Grounded Theory analysis

Once you have gathered information about users, via interviews, observations, questionnaires and other methods, you need to make sense of it. One of the most popular techniques was introduced by Strauss and Corbin (1998: Basics of Qualitative Research Techniques and Procedures for Developing Grounded Theory) who offer a systematic way to analyze qualitative data. They introduced the concept of *Grounded Theory* which is "a non-mathematical process of interpretation, carried out for the purpose of discovering concepts and relationships in raw data and then organizing these into a theoretical explanatory scheme". Note that Grounded Theory does not refer to a theory, per se, but rather a set of techniques designed to help social scientists develop new theories, grounded in their real-world observations.

Designers use the basic technique, but for a different purpose. Instead of trying to theorize about human behavior, the goal is to identify opportunities to design. This is a problem-finding process: it is important to keep open to different perspectives and avoid designing for stereotypes and misunderstandings about the user.

Because the goals are different, some of the emphases are different as well. Designers generally do not need to design multiple levels of codes and categories. Instead, the trick is to work with the examples you have uncovered in your studies of users and identify a key design concept that will drive your design process.

The basic process consists of identifying and coding the categories of behavior found in interviews and observations. This is an iterative process: you start with what they call an 'open spirit' and pick out examples that form natural categories. Next, write a two-three word description of the example on a slip of paper, post-it note or on a whiteboard. Then, go through the examples systematically, looking for natural categories. Find other examples that illustrate the same category. Give each category a descriptive name and a one-word code.

This is a subjective process: different groups will extract different categories from the same set of interviews. Look especially for ‘interaction points’: the situations in which users either come in contact with a technology or are in a situation in which a new technology would be beneficial. Figure out how to categorize surprises, user innovations, breakdowns and things that work well.

On separate sheets of paper, or on a very large sheet, write the code for each category and place relevant examples underneath. Read through and determine if higher-level or lower-level categories are more appropriate.

At the end of the process, you should have a bottom-up synthesis of the the behavior you observed, rich in specific details that will help you design. Remember: you can always abstract from detail, but you cannot find details from abstractions. Both are important: but start with the details.
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Roles: Appoint a moderator, to keep the discussion on topic and a scribe to capture the main categories and the list of surprises. Everyone should participate in the discussion and help to define the categories and their codes.

Preparation: Each designer should bring printed notes from their interviews, organized into individual incidents. (This makes it easy to cut them up and rearrange them.) Include copies of observations from your design notebooks and any other specific incidents you have gathered from other sources, such as documentaries or anecdotes from the research literature. You may also use photographs and short clips from video interviews and observations.

Procedure: Set aside an large area where you can move around either slips of paper on a table or post-it notes on a whiteboard or flipchart.

1. Read your interviews and notes from your observations of users. Highlight interaction points that illustrate the user’s particular activities in specific contexts. Include incidents in which the user either interacted with a technology or else would have benefited from one. Look for short stories. Avoid generalizations that omit detail. Instead of: *The user moved the text box.* Try: *The user clicked several times on the text box with the mouse, as she tried to shift into ‘move’ mode. After missing several times, she managed to display the small cross-shaped cursor and slowly dragged the text box to the left, lining it up by eye to another set of text boxes.*

2. Capture as much relevant detail as you can. Look for problems, breakdowns, and situations in which things went wrong. Also look for positive examples, when things worked well or someone came up with a clever solution to a problem. Distinguish between typical and unusual situations and highlight anything you think might be an opportunity for design.

3. Write a one-sentence reminder of each ‘interaction point’ on a separate slip of paper or post-it note. You may also cut up your notes, but make sure you have room to write a quick summary in the margin.

4. Reflect upon the incidents that most surprised you: these offer the most promising opportunities for design. List the surprises on a separate sheet of paper and try to say why it surprised you.

5. Organize the incidents into groups. You may end up with overlapping groups or categories at different levels of abstraction. This is fine for now; this is an iterative process and you can change categories if you like. Look for a good balance between codes and incidents.

6. Once you have placed all the items in groups, come up with a phrase that describes it. Next, give it a one-word code. For example: *Alignment: problems aligning graphical objects.* or *Empty moments: Activities when one partner is especially aware of missing the other.*

7. Mark the codes on your written interviews, to help you find them again. (Color coding helps!)
**Resource:** The final design resource is an organized set of examples of real-world user activities that either require design or illustrate a good example of design. Continue gathering new examples and either add them to existing categories or create new ones. This design resource will help you create a user profile, use and design scenarios and video prototypes.

If you can, review the categories with the users. This works especially well if you have photographs or video clips: organize them into a short presentation, with a title card for each category followed by 3-5 examples. Get their feedback, identify errors and misunderstandings and collect additional incidents.
Exercise: Interview analysis

Individual exercise

Reflect upon your interviews and observations: what surprised you? (Do this as soon after your interview or observation as possible: surprises quickly become familiar and easy to forget.)

Describe at least one surprising finding from your interview:

Group exercise: Go through the interviews and identify all of the ‘interaction points’ at which the person either interacts with technology or would benefit from interacting with a new technology. Collect as many as you can, drawing from all the interviews from all the members of your group.

List them, using a brief 1-3 word code, followed by a description, and a concrete, real example.