

Contextual Inquiry

Design Thinking & Innovation
Tools



D'source Project



Open Design School



MoE's Innovation Cell

Section: T5, Week 5



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Design Thinking & Innovation (DT&I)

Section: T5.0

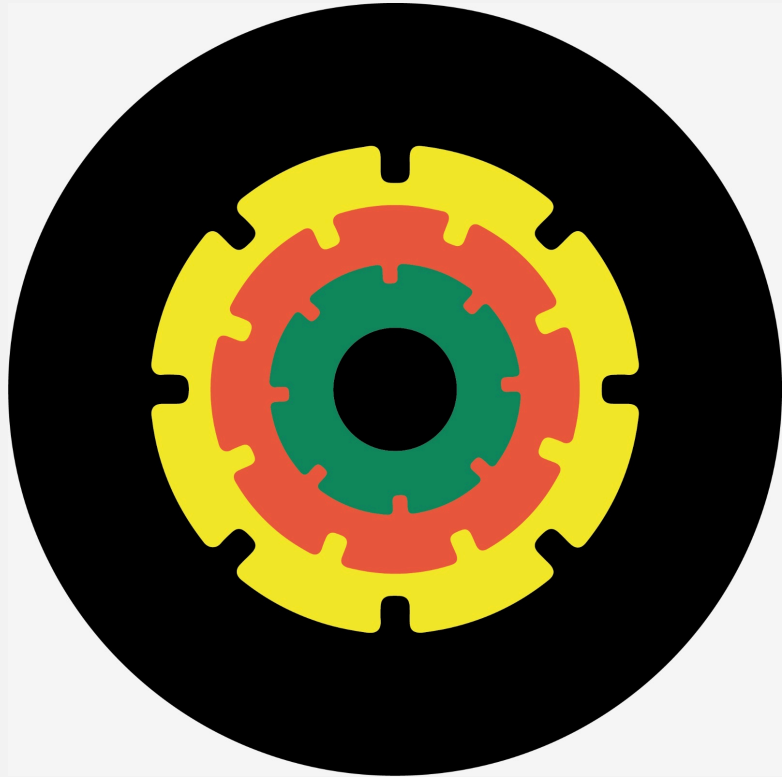
Week 5



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Design Thinking & Innovation (DT&I)

Prof. Ravi Poovaiah
IDC School of Design, IIT Bombay



DT&I Tools

T5 Contextual Inquiry

Module T5:

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T5.1

Contextual Inquiry

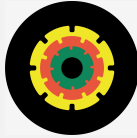


What is Contextual Inquiry?

Contextual Inquiry is a primary research method to **understand the needs of the user** through **observations and conversations** at the **user's own location or environment** while the **person is doing/performing the activity**.

Observe the user while he/she is doing the task or activity. The observations are documented. Observing users in action while they are using and interacting with the product/services can lead to interesting inferences.

Converse with the user to seek feedback/opinions about the activity, decisions, challenges, interests, backgrounds, context, etc. You can request them to narrate their experiences.



Contextual Inquiry:

Individually or in groups?



Contextual Inquiry can be done individually or in small groups.

It helps when done in groups with people from diverse backgrounds and opinions are involved. One can share responsibilities while doing the study.

How does it help?

Contextual Inquiry can get you **detailed information**.

Contextual Inquiry involves you to be at user's natural environment while the person is doing/performing the activity. This can lead to **experiential understanding** of the Topic.



Contextual Inquiry (CI):



1. Observe and converse
at users location while
the user is performing
the activity



2. These have been
documented through
**text notes, images and
video**



3. Go through this
information and **write the
summary as key phrases
on Sticky Notes/cards**



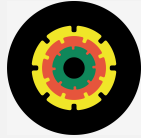
4. You could **use
different colors** to
denote Observations,
Problems, Suggestions,
etc.



**5. Sort those with
affinities into categories**
through open card
sorting



6. Give a **title** for each of
the categories and **mark
the ones that are
important**



Contextual Inquiry Steps:

1a. Identifying the Users:

Identify appropriate **users relevant for your Topic** (you can use User participant Mapping).

1b. Locating the User:

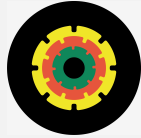
Find the **location of the user** and contact them so that you can go and do user studies at their place.

