

# Administrative Stuff

Anyone not enrolled in TopHat (starts next week)?

Anyone who doesn't know their teammates?

Accessed readings?

Any other questions regarding class policy?

# Last Week

An introduction to Human-computer interaction

Basic principles of design: visual hierarchy, flow, perceptual system

Introduction to the design process

Questions?

# Contextual Inquiry

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CS-570 Introduction to Human-Computer Interaction



# Activity-centered Design

What does it mean to see activities?

What is the difference between **taxonomy** and **taskonomy**?

"In other words, good behavioral organization reflects human activity structure, not dictionary classification."

Hardware-store vs. activity-centered organizations

Microsoft Windows Mobile 5.0 vs. Treo

But, How Do We  
Understand This  
Organization?

# Designing From Data

"The user is not like us..."

We need data to understand the user's work

Requires design team to agree on common observations and their representation

Observations reveal hidden aspects of work that may be implicit in the user's understanding

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

# The User Is Not Like Me

Why not? Based on Norman:

Designers are much more familiar with the interface and with the problems being solved than users.

Designers are confident. Users are often fearful.

Designers work in settings that are different than the context in which the product may be used.

Designers may have different skills than users (e.g., perceptual, cognitive, or domain skills).

# The Power of "Context"

"The users cannot describe what they really do because they are not conscious of it and do not reflect on it. The defined policy for an organization is no longer representative because it no longer reflects what is really going on."

# Contextual Inquiry

"Contextual Design makes data gathering from the customer the base criterion for deciding what the system should do..."

"The core premise of Contextual Inquiry is very simple: go where the customer works, observe the customer as he or she works, and talk to the customer about the work. Do that, and you can't help but gain a better understanding of your customer."

# CONTEXTUAL INQUIRY

A hybrid process of discovery

Participatory design tradition from Europe

Interviews from social science

Think-aloud from cognitive psychology

Ethnography from anthropology

Brainstorming, stakeholders from business & design

# PURPOSES OF CI

To obtain data from users in their context

**Insights about the users' environment**

Insights about their many tasks

Insights about the people they work with

Insights about cultural influences on work (expectations, desires, policies, values, etc.)

Understanding of breakdowns in current processes

To help define requirements, plans and designs & prioritize

# THE CI APPROACH

Actions speak louder than words

People usually cannot say what innovations they would like and, even when they can, are sometimes wrong about what would be helpful (X-ray example, Beyer & Holtzblatt, 1996).

"Users of an X-ray machine kept asking for more and more exact speed controls on their X-ray machines, trying to run the image at exactly 1/4 second per frame. It was not until someone studied the work they were doing that they realized the users just needed a timer---they were trying to run the tape at an exact speed so they could measure elapsed time. The customers requested a **technical fix to the existing system, but the real issue was in the structure of the work they were doing.**"

# THE CI APPROACH

Have conversations with users in the context of their work

"Direct observation" when possible

When not possible

Cued recall of past experience

Re-creation of related experience (e.g., think-aloud)

# A Contextual Inquiry

Video

# What did we see in the video?

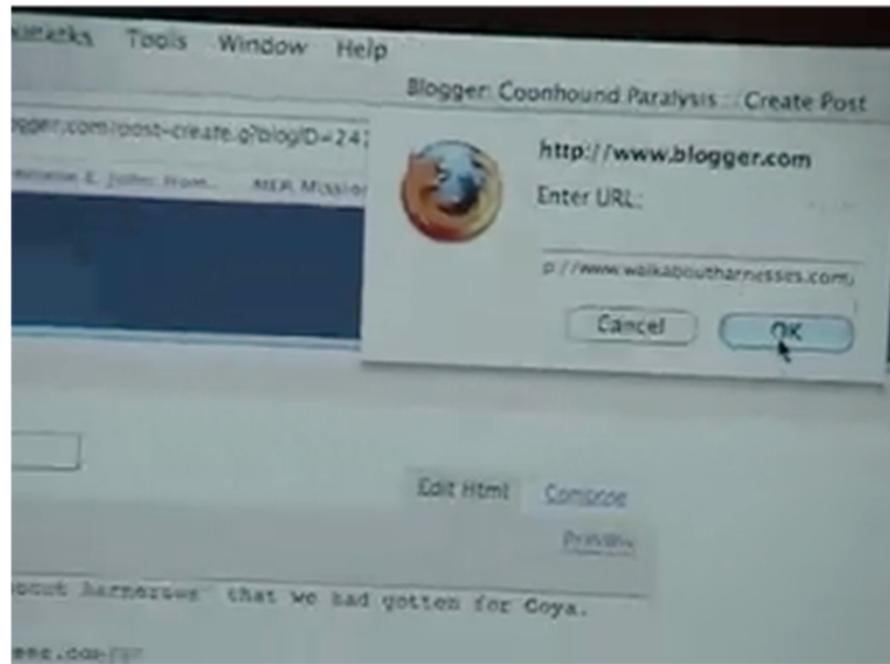
The user is observed in her environment---where she uses the interface

