i213 User Interface Design and Development

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UNDERSTANDING USERS

Contextual Inquiry

Participant Observation

Affinity Diagramming

Work Models

User Centered Design

Design is intuition chiseled by experience

Methods for carefully understanding users and context; and testing ideas

Vary according to goals, scale, longevity, location, data recording, alternatives and degree of perturbation

Participant Observation

Contextual Inquiry

Ethnographic methods

Interviews

Focus Groups

Surveys

Probes

Participant observation is careful observation of users

Evenly distributed attention, between foreground and background

Separate observation from interpretation

Be careful about imputing motives, mind-reading, etc., especially when studying those very different from oneself

"Going native" is one extreme

Complete detachment is the other

Strike balance between insider and outsider

Useful models for design:
    Translator
    Apprentice

When? as soon as possible

Where? somewhere unobtrusive

Log more data than you will need

Use, but don't rely on, audio recorders, cameras, notebooks, scrapbooks, etc.

HOW TO RECORD NOTES

BEST PRACTICE	TECHNIQUE
separate direct **observation** from **inference** as best you can	Put inference/interpretation in brackets [] or in a separate column
distinguish between direct quotes and paraphrasing	"" for direct quotes and '' for paraphrasing
all the **specifics**	date, time, place names, names and contact info for people
Do not be limited to text	drawings, maps, tape small papers into your notebook such as business cards, flyers, etc.

CONTEXTUAL INQUIRY

Contextual Inquiry is Participant Observation tailored towards Work Settings and Requirements Specification

"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."

Source: Beyer and Holtzblatt

DESIGN FROM DATA

"The user is not like us"

We need data to understand the user

Forces design team to agree on observations and interpretations

Reveals hidden aspects of work and behavior

Marketing only provides high-level analysis of customers; not detailed information about their practices and views

Source: Beyer and Holtzblatt

MAKING CHANGE PALATABLE

"Systems must match the user closely enough that the user can make the transition…"

Even if a new technology is advantageous, it will not be adopted if it is too disruptive

Need a path from current practice to the future

Counterpoint - Businesses changes much more slowly then some parts of society (esp. youth)

FOCUS - Shared starting point, orienting the team and user towards a common goal

CONTEXT - See the work where it unfolds

PARTNERSHIP - Make yourself and the user collaborators in understanding the work

INTERPRETATION - Assigning meaning to design team's observations

Source: Beyer and Holtzblatt

ESTABLISHING FOCUS

Establishing a focus keeps project team aligned towards relevant questions

Asking the customer about whether they bring an umbrella to work probably wouldn't be helpful for designing a word processor

Different team members may have a different focus
Reconciled during group interpretation

MASTER & APPRENTICE

You as Apprentice; Customer as Master - keeps you humble, customer in charge

Investigator is not afraid to ask questions

Teaching while doing means 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 formal interview questions

Get into groups of two

Conduct a contextual inquiry on note taking

Start by introducing yourself and the task

Be a keen observer

Don't be afraid to ask questions

Maintain attitude of inquiry and learning

Admire the Master as an expert

Aspire to see the World as they do

Workarounds

Mismatches between what people say and do

Offhand, under the breath comments

Sighs; Rolling of eyes

Confessions

Adapted from Jake Wobbrock

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 they withdraw momentarily from the task

The pair discuss the researcher's question

After discussing, participant returns to the task at hand

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 am here at work, looking over my email, answering messages from my boss, decided to have some coffee, walking to the coffee machine, found there was no coffee, so I'll make coffee…

ABSTRACT VERSUS CONCRETE

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

This reduces amount and quality of data

Leaning back & Staring at the ceiling are clues that user is being abstract

Leaning forward & Pointing at artifacts are concrete

Focus discussion on real tasks and artifacts

CHECK YOUR INTERPRETATIONS

It is good to check your interpretations to make sure they are accurate

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

When you check your interpretations in-context, participants should respond accurately

