The first secret of design is ... noticing

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In the great 1980s movie "The Blues Brothers," there's a scene where John Belushi goes to visit Dan Aykroyd in his apartment in Chicago for the very first time. It's a cramped, tiny space and it's just three feet away from the train tracks. As John sits on Dan's bed, a train goes rushing by, rattling everything in the room. John asks, "How often does that train go by?" Dan replies, "So often, you won't even notice it." And then, something falls off the wall.

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We all know what he's talking about. As human beings, we get used to everyday things really fast.As a product designer, it's my job to see those everyday things, to feel them, and try to improve upon them. For example, see this piece of fruit? See this little sticker? That sticker wasn't there when I was a kid. But somewhere as the years passed, someone had the bright idea to put that sticker on the fruit. Why? So it could be easier for us to check out at the grocery counter.

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Well that's great, we can get in and out of the store quickly. But now, there's a new problem. When we get home and we're hungry and we see this ripe, juicy piece of fruit on the counter, we just want to pick it up and eat it. Except now, we have to look for this little sticker. And dig at it with our nails, damaging the flesh. Then rolling up that sticker -- you know what I mean. And then trying to flick it off your fingers. (Applause) It's not fun, not at all.

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But something interesting happened. See the first time you did it, you probably felt those feelings.You just wanted to eat the piece of fruit. You felt upset. You just wanted to dive in. By the 10th time,you started to become less upset and you just started peeling the label off. By the 100th time, at least for me, I became numb to it. I simply picked up the piece of fruit, dug at it with my nails, tried to flick it off, and then wondered, "Was there another sticker?"

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So why is that? Why do we get used to everyday things? Well as human beings, we have limited brain power. And so our brains encode the everyday things we do into habits so we can free up space to learn new things. It's a process called habituation and it's one of the most basic ways, as humans, we learn.

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Now, habituation isn't always bad. Remember learning to drive? I sure do. Your hands clenched at 10 and 2 on the wheel, looking at every single object out there -- the cars, the lights, the pedestrians. It's a nerve-wracking experience. So much so, that I couldn't even talk to anyone else in the car and I couldn't even listen to music. But then something interesting happened. As the weeks went by, driving became easier and easier. You habituated it. It started to become fun and second nature. And then, you could talk to your friends again and listen to music.

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So there's a good reason why our brains habituate things. If we didn't, we'd notice every little detail,all the time. It would be exhausting, and we'd have no time to learn about new things.

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But sometimes, habituation isn't good. If it stops us from noticing the problems that are around us,well, that's bad. And if it stops us from noticing and fixing those problems, well, then that's really bad.

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Comedians know all about this. Jerry Seinfeld's entire career was built on noticing those little details, those idiotic things we do every day that we don't even remember. He tells us about the time he visited his friends and he just wanted to take a comfortable shower. He'd reach out and grab the handle and turn it slightly one way, and it was 100 degrees too hot. And then he'd turn it the other way, and it was 100 degrees too cold. He just wanted a comfortable shower. Now, we've all been there, we just don't remember it. But Jerry did, and that's a comedian's job.

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But designers, innovators and entrepreneurs, it's our job to not just notice those things, but to go one step further and try to fix them.

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See this, this person, this is Mary Anderson. In 1902 in New York City, she was visiting. It was a cold, wet, snowy day and she was warm inside a streetcar. As she was going to her destination, she noticed the driver opening the window to clean off the excess snow so he could drive safely. When he opened the window, though, he let all this cold, wet air inside, making all the passengers miserable. Now probably, most of those passengers just thought, "It's a fact of life, he's got to open the window to clean it. That's just how it is." But Mary didn't. Mary thought, "What if the diver could actually clean the windshield from the inside so that he could stay safe and drive and the passengers could actually stay warm?" So she picked up her sketchbook right then and there, and began drawing what would become the world's first windshield wiper.

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Now as a product designer, I try to learn from people like Mary to try to see the world the way it really is, not the way we think it is. Why? Because it's easy to solve a problem that almost everyone sees. But it's hard to solve a problem that almost no one sees.

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Now some people think you're born with this ability or you're not, as if Mary Anderson was hardwired at birth to see the world more clearly. That wasn't the case for me. I had to work at it.During my years at Apple, Steve Jobs challenged us to come into work every day, to see our products through the eyes of the customer, the new customer, the one that has fears and possible frustrations and hopeful exhilaration that their new technology product could work straightaway for them. He called it staying beginners, and wanted to make sure that we focused on those tiny little details to make them faster, easier and seamless for the new customers.

07:04
So I remember this clearly in the very earliest days of the iPod. See, back in the '90s, being a gadget freak like I am, I would rush out to the store for the very, very latest gadget. I'd take all the time to get to the store, I'd check out, I'd come back home, I'd start to unbox it. And then, there was another little sticker: the one that said, "Charge before use."

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What! I can't believe it! I just spent all this time buying this product and now I have to charge before use. I have to wait what felt like an eternity to use that coveted new toy. It was crazy.