We observe her as she does her usual tasks

The user talks-aloud her actions

We ask questions

The user likes dogs!



# Principles of CI

## **Context**

Must be done in the setting of the participant.

## **Partnership**

Master/apprentice model; investigator is humble.

## **Interpretation**

Observed facts must be regarded for their design implications. Raw facts without interpretation aren't very useful.

## **Focus**

Themes that emerge during the inquiry. You can't pay attention to all facets of someone's work at all times!

Questions?

Context

# Summary/Ongoing Experience

Retrospective accounts are often summaries

"I got to work, checked my email and had a cup of coffee"

By being present in the time and place of activity, we can access much richer data from ongoing activities

"I got to work, looked over my email, answered messages from my boss, decided to have some coffee, walked to the coffee machine, found there was no coffee, so I made coffee..."

# Abstract/Concrete Data

Humans also have a tendency to abstract---save time, and convey points they feel are important

This reduces amount and quality of data in CI

**Leaning back, Staring at the ceiling** are clues that user is providing abstract description

**Leaning forward, Point at artifacts** are being concrete

Focus on real tasks and artifacts

Investigator

User's work

User



Questions?



# Master-Apprentice Model



# Master-Apprentice Model

# The Master/Apprentice Model

You are the **Apprentice**; the Customer is the **Master**

Keeps the investigator humble, and customer in charge

Investigator is not afraid to ask questions

**Teaching while doing** means that the user doesn't have to think in advance what to convey

Allows discovery of subtle details, which may be overlooked in "canned" discussion

Reduces need for a formal set of interview questions

# Being a Good "Apprentice"

Be a keen observer

Don't be afraid to ask questions

Maintain an attitude of inquiry and learning

Admire the Master as an expert in his/her work

Aspire to see the World as they do

# Avoid Other Relationships

## **Interviewer / Interviewee**

Not based on context or ongoing activities

## **Expert / Novice**

You are not the expert in the user's work, they are!

## **Guest / Host**

You shouldn't be too afraid of asking the wrong question

# Interview Data

Go for concrete details obtained in-context, not abstract generalities

Don't ask participants to summarize their work. Ask them specific details about real, concrete, observable things

Have them "think aloud" as they work through their tasks.

Pepper them with short, easy-to-answer questions

Avoid high-level philosophical questions that will just cause them to "talk" instead of "do"

# Withdraw & Return

The researcher observes something that he/she would like to dig deeper about

"Is there a reason you paused there?"

The researcher asks about this and the pair **withdraw** momentarily from the task at hand

The pair discuss the researcher's question

After, participant **returns** to the task at hand

# What to Look For

Workarounds

Mismatch between what people say and do

Offhand, under the breath comments

Sighs

Rolling of eyes

Confessions

Questions?

# Interpretation

# Interpretation Checking

It is good to regularly check your interpretations

"I saw you just do X. Is that because of Y?"

"I believe X. Is that correct?"

"If you had a technology that did X, would that solve this problem?"

