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The missing link, between human factors and soft-

Interview with Bill Moggridge

Bill Moggridge is responsible for developing IDEO's international product development services and for formulating strategic new directions for the company. He trained in industrial design in London, and later founded his company there in 1969 for development of consumer and business equipment. His first interest is in designing products for people to use with satisfaction and enjoyment, and he is also active in design education through the London Business School, the Royal College of Art, and Stanford University. In 1988 he was appointed a Royal Designer for Industry by the Royal Society of Arts.

What are the primary skills a designer needs today to be part of a cross-disciplinary development team? Are those skills being taught in traditional design education?

There is a basic way of thinking that I call "creative soup" that is shared by all the people trained in subjective disciplines, such as artists, poets, creative writers, and designers. It is a learning-by-doing process. I think that is quite different from the academic approach to learning, where things are much more ordered and intellectual, where you try to use the conscious level of your mind rather than the subconscious (which is the creative soup level). It is often difficult to get people together from both ways of thinking. It is hardly surprising that people have a difficult time communicating. The ways they think and the focus of their lives are so different. I think the skills that are missing are those things that I call "hooks." The training we have as designers is very specialized and disciplined-oriented; we don't have much given to us through education in the way of hooks that will enable us to successfully connect to other members of the team. We need to develop hooks to other disciplines and for understanding ways people go about their lives, in order to understand the ways they think.

What are the primary skills that the subconscious thinker brings to a team?

The subconscious is much better at recognizing difficult things that are hard to understand...so much goes on in the brain that we don't know about having to do with body language, sense of look, etc. You can sum that up with the word "synthesis." Designers are good at synthesizing requirements and taking notice of them at a subconscious level. Anything to do with qualitative and subjective aspects of the product—you are more likely to be good at understanding them by feeling rather than understanding them through thinking in a conscious way. Designers are good at understanding the qualitative and subjective parts, the emotional parts of your mind. The conscious mind is good at understanding what is on the surface.

Typically, at what stage are you brought into the development process?

We approach projects differently for different clients. IDEO is large, with more than 150 people in the company. We have developed a service over the past few years we call "Innovation Strategy" that helps people decide what they want to do with the product in the first place. It is not just in the beginning of the design process, but before the beginning of the process. There is a gap in the development process. First the product is defined by a "brief" (product spec), and often times the designer is constrained by that brief. You first have to look at the question "where does the brief come from?" to see if its basis is a good one. In most cases the product brief comes from senior people saying "let's do this product next." We believe that designers are good at this process and can help management define the product. Innovation Strategy goes through a series of four steps that help define the product more clearly. The number of clients asking us to engage in this process is still pretty small. We started in 1983 with the Innovative Strategy process with Xerox.

Are you considered a creative director or educator? What is your role in the process?

I think the terms educator and creative director are intertwined. I still think of myself as a designer. The work I have been doing in recent years hasn't been drawing-board design of objects, but rather the designing of processes, really, trying to figure out what's next and how to do it. I am using design techniques to do that and trying to discover by "learning-by-doing." In order to be a useful contributor to a design group, you have to first discover new ways of doing things, then let people take it over and do it themselves. We often use workshops for communication to get teams together and learn each others' disciplines.

When you define your work to others (engineers, marketing people, etc.), what is their definition of a designer—what do they think designers do?

I usually divide it into the technical and engineering design and the human contribution; the difference being the starting point. The engineers start from performance and come toward the solution from that end; while the human factors specialists start from the human side and come to the solution from there. They usually cross over and shake hands in

the middle. I also tend to describe what we do in a process context; this is what we do and how we do it. One of the things that differentiates IDEO is that we are about half engineers and half designers. We often go in as an engineering company, a lively version of an engineering firm, and for this we are often taken more seriously. It is really too bad that we have to have the moniker of engineer to be heard by some people, but that is often the case. Communicating with diverse people goes back to the idea of "hooks" really, getting enough knowledge and a sympathetic point of view to be collaborative instead of offensive. Designers have always been successful at that.

How might that differ from human factors and those coming from psychology and anthropology?

If you take the human factors side, you get the people professionally trained in psychology, anthropology, and human behavior, those who typically attend SIGCHI. The missing link between human factors and software, is the design side of things, those people who are concerned with the artistic and subjective contribution. And that is why we call this by a different name; we call it "interaction design" as opposed to "user interface design." The Royal College of Art has a post-graduate course that deals with this area of education that Gillian Crampton-Smith is heading up. There seems to be no specific parallel to this in the States, but perhaps IIT is doing a similar program.

What are the primary assets that a "visual designer" (graphic, industrial, spatial) brings to the development process?

I think the term "visual design" is a mistake; I would like to challenge that. I think that there is this thing called Visual Interface Design (VID), a term coined by Doris Wells Papanek. That is definitely something that is needed, and it makes an important contribution. But people interpret that to mean that the only contribution of the design is the output component of the display: the appearance of the information, the fonts, graphical representation, and so on.

The contribution that I would like to see interaction designers getting their minds around is VID that includes the physical input components (keyboard, mouse, buttons, and so on) and also its behavior: the animation, the other senses (touch, hearing, smell—though we haven't had smell input as yet). However, what is also vitally important are the paths and trails, the navigation, the way people think about things, the conceptual models, and how they find their way around. How the appearance and the electronic components are designed to improve that relationship are all essential to the final result. You don't get high-quality solutions unless you integrate the (graphic) design of the system with the verbal scripting of the information. That is why I rebel against the idea of VID being separate.

You can do VID as a separate task in some instances, like the design of fonts. But in most cases there is a real danger in the solution being very narrow. The visual interface representation is only one component in the overall behavior. We have to understand how people think, where they are coming from, where they are going, and how they will be using the system. In a way these issues are more difficult to grasp and more difficult to define and design.

In conclusion, what are some other issues that you would like to bring up?

It is worth it to go back to the process of Innovation Strategy and define the four steps in this process:

- Understand: Getting to understand what the thing is all about.
- Observe: This is the more difficult part. It is less normal and less typical in development process than you might expect. We've evolved techniques of looking at people and understanding how they do things. It has been around in all design research in the past. Good designers have always said "Well, let's go find out what someone really does with this sort of thing." But it is also related to market research, except that it is not quantitative. We go and look at people using the equivalent products in today's world to get a very first-hand experience.
- Visualize: It is important to get a feel for the differences between designing for "yourself" and designing for the wide variety of users who will actually be using the product. The trick is also to avoid being stuck in "yesterday's" observations. So we have developed ways of lifting them into the future using scenarios and storyboards that tell a story. This keeps the relationship in the real world, on a more humane level. It keeps the design in the real world, not design fantasy. This connection to the observation with scenarios and visualization is very important.
- Evaluate and Refine: This of course is part of every design process and quite iterative. The evaluate stage involves taking the product back to customers and asking how they feel about it. We often find that they make comments that were not predicted. The process is very user-oriented and focused on the way users handle everyday things.

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