

Generative Tools for CoDesigning

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Preview

'Dreams are the stuff the future is made of.'
(Jensen, R., 1999)

Whose dreams are the stuff the future is made of?
The dreams of CEOs? Technologists? Business people?
Or the dreams of everyday people?

In this paper I will talk about a journey toward a future being made from the dreams of everyday people. I will describe how we are learning to catalyze, capture and collect their dreams and aspirations. I'll do so by showing examples of 'tools' we give people so they can express themselves visually and verbally. Then I will tell how we are beginning to work with people, using their dreams and aspirations to inform as well as inspire the design development process.

Imagine

Today's world is made of the dreams of the CEO, technologists and business strategists. It is technologically-driven, materialistically-delivered and fast. Those of us involved in bringing new products and services to market reduce people to the roles they play in the design development process. We see and think of them as 'consumers' when they shop, as 'customers' when they buy and as 'users' when they interact with the objects of their desire. Rarely do we integrate the roles that people play to come to see them in a holistic manner. Rarely do we take the time to get to know them as people.

We are beginning now to veer away from this reductionistic, product-focused world. We are heading into a new space where relationships between people matter more than products and where human experience is what matters most of

all. The new space is people-centered, not just user-centered. At this point in time, information and communication technologies have given people the ability to say what they think and to demand what they want, when they want it. And people are beginning to speak up.

Imagine a world whose future is made of the dreams of everyday people. This new world could offer a people-centered array of experiences instead of the mind-numbing, consumer-driven array of choices we have today. It could connect us more deeply to what really is important in our lives. It could be a more humanistic world. The design challenges we face in achieving this dream are immense (Alexander, C. and Tromble, M., 2000), particularly in the digital domain (Joy, B. 2000).

To reach this new space, we will need to bring everyday people into the center of the design development process, respecting their ideas and desires. People-centered design is a process of discovering possibilities and opportunities, with people, that address their needs and aspirations for experience. It must be a continual process. It is a process that has already begun (Levine, R. *et al.* 2000).

The Journey

We are on a journey toward a future being made from the dreams of everyday people. The part of the journey that I have traveled started with preschool children. In the mid 80's I was asked to be the 'user advocate' on a project to design a headset product (using voice-recognition technology) for preschool children. (Couch, J. and Sanders, E.B.-N., 1989). It clearly was a technology in search of a need. The product would ask the child questions and the child would respond with either 'yes' or 'no' in an attempt to win the game. Our task was to design the product form since the software design had already been completed.

The industrial designers I collaborated with were quite confident in their ability to serve as user advocates for adult users of consumer products but were not at all confident in their ability to represent preschoolers (two to six years old). They wanted answers to many questions. For example:

- ~ The technology required that the microphone be at most one inch from the child's mouth. Would preschoolers find wearing a headset acceptable?
- ~ Would they wear it long enough to play the game?
- ~ How heavy could the headset be? How heavy should it be?
- ~ What was the size range of heads among preschoolers?
- ~ What should it look like so preschoolers would be attracted to it?
- ~ What would their parents think about the idea of a headset product?
- ~ What color or colors should it be? Does this differ for boys and girls?
- ~ How can we determine one color palette that is liked both by boys and girls?

Since ‘the literature’ did not exist to answer any of these questions, we set out to collect our own data, enlisting the help of a local preschool (being the parent of a recent preschool graduate helped). Not knowing exactly which methods would give us the most useful results, we tried several ways to ask each question. The approach had to be very quick because we let each child leave the session when they wanted to go back outside to play. Knowing that many preschoolers are not verbally proficient, we invented exercises that did not require verbal output skills. The children could respond by selecting, pointing, drawing, coloring, and/or constructing. For example, on the color issues, we looked at:

- ~ color palettes created by the children;
- ~ pictures of the headset that the children colored themselves;
- ~ which of nine painted headsets they liked the best;
- ~ what they said their favorite color was;
- ~ what colors they were wearing that day.

We ended up with an award-winning (from the design industry) product. But the product did not do well in the marketplace. Kids and their parents thought that it looked ‘awesome’ but the children said the games it played were ‘boring’. *‘It asks me the same questions every time I play this game, Mommy!’* Parents did not return to buy more software and the product was eventually taken out of the marketplace.