As long as you check your interpretations in-context, participants will respond accurately

Outside of context, they may be more inclined to agree or answer in generalities rather than specifics

# Vet Your Design Ideas

CI is also a fine time to get initial feedback on design ideas

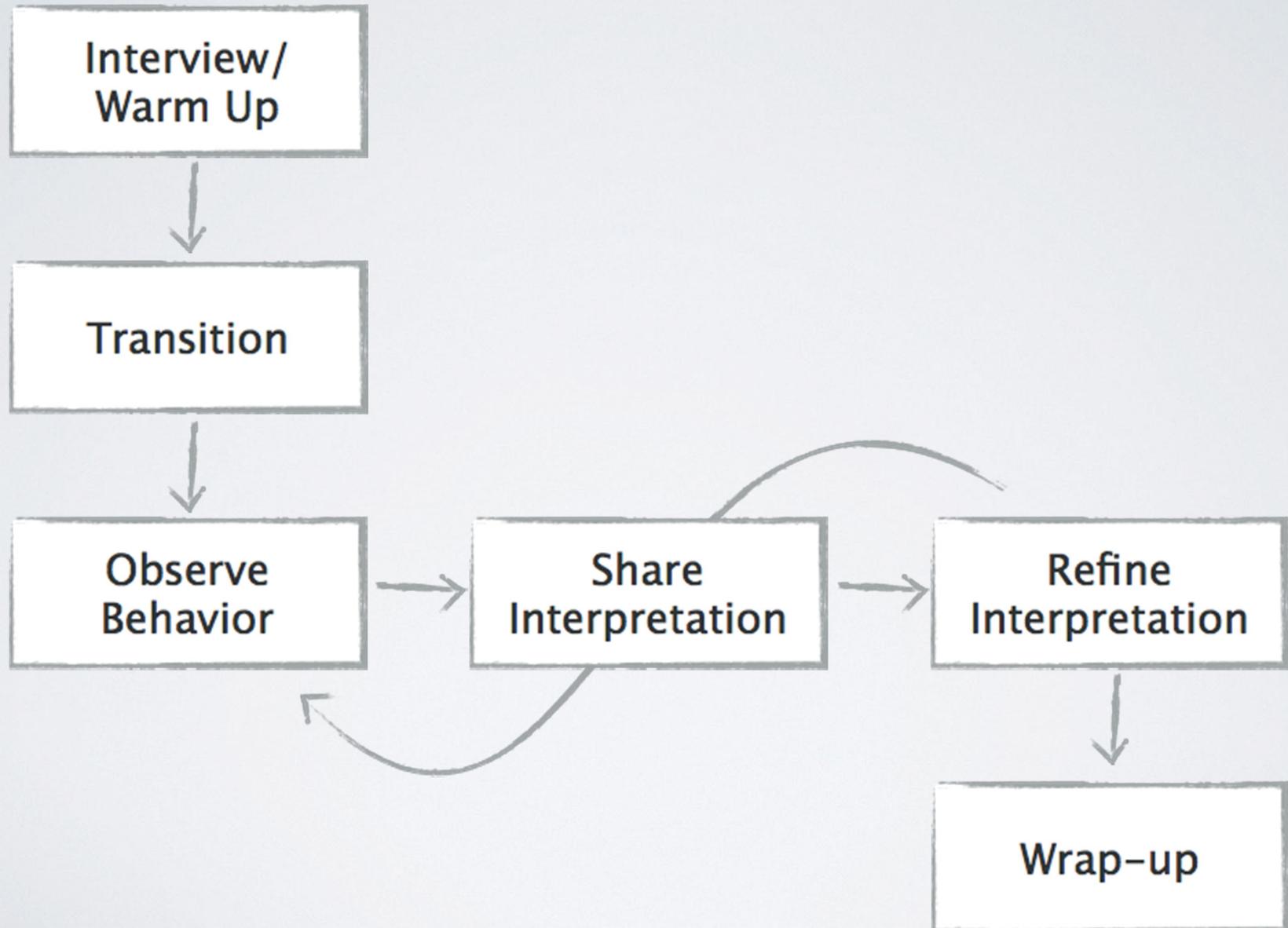
"If you had a technology that did X, would that solve this problem?"

Designers will want to do this anyway, so might as well support it

Users will quickly understand the intent of your suggestion, and will be able to provide direct feedback

This will also demonstrate your understanding of the problem, providing opportunity for brainstorming and/or clarification

# Stages of a CI



# What **Not** To Do in CI

Not being inquisitive/nosy enough

If you have the impulse to ask, do it right away!

