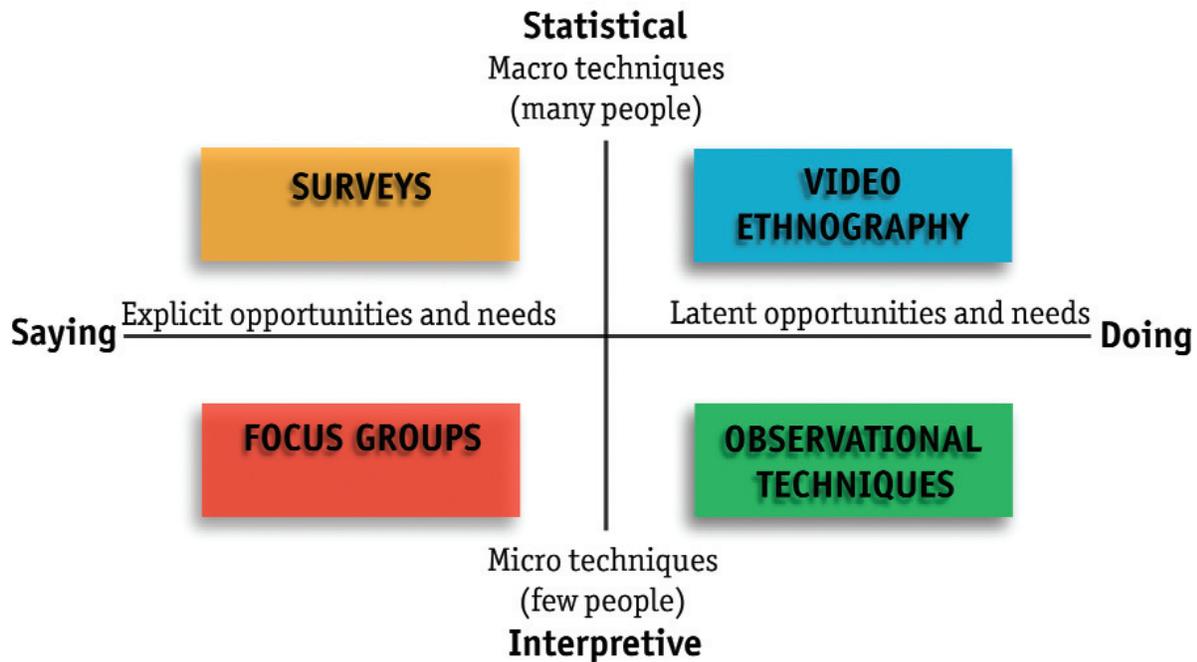


Bill Moggridge, "People."
From his book "Designing Interactions," 2007.
p. 664-681



The diagram lays out different kinds of research methods, showing a horizontal scale that characterizes design opportunities and user needs, from explicit (left) to latent (right). The vertical scale indicates the difference in techniques from macro (top) to micro (bottom). Traditionally, market research was developed to find out what people want by asking them directly through large-scale surveys or more in-depth focus groups; these methods work very well to find out what people say they want.

If your goal is innovative design, your product or service has not even been thought of, so by definition it cannot be explained to research participants. This is where methods are needed to discover latent needs and desires that will help the members of the design team define potential opportunities. The examples on the diagram are video ethnography techniques on the macro scale, where stop frame video is set up to watch a space or task to reveal patterns of use. On the micro scale, the example is observational techniques, where members of the design team go to wherever the design context exists to see what people really do, as opposed to what they say they do.

People

It is essential to the success of interaction design that designers find a way to understand the perceptions, circumstances, habits, needs, and desires of the ultimate users.

Jane Fulton Suri, 2005

Latent Needs and Desires

IN THE MID EIGHTIES I was struggling to come to grips with what interaction design could and should be and how we could learn to bring our expertise in subjective and qualitative values to the realm of electronics. My first principle in design is to think first about the people part of the design: Who are the users? What do they want from the experience? What will give them satisfaction and enjoyment? In the seventies I had developed a tradition of going to look at what really happens in the context of each design problem. When I or one of the other designers in my practice was designing a marine radio for fishing boats, we went out on the boats to see how they used existing marine radios and talked to them about what was important for them. When we were designing a device used in hip surgery, we put on the green gowns and masks, went into the actual surgery, and watched what happened to try to think of ways that a new design could improve the situation.