As it turns out, the best ‘product’ of this experiment was the creation of the first set of generative research tools that inspired others to follow. More importantly, it was the beginning of our understanding of the participatory process. We found that preschool children (as well as their teachers and parents) could be useful partners in the design development process if we give them appropriate tools with which to express themselves. We learned that preschool teachers were a particularly valuable source of information about preschool children. Their impromptu responses to the color questions replicated the data we obtained from the children.

We also learned that products must be designed holistically, i.e., with hardware and software together. This last lesson is one that is only now being recognized and acted upon in the design development process.

The Landscape Grows

We created new tools and methods by applying the participatory approach on subsequent design projects with children. But the application of this approach to products for ‘grown-ups’ was slower to emerge. Apparently, designers who felt that they can represent users saw little need to bring everyday people into the design process as participants. So the first participatory design projects with adult participants featured either ill people or technically knowledgeable people in the design development of medical products and instruments.

Over time, however, we applied these new methods and tools to products for all types of people as well as to many other design domains including:

- ~ information/communication design (e.g., packaging and user assistance materials);
- ~ user interface design (e.g., for computer and communications devices);
- ~ environment design (e.g., retail environments);
- ~ design of branding strategies.

The number of tools increased because each new design situation revealed unique opportunities as well as constraints. A landscape of generative tool types emerged. It is a landscape ranging from:

- ~ toolkits made up of two-dimensional components (e.g., paper shapes and color photographs);
- ~ toolkits made up of three-dimensional components (Velcro-covered forms together with Velcro-backed buttons, knobs and panels);
- ~ toolkits designed to elicit the expression of stories and narratives over time.

In this landscape, some tools were designed to elicit emotional response and expression from people, whereas others were designed to uncover meaning and cognitive understanding.

Generative Tools: A New Language for CoDesigning

The landscape of generative tools is revealing a new language whose components are both visual and verbal. These components can be combined in an infinite variety of meaningful ways, much like the linguistic elements we use in speaking and comprehending (Chomsky, 1965). The new language is, however, predominantly visual, as opposed to verbal.

We put a large number of components together into 'toolkits'. People select from the components in order to create 'artifacts' that express their thoughts, feelings and/or ideas. The resulting artifacts may be in the form of collages, maps, stories, plans, and/or memories. The stuff that dreams are made of is often difficult to express in words but may be imaginable as pictures in your head.

A toolkit usually contains a background on which to work, together with a large number of simple and ambiguous components that can be arranged and juxtaposed in a variety of ways. The components cover a range of representational types: from literal to abstract. The background might be defined by a boundary such as a circle, a line, or a square. Or it might be blank, so that it can be defined and described by the participant. The visual components are quite diverse, as they range from photographs to sketches to colored paper cut in shapes to three-dimensional forms covered with Velcro material. Smaller components are often produced on stickers. The range of meanings of the components can be extended through the use of pens,

crayons or markers that come with the toolkit. Words and phrases, when used as components in the toolkits, are often treated visually, as well.

There is usually only one rule that we ask of participants. *'Use these components to express how you feel about the experience of xxxxxx. You can do whatever you want, as long as it makes sense to you.'* The projective quality of the toolkit components is deliberate. They are simple and ambiguous so that the participant can project his or her own aspirations onto the artifacts that they make (McCloud, S. 1994).

Creating and refining the generative toolkits is a design process by itself. A toolkit is specific to its purpose. For example, we might be exploring people's feelings about a past experience. Or we might be accessing their understanding of how a system works. The methods and toolkits for these two examples fall in different spaces within the landscape of generative tools. For example, feelings about past experiences are best evoked with an emotional toolkit such as image collages. Understanding of how a processor or system works is best elicited with a cognitive toolkit such as mapping.

Generative Tools: Some Examples

Here are some examples of ways everyday people have expressed themselves using the generative tools. Keep in mind that these methods are used together with other methods in a converging perspectives approach (Sanders, 1992) that draws simultaneously from marketing research (*'what people say'*), applied anthropology (*'what people do'*) and participatory design (*'what people make'*).



Figure Z.1: Tools for Remembering
'What is your typical weekday evening like?'



Figure Z.2: Tools for Thinking
 'How do you expect your work to change in the future?'



Figure Z.3: Tools for Mapping
 'Make a pet store that meets your needs as a dog (cat, horse, etc.) owner.'



