Ideo's David Kelley on "Design Thinking"

By Linda Tischler

The smell of ramen noodles wafts over the Stanford d.school classroom as David Kelley settles into an oversize red leather armchair for a fireside chat with new students. It's 80 degrees and sunny outside in Palo Alto, and as the flames flicker merrily on the big computer screen behind him, Kelley, founder of both the d.school and the global design consultancy Ideo, introduces his grad students to what "design thinking" -- the methodology he made famous and the motivating idea behind the school -- is all about.

Today's task: Design a better ramen experience.

Some students seem a little mystified, as they twirl noodles around their chop sticks. What does a "ramen experience" have to do with design? Better packaging? Curlier noodles? Adding a cute little forky thing to the cheap staple of dorm rooms everywhere?

Kelley, a lanky guy with a bald head, a Groucho Marx mustache, and a heartland-bred affability, tackles the mystery head on: "I was sitting at a big dinner in Pacific Heights recently, and I told my hostess I was a designer. 'Oh,' she said. 'So what do you think of my curtains?' " That, Kelley says, is not where we're going.

"You're sitting here today because we moved from thinking of ourselves as designers to thinking of ourselves as design thinkers," he continues. "What we, as design thinkers, have, is this creative confidence that, when given a difficult problem, we have a methodology that enables us to come up with a solution that nobody has before."

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It is a radical notion, in its way: the idea that creativity can be summoned at will, with a process not unlike the scientific method. That contradicts what most people -- including the 50 students sitting mesmerized before him -- have always thought. "That to be creative, an angel of the Lord appears and tells you what to do," Kelley says, laughing.

Ideo -- which now counts more than 500 employees in eight offices on three continents -- has drawn on Kelley's methodology to do everything from stimulate customer savings at Bank of America to revamp nursing shifts at Kaiser Permanente. Over the past 30 years, the firm has tackled the challenge of delivering a needle-free vaccine for Intercell, building a better Pringle for Procter & Gamble, revitalizing the bicycling experience for Shimano, and rethinking airport-security checkpoints for the TSA. It has racked up more than 1,000 patents since 1978 and won 346 design awards since 1991, more than any other firm. The design-thinking process underpins the company's near $100 million in annual revenue, drawn from a client roster that has included Anheuser-Busch, Gap, HBO, Kodak, Marriott, Pepsi, and PNC, among hundreds of others. Ideo has, in short, become the go-to firm for both American and foreign companies looking to cure their innovation anemia.

Until about a year ago, Kelley, the man at the epicenter of this expanding universe, was on a roll. He had received a National Design Award, been inducted into the National Academy of Engineering, held an endowed chair at the Stanford School of Engineering, and even won the Sir Misha Black Medal for his "distinguished contribution to design education." Cara McCarty, curatorial director of the Cooper-Hewitt National Design Museum, summed up his influence: "Kelley has pushed our definition of design more than anybody in this country."

He also had a loving wife, a daughter to whom he was devoted, and a vast circle of friends that included Apple's Steve Jobs and actor Robin Williams.

Then, one morning, he noticed a lump on his neck.

Kelley was helping a fourth-grade class at his daughter's school use design thinking to create better backpacks when his cell phone rang and his doctor's number came up. He stepped out to take the call. "You have cancer," the doctor said. "Just like that," Kelley recalls. He went back into the class to finish the lesson but, he says, "I was a mess."

It was stage-four squamous cell carcinoma, which had gone misdiagnosed -- as "inflamed fish gills" -- for a year and a half. During that time, it had migrated to his lymph nodes. "I could tell by looking in people's eyes that this was a big deal," he says.

Preliminary tests looked worrisome, but Kelley, an optimist, figured that with good energy and good medicine, he could prevail. Then his oncologist sat him down and gave him the statistics: He had a 40% chance of being alive in four years. "That was the moment," Kelley says. "As an engineer, you say, 'Show me the data. This has got to be for older people.' So the doctor looks at the chart and the median age is 56. I'm 56. So it's right on me."

