Consolidation

During interpretation sessions we’ve built models from interview data:

– Models summarize raw data of *individual* interviews and observations

Now we need to:

1. Extract common themes *across* interviews, observations, and models
   – Done via an Affinity Diagram

2. Consolidate information across *all models*
   – Done via model consolidation
Consolidation

• Goal is to see whole picture of a group of users’ work: to develop a sense of a whole user community from a set of instances
  – To show how instances of patterns define the whole population
  – To create concrete representations of those patterns

We use inductive reasoning:
  – From the specific to the general

Benefits:
  – Opportunity for better design
  – Opportunity for niche applications
  – Think MS Office:
    • “There are millions of users and they all use the product differently. There is no one Office user.”
    • But the documentation tasks of computer users do have cohesion

• People want to be different
  – Often say “I don’t do things exactly the same as everyone else.”
  – BUT, they do frequently have common pattern and structure to work

• Consolidation lets you see this common pattern and structure
IMPORTANT

• **THIS** is where generalization begins to happen
• Up to this point, everything should be specific and concrete
  – Exactly what was done
  – Exactly what intent was

• **Now**
  – Understand overall patterns to work that generalize across users, and why those patterns exist
  – *Actions + intents*

• **Caveats**

• Intents are *not* based on rational arguments
Consider IT support staff:
  – What is their goal?
  – What do they do when someone’s computer is not working?
  – Why do they do that?
External Representations

External representations are used in consolidation
- Affinity diagrams
- Consolidated models

External representations serve three purposes
- Manage complexity of the data
  - Single digit versus six digit multiplication
- Externalizes the data so that it is collectively owned
  - Model focuses interaction around data
- Breaks the initial ethnographic process of seeing data “in the small”
  - Need to design systems that generalize across a user community

To accomplish this, start with affinity diagram to look for themes
- Then move to consolidations of specific models built
Affinity Diagram

• Organizes notes captured during interviews and interpretation sessions

• Goal is to combine all data in one place
  – Issues noted
  – Worries and comments of users
  – Key elements of work practice relevant to project focus
  – System requirements
    • Reliability, performance, hardware support

• Information is combined as a hierarchy
  – All data relevant to a theme is shown together

http://www.baran-systems.com/Products/Affinity%20Diagram%20for%20Excel/index_concept.htm
Building an Affinity Diagram: book, ch. 9

• Hold an *interpretation session as a group*
  – Revisit each interview, observation session
  – Review models already constructed
  – Create models not already built
• Recorded notes from interpretation session feed directly into affinity diagram
• Place notes on the wall, grouping them into clusters
  – The groups will emerge as you work with the notes
• Once groups have been formed, label each
• Labels should reflect the overall theme and state the primary issue
  – Should not restate/summarize what individual notes say
• Write issue, theme, idea as if user is talking to designer (*voice of the user*)
  – “We need to have records directly accessible and also sequentially organized”
  – “Finding the sample on a record can be difficult”
• Once first groups have been formed, label them
• Repeatedly group until a hierarchy of issues has been laid out
• Use colored post-its for the levels of the hierarchy:
  – Raw notes are yellow, first groupings use blue to summarize the raw data, second groupings of the blue notes are labeled using pink notes, and the third grouping (of the pink notes) uses green notes.
Pitfalls to AVOID

• Irrelevant tangents
  – Stressing over system design details for a design idea
• Anecdotes not grounded in collected data
  – “I once saw this guy...”
• Generalizing from assumptions or past experiences
  – “Most people do X...”
• Not looking deep enough at what user is really trying to accomplish
  – “Just needs to be able to click multiple file icons faster” vs. “Needs to be able to more easily specify criteria for what files to operate on”
• Censoring or filtering ideas prematurely
  – Write down any and all identified issues, themes, questions, design ideas on a Post-It note
  – It takes more effort to debate whether it should be written down than to write it down and move on
Walking the Affinity

• Once the affinity has been built, you can “walk it”
• Walking it simply means you should be able to read it as if it were a narrative

This will be very important as you begin to brainstorm design ideas, and also to test design ideas against the data.
Approaching Consolidation

- Goal is to collect data points that are similar across interviewees and build them into groups
  - Having more than one subject will always create applications that are more general
- Interviewees intent for each sequence and artifact is most critical to draw from consolidated models
  - As long as your new design supports the intent, it will be useful for your subjects
- Note that individual strategies will have commonalities and differences
  - Consolidated models allow you to highlight common intents behind strategies, and to build common strategies into anything you design
- Consolidation is very difficult when number of subjects gets large and heterogeneous
- You can often short circuit the entire process
  - Review models that have been created
    - Typically start with flow models, then sequence, and use artifact, physical, and cultural models to augment sequences
  - Look for common breakdowns across your interviewees
    - Use your affinity diagrams, and add post-its using additional details
    - If you feel you don’t know enough, expand your observations
  - Select two or three that you think might be worthy of intervention and create consolidated models around these
Consolidating Flow Models

• Instead of ‘U2’, label the user with their ROLE. Label other people/organizations in the flows with their roles too.

• While roles are preserved, mapping to individuals is much more idiosyncratic
  Example: Real estate agents
  – In an office, an admin might serve as call screener and greeting walk-ins
  – In a home office, call display and call waiting might serve as call screener, and agent might handle walk-ins

• Don’t worry about including all responsibilities of a particular user
  – Think of it like a job advertisement
  – You want to combine similar roles across individuals and separate different roles that one individual may serve

• After roles, add artifacts and communications
  – Represent interaction between roles

• Artifacts may need to have a general term assigned
  – e.g. calendaring tool
  – Electronic file storage
Consolidating Sequence Models

• Many instances of users trying to accomplish the same task
• People typically only use a few strategies to perform a task
• Consolidation process:
  – Consolidate triggers for tasks with similar intents
    • Abstract the trigger
  – Describe steps in general terms that abstract the specifics
    • Intents can help with this
• Often not necessary to consolidate everything
  – Consolidate those sequences that represent a good design opportunity in your area
Consolidating Artifact Models

• Artifacts are very unique to different users
• Consolidated artifact is a ‘typical’ artifact that incorporates details of the original set of artifacts
• Process
  – Group artifacts that have same intent or usage in work
  – Identify common parts of different artifacts
  – Identify structure, intent, usage of each part
  – Note breakdowns
    • Especially when structure violated
  – Build a ‘typical artifact’ showing all parts with usages, intents, and any breakdowns
Consolidating Physical Models

• Aspects of work space repeat
  – Think real estate agents, restaurant owners, school teachers
  – Office has common structure
  – Try to show this common structure across users

• Steps to create:
  – Group physical models by type of place
  – Walk each model and identify places
  – Identify common logical structure
    • e.g. phone is always near computer in CS prof offices
  – Look at movement on each of the models and show movement within space
    • Document any insights about work

• Fairly easy with only two or three subjects
Consolidating Cultural Models

• Although cultural model is a depiction of a specific subject’s cultural perceptions, there are common characteristics across subjects
  – For example: Are managers highly mobile?, Are salespeople closely monitored?, Is the industry closely regulated?

• First find all influencers from individual models

• Group influencers who constrain work in same way
  – Could even be same group

• Look at influences from individual models and group by pairs they go between

• Eliminate any duplicate or similar influences

• Copy over any breakdowns