1c. Observation:

Observation involves **observing the Users** at their natural location while using the product or the service.
A. Sketchbook/ Notebook to take down points will be quite useful.

1d. Documentation:

These observations are **documented through text, images and video** using a sketchbook/ notebook and a mobile camera. Get users permission to document.



Contextual Inquiry Steps . . .

1e. Points for Conversation:

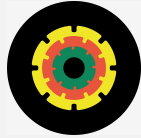
Note down as points a list of key issues that you intend to discuss on your notebook. A simple practical method is to use separate cards to write the points down and refer to them one by one during the discussions.

1f. Converse with the Users:

Converse with the User while he/she is doing the activity. This is to get the user's thoughts, opinion, feedback, challenges while using the product or service. Requesting them to narrate their experiences could provide useful information. Do remember that listening to the users is very important.

1g. Documentation of conversation:

Get users permission to document and record. These conversations can be recorded to refer to it later on. Also, take down notes as points during the discussions.



Contextual Inquiry Steps . . .

1h. Summary as Key Phrases:

Go through the information (both observation and through conversations) and **write the summary as key phrases on Sticky Notes**

1i. Use colours to differentiate:

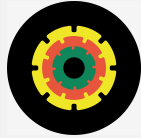
Make use of coloured sticky notes to denote different aspects. It could be for Observations, Inferences, Problems, Suggestions, etc.

1j. Affinity Sorting:

Sort these with **affinities into categories** through open card sorting

1k. Titling and importance:

Give a **title** for each of the categories and go through the notes and mark the ones that are important/relevant in **levels of importance**.



Contextual Inquiry - Introduction

//Initial Brief

Design a bedroom automation system controller that can be retrofitted in a typical Indian middle class bedroom. The controller needs to be wall-mounted and will look similar to a fan regulator.

Guided by
Prof. Anirudha Joshi

Laksh Rajpal Samarth Dhanuka
Manu Krishnan Anuj Ambhore

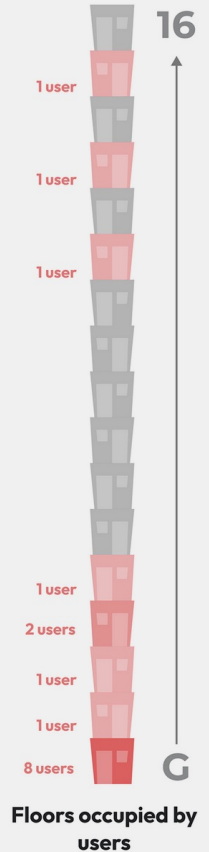
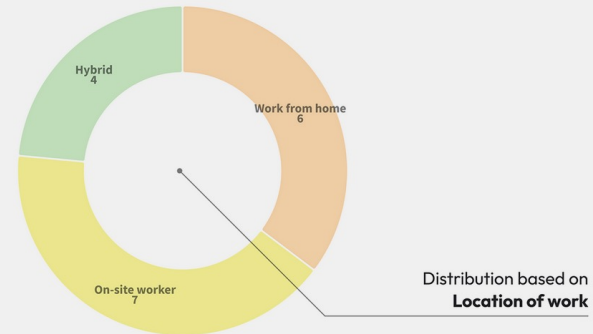
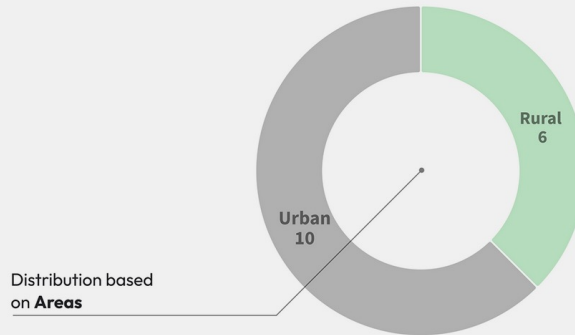
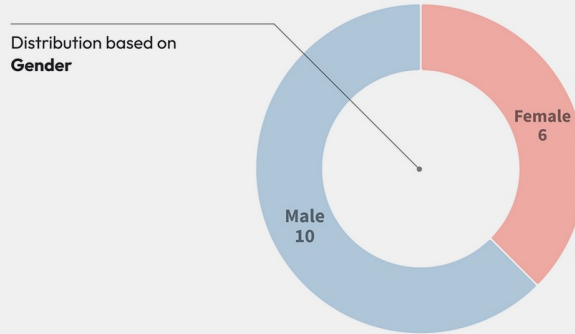
//Contextual Inquiry

