

Michael Stallings

Research Methods Notebook

Interviews	2
Ethnography	4
Contextual Inquiry	6
Diary Studies	8
Elito	10
Affinity Diagrams	12
Artifact Analysis	14
Cultural Probes	16
Artifact Analysis	18
Visual Ethnography	20

Interviews

Qualitative
Can be used throughout the design process.

What It Is



Interviewing is a flexible research method that allows the designer to gather information fairly quickly. Interviews can be loose, semi-structured, or structures. In all cases though, the interviewer should go into the interview with goals and at least a general framework.

“Interviews are a fundamental research method for direct contact with participants, to collect firsthand personal accounts of experience, opinions, attitudes, and perceptions.”

Martin, B. & Hanington, B; Universal Methods of Design. Rockport Press, Beverly, MA. 2012

How It's Done

There are many types of interviews. An important component of each is field notes. During the interview you should audio or video record and jot down notes with time stamps of relevant/important moments. After the interview, immediately sit down and convert jottings into full-blown field notes.

Data Logging

- Log your data promptly.
- The more you prepare ahead of time, the better.
- The most important thing you do may be pilot testing.
- Write down what you actually see, not your interpretations.
- The physical state of the environment should be described as if you were looking through a camera.

Interviewing

- Obtain narrative in person's own terms.
- Pay attention to what is being mentioned and to things not being mentioned that you think are important.
- Include emphasis and word choice.
- You can ask for elaboration to verify that you've interpreted things correctly.

Exploratory Interviews

- Used to expend knowledge of an area in which little is known.
- Can be deceptive, because they are very loose and open ended.
- Still go in with a focus and an idea of what you are trying to learn. Don't waste your participants' time.

Probes

- To guide, ask for clarification, explanation, differences, examples, etc.
- Ask users to define or list things to obtain info (e.g. "What kind of activities do you do during a vacation?")
- Ask for narratives of experience.
- Establish connection/ rapport at beginning of interview.

Interviews

Qualitative
Can be used throughout the design process.

Use Case

Project Description

Wonder Album is a CHI-accepted project that helps bridge the gap between domestic and international students and promote cultural exchange.

Use of Method

We conducted both expert interviews and user interviews at multiple points throughout the project.

Strengths

We were able to consider specific concerns brought up during the interviews. Many of these concerns would most likely have gone addressed without this primary research.

Limitations

As relatively unpracticed interviewers, we only had limited success in uncovering design insights and in translating these to design decisions.

Project Description

I conducted a user study to understand the notion of comfort, in particular, practiced asking open-ended questions and using personal narratives as a foundation for design insights.

Use of Method

I approached subjects in the Informatics lobby asking for participation. The three interviews I conducted were recorded and synthesized afterwards for insights.

Strengths

The personal narrative provided a level of depth I'd not seen before in traditional interviews.

Limitations

The questions or prompts asked will influence the response. Interviews rely on recall.

Ethnography

Qualitative
Typically an exploratory method.

What It Is



Design ethnography is observational research method in which the researcher immerses him/herself in the subjects' environment. Field notes, photographs, and digital recordings, help the researcher produce a "thick record" of the observation.

"Design ethnography approximates the immersion methods of traditional ethnography, to deeply experience and understand the user's world for design empathy and insight."

Martin, B. & Hanington, B; Universal Methods of Design. Rockport Press, Beverly, MA. 2012

How It's Done

During an ethnography the researcher embeds him/herself in the subject's environment. This allows the researcher to build trust, leading to more information. Ethnographies are descriptive, not prescriptive.

Before the Ethnography

- Do your homework. This must be done even though you'll have little-to-no control over the situation once you're there.

Compared to Interviews

- Interviews are in-and-out, while ethnographies involve a more sustained relationship.
- In interviews there is a lot of reconstruction of the past. Ethnographies let you see the action first-hand.

Reflexivity

- Reflexivity is the notion that you constantly evaluate and negotiate your bias when considering what you observe.

Challenges

- There is a large time investment.
- The researcher must be careful not to bring harm or discomfort to the group being studied.
- Follow IRB guidelines if you discover laws are being broken.