“Observation” was the label we used for the best way to learn about people in the context of a particular design problem, implying that you needed to look at what people really do in a situation, rather than rely on the conventional technique of asking them about what they think and do. When you are trying to

understand the latent needs and desires of potential users before a design is created, it is important to learn about their existing habits and context of use—things they are rarely able to tell you about explicitly. You will gather clearer and more vivid knowledge of these by experiencing them firsthand.

Over the years, the human factors people at IDEO have evolved many new techniques beyond the simple observations that we started with, and now we have amassed a set of fifty-one methods, published as a deck of cards.

51 Ways of Learning about People

I GOT TO KNOW Jane Fulton Suri¹² in 1986 when she came to San Francisco to study for a year at UC Berkeley. This was a sabbatical for her, after a decade of human factors research and consulting in Britain, where she worked with a group that specialized in consumer product safety. She was interested in being more actively involved in design:

■ Jane Fulton Suri

Photo
Skylar Reeves

I'm always too late! I want to do some good in the world, but I'm only getting to influence bad designs after the damage is already done. For example, I've learned a lot about a lot of people who have had toes cut off by rotary lawn mowers. I would much rather have been working with the people who designed the mower, so I could have helped to make it safer in the first place, and saved the toes.

I thought this was a chance to integrate human factors expertise into my specialist team of designers, so I asked Jane if she would be willing to join the group in San Francisco when her course of study was complete. She accepted and started to work with the designers. At first they simply asked for her reaction to their ideas, but they gradually grew to appreciate the thoughtfulness and value of her contributions and started to ask her to help right at the beginning of each project and be involved throughout. By 1991 her contribution was clamored for by all of us, so we made a commitment to include a contribution from human factors specialists on every project, and expanded the

human factors staff. As time went by, she and her human factors colleagues drew upon a vast range of methods for understanding people and their experiences. They soon evolved a substantial portfolio of tools and techniques. When the number of methods was approaching fifty, one of the team, Maura Shea, suggested that they represent them as a deck of cards.

The idea of the methods cards¹³ is to make a large number of different techniques accessible to all members of a design team and to encourage a creative approach to the search for information and insights as their projects evolve. The intention is to provide a tool that can be used flexibly to sort, browse, search, spread out, or pin up. I find myself using the cards after a typical project briefing meeting, working my way through the pack as if in a game of patience and selecting the most useful set for that particular project in its various phases. When I meet with the team, I deal the set I've chosen and talk about why they might be useful in this context.

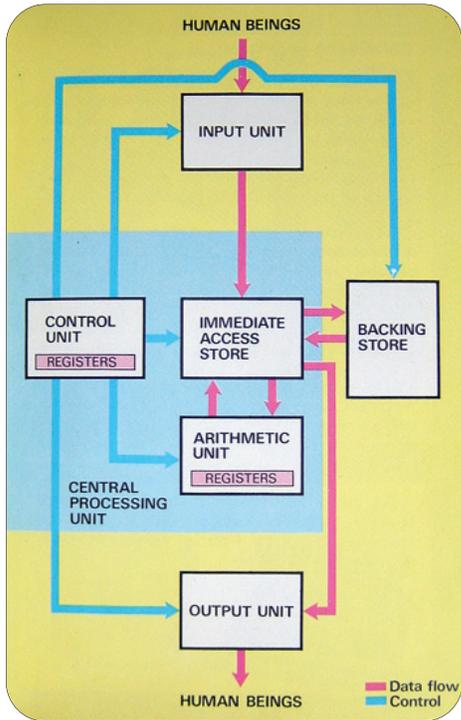
Each of the fifty-one cards contains explanatory text about how and when the method can be used and a brief example of its application to a real design project, with an illustrative and sometimes whimsical image on the other side. The cards are divided into four categories, ranging from the objective to more subjective—Learn, Look, Ask, and Try: “Learn” from the facts you gather, “Look” at what users do, “Ask” them to help, and “Try” it for yourself.

It is generally most valuable to apply, or sometimes modify, a range of different methods for any given project. The most useful set will depend on whether the purpose is primarily a *generative* one of defining design opportunities for particular kinds of users or a domain of activity, or an *evaluative* one of refining specific design ideas as they develop. In an evolutionary project, where the new design will be closely related to something that exists, techniques that yield explicit information about a particular product and usage may be valuable. If the project is revolutionary—the design will set a new precedent—methods that help the designer understand a broader domain of activity and related latent needs may be more appropriate.