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

VET YOUR DESIGN IDEAS

CI is a fine time to get initial feedback on ideas

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

Designers want to do this anyway

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

This will also demonstrate mutual understanding providing opportunity for brainstorming and/or clarification

Stages of Contextual Inquiry

Interview/Warm Up

↓

Transition

↓

Observe behavior

↓

Share interpretation

↓

Refine interpretation

↓

Wrap up
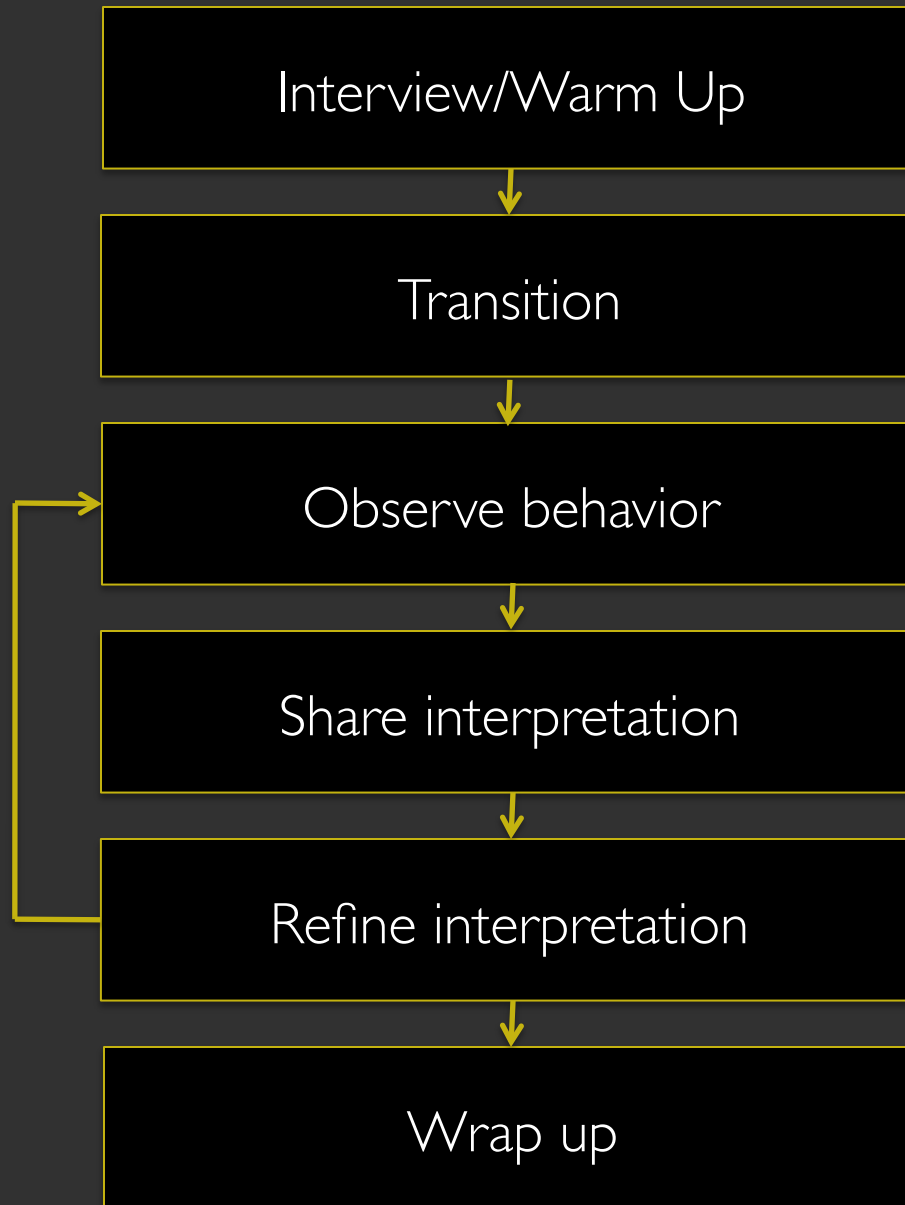
AVOID OTHER RELATIONSHIPS

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

SEVEN WAYS TO SCREW UP A CONTEXTUAL INQUIRY

Not being inquisitive/nosy enough

Overly disrupting the task

Turning it into a regular interview

Failing to respect your participants

Failing to observe and take good notes

Focusing on the wrong details

Slipping into abstraction

Adapted from Jake Wobbrock

A maximum of 48 hours after the interview

Focusing one interview at a time, each team member can ask questions of the interviewer