Ethnography

Qualitative
Typically an exploratory method.

Use Case

Project Description

I coordinated with a partner to conduct ethnographic research on "clutter and/or hoarding in the home."

Use of Method

My partner and I conducted this ethnography on a elementary school classroom. We arrived early, sketched out the room and its contents, took field notes and pictures, and conducted a follow-up interview.

Strengths

We were able to see the subjects and their actions in context with minimal influence from our presence. The combination of field notes and field photos helped us reflect on the experience as we created interview questions found design insights.

Limitations

While our influence was minimal, it was still there to some degree. In our relatively brief time there, we were viewed as a novelty. Did this influence the subjects' behavior? Maybe.

Contextual Inquiry

Qualitative
Typically an exploratory method.

What It Is



Contextual inquiry brings the researcher into the subjects environment and creates a master/apprentice relationship. This method is about culture and gives a snapshot of how people live/work during at a particular time/place.

"Contextual inquiry is an immersive, contextual method of observing and interviewing that reveals underlying (and invisible) work structure."

Martin, B. & Hanington, B; Universal Methods of Design. Rockport Press, Beverly, MA. 2012

How It's Done

Contextual inquiries are shorter than ethnographies, lasting between 30 minutes and 2 hours. They are very focused.

Researcher's Role

- Act as an apprentice.
- Try not to destroy or interrupt the flow, but do ask questions.
- Your questions are dictated by what you observe.

Where & When?

- Contextual inquiry **must** happen in context, not off-site.
- Contextual inquiry is done early in the design process as an exploratory method.

Why?

- Contextual Inquiry is about culture and how people live/work.
- Compared with ethnography, you can walk away with something concrete (design implications).

Who?

- Subject is an expert user.
- Find a person who is doing the activity you're studying then and there, not someone who does not really practice this now.
- Ideally you would observe 15-20 subjects. Realistically, 4-6. The number of participants is based on your question: The more focused, the fewer observants needed.

Contextual Inquiry

Qualitative
Typically an exploratory method.

Use Case

Project Description

With a partner, I investigated the ways in which non-designers engage in design in their everyday lives, often simply by using and adapting objects, surfaces, and routines to suit their needs.

Use of Method

We conducted this contextual inquiry on a dorm resident in her tiny one-person dorm room. We took field notes, photographs, and audio recording. My partner and I met immediately after our field work to go over the fresh data, look for connections, and jot down reflections and insights.

Strengths

The master-apprentice relationship allows the researcher role to make sense. We are not just observing, but engaging with our subjects. The subject is in the role of teacher and the researcher then naturally assumes the role of a student who asks lots of questions.

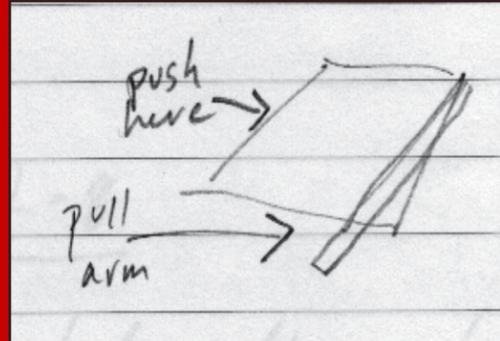
Limitations

The subject may change his/her behavior or try to present their actions in the best light possible knowing that the researcher is taking notes and asking questions.

Diary Studies

Qualitative
Typically an exploratory method.

What It Is



Diary studies allow the research a look inside their subjects thought process. Depending on the level of subject engagement, the researcher can gain design insights from subject observations, sketches, and reflections. A follow-up interview is necessary to check assumptions and follow-up on entry information and themes.

“Diaries or journals are guiding artifacts that allow people to conveniently and expressively convey personal details about their daily life and events to design teams.”

Martin, B. & Hanington, B; Universal Methods of Design. Rockport Press, Beverly, MA. 2012

How It's Done

There are two main categories of diary studies: *feedback* and *elicitation*. They typically last between one and two weeks in the hci field. It is important to send reminders and never pay people based on number of entries. This will weaken their responses.