Here are four examples of the methods from each category:

■ IDEO methods cards

Photo
Mark Serr



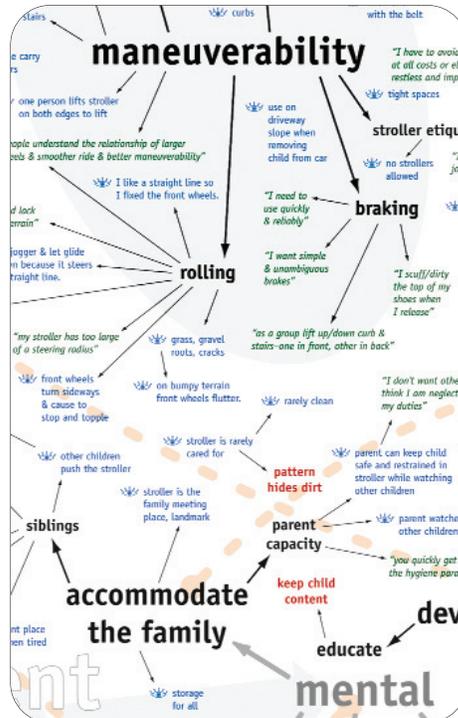
FLOW ANALYSIS



COGNITIVE TASK ANALYSIS



HISTORICAL ANALYSIS



AFFINITY DIAGRAMS

Learn

ANALYZE THE INFORMATION you've collected to identify patterns and insights.

FLOW ANALYSIS

- How** Represent the flow of information or activity through all phases of a system or process.
- Why** This is useful for identifying bottlenecks and opportunities for functional alternatives.
- Example** *Designing an online advice Web site, flow analysis helped the team to gain a clearer sense of how to make it easy to find your way around the site.*

COGNITIVE TASK ANALYSIS

- How** List and summarize all of a user's sensory inputs, decision points, and actions.
- Why** This is good for understanding users' perceptual, attentional, and informational needs and for identifying bottlenecks where errors may occur.
- Example** *Logging the commands that would be involved in controlling a remotely operated camera helped the team establish priorities among them.*

HISTORICAL ANALYSIS

- How** Compare features of an industry, organization, group, market segment or practice through various stages of development.
- Why** This method helps to identify trends and cycles of product use and customer behavior and to project those patterns into the future.
- Example** *A historical view of chair design helped to define a common language and reference points for the team members from the client and consultancy.*

AFFINITY DIAGRAMS

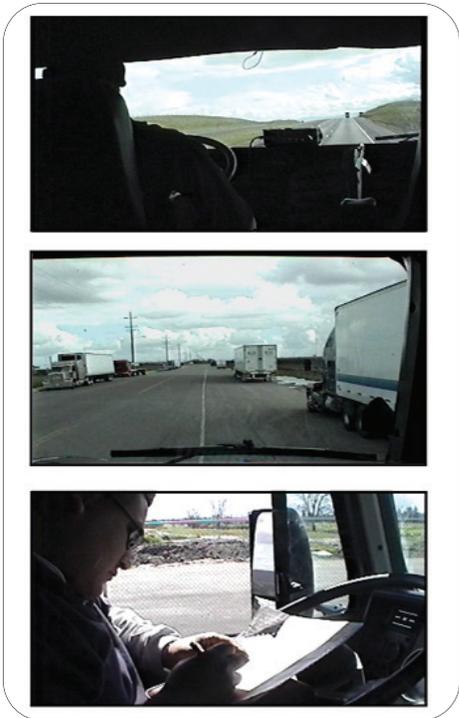
- How** Cluster design elements according to intuitive relationships, such as similarity, dependence, proximity, and so forth.
- Why** This method is a useful way to identify connections among issues and to reveal opportunities for innovation.
- Example** *This affinity diagram shows what's involved in transporting young children, and helps to identify the opportunities to improve the design of a stroller.*



FLY ON THE WALL



A DAY IN THE LIFE



SHADOWING



PERSONAL INVENTORY

Look

OBSERVE PEOPLE TO discover what they really do—not what they say they do.

