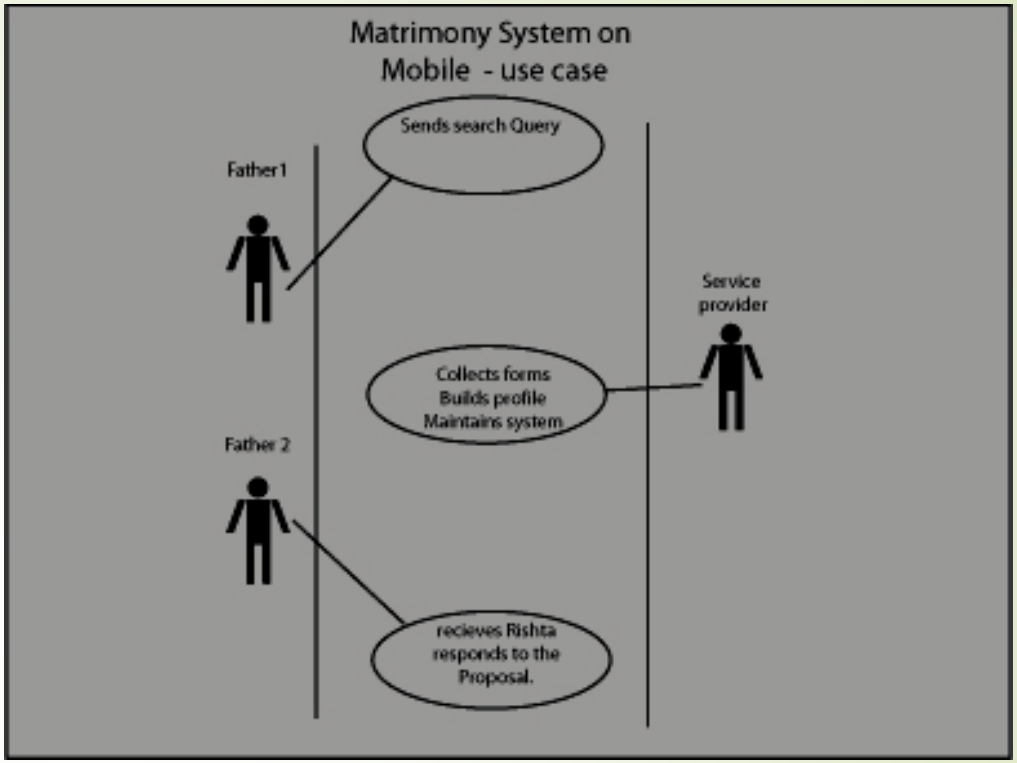


Cultural model -

represents the norms, influences, and practices that are present in the work environment and which are specific to a particular region or are traditionally followed as local norms.

Often culture specific comments or differences are mentioned using either flow diagrams or sequence diagrams or both.

Language for example is a Culture model variable.



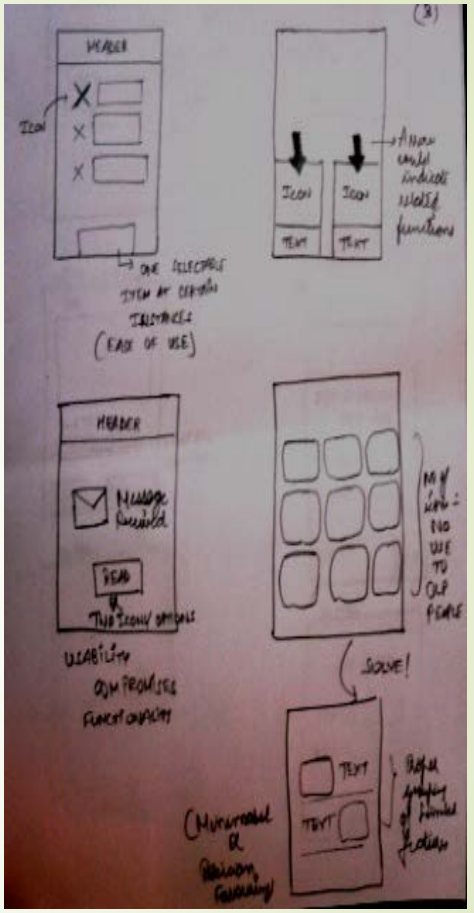
In Indian culture parents are the ones who establish the first contact and collects information of a prospective son in law /daughter in law.