What ensued was sheer hell. Chemo, surgery, radiation. Mouth sores. A throat so raw he could barely swallow. Nausea so severe he couldn't concentrate enough to read or even watch TV. "I spent nine months in a room trying not to throw up," he says. The treatment wrecked his saliva glands and his taste buds. He lost 40 pounds.

Kelley, now 58, says his wife, Kc Branscomb, a former CEO of IntelliCorp whom he met through his buddy Jobs, was masterful at orchestrating his care, marshaling doctors, haranguing insurance providers, keeping on top of appointments, medications, and daily life. But, Kelley says, it was his brother, Tom, who got him through the rough patches psychologically. "Here's a guy I shared a room with for 18 years," he says, choking up. "Basically, he gave up his life to be there for me every day."

David asked Tom to negotiate his relationship with the world, alerting friends that his brother wasn't up to communicating with anybody. "More than 100 people came to me and said, 'I know David's not talking to others, but he'll talk to me. I'm a special friend,' " Tom says.

It was the thought of his 11-year-old daughter that kept Kelley fighting through the lowest moments. "At first, you think, 'I don't want to miss her growing up.' That's motivating, but not *that* motivating," he says. "It's when you manage to get out of yourself and start thinking of her that you get the resolve to continue. When you think, I don't want her not to have a father -- then you want to stay alive."

In the recovery phase, Kelley was assigned a psychiatrist. "When they tell you that you don't have that many more years to live, you ask yourself, What is it that I want to get done? What is it that's going to make me feel good?," he says, sitting in a neo-yurt at Ideo's Palo Alto headquarters. "Given a finite amount of time, how do I spend it?" Kelley and the shrink began parsing his days, calibrating which activities were the most satisfying. "The punch line is that one of the things that's really fun for me is Ideo," he says. Working at the firm he built fits into Kelley's lifelong mission: "I really do believe I was put on the planet to help people have creative confidence," he says. "I don't have 27 agendas. I'm not the sustainability guy, or the developing-world guy. My contribution is to teach as many people as I can to use both sides of their brain, so that for every problem, every decision in their lives, they consider creative as well as analytical solutions.

"The illness has given me more resolve to do that."

When Kelley got sick, his friends were desperate to find ways to help him, sending cards, movies, cartoons. John Maeda, formerly the associate research director of MIT's Media Lab and now president of the Rhode Island School of Design, built a Web site with a picture of Kelley at the White House, surrounded by other 2001 National Design Award winners -- all with Kelley heads -- under the banner, *EVERYBODY WANTS TO BE DAVID KELLEY*.

"David is the kind of person you aspire to become," says Maeda. "He's like a brainy Muppet. You want to hug him, stick by him, and support what he stands for. He doesn't wear a fur stole or sunglasses. He's like the guy you run into at the 7-11 getting a Slurpee. I like the idea that he's an anonymous superstar."

Watching Kelley, in his jeans, flannel shirt, and striped socks, shuttling between Ideo and Stanford in his greenish-yellow '54 Chevy pickup, you're more likely to think he's a Sacramento tomato farmer than one of the country's great design minds. (A self-confessed "car nut," Kelley also has a '67 Ferrari, a '57 Porsche, and a '32 Ford in his fleet.) Even as a boy growing up in Ohio, Kelley saw the world from a different angle. "David believes he was a geek," says Tom, the youngest of the four Kelley siblings and four years David's junior. "But it's not true. He had his own rock band, for chrissake! Even then he was a rock star." At the town line, there's now a sign that trumpets, *YOU ARE NOW ENTERING BARBERTON, HOME OF DAVID KELLEY*.

After graduating from Carnegie Mellon, Kelley took a job at Boeing, where he designed what he calls a "milestone in aviation history": the 747's *LAVATORY OCCUPIED* sign. He eventually moved to National Cash Register (now NCR) in Ohio, a similarly dispiriting experience. Fate intervened during the 1973 -- 1974 oil embargo, when Kelley met a guy in a car pool who told him about Stanford's product-design program. "Without the oil crisis, David may have spent the rest of his life as a very capable but moderately unhappy engineer," says Tom.