The outputs of this meeting are: A sequence of post-it notes, including observations, questions, design ideas and breakdowns, indexed by user number (keep anonymous)

A set of working models

ROLES DURING INTERPRETATION

Interviewer - conducted the interview

Moderator - run the session

Participants - ask questions, make observations

Recorder - take notes

Work Modelers - generate work models

Rat-hole Watcher - avoids breaking protocol or wasting time

Affinity Diagrams can be generated during group session

Each observation/idea is written on post-it

Notes are hierarchically organized into themes

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

WORK MODELS

Work models are a graphical way of representing the results of a CI

Generated during group interpretation session

A concrete set of deliverables allowing the design team to agree upon a representation

Distills important contextual aspects

5 KINDS OF WORK MODELS

FLOW - Direction of communication and coordination

SEQUENCE - Detailed sequence of work steps

ARTIFACT - Physical objects that support the work

CULTURE - External influences

PHYSICAL - Layout of the work environment
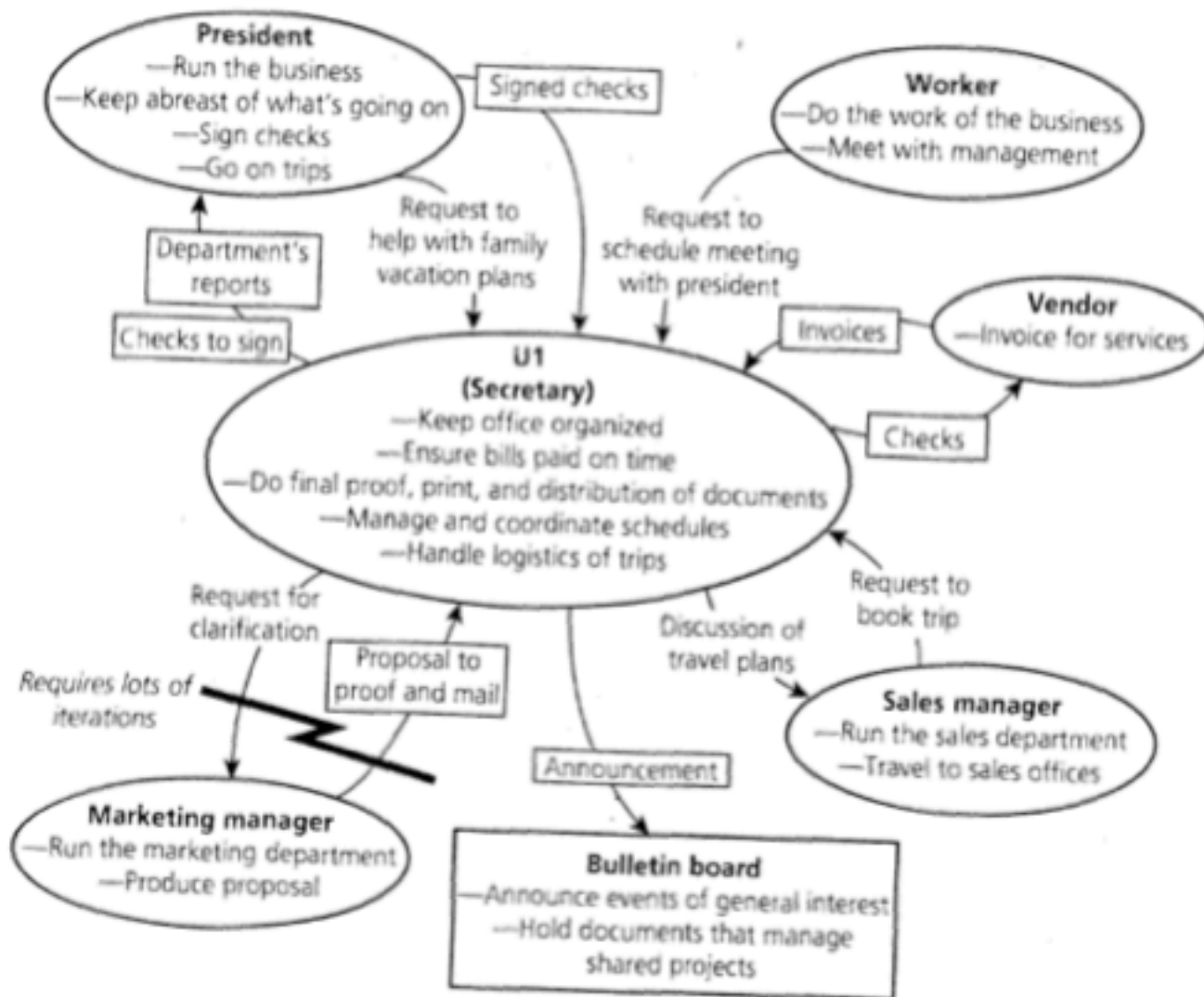
Focuses on roles of different users, and how they communicate and coordinate