To gain deeper insights into the challenges users encounter, we conducted in-home interviews with a sample of **16 individuals**. These interviews allowed us to not only understand their daily routines and how they utilize their living spaces but also to empathize with their unique problems and needs more effectively. The demographics of the users vary as follows:

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Contextual Inquiry - Demographics



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Contextual Inquiry - Interpretations

Statement no.	Statements	Classify
U8 01	52-year-old doctor residing at IIT Bombay campus. User is a radiologist and practices as a general physician. been staying in this space for a year	Demographics
U8 02	The AC in use is a window AC mounted on a 3 pane window (on the second one)	User Statement
U13 01	29M, Lives in Awas in a gro brother's wife and his paren	Demographics
U13 02	User has been living in his	User Statement
U13 03	General temperature of the user stays almost a kilomet	User Statement
U13 04	"Even though the temperatu tolerable"	User Statement
U13 05	On a regular day, the user v	User Statement
U13 06	The user wakes up first thin who woke up first	User Statement
U13 07	User seems to like ventilati	User Statement
U13 08	The user has a sliding wind	User Statement
U13 09	The mosquito problem is ge	User Statement
U13 10	Does the user use some so	User Statement
U13 11	The user goes to his living r	User Statement
U13 12	The user doesnt prefer to cl that keeping the door open	User Statement
U8 03	AC is below knee height so it keeps the marble floor very cold when turned on and it can cause a certain mount of discomfort while walking	Observation
U8 04	Because the user lives on the 15th floor, there is no mosquito problem.	User Statement
U8 05	User typically sleeps for 6-7 hours each night.	User Statement
U8 06	Today, she woke up at 8 AM, whereas the usual wake-up time is 6-6:30 AM.	User Statement
U8 07	The variability in the time the user wakes up highly depends on the demand of their work	Observation
U8 08	The user's occupation as a doctor with a variable schedule highlights the need for flexible automation that can adapt to changing daily routines.	Insight
U8 09	User leaves home for work at 12:15 PM, but today, User left at 1 PM.	User Statement
U8 10	Returning home usually occurs at around 6-6:15 PM, but today, User returned at 7 PM.	User Statement
U8 11	User prefers to keep the windows open even at night, but she keeps the one with the mosquito mesh closed	User Statement
U8 12	The user's preference for open windows at night suggests a desire for automation that can maintain a pest-free environment while allowing natural ventilation.	Insight



Contextual Inquiry – Summary on Cards



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Contextual Inquiry – Sorted Cards

Some users believe that faster, automated work is **'laziness'** or **will make them lazy**, while other users are afraid of being **perceived** as lazy for using automation

users may or may not exhibit cost consciousness, but ignore it when it comes to usage habits

lack of understanding of automation makes the user disinclined

U15 29 | Insight
- The user feels like he is against automation as it might make him lazy

U2 31 | Breakdown
- she doesn't feel that the opening and closing of the window is a task. Because she is habituated to it. However she feels like if the fan control over the switch for the lights and fans from both sides of the bed, and if the light switches were properly labeled and mapped it would be easier.

some users think that faster, automated work is - laziness

U8 29 | Insight
- Both the husband and the wife are resistant to technology that is likely to make them lazy

U15 28 | User Statement
- The user does not have a need for automation because he thinks it will make him lazy

users are afraid of being perceived as lazy for using automation

U11 30 | Observation
- There is resistance to the idea of automation, and she doesn't seem convinced with the requirement, it seems futile. She feels like it's her 'duty' to do all these tasks

U11 28 | User Statement
- "Agar (automation for cheap) mile bhi toh kya fayeda ghar itna chota sa toh hai, aur mai aur woh (older bahu of the house) kaam baat lete hain"

some users are cost conscious while using the AC

U16 42 | User Statement
- after dinner, user switches off the AC

U4 14 | User Statement
- The user doesn't use the remote, just controls the temperature by switching the AC on and off.