At Stanford, Kelley met his mentor, Bob McKim, a pioneer in using experiential psychology in design. "I had an intuition I couldn't survive corporate America," Kelley says. "I hated the hierarchy and just wanted to work with my friends."

In 1978, Kelley and some of his Stanford pals banded together to launch a design and engineering firm, and opened for business over a dress shop in downtown Palo Alto. In 1981, the firm created the mouse that controlled Apple's graphic interface. Its descendants are still in use today.

Silicon Valley was a great place for a restless mind like Kelley's to soak up ideas on how innovative companies work, from HP's iconic culture to Xerox PARC's breakthroughs in marrying engineering and social science to Apple, where the idea that business is a mission reached full flower.

In 1991, Kelley's firm merged with two others -- those of Bill Moggridge, who had designed the first laptop computer, and Mike Nuttall, whose skill was in the visual design of technology products -- to form Ideo.

A cluster of buildings on a side street near Palo Alto's business district, Ideo's headquarters look like a cross between a cool Montessori school and a crash pad circa 1970. There are tubs of markers and easel pads of paper everywhere; Post-it Notes litter the walls of conference rooms. A gum-ball machine, xylophone, and Tickle Me Elmo lie nearby, critical elements in the latest company prank, a global Rube Goldberg contraption, which began with a coin drop in Palo Alto and bumped and rattled its way, with occasional electronic leaps, through the company's seven other offices. A vintage Volkswagen bus has been converted into a meeting area, complete with beach chairs on the roof.

The playfulness of the place is utterly intentional, an outgrowth of Kelley's conviction that children are naturally creative -- at least until the educational system beats it out of them. To test out his theory, Kelley has several educational programs going at local schools to try to teach children to be as adept with their right brains as with their left, and he's fond of quoting British educator Sir Ken Robinson on the topic: "Creativity is as important in education as literacy."

As much as Kelley loves teaching, though, he knows that his ideas can attract more powerful acolytes -- and be disseminated more widely -- through business: "If the goal is to change the world, the business part changes the world faster."

What's remarkable about Ideo is that it's constantly reprototyping its own business model much as it would those of its clients. From its early work designing tech products for Silicon Valley, it moved to designing experiences, and it's now on to tackling the hurdles that prevent design solutions from getting traction within an organization. But even as that expertise evolved, Kelley struggled to explain it. Ideo was pushing its clients forward, using something it called design, but what the firm was really doing was more transformational. "Just like a fish doesn't know he's wet," he says, "we didn't realize that our real contribution was that the companies we worked for didn't think like us. And when they did, it really had a lot of advantages for them."

In a meeting with Ideo's CEO, Tim Brown, in 2003, Kelley had an epiphany: They would stop calling Ideo's approach "design" and start calling it "design thinking." "I'm not a words person," Kelley says, "but in my life, it's the most powerful moment that words or labeling ever made. Because then it all made sense. Now I'm an expert at methodology rather than a guy who designs a new chair or car."

"They went meta on the notion of design," says Roger Martin, dean of the University of Toronto's Rotman School of Management, referring to the shift from object design to focusing on organizational processes.

"They concluded the same principles can be applied to the design of, say, emergency-room procedures as a shopping cart."

While the "deep dive" ethnography that Ideo uses as a foundation for its process has since become table stakes for most top-tier design firms, Martin says Ideo was among the first to recognize that to redesign a customer experience, you also have to redesign organizational structures, culture, etc., or you won't produce the experiences you want.

Design thinking represents a serious challenge to the status quo at more traditional companies, especially those where engineering or marketing may hold sway. Patrick Whitney, dean of the Institute of Design at the Illinois Institute of Technology (IIT), who sends many of his graduates off to Ideo, says he sees this resistance all the time. "A lot of my students have MBAs and engineering degrees. They're taught to identify the opportunity set, deal with whatever numbers you can find to give you certainty, then optimize."

But some problems need to be restated before a big, new idea can be hatched. It often helps to take the problem and break it apart, before putting it back together in a whole new way -- the synthesis or abstraction step. That's where the creative leap often occurs and what Ideo's process is designed to unearth.