Feedback Diary

Experience Sampling Method (ESM)

- Subjects fill out several brief questionnaires every day by responding to alerts; no recall required.
- Objective: Capture individual's representation of experience as it occurs, within the context of everyday life.
- 5-10 participants
- Pilot testing **important**.

Designing the ESM Form

- Date/Time: whether people feel differently at night then they do during the morning.
- Location: “As you were beeped, where were you?”
- A person's activity.
- More reflective than survey (surveys are more factual).
- There is a burnout factor. People get tired of them.

Elicitation Diaries

How it is done

- Purchase paper diary
- Ask subject to write notes, draw sketches, and reflect on a given subject.
- Collect diary after 1-2 weeks and use information to form interview questions.
- Interview subject.

Details

- More broad and more reflective than ESM.
- Follow-up with an interview.
- Probe with questions after looking at diary.
- Should you go over the diary with the subject? It depends. Going over it co-creates knowledge. Not doing so gives more direction. Both are viable.

Diary Studies

Qualitative
Typically an exploratory method.

Use Case

Project Description

I used the diary studies method, along with a follow-up interview, to practice seeing the world from the target user's point of view, with the goal of understanding how mundane technologies support her/his daily routines.

Use of Method

The subject of my Diary Study was a new elementary school teacher in her early 40s. I gave her a journal with instructions and contact info written in the front page. She made entries over the course of 4 days, then returned the journal to me. I analyzed her text and sketches, formulated questions, and conducted a follow-up interview. I used the data gathered to identify design insights.

Strengths

Subjects write in their own words and will often follow unanticipated trains-of-thought that can yield valuable data.

Limitations

The subjects, even when prompted and reminded by the researcher, will occasionally not produce detailed responses. The entries also rely upon recall.

What It Is

Observations	Judgment	Value	Concept/Sketch	Key metaphor
lots of books everywhere	product of state's focus on reading as a skill, extra importance from Mrs. Peck	celebration of reading	An augmented Reality app for in-class iPads. Uses built-in camera to read books' spines and create a dynamic information overlay. Can be used by teacher to mark specific books.	Navigate through an otherwise overwhelming class library.
lots of decoration	helps build a distinct classroom environment	a space that is inviting, comfortable, and personal	Networked and interactive classroom displays. Can be used to lead a student through the room in different ways; teaching topics could include architecture, outside window views, and information about class pets.	Leveraging physical space for free form education
flexible room layout	easily adaptable to various activities	personal flexibility, comfortable with inquiry	LED grid stretched into classroom rug. A teacher could program different room layouts into the LED	Swiss army knife space, leverage every surface for education/organization assistance

Elito is a method that can help organize and put to use the data you gather in the field. It quickly creates boundary objects for the team members and leaves a record of the ideation process.

"The Elito method is used to develop solid design arguments grounded in research observations and anchored to business directives."

Martin, B. & Hanington, B; Universal Methods of Design. Rockport Press, Beverly, MA. 2012

How It's Done

The Elito method occurs after field work and allows researchers to look at data in abstract ways. The researchers complete lines of information for each observation. These lines are then separated out and organized into logical groups. Further concepting then commences. The five Elito entries are:

Observations	Judgment	Value	Concept/Sketch	Key Metaphor
"What did you see, read, or hear?"	"What is your opinion about the observation?"	"What values are ultimately at work?"	"What can the design team do to solve this problem?"	"What is the hook for this story?"
Example: physical center of room also activity center	Example: strange room layout, reality of trying to keep 26 kids focused	Example: creates a more engaged classroom community	Example: Active lighting that can be controlled dynamically from a smartphone or tablet device. Allow for on-the-fly adjustment.	Example: less visual distraction from room decorations

Use Case

Project Description
I worked Ethnography project partner (see pages 4-5) to practice using the Elito method to analyze and synthesize the ethnographic data collected for the cluttering and hoarding problem space.

Use of Method
My partner and I used the field data gathered during our elementary school ethnography as the observations in our Elito spreadsheet. The other columns were filled out collaboratively. We then chose a few promising lines to sketch out as concepts.