Figure Z.4: Tools for Visioning
‘What will your work environment feel like in the future?’



Figure Z.5: Tools for Feeling
‘Use pictures and words to show a health-related experience in your past.’

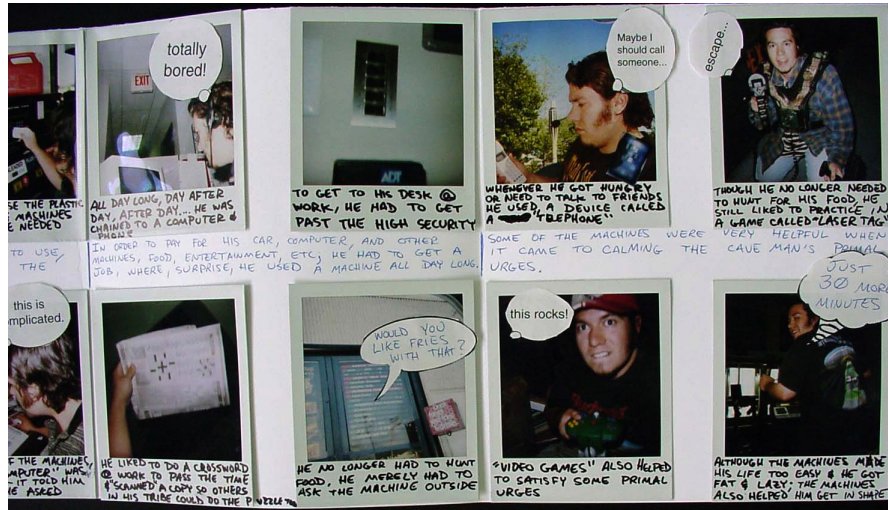


Figure Z.6: Tools for Storytelling
 ‘Tell us a story about your life with consumer products at home.’



Figure Z.7: Tools for Dreaming
 ‘Use shapes and stickers to make spaces for your ideal home experience.’

What do all these tools have in common? They take advantage of the visual ways we have of sensing, knowing, remembering and expressing. The tools give access and expression to the emotional side of experience and acknowledge the subjective perspective. They reveal the unique personal histories people have that contribute to the content and quality of their experiences. These are qualities useful to those of us involved in making people-centered decisions.

New Spaces

Other uses of the participatory methods and tools have emerged in the last few years. We are beginning to use the generative tools to seed a mindset of collective creativity in group workshops. We call them Strategic Visioning Workshops. In these workshops we use an assortment of large toolkits to enable a group of people to work together to express their ideas and dreams. Visual toolkits allow people the time and space to listen to each other's ideas and dreams, thereby facilitating more effective collaboration. The transformation that takes place when a group of people goes from a verbal exchange of ideas to a collective and visually expressive mode is remarkable. It is invariably positive and can often be quite therapeutic for the participants.

In addition to collaborative visioning, we have found that the generative tools are useful for collaborative thinking, mapping, dreaming and storytelling

Who Designs Now?

The use of generative tools for codesigning has implications for what it means to be a designer and a design researcher today. We can see that these roles are becoming mutually interdependent and are converging to the point where they are blurring. Who creates the tools for the new design language? Who interprets the results of this new design language? Designers and researchers will need to work together to explore the implications of this new language.

How does the emergence of the new tools change the nature of design education? Designers will be trained to go beyond the individualized expression of visual communication and learn how to become involved in the creation and construction of generative tools. The creative spirit of people in the design profession is essential for the exploration, development and analysis of the new tools.

Collective generativity is beginning to replace individual creativity. Mutual respect is essential. The use of generative tools for codesigning requires a new mindset on the part of designers and design researchers, i.e., respect not only for each other, but also respect for the people who are served by design. This will perhaps be the most difficult challenge.

Looking Out Further

The emergence of a participatory culture and people-centered design will affect *what* companies design and produce in the future, with results more relevant and meaningful to people's lives. It will hopefully also influence the strategies that companies follow for designing and producing in the future (Lasn, 1999).

A collection of dreams is emerging. A collision is imminent. The aftermath will be new, experientially-defined categories driven by a convergence of perspectives. It will be a world made up of the dreams of everyday people. Maybe we can help it to grow (Brand, 1999).

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