It took Kelley a while to appreciate the power of stepping back before forging ahead. In the mid-1980s, he says, he used to write proposals with the various phases of the process -- understanding, observation, brainstorming, prototyping -- priced separately. Clients invariably would say, "Don't do that early fooling around. Start with phase three." Kelley realized that the early phases were where the big ideas came from -- and what separated his firm from a bunch of management consultants. "That moment was really big for me," he says. "After that, I'd say, 'No way, I won't take the job if you scrap those phases. That's where the value is.' "

Now, all of Ideo's projects employ the process, whether to redesign water pumps for developing countries, or to devise a music service for (RED). Marriott recently hired the firm to overhaul its TownePlace Suites, a chain of mid-range extended-stay hotels. The company had originally hoped to set the chain apart with snazzier, more guest-friendly lobbies. But after hanging out in the hotels, Ideo staffers discovered that guests were reluctant to be seen in the lobbies at all. "If you're hanging there, it means you basically have nothing to do," says Bryan Walker, the Ideo team's project leader. "They were really sad spaces." The happiest guests were those who'd managed to bond with the larger community -- by joining a nearby tennis club, finding a church, frequenting a restaurant. That led to a brainstorming session on how to make TownePlace feel more like a temporary home. One result: a giant wall map of the local area that highlights guests' favorite discoveries, and not only introduces newcomers to the area but also spurs conversation among them -- itself a community builder. Skeptical franchisees were trotted through a prototype built in a San Francisco warehouse, and won over. A year after the rollout, guest satisfaction with the new lobbies has increased 16.8%.

Procter & Gamble, too, has been seduced by Kelley's ideas. With CEO A.G. Lafley leading the expedition, for example, the company's entire 40-member Global Leadership Council has twice come to Ideo headquarters for a total immersion in the firm's process. "Our senior management was blown away," says Claudia Kotchka, former vice president for design innovation and strategy. "They learned that design is more than aesthetics, and that there are different ways of solving problems than the analytical methods that most disciplines teach."

Still, despite the P&Gers' enthusiasm in Palo Alto, once they got back to Cincinnati, ideas created in the design process kept getting stuck as they ran smack into the commercial side of the business. This frustrated Kotchka, who called in Kelley, Rotman's Martin, and IIT's Whitney to help her find a way to

break the deadlock. Over the summer and fall of 2005, the three came up with a prototype of an integrated approach that took a product team through the design process all the way through the impact on strategy. What's more, they trained the P&G employees to facilitate such programs on their own.

"Our dent in the universe doesn't mean we have to do all the digging," Kelley says. "We empower our clients. We teach them to fish."

Kotchka says there are now more than 100 internally trained facilitators within P&G. "It's amazing how the process scales," Kotchka says. "We try to use it not just for products but for how we work together, how we organize, and how we develop processes."

The Ideo School for Anglers taught similar tricks to the giant West Coast health-care provider Kaiser Permanente. After a hugely successful 2004 project that Ideo conceived to improve information transfer during nurse-shift changes, the firm's philosophy inspired Kaiser's own innovation center. Recently, that facility tackled the problem of medication error, and using Ideo's techniques, deployed a team to shadow nurses, doctors, and pharmacists as they prescribed, filled, and administered medications to patients. In the U.S. alone, more than 1.5 million people are harmed by medication errors annually; Kaiser's information -- videos and journals -- from the observation phase revealed that interruptions were the main driver behind errors. The team took that insight and brainstormed solutions ranging from streamlining the process for medicine delivery to protecting the process from other employees. They then prototyped tools -- including aprons that said *LEAVE ME ALONE!* and red *DO NOT CROSS!* lines in front of pill-dispensing machines -- that could solve the problem.