Overly disrupting the task

Questions are great, but don't ask so many so fast that the participant stops doing their tasks.

Turning it into a regular interview

If you could have done it in a coffee shop, you didn't do a contextual inquiry.

# What **Not** To Do in CI

Failing to be discrete

Participants must feel safe, free, and anonymous.

Failing to respect your participants

Failing to observe closely and take good notes

Over-focusing on the wrong details

Slipping into abstraction

Keep it concrete, in the work, in the details.

Questions?

So What Happens After  
The Interview?

# Focus

(i.e., Modeling)

# Group Interpretation

A maximum of 48 hours after the interview, **group interpretation** is conducted

Focusing on one interview at a time, each design team member is allowed to ask questions of the interviewer

The outputs of this meeting are:

A sequence of notes, including observations, questions, design ideas and breakdowns, indexed by user number (important to keep anonymous)

A set of work models (coming up)

# GI Session Roles

**Interviewer:** conducted the interview

**Work Modelers:** generate work models

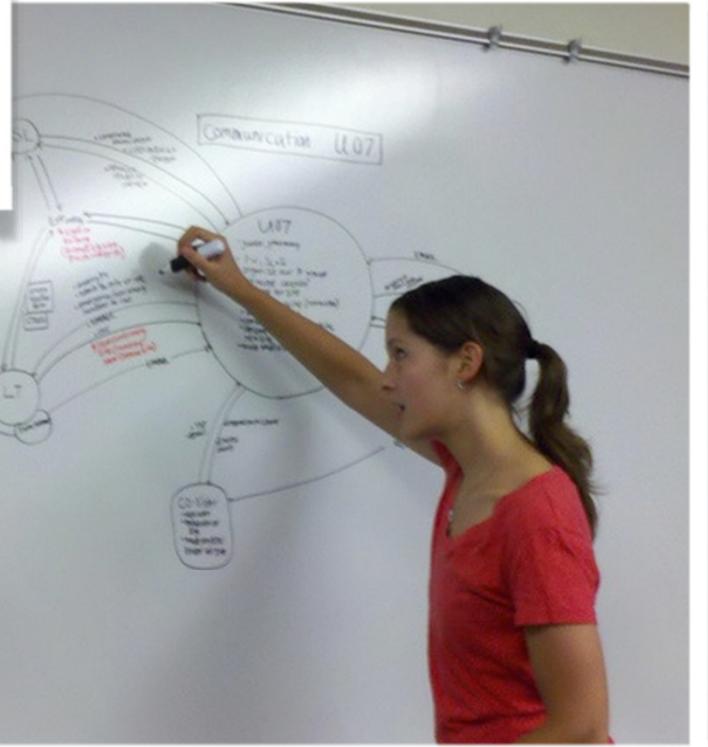
**Recorder:** take notes

**Moderator:** run the session

**Participants:** ask questions, make observations

**Rat-hole Watcher:** avoids breaking protocol or wasting time

One person can play multiple roles!



# Affinity Diagrams

Affinity Diagrams are generated during group session

Organizes ideas into a hierarchy

Each observation/idea/note is copied to a post-it note

Notes are hierarchically organized into themes, based on the focus of the project

Built bottom-up

Put up notes from brainstorm, one by one. No need to justify why notes go together

When notes are collected together, give a name to represent the group (stating the work issue)

Are there higher-order groups?

Usually done in a chaotic fashion, with design team members running back and forth with post-its and yelling ideas to each other

How long  
spend on  
each page

Browser  
window  
size

topic  
headings  
that would  
interest  
user

does browser  
play tabs  
or pages  
direct

what  
info  
user  
wants

hobbies

topics  
that would  
interest  
user

learn  
more  
information

what makes  
a blog  
worth  
reading?

pass the  
time when  
bored

why read  
blogs?

keep in  
touch w/  
others w/  
comments

keep up  
to date  
w/ friends

check on  
diff design  
layouts

read into  
others  
lives

spy on  
others  
doings

Browse through  
blogs? browse  
readings

what  
do you  
know  
about  
blogs?

How find  
blogs

how to arrange  
your tabs  
or your blogs?

what is  
the  
purpose  
of  
blogs?

what  
do  
you  
want  
to  
know?