FLY ON THE WALL

- How Observe and record behavior within its context, without interfering with people's activities.
- Why It is useful to see what people do in real contexts and time frames, rather than accept what they say they did after the fact.
- Example *By spending time in the operating room, the designers were able to observe and understand the information that the surgical team needed.*

A DAY IN THE LIFE

- How Catalog the activities and contexts that users experience for an entire day.
- Why This is a useful way to reveal unanticipated issues inherent in the routines and circumstances people experience daily.
- Example *For the design of a portable communication device, the design team followed people throughout the day, observing moments at which they would like to be able to access information.*

SHADOWING

- How Tag along with people to observe and understand their day-to-day routines, interactions, and contexts.
- Why This is a valuable way to reveal design opportunities and show how a product might affect or complement user's behavior.
- Example *The team accompanied truckers on their routes in order to understand how they might be affected by a device capable of detecting drowsiness.*

PERSONAL INVENTORY

- How Document the things that people identify as important to them as a way of cataloging evidence of their lifestyles.
- Why This method is useful for revealing people's activities, perceptions, and values as well as patterns among them.
- Example *For a project to design a handheld electronic device, people were asked to show the contents of their purses and briefcases and explain how they use the objects that they carry around everyday.*

Ask

ENLIST PEOPLE'S PARTICIPATION to elicit information relevant to your project.

CONCEPTUAL LANDSCAPE

- How** Ask people to diagram, sketch, or map the aspects of abstract social and behavioral constructs or phenomena.
- Why** This is a helpful way to understand people's mental models of the issues related to the design problem.
- Example** *Designing an online university, the team illustrated the different motivations, activities, and values that prompt people to go back to school.*

COLLAGE

- How** Ask participants to build a collage from a provided collection of images and to explain the significance of the images and arrangements they choose.
- Why** This illustrates participants' understanding and perceptions of issues and helps them verbalize complex or unimagined themes.
- Example** *Participants were asked to create a collage around the theme of sustainability to help the team understand how new technologies might be applied to better support people's perceptions.*

FOREIGN CORRESPONDENTS

- How** Request input from coworkers and contacts in other countries and conduct a cross-cultural study to derive basic international design principles.
- Why** This is a good way to illustrate the varied cultural and environmental contexts in which the products are used.
- Example** *A global survey about personal privacy helped to quickly compile images and anecdotes from the experiences of the correspondents.*

CARD SORT

- How** On separate cards, name possible features, functions, or design attributes. Ask people to organize the cards spatially, in ways that make sense to them.
- Why** This helps to expose people's mental models of a device or system. Their organization reveals expectations and priorities about the intended functions.
- Example** *In a project to design a new digital phone service, a card-sorting exercise enabled potential users to influence the final menu structure and naming.*



EMPATHY TOOLS



SCENARIOS



NEXT YEAR'S HEADLINES



INFORMANCE

Try

Create simulations and prototypes to help empathize with people and to evaluate proposed designs.

EMPATHY TOOLS

- How Use tools like clouded glasses and weighted gloves to experience processes as though you yourself have the abilities of different users.
- Why This is an easy way to prompt an empathic understanding for users with disabilities or special conditions.
- Example *Designers wore gloves to help them evaluate the suitability of cords and buttons for a home health monitor designed for people with reduced dexterity and tactile sensation.*

SCENARIOS

- How Illustrate a character-rich storyline describing the context of use for a product or service.
- Why This process helps to communicate and test the essence of a design idea within its probable context of use. It is especially useful for the evaluation of service concepts.
- Example *Designing a community Web site, the team drew up scenarios to highlight the ways particular design ideas served different user needs.*

NEXT YEAR'S HEADLINES

- How Invite employees to project their company into the future, identifying how they want to develop and sustain customer relations.
- Why Based on customer-focused research, these predictions can help to define which design issues to pursue for development.
- Example *While designing an Intranet site for information technologists, the team prompted the client to define and clarify their business targets for immediate and future launches.*

INFORMANCE

- How Act out an “informative performance” scenario by role-playing insights or behaviors that you have witnessed or researched.
- Why This is a good way to communicate an insight and build a shared understanding of a concept and its implications.
- Example *A performance about a story of mobile communications shows the distress of a frustrated user.*

An article by Daniel Pink in *Fast Company*¹⁴ captures one way the cards can be used at the outset of projects.