The program has been so successful -- reducing interruptions by 50% and increasing on-time delivery by 18% -- that Kaiser is now rolling it out to its 36 facilities and responding to inquiries from around the world about its effectiveness. "Kaiser Permanente has always been innovation driven," says Christi Zuber, director of Kaiser's innovation consultancy, "but Ideo gave us a teachable approach." It's hard to imagine McKinsey giving away its proprietary techniques, but Ideo's largesse is in sync with Kelley's mission -- and with his confidence in his own company's ability to reinvent itself. "I can give our methodology away," he says at a staff meeting on Ideo's future, "because I know we can come up with a better idea tomorrow."

Besides his mania for cars, one of Kelley's primary design passions is his house, designed by his late friend Ettore Sottsass, the founder of the design collective Memphis. It's a sprawling, eclectic masterpiece with multiple, asymmetrical wings: a green one shaped like a Monopoly house for his daughter; a two-story, barrel-vaulted office for his wife; a blocky guest house, where Kelley spent most of his time while he was sick.

In 1983, Kelley started a small business with Sottsass linking Italian design with Silicon Valley technology (their product -- a phone -- made it into MoMA but failed in the marketplace), and he understands the frequent criticism that American design is inferior to European. "The rest of the world defines design as an artistic discipline," he says. "They were taught culture. I wasn't taught who painted anything. So as Americans, we're at a disadvantage." But while Americans may be underrepresented at the Milan Furniture Fair, he says, the United States has something few other countries can match: diversity. The way Kelley sees it, our polyglot populace gives us an extraordinary advantage in generating truly creative ideas.

That idea was one of the animating forces behind the d.school -- a place that would help analytical Stanford types become creative thinkers. The school would welcome students from business, law, education, medicine, engineering -- the more diverse, the better.

In recent years, universities across the country have developed an obsession with cross-disciplinary collaboration. One of the foremost success stories, the James H. Clark Center for Biomedical Engineering and Sciences, is right on the Stanford campus. Still, it took eight years for Kelley to convince Stanford that his unconventional idea -- a school that grants no degrees, but functions as more of a specialized graduate program -- had merit. "When David was making the case for the d.school at Stanford," says Tom Kelley, "he went to [university president John] Hennessy and said, 'Look, we're good at "deep." We have Nobel Laureates drilling down into esoteric topics. But what if there are problems that aren't solved by deep, but broad? We should have a side bet in broad.' " In that climate, Kelley's notion finally began to find an audience. By 2005, he had persuaded Hasso Plattner, a founder of the software giant SAP, to pony up $35 million to the d.school. The new 42,500-square-foot home of the Hasso Plattner Institute of Design, smack in the middle of the Stanford campus, will open this fall.

"Programs like this are absolutely necessary if the U.S. wants to maintain its position in innovation," says Plattner from his company's headquarters in Walldorf, Germany. "For many products, it's a mandatory strategy for survival. And David's so passionate, he can even motivate me."

Kelley is still a bit astonished at what he has been able to pull off at Stanford. "I've been here 30 years, and nobody paid any attention to me at all," he says. "At one point, they were trying to reduce the size of my office -- which was 78 square feet. Now I'm sitting in meetings with the president, with him asking if I want another building." Hennessy is now talking about making creative confidence a requirement at Stanford, just like a foreign language.

Whether or not design thinking revolutionizes the world and all its ramen experiences, Kelley's influence is sure to live on in the institutions he has built and the people he has touched. "David's legacy is that he spends his life doing things he believes in, with people he believes in, with the abiding faith that it will lead to good things," says Dan Bomze, CEO of CleanWell and a former Kelley student. "From David, I've learned that there has to be someone to create something out of nothing. He embodies that. But he makes people feel he couldn't have done it without them. Anybody who spends time with him comes away transformed."

"From David, I've **learned** that there has to be someone to create something of nothing," says a friend and former student. "David embodies that. Anybody who spends time with him comes away **transformed.**"

As for Kelley, he's currently cancer-free, energetic, and full of plans. But every six months, he has to submit to a scan to make sure the disease has not metastasized. It's a terrifying reminder that, as for all of us, life is short.

"So I sit here today," he says, leaning forward in the shelter of the Ideo yurt, "knowing there's a chance it could come back. So I better make some hay. I better get my religion in place in as many people as I can. It's working really well."