Strengths
Elito helps you quickly go from data to concept. It organizes your observations and creates boundary objects for design discussions.

Limitations
It can be a somewhat tedious process and the designers run the risk of looking at the problem at too granular a level.

Affinity Diagrams

Qualitative
Typically an generative method.

What It Is



Affinity diagramming is a method for organizing, synthesizing, and uncovering insights from field data as a team or individually. It involves seeing the forest through the trees and a whole lot of Post-It notes.

"Affinity diagramming is a process used to externalize and meaningfully cluster observations and insights from research, keeping design teams grounded in data as they design."

Martin, B. & Hanington, B; *Universal Methods of Design*. Rockport Press, Beverly, MA. 2012

How It's Done

Affinity Diagramming begins with researchers recording as many field observations and insights as possible on yellow Post-It notes. This step is done individually and should leave the team with a large stack of Post-It notes. These are then organized on a wall by theme. Other colors of Post-It notes form the hierarchy of Affinity Diagramming. The resulting structure is recorded electronically via Excel.



"Green notes describe an overarching area of concern within the work practice."

Martin, B. & Hanington, B; *Universal Methods of Design*. Rockport Press, Beverly, MA. 2012

"Pink notes describe specific issues within an area of concern."

"Blue notes describe aspects of an issue revealed by clusters of yellow notes."

"Yellow notes represent a single observation, insight, concern, or requirement firmly rooted in the research data."

Affinity Diagrams

Qualitative
Typically an generative method.

Use Case

Project Description

I worked my Contextual Inquiry project partner (see pages 6-7) to practice using the Affinity Diagramming method to analyze and synthesize the contextual inquiry data collected for the "everyday design" problem space.

Use of Method

My partner and I used the field data gathered during our dorm contextual inquiry to individually generate our first round of yellow observational post-it notes. We then collaboratively organized these into a hierarchical structure as described by Affinity Diagramming protocols. This data system was then transferred to an Excel spreadsheet. We used the insights gathered to generate early design concepts.

Strengths

Affinity Diagramming is an excellent tool for sorting through and making sense of massive amounts of observational data. It can quickly get a team on the same page and can be used at many points throughout the design process.

Limitations

Affinity Diagramming cannot be over-relied on. It is good for giving direction, but it is still up to the designers to make decisions.

Project Description

Wonder Album is a CHI-accepted project that helps bridge the gap between domestic and international students and promote cultural exchange.

Use of Method

We used Affinity Diagramming early on in the design process to help identify our problem space. We then used it later in the process as part of our redesign iteration.

Strengths

It helped us identify an increasingly narrow problem space early on in the process.

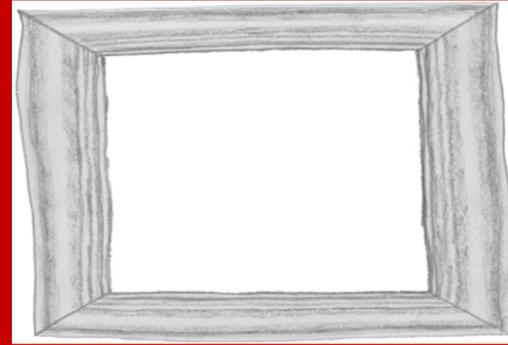
Limitations

It may have narrowed down our problem space too quickly. We had to take a step back after Affinity Diagramming to make sure the outcome was a viable direction.

Artifact Analysis

Qualitative
Typically an exploratory method.

What It Is



Artifact Analysis helps researchers see everyday objects in a new light, both in terms of their use and their history/makeup. Design insights are drawn from the defamiliarization brought about by this method.

"A systematic examination of the material, aesthetic, and interactive qualities of objects contributes to an understanding of their physical, social, and cultural contexts."

Martin, B. & Hanington, B; Universal Methods of Design. Rockport Press, Beverly, MA. 2012

How It's Done

Why should designers care about things? Artifacts are physical and material things we encounter and use. They are observable evidence of our behavior, reflect who we are, and shape our identities. Objects come to stand for people and relationships. There are many strategies for studying everyday artifacts. Museum Studies is a method in which the artifact is considered using five lenses.