U4 13 | Insight
- Control for the AC is manual, with the user switching the AC on and off as needed, indicating potential benefits from a more automated and energy efficient climate control system.

U5 22 | User Statement
- AC is switched off by the user at night before sleeping using the AC remote from the bedside table

U5 23 | User Statement
- The user said that sometimes they subconsciously know that they must shut the AC to save money and electricity, but as of now the shutting off of the AC is more habitual than conscious.

U7 32 | User Statement
- Temperature control isn't a concern as his house is built with natural hollow bricks because temperature stays cool on summers and warm in winters.

but

some users are not cost conscious when using the AC

U16 21 | User Statement
- When the user sleeps, they keep the AC on through the night, they have a thick blanket

U16 | Observation
- It is possible that the user keeps their fan off because the AC temperature is too cold and they don't need the fan now so they just use the AC

convenience matters to the user - cost to convenience ratio

U16 27 | Observation
- the user cares more about their peace of mind over the difference in the AC bill, the lack of noise is more important hence they keep the fan switched off or at 1

U5 27 | User Statement
- "It's like you're incurring additional cost to get a cold the next day" (User on switching the AC off at night and on being asked whether he considers the cost incurred when using the AC)

if the users are aware they are spending this much, they might be able to alter behaviour more

User displays an understanding of their cost to convenience ratio. In some cases the user is recognizing that they must not spend more, and sometimes they also give in and don't care about it when it comes to habits

U5 58 | Insight
- user is not willing to incur a lot of cost for the installation of the automation

U8 10 | User Statement
- Returning home usually occurs at around 6-6:15 PM, but today, User returned at 7 PM.



Contextual Inquiry – Key Inferences

Social and cultural factors also tend to dictate the interaction of different users with several elements of their room

For users with medical conditions, or their dependants, bedrooms should be spaces that **prioritize protection, mobility, accessibility, cleanliness, and rest**. And allow for control over elements with ease to facilitate the same, along with **trackability**

The physical layout and **placement of elements** in the room limits the user and controls/ **lengthens their movements**

Some users are passive when it comes to manual daily actions (like opening windows for ventilation) while **some of them like to take up that responsibility** and manage actions in their room

Users may or may not exhibit **cost consciousness** but ignore it when it comes to usage habits

Safety concerns and convenience drive the users interaction with their windows

Some users believe that faster, automated work is **'laziness' or will make them lazy**, while other users are afraid of being perceived as lazy for using automation

Users negotiate **needs vs preferences** and exhibit divisions in control/power (power distance) which may also be influenced by gender perspectives

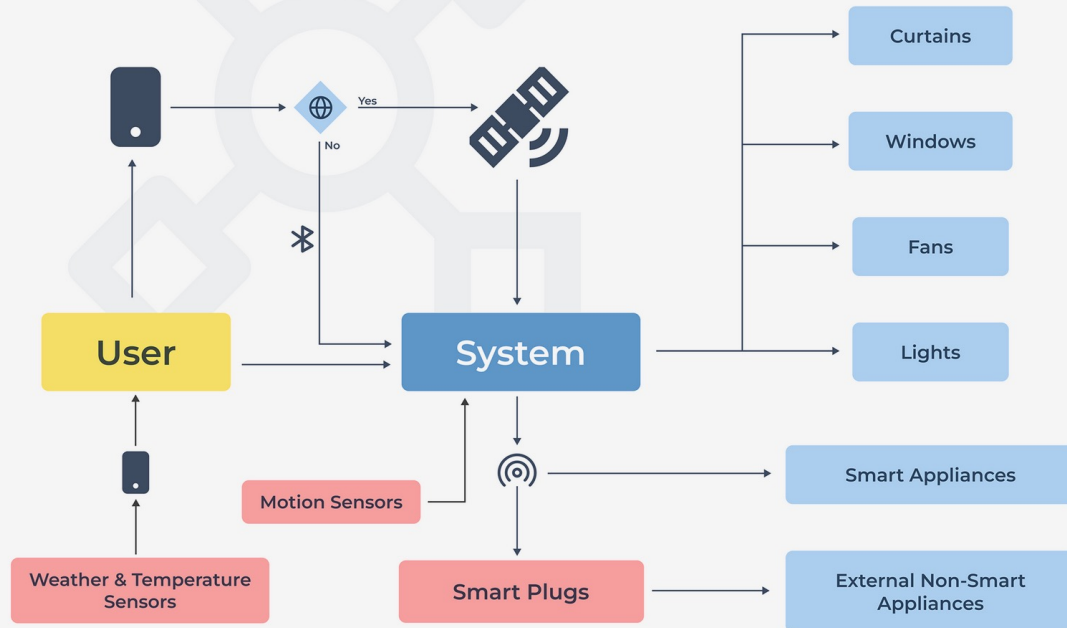
Quantities of control (such as degree of temperature or intensity of light) are **less important** to the user than quantified expenditure