Each flow model is generated from a specific individual perspective

Includes the places where communication happens, the artifacts used, and breakdowns in communication

FLOW MODEL - SECRETARY

President
—Run the business
—Keep abreast of what's going on
—Sign checks
—Go on trips

Signed checks

Worker
—Do the work of the business
—Meet with management

Department's reports

Request to help with family vacation plans

Request to schedule meeting with president

Checks to sign

Invoices

Vendor
—Invoice for services

U1 (Secretary)
—Keep office organized
—Ensure bills paid on time
—Do final proof, print, and distribution of documents
—Manage and coordinate schedules
—Handle logistics of trips

Checks

Request for clarification

Requires lots of iterations

Proposal to proof and mail

Discussion of travel plans

Request to book trip

Sales manager
—Run the sales department
—Travel to sales offices

Marketing manager
—Run the marketing department
—Produce proposal

Announcement

Bulletin board
—Announce events of general interest
—Hold documents that manage shared projects

"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

Captured at level of detail appropriate for focus of the design team

SEQUENCE MODEL: EMAIL TRIAGE

Intent: Plug in

Trigger: Return to the office
↓
Scan message list for important message—
Use sender, subject
↓

Intent: Handle emergencies

Choose urgent message
↓
Read message about unhappy user
↓
Decide more info needed
↓
Make phone call

*Had to put off issue of
unhappy user*

↓
Leave phone message
↓

Intent: Get back to people easily

File in phone folder
↓
See list of messages
↓
Choose message 9: subject indicates
university news relevant to department
↓
Read message
↓
Delete message
↓
See message 10 automatically
↓
Read message 10

Bayer and Holtzblatt – Contextual Design

"An artifact model is a drawing or photocopy of the artifact, complete with any handwritten notes"