Material

This dimension explores the nature of materials that go into artifacts: natural, human-made, etc., as well as the extent to which a given designer regularly uses those materials.

Construction

This dimension gets at the relationship between processes of construction and its appearance, including whether traces of construction processes are visible in the final design, the role of ornament, whether a design construction process reveals a designer's personal style, and whether designers place any distinguishing marks on the artifacts.

Function

This dimension considers the relationship between what an artifact does or used for and ways that its function reveals the intentions or other aspects of its maker.

Provenance

This dimension examines the history of the artifact, from where it was made to where and how it ended up being used.

Value

This dimension takes into account the various nuances of the word "value": it includes the value placed on the artifact by its creator, its value in society, and the social and cultural values that are inscribed within it.

Elliot, 1994; Pearce, 1994

Artifact Analysis

Qualitative
Typically an exploratory method.

Use Case

Project Description

I used Artifact Analysis to practice seeing objects in the environment and appreciate their identity, originality, and remarkableness beyond their seemingly ordinariness. I also practiced using some of the analytical strategies to understand artifacts.

Use of Method

I chose to focus my artifact analysis on a picture frame. I used the five lenses described on page 14 to analyze the frame, describing each analysis in detail. This provided a sense of defamiliarization that I then used to describe alternate uses for the object.

Strengths

This flavor of artifact analysis allows designers to look beyond the surface of objects they may otherwise take for granted. New and novel uses and design insights can be gained here.

Limitations

It could be easy to follow some ideas down the rabbit hole here. Designers should be careful not to re-purpose just for the sake of re-purposing.

Cultural Probes

Qualitative
Typically an exploratory method.

What It Is



Cultural Probes is a research method for gathering design insights and potential design directions. The rules are loose here, and that is intentional. Subjects are asked to perform a wide variety of tasks that, on the surface, may not seem relevant. This untraditional approach, combined with the follow-up interview, can lead to unexpected insights.

"Cultural probes are provocative instruments given to participants to inspire new forms of self-understanding and communication about their lives, environments, thoughts, and interactions."

Martin, B. & Hanington, B; Universal Methods of Design. Rockport Press, Beverly, MA. 2012

How It's Done

Cultural Probes (CP) use artifacts and questions to elicit opinions and feelings about a problem space. It is not a rigidly structured method. CP produces knowledge about how the subjects feel. The subjects produce the knowledge based on the probes. The researcher always meets with the subject to introduce CP, then the subject completes & returns the material afterwards. A follow-up interview is then conducted.

What goes into the probe?

- It depends on your problem space. Do your homework and know the space.
- Think about your population. This can inform your decision about how provocative your objects are.
- Know your objective.
- Know when in the process to use this. It will determine the nature of the probe.

What methods pair with CP?

- It depends on your objective: qualitative or quantitative? This also helps determine the nature of the follow-up interview.

How do you analyze the results?

- Read, read, read. Know the responses and interview transcript well.
- Affinity Diagramming, Elito, or other such methods can help interpret the data.

Cultural Probes

Qualitative
Typically an exploratory method.

Use Case

Project Description

The goal of this project is to understand how people cope with grief and how they remember and relate to people (or pets), relationships, and objects they have lost. My team designed a cultural probe packet, and sent it to our target user group (mothers returning to work for the first time after childbirth) to learn about human experience of loss and grief.

Use of Method

My team identified our target group and then created our cultural probe with new mothers returning to work in mind. We designed two types of deliverable for our subject, one written and one photographic. During the cultural probe we contacted the subject to ensure she was completing the tasks. After receiving the completed cultural probes from our subject we developed interview questions and conducted a follow-up interview.

Strengths

Because of its very loose nature, this method can produce unexpected results and design insights.

Limitations

Subjects can feel lost with this untraditional method. Researchers should ensure a level of understanding before passing along the materials to the subject.

Artifact Analysis

Qualitative
Typically an exploratory method.