How often  
update?

How often  
check for  
updates

Read more  
blogs?

what  
do  
you  
want  
to  
know?

read  
others  
comments

look at  
pictures

what  
do  
you  
want  
to  
know?

what  
do  
you  
want  
to  
know?

what  
do  
you  
want  
to  
know?

how user reads

How long before you read a blog?  
How often do you read a blog?  
What time of day do you read a blog?  
Where do you read a blog?  
How do you read a blog?  
Do you read a blog with a device?  
Do you read a blog with a device?  
Do you read a blog with a device?

reader personalizing

blatant plugs  
how long until you read?  
change part? (content)  
browser window size

Group 9

Bridget  
Jing  
Devin  
Christine  
☆☆☆☆

Why read the blog

find out about new products  
use as references for info  
topics that would interest user  
hobbies  
learn more information  
pass the time when bored  
what makes a blog appealing to read?  
why read a blog?  
do you read a blog?  
do you read a blog?

organization & aesthetics

Adaptability to blog about reading things  
check on diff. design layouts  
don't look like a blog  
images that capture attention

topic

What kinds of blogs do you read?

browsing

Does that link included in the blog?  
what links click on  
browse readings

related to community

keep in touch w/ others w/ comments  
keep up to date w/ friends  
read into others lives  
spy on others' doings  
follow trends happening

Finding a blog, linking, storing

blogs ++

Read just organized blogs?  
Do you use blogs with features?

How find blogs  
Save blogs for later  
topic headings that would interest user  
do you bookmark your blogs?

Environment

what time do you read blogs?  
what do you read blogs?  
do you read blogs?  
do you read blogs?

Interaction through blog routine

read others comments  
do you read blogs with comments?  
do you read blogs with comments?  
do you read blogs with comments?

updates

How often updated?  
How often do you read blogs?  
How often do you read blogs?  
How often do you read blogs?

[more than text]



# Time Reading and Contributing

- Do readers ever read the same articles?
- How frequently do you visit? How and what? (with comments?)
- Do you ever read a post in a new way when you see it again?
- What time of day do you read the most?
- How do you spend your time on the blog? (with comments?)
- What time of day are you most active?
- How many times do you give blogs in a week?
- How much time will a reader devote to a single blog post?

# Reasons For Reading

- What is the main purpose of the blog?
- How do you think about blogs in real?
- How many reasons do you visit a blog?
- How do you think about the blog?
- Why do you like to read and post on it?
- What do you look at first in other people's blogs?
- What are you looking for in a blog?
- Do you ever post to others?
- Do people ever blog about the same topic?
- Do you think the blog is a good way to share information?

# Time Blogging

- How often do you post?
- How long does it take to write a post?
- How many posts do you have in total?
- How do you decide what to write about?

# Images / Media

- Does the user post a lot of pictures?
- Is there any other type of media added to entries?
- How do you edit your pictures?
- How do you organize your pictures?
- How do you upload your pictures?
- What type of software is used?

# Tech

- How are graphics enhanced?
- Do bloggers post with or without a design?
- Do bloggers post with or without a design?

# Privacy

- How do you make sure of privacy policies?
- Do you have a privacy policy?
- Do you have a privacy policy?
- Do you have a privacy policy?

# Content

## Reading

- Do readers visit the site regularly?
- Do you ever check the site regularly?
- Do you ever check the site regularly?
- Do you ever check the site regularly?

# Layout Blog Features / traits

- How often do you update the blog?
- Do you have a layout?
- Do you have a layout?
- Do you have a layout?

## Editing

- Do you ever edit your posts?

# Comment

- Do you ever comment on other people's blogs?
- Do you ever comment on other people's blogs?
- Do you ever comment on other people's blogs?
- Do you ever comment on other people's blogs?

# Other

- Do you ever use RSS feeds?
- How do you use RSS feeds?
- How do you use RSS feeds?

Questions?

# Summary

## Contextual Inquiry

Why? Design products to meet user needs

How? Observe real work/play in action

## Four principles

Context

Partnership

Interpretation

Focus

## Focus-setting meeting

Team, brainstorm, record, prune, affinity, generalize, review



# Thanks!

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