Fast Company decided to give IDEO's Method Cards a workout. In a conference room at the company's Palo Alto headquarters, we presented an IDEO team with two scenarios to see how they would begin wrapping their minds around a design problem. We weren't looking for an end. We were looking for a beginning—the initial steps that would set the course of the eventual design. Here's what happened when IDEO let the cards out of the box.

First deal: A carmaker, recognizing that people are living longer and better, wants to develop a car that appeals uniquely to drivers over 65 years old. How can the carmaker better understand the concerns of this group of prospective customers?

Five IDEO staffers—Jane Fulton Suri, David Gilmore, Kristine Chan Lizardo, Annetta Papadopoulos, and Aaron Sklar—listen as I read the scenario aloud. Then they open their boxes and begin sorting and shuffling the cards. Some they toss aside. Others they lay faceup in front of them. Our first-floor conference room is flanked by a wall-sized window that looks out on a sidewalk. To the pedestrians passing by, it looks as if we're playing pinochle.

Gilmore, a British expat who once designed coins for the Royal Mint, holds up a card from the Ask suit. It's called Unfocus Group. To grasp the underlying design issues, Gilmore would assemble a diverse collection of people to talk about cars. He'd include healthy and active senior citizens, seniors with health problems, seniors who love cars, and seniors who don't. Fulton Suri, another Brit transplanted to the West Coast, chimes in: Why not also include a driving instructor and a state trooper for their perspectives? "And maybe they can help build something," she adds. She fingers the Experience Prototype card from the Try suit. Perhaps the grandmas and the smokeys could suggest a prototype car feature that IDEO could quickly construct and let them test. Fulton Suri also selects Empathy Tools. To simulate what it's like to have limited mobility and dexterity while driving, IDEO designers could don clouded glasses, slip on heavy gloves, or bandage their legs before taking a test-drive. "Of course, not everybody over 65 has those problems," she says. But the carmaker could end up introducing some new features for one age group that everyone might value because of the simplicity and elegance of the design.

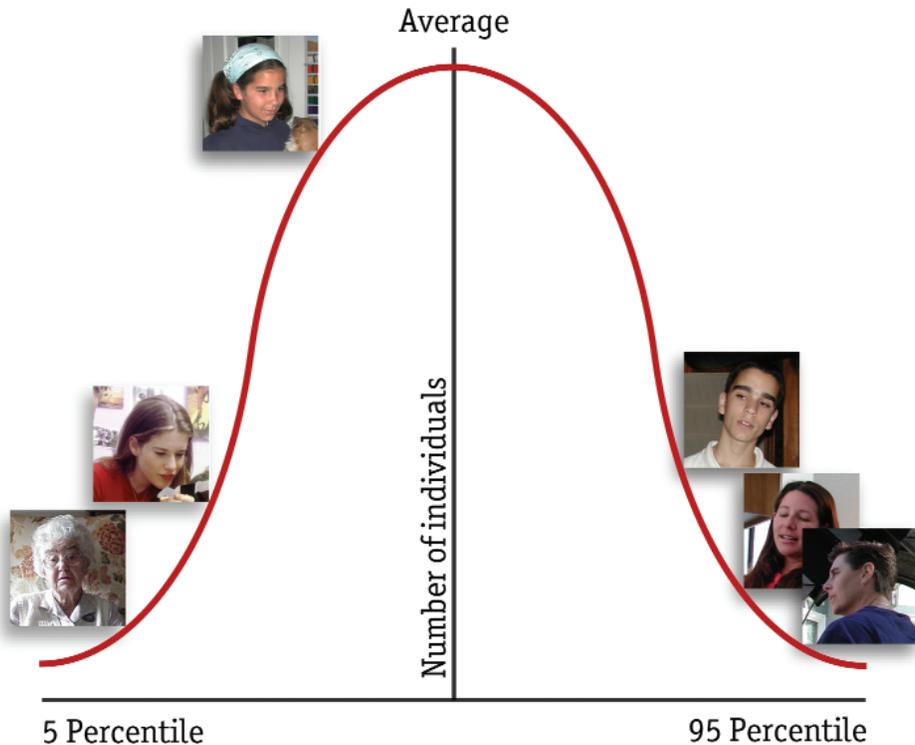
Gilmore emphasizes the Emotional Dimension card. Cars have “life trajectories,” he says. Like furniture and certain pieces of clothing, they carry memories of a particular stage of a person’s life. So he’d have seniors craft a personal history of the cars they’ve owned and what those vehicles have meant to them. Buying your first car is a rite of passage. But, Gilmore wonders, what does it feel like to buy what could be your last car?