Documents physical artifacts used in work

During the CI, interviewers should inquire into the structure, content, presentation and usage of the artifact, as well as any breakdowns in its current use
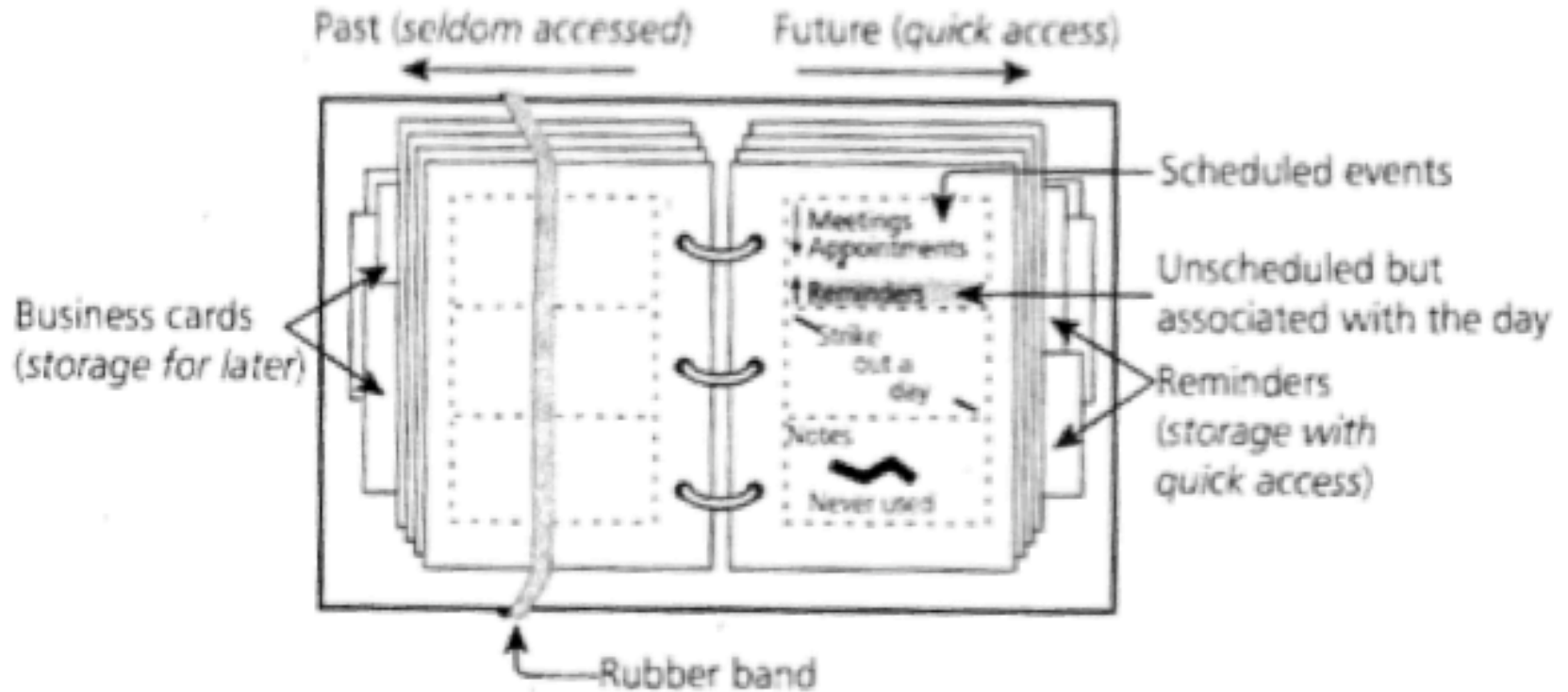
"Work takes place in a culture, which defines expectations, desires, policies, values, and the whole approach people take to work"

Revealed in the language used to describe work, the tone of the place, the policies, and the influence of the overall organization

Influencers are the individuals, formal groups or abstract principles that influence the work of specific people