What It Is



Artifact Analysis is an exploratory method that allows a glimpse into the mindset, personality, and decision-making of a subject.

"A systematic examination of the material, aesthetic, and interactive qualities of objects contributes to an understanding of their physical, social, and cultural contents."

Martin, B. & Hanington, B; Universal Methods of Design. Rockport Press, Beverly, MA. 2012

How It's Done

There are a variety of strategies for the study of everyday artifacts. These include:

Material Ecology **Material Culture** **Museum Studies**

Emphasis is placed on the extent to which an artifact participates in a system of artifacts and the possible interaction among artifacts

Three kinds of interactions

- Cooperative
- Competitive
- Independent

- The emphasis is placed on the role of artifacts in human meaning and activity

- Artifacts are important less in their objective existence than how they are meaningful to us

- Material: Natural vs. human-made; the extent to which a given designer regularly uses those materials

- Construction: the relationship between processes of construction and its appearance; the role of ornament; whether a construction process reveals a designer's personal style; whether designers place any distinguishing marks on the artifacts

- Function: the relationship between what an artifact does or used for and ways that its function reveals the intentions or other aspects of its maker

- Provenance: the history of the artifact, from where it was made to where and how it ended up being used

- Value: the value placed on the artifact by its creator, its value in society, and the social and cultural values that are inscribed within it

Shaowen Bardzell, 1543 Lecture Slides

Artifact Analysis

Qualitative
Typically an exploratory method.

Use Case

Project Description

Bring to bear both genealogical and landscape sensibilities to our understanding of personal possessions and how they forge meanings.

Use of Method

My teammates, Tiffany Jen and Tian Xia, and I first identified a target group, new mothers returning to work, then assembled a collection of items we hoped would be provocative and insight-generating. We met with the subject, explaining the CP, and sent reminders to her during her time with the CP. We then met as a team to analyze the responses after our subject returned the CP.

Strengths

The cultural probe takes an unconventional approach that can result in unanticipated design insights. Even if the type of result is not what the researcher expected, a greater understanding of the target group can be gained.

Limitations

Cultural Probe is a very open-ended method. It should always be used in triangulation with other exploratory research methods.

Image-Based Research

Qualitative
Typically an exploratory method.

What It Is



Image-Based Research harness the power of the visual to provide information individuals and groups. The type of image and specific application of the method can vary and should be based on researcher goals and the subject population.

Image-based research is centered around photographs, videos, cartoons, maps, etc. Conducted individually, it allows the researcher to better understand a subject. Collectively, a researcher can better understand a culture or community.

Shaowen Bardzell, Lecture 3.24.2013

How It's Done

Given that this is image-based, context is very important. The framing of the photograph is based on the researcher's understanding of the population. Do your homework and come in with a plan. Your population will help determine how you take the picture. Three general types of image-based research include:

Visual Ethnography

- Use pictures to understand a population.
- Realize that you cannot document everything.
- Station yourself with informant where you can see everything. This will be your frame. Work closely with the informant to determine this location.
- Take hundreds of pictures and then arrange them afterwards based on time/space/activities/actors/etc.

Photo Elicitation

- Use photos to conduct interview and generate conversation.
- Example: Picture Cards

Documentary Photography

- Take tons of pictures. Use these to help understand your problem space. This can be done by researcher or subject.
- Example: Camera Journal

Image-Based Research

Qualitative
Typically an exploratory method.

Use Case

Project Description

Practice observing and recording the mundane and idiosyncratic features of everyday life through photographic technique and learn how to interpret the visual data for design interventions. The objective is to use photography as a lens to understand a target population, focusing on the context in which images are produced.

Use of Method

My partner, Tiffany Jen, and I conducted 5 separate video ethnographies of workers around Bloomington. We took many pictures and conducted interviews at each site, and let these influence the potential design directions we documented afterwards.

Strengths

The many images produced during video ethnographies all a level of reflection and "revisiting" a site that can be hard to achieve with text or audio only.

Limitations

Some details of a conversation can be missed when focusing on taking so many pictures.