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Contextual Inquiry – Conceptual Model

//Conceptual Model

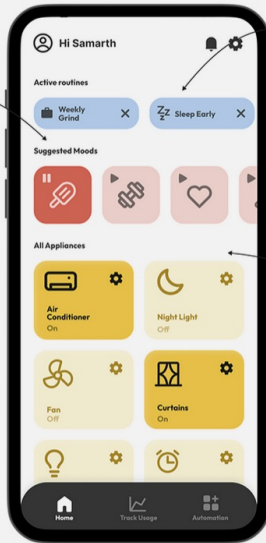




Contextual Inquiry – Final Solution

Law of Proximity

Similar buttons are grouped together for better understanding and differentiation.



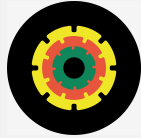
Hick's Law

Den-Z presents the most important and frequent actions on the home screen to ease decision making.

Fitts's Law

The buttons for appliances are large and within fingers' reach so that users can easily and quickly toggle them.





Why do 'Contextual Inquiry'?

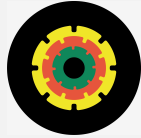
How does it help? (mentioned in DT&I process)

Primary Research based on first hand information/data becomes useful and necessary **to fill-in the gaps** that secondary research did not reveal.

As a designer, when you go to the environment where the issues are, **you experience the problem space** and this is an invaluable asset to the understanding of the problem.

Primary Research is about **finding minor details and specific information** that can make a major difference to your understanding of the problem and issues connected with it.

Contextual Inquiry can provide both **qualitative and quantitative** information/data.



Persons behind Contextual Inquiry:

Karen Holtzblatt and Hugh Beyer:

Karen Holtzblatt and Hugh Beyer conceived of the user centered design process 'Contextual Inquiry' in 1988.

According to Karen Holtzblatt and Hugh Beyer,
"Contextual Design is a user-centered design process that uses
in-depth field re-search to drive innovative design"





**Thanks for
Listening**

DT&I Tools
Section: T5
Week 5

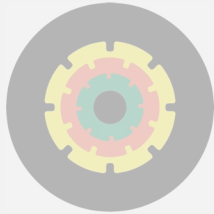
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DT&I Course – Week 5:



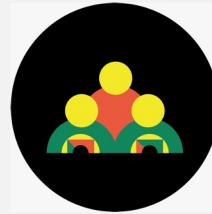
DT&I
Process
(20%)

- > Primary Research
Part 1
- > Interacting with Users



DT&I
Tools
(20%)

- > Contextual Inquiry



DT&I
Project
(50%)

- > Primary Research
- > Contextual Inquiry



DT&I
Case Study
(10%)

- > Case Study
Project 'IxD
Project'



Supporting Organizations:



D'source Project
IDC, IIT Bombay



Open Design School
IDC, IIT Bombay



MoE's Innovation Cell
AICTE, New Delhi



Credits:

Content:

Prof. Ravi Poovaiah



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Credits:

Mentor for CI Example:

Prof. Anirudha Joshi

Students:

Anuj Ambhore, Laksh Rajpal,
Manu Krishnan, Samarth Dhanuka



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Credits:

Camera & Editing:
Santosh Sonawane



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Credits:

Think Design Animation:
Rajiv Sarkar



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Credits:

End Title Music:
C P Narayan



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