Second deal: A national television network seeks to reinvent its struggling nightly newscast and to update a format that has been largely untouched for a generation. What are some ways to uncover new approaches to the nightly news?

Lizardo starts things off by shouting, “A Day in the Life!” A card from the Look suit, it asks the potential users to document everything they do in a given day. The goal is to discover how people actually spend their time—and how that affects when, where, and whether they watch the news. Fulton Suri, eyeing the four cards fanned out in her left hand as if she were playing poker, sees and raises Lizardo. She suggests pairing her approach with another card: Behavioral Sampling. IDEO would give subjects pagers and then contact them randomly throughout the day to ask what news and information is available to them at that moment and what they’ve encountered in the past five minutes. Surveys and focus groups don’t yield this sort of texture nor do they set the problem in context. And in this room, as elsewhere at the firm, context is king.

So is serious engineering. Two of the six people in this room are mechanical engineers, each with four patents to her name. One is Lizardo. The other is Papadopoulos, who offers the Foreign Correspondents card. She would enlist IDEO staff in different countries to watch the nightly news where they are and contribute their observations. Along those lines, Sklar wants to broaden the inquiry by using Extreme User Interviews, a card from the Ask suit. He’d try to understand the center by interviewing those who occupy the edges: “someone who doesn’t have a TV, someone who gets all their news from the National Enquirer, someone who watches TV constantly.”

Minds click. Ideas fly. How about Affinity Diagrams? How about Word-Concept Association? Says Fulton Suri: “Just the fact that I’ve got them in my hands is making my brain think about all sorts of different approaches.” A breakthrough, it seems, is in the cards.



Remember the extremes

People vary in many characteristics that might be relevant to our design: interests, experience, learning pace, lifestyles, wealth, work styles, living situations, and so on. We maximize our chances of success by considering the full range of people we are designing for.

Many such attributes are distributed according to this kind of bell curve, where a relatively large number of people cluster around its average value, with numbers tailing off gradually to a few people represented at each of its extremes. When we want to learn about people, it is important to include some who represent critical extreme values of the relevant characteristics, to avoid the trap of designing only for the average.

A very simple example—if we design an ATM interaction to time out after the average time people take to input their PIN number, we will inconvenience the full 50 percent of users who take longer than average! Far better to design the system to accommodate all but the slowest 2 percent.

The kinds of techniques exemplified by the methods cards can be used to counteract our natural self-centeredness and better inform our intuition. It is very difficult to be a good designer without having a big ego. After all, we need to believe enough in our own ability to synthesize the right solution intuitively, while at the same time admitting that we may not readily have the most lucid explanation of the rationale. That may be why we find it much easier to design for ourselves than for other people. Good friends like Jane Fulton Suri, who offer all those methods for understanding users, their habits, and contexts, are invaluable for keeping us focused on other people, even inspired by our insights about them, so we don't slide back into the world we know and understand.

It is relatively easy when we are ourselves typical of the intended users. There are lots of examples of successful products that have been designed based only on the intuitive judgment of the designers thinking about themselves. The computer industry emerged in this way. Enthusiastic early adopters enabled the early phases, and they were thrilled to use the interactions designed by engineers for themselves. For twenty-five years Hewlett Packard was a company of engineers who worked in labs, designing equipment for engineers who work in labs. It was much more difficult for them when they started developing general purpose computers for a broader consumer market and needed to design interactions that would be easy to use for ordinary people. Nike attracts designers who are interested in athletic activities, so it becomes natural for them to design footwear for themselves.

Designers are often self-absorbed in this way. If you are sitting at a computer, working to complete a deadline for a project, it is easy to stay where you are, to design a solution to satisfy your own needs and aspirations, one that you find amusing or engaging and that fits your own idea of beauty. If you stay at your desk, your design is unlikely to represent the full range of people who will use the result of your work, but if you leave your desk and bravely open yourself and your design ideas to influence by potential users and usage contexts, you will produce work that more successfully reflects the needs and desires of a diverse set of people.