This flow model is not evident for a person from another culture.

Artifact model

Represents the documents or other physical things that are part of the work / task execution. These artifacts are aids to the tasks created while working or are used to support the work.

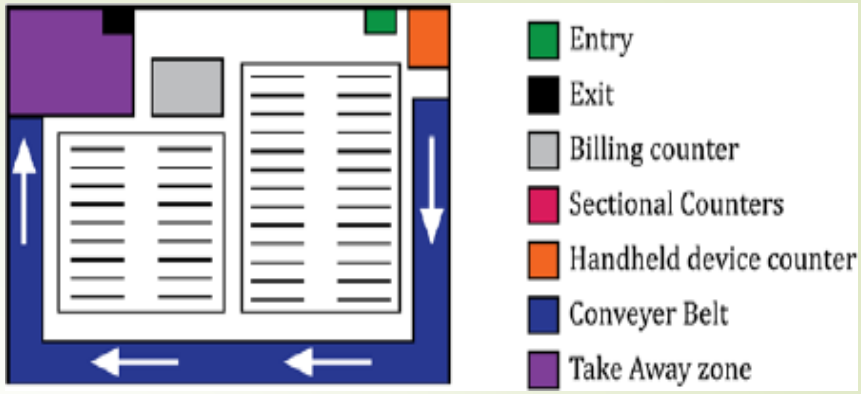
Example would be a Paper based voucher simultaneously filled up in a particular step of a sequential task flow.



Interviewers should inquire into the *structure*, *content*, *presentation* and *usage* of the artifact.

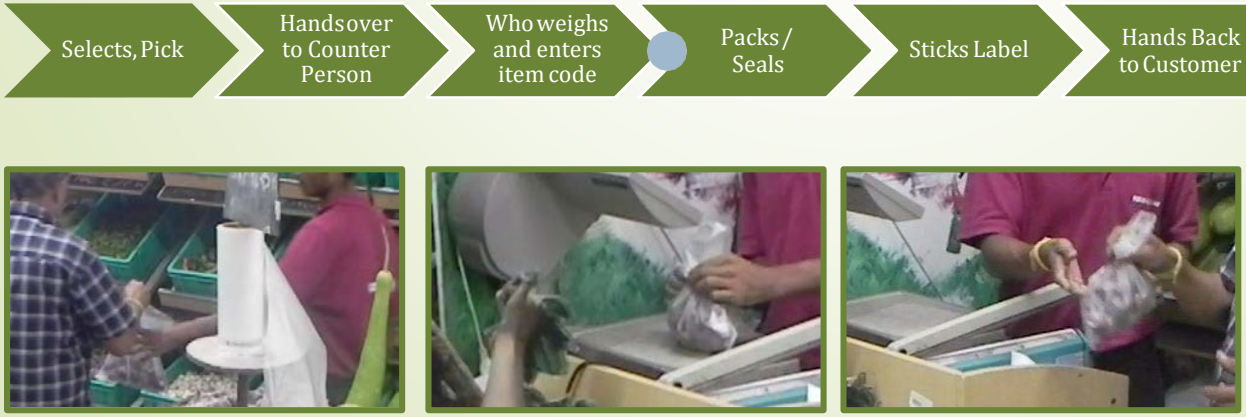
Physical model

Represents the physical lay out of the environment where the work tasks are accomplished.



Simple examples would be office layout, network topology, or the layout of icons on a computer display environment.

The flow of work as it moves in the physical environment is represented as a map



Includes the *organization* of space, the *grouping* of people, and their *movement* in the space

Consolidating Work Models :

All flow models are taken for each user and their interconnectedness to form a whole system is attempted. The groups are formed based on roles played by individual users.

Extracts from the flow models represent abstracts of communications, responsibilities and constraints. The same thing is done with other models.

A report on the contextual inquiry is generated for designing team.

Model	Group	Abstract
Flow	Roles	Responsibilities, Communications, Constraints.
Sequence	Tasks	Triggers, Activities, Intents
Artifact	Role	Parts, Structure, Intent, Usage
Physical	Work Spaces	Places, Structure, Movement Patterns
Cultural	Influencers	Influences