

M4 L6 Notes

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**.

Whether a product already exists and needs improvement or a new product is under conceptualisation –in both these cases Contextual inquiry is found to be a effective design research method to extract users information. In HCI we need *data* to understand the user and his/her work so as to design better interaction that is natural to the user. Marketing based data or information on the user as a ‘customer’ or ‘consumer’ is of limited use for a HCI designer.

In HCI GUI - Graphic User Interface designers adopt a popular methodology named as Human Centered Design (HCD) in which all decisions are taken with the Human User as the main focus.

In Human Centered Designing methodology, understanding the user s 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”.

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.

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

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, and Ergonomics&Design.

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

Another way to understand the terms - Contextual Inquiry is by describing its core premise which is simple: Go where the user works/or the environment in which there is a problem /need for which a design is required, observe the user in real time, talk to the customer about their actions during the task execution, come up with a conceptual model of the users point of understanding, propose a hypothesis that will become the basis of the new design / solution ; verify the hypothesis by testing it with the users insight through discussions. In the process of contextual inquiry the designer attempts to understand the issues involved, the variables that are contributing, the best practices etc. Based on these the designer attempts to map design solution insights to those of the users insight.

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

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

The depth and detail of the information uncovered by this method cannot be done so by any other 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.

Methods & Tools:

A contextual interviewer observes users as they perform the tasks . Asks questions on the users' actions as they sequentially unfold so as to understand their motivations and

strategy. Development of a shared interpretation of the work is done through discussions between the inquirer and the users.

Questions like what happens when things go wrong in your work / task execution sequence ?

What are the practical difficulties faced and needed to be sorted out ?

Take care not to lead the user by prompting while inquiring.

Conduct interviews at the users actual work / use settings/ place /environment.

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 researchers 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.

Tools / Instruments

Open ended questioning based on observations

Pre-prepared Questionnaire (User Survey)

Ethnographic observation dairy with notes (These notes are converted into Affinity diagrams; personas; task hierarchy diagrams etc. by the HCI designer as part of the Contextual Inquiry documentation)

Focus group interviews

Structured discussions

Photo / video documentation.

Affinity diagrams / Tree / Hierarchy diagrams

Story boards

Mind maps

Planning for a Contextual Inquiry

Define the issue /problem /context as well as 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.

Analyzing the data collected in Contextual inquiry

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

- **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. Example of Flow model :
- **Sequence model** - represents the steps users go through to accomplish a certain activity. Sequence models are linear 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 :
- **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.
- **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.
- **Physical model** - represents the physical lay out of the environment where the work tasks are accomplished; often, 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. Example would be of a retail shop.

Recap

Contextual Inquiry is a method for gathering and representing data about the user and his/her work

Contextual inquiry yields interpreted information that reflects the implicit understanding of the user.

The results of a contextual inquiry are model using one or combination of FLOW – (Direction of communication and coordination); SEQUENCE – (Detailed sequence of work steps); ARTIFACT – (Physical objects that assist or aid the work) ; CULTURE – (External local influences) ; and finally PHYSICAL – (Layout of the work environment)