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But you know what? Almost every product back then did that. When it had batteries in it, you had to charge it before you used it. Well, Steve noticed that and he said, "We're not going to let that happen to our product." So what did we do? Typically, when you have a product that has a hard drive in it, you run it for about 30 minutes in the factory to make sure that hard drive's going to be working years later for the customer after they pull it out of the box. What did we do instead? We ran that product for over two hours. Why? Well, first off, we could make a higher quality product, be easy to test, and make sure it was great for the customer. But most importantly, the battery came fully charged right out of the box, ready to use. So that customer, with all that exhilaration, could just start using the product. It was great, and it worked. People liked it.

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Today, almost every product that you get that's battery powered comes out of the box fully charged,even if it doesn't have a hard drive. But back then, we noticed that detail and we fixed it, and now everyone else does that as well. No more, "Charge before use."

09:02
So why am I telling you this? Well, it's seeing the invisible problem, not just the obvious problem, that's important, not just for product design, but for everything we do. You see, there are invisible problems all around us, ones we can solve. But first we need to see them, to feel them.

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So, I'm hesitant to give you any tips about neuroscience or psychology. There's far too many experienced people in the TED community who would know much more about that than I ever will.But let me leave you with a few tips that I do, that we all can do, to fight habituation.

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My first tip is to look broader. You see, when you're tackling a problem, sometimes, there are a lot of steps that lead up to that problem. And sometimes, a lot of steps after it. If you can take a step back and look broader, maybe you can change some of those boxes before the problem. Maybe you can combine them. Maybe you can remove them altogether to make that better.

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Take thermostats, for instance. In the 1900s when they first came out, they were really simple to use.You could turn them up or turn them down. People understood them. But in the 1970s, the energy crisis struck, and customers started thinking about how to save energy. So what happened?Thermostat designers decided to add a new step. Instead of just turning up and down, you now had to program it. So you could tell it the temperature you wanted at a certain time. Now that seemed great. Every thermostat had started adding that feature. But it turned out that no one saved any energy. Now, why is that? Well, people couldn't predict the future. They just didn't know how their weeks would change season to season, year to year. So no one was saving energy, and what happened?

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Thermostat designers went back to the drawing board and they focused on that programming step.They made better U.I.s, they made better documentation. But still, years later, people were not saving any energy because they just couldn't predict the future. So what did we do? We put a machine-learning algorithm in instead of the programming that would simply watch when you turned it up and down, when you liked a certain temperature when you got up, or when you went away.And you know what? It worked. People are saving energy without any programming.

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So, it doesn't matter what you're doing. If you take a step back and look at all the boxes, maybe there's a way to remove one or combine them so that you can make that process much simpler. So that's my first tip: look broader.

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For my second tip, it's to look closer. One of my greatest teachers was my grandfather. He taught me all about the world. He taught me how things were built and how they were repaired, the tools and techniques necessary to make a successful project. I remember one story he told me about screws, and about how you need to have the right screw for the right job. There are many different screws: wood screws, metal screws, anchors, concrete screws, the list went on and on. Our job is to make products that are easy to install for all of our customs themselves without professionals. So what did we do? I remembered that story that my grandfather told me, and so we thought, "How many different screws can we put in the box? Was it going to be two, three, four, five? Because there's so many different wall types." So we thought about it, we optimized it, and we came up with three different screws to put in the box. We thought that was going to solve the problem. But it turned out, it didn't.

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So we shipped the product, and people weren't having a great experience. So what did we do? We went back to the drawing board just instantly after we figured out we didn't get it right. And we designed a special screw, a custom screw, much to the chagrin of our investors. They were like, "Why are you spending so much time on a little screw? Get out there and sell more!" And we said, "We will sell more if we get this right." And it turned out, we did. With that custom little screw, there was just one screw in the box, that was easy to mount and put on the wall.

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So if we focus on those tiny details, the ones we may not see and we look at them as we say, "Are those important or is that the way we've always done it? Maybe there's a way to get rid of those."

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So my last piece of advice is to think younger. Every day, I'm confronted with interesting questions from my three young kids. They come up with questions like, "Why can't cars fly around traffic?" Or, "Why don't my shoelaces have Velcro instead?" Sometimes, those questions are smart. My son came to me the other day and I asked him, "Go run out to the mailbox and check it." He looked at me, puzzled, and said, "Why doesn't the mailbox just check itself and tell us when it has mail?" (Laughter) I was like, "That's a pretty good question." So, they can ask tons of questions and sometimes we find out we just don't have the right answers. We say, "Son, that's just the way the world works." So the more we're exposed to something, the more we get used to it. But kids haven't been around long enough to get used to those things. And so when they run into problems,they immediately try to solve them, and sometimes they find a better way, and that way really is better.

15:08
So my advice that we take to heart is to have young people on your team, or people with young minds. Because if you have those young minds, they cause everyone in the room to think younger.Picasso once said, "Every child is an artist. The problem is when he or she grows up, is how to remain an artist." We all saw the world more clearly when we saw it for the first time, before a lifetime of habits got in the way. Our challenge is to get back there, to feel that frustration, to see those little details, to look broader, look closer, and to think younger so we can stay beginners.

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It's not easy. It requires us pushing back against one of the most basic ways we make sense of the world. But if we do, we could do some pretty amazing things. For me, hopefully, that's better product design. For you, that could mean something else, something powerful.

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Our challenge is to wake up each day and say, "How can I experience the world better?" And if we do, maybe, just maybe, we can get rid of these dumb little stickers.

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Thank you very much.