Bayer and Holtzblatt – Contextual Design
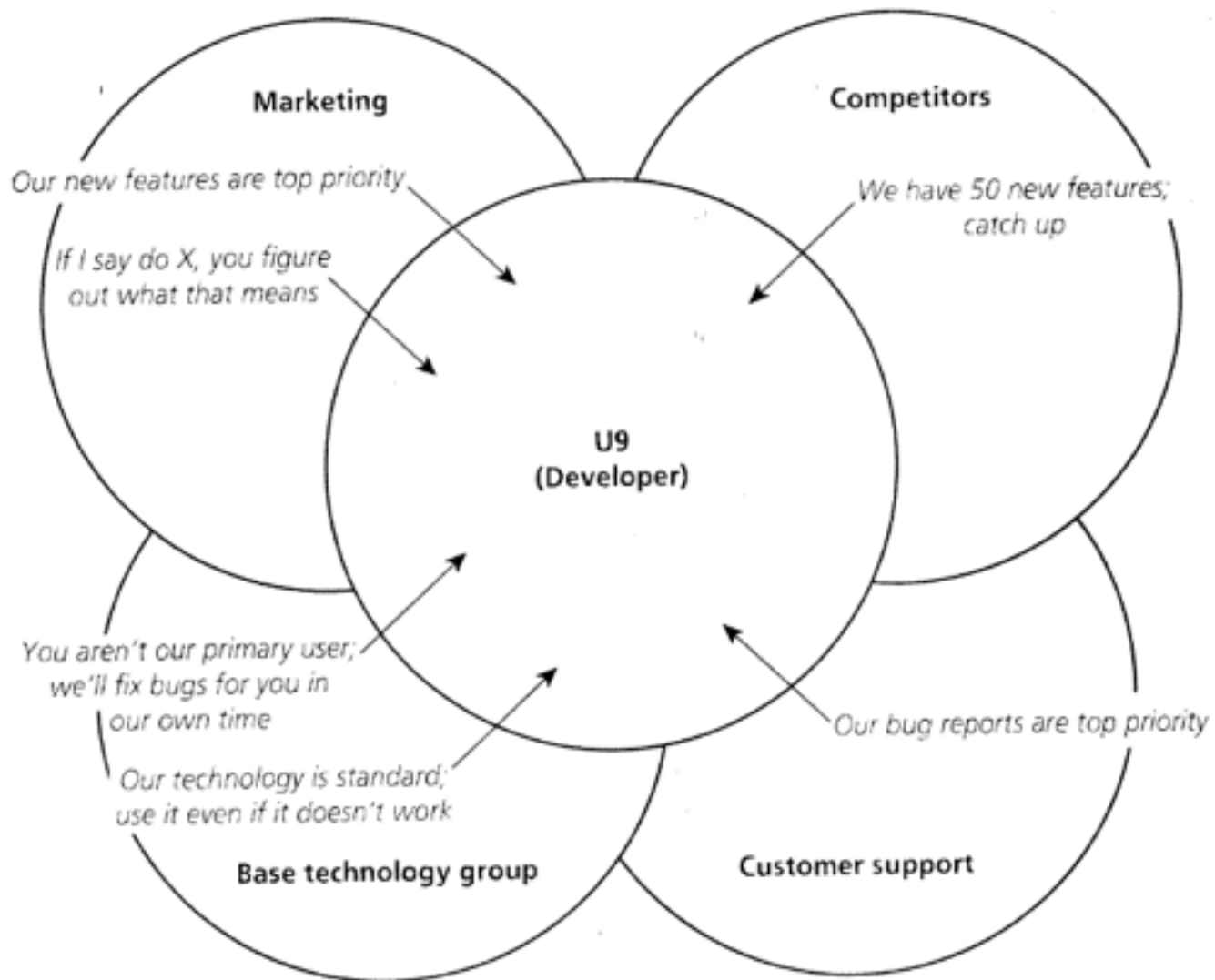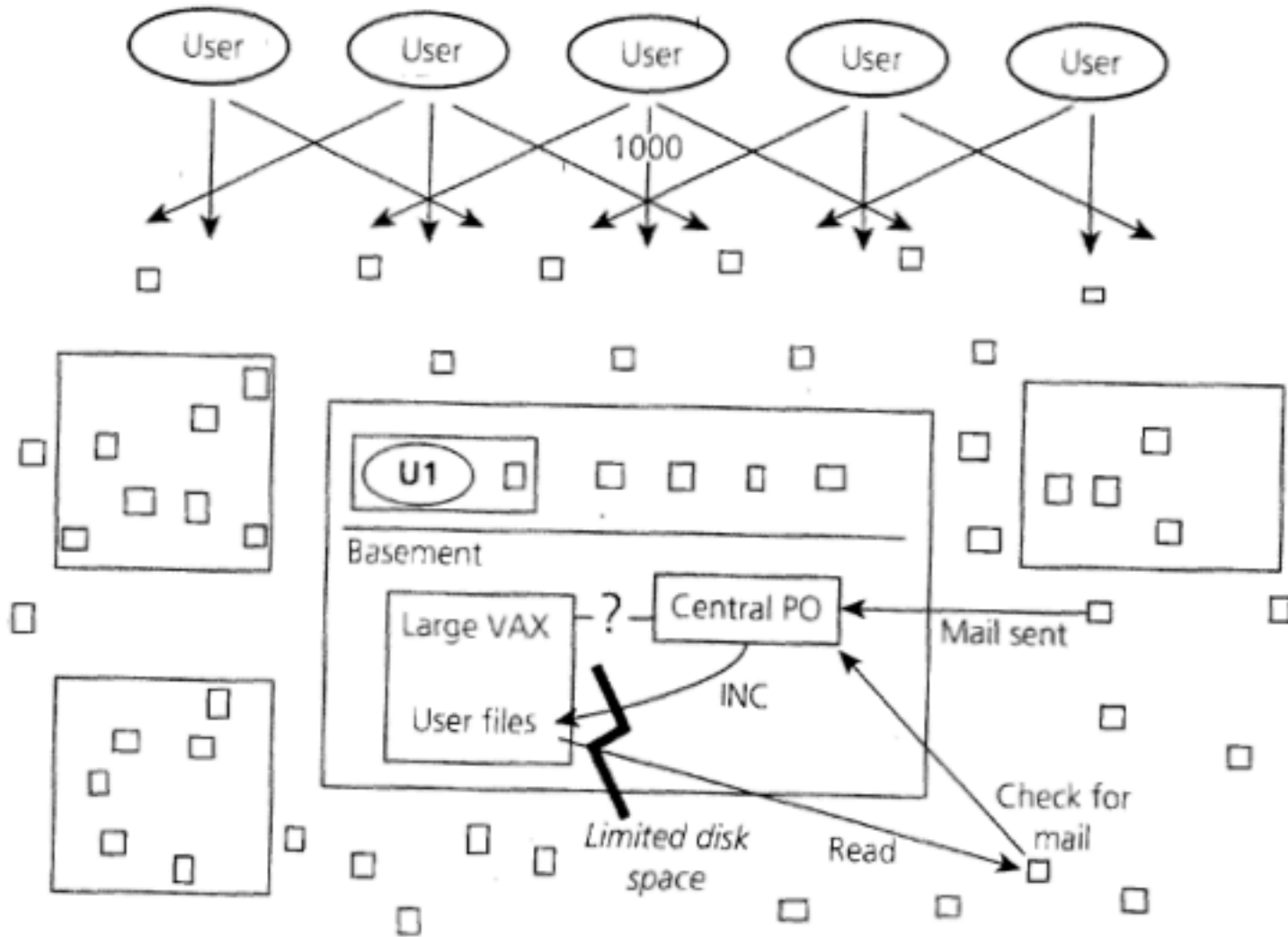
Documents the physical environment where work happens

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

Focuses on aspects relevant to the work / focus, and not on complete fidelity

ETHNOGRAPHIC METHODS

Ethnography is more then just a method; its a way of looking at the World

Subject - the holistic study of people, culture, societies, social relations, social processes, behavior in situ

Method - mostly participant-observation

Analysis and writing style - inductive analysis, use of 'thick description' and narrative, ''emic'' accounts

"THICK DESCRIPTION"

Try to describe the world holistically

Making you feel as if you were there

Not only observing actions, but the cultural symbols behind those actions

Avoidance of generalization - *"Another country heard from"* [Geertz]

Acknowledges observer's subjectivity

Observation Assignment

Conduct 4-8 Contextual Interviews

Make an Affinity Diagram

Generate Work Models

Supplement with additional methods

Propose personas, scenarios

Deadline is 10/3, including 5-min presentation

More details on course home page

For next Tues

Start planning / conducting your Contextual Inquiry

On Tuesday we will be doing a trial Contextual Inquiry activity in class

Mini-Field Trip!