Part III
Citizen Science: Simple Solutions to Improve the Way Your Technology Treats You

How to Stop Your Phone Screaming at You, Use a Computer Without Straining Your Neck or Your Wrists, Listen to Loud Music on Your Headphones Without Going Deaf, and Text Your Friends Without Killing Yourself, Them, or Anyone Else

Darwin's Believe It Or Not...

Introduction

This part of this book is all about citizen science.

In the first section we talked about the history of how humans and their tools co-evolved in response to environmental pressures, and about how our computerized devices have not been around long enough to go through that process.

In the second section we talked about my theory and practice of ABC. The theory is basically a way to look at our computerized tools through the long lens of human cultural, physiological, and neurological factors. The practice is the attempt to deliberately modify those same tools to better suit humans, without having to go through gradual iterations for thousands of years.

Here in the third section, we're going to talk about making changes in your own tool use and – more importantly – asking you to help the world to see the value of making and testing more and more human-centered, citizen-science-based modifications to the tools we all use. Just imagine how much nicer life will be when the interaction with our most ubiquitous devices is based on a combination of creativity and the scientific method, rather than a combination of cross-generational habit and marketing!

Not sure you see a need for that kind of change? Let's think for a minute about how we use our tools. Not any of these flash in the pan, faddish tools like iPhones or horseless carriages; let's consider one that's had a bit of time to prove itself on the market… like, say, an axe.

If you go to your local hardware store, or look on-line, you'll find many types of axe available. There are one and two-headed axes, short and long-handled axes, axes made of different materials and sold for different purposes. For the most part, that is all marketing. We know the best type of axe. The single-headed, curved-blade axe, with a slightly bowed handle, has been around for thousands of years. The ancient Egyptians used it, as did the ancient Baktrians and the ancient Chinese. The Vikings used it as a weapon, and also for building and gardening. Reverse your grip and it becomes a hammer. Grip the head from above and it Is a cane. It is a perfect tool that humans have been using, let me say it again, for thousands of years. And never once, in all of that time, has anyone ever said: "Hey, I'm going to drill some flute holes in the handle so that I can play music while I work".

It would be ridiculous, wouldn't it, to use something as dangerous as an axe while being distracted by something as whimsical as playing music… wouldn't it?

Then why do we play music in cars?

Yeah, that's an example of a technology that really seems to be designed to kill its user. But you can't talk about it with the car companies, they just keep including more and more distractions every year, competing to see who's product can pack in the most bells and whistles. Of course, we bring our own bells and whistles into our cars, don't we? The internet is full of images of teenagers – adults too, but mostly teenagers – who have taken photos of themselves driving. They're pulling faces and grabbing their friends and mugging for the camera, which they are often holding

themselves, and they are never, ever paying the least bit of attention to the road. The internet is full of teenagers like that… and so are the morgues.

Again though, it's not just teenagers. We, as a people, have stopped thinking of the car as dangerous. It's just a place where we sit while we get to where we're going. It's not dangerous and it doesn't need our conscious and alert attention any more than our living room does or, for instance, our bathroom.

Have you heard of the distracted driver in Florida? Which one, you ask? Well, back in March, 2010, this particular driver crashed into a pickup truck on a highway in the Florida Keys [1]. Still not specific enough? This driver was only sort of driving. The truth is, she was working the brake and the gas, while her ex-husband leaned over from the passenger seat to handle the steering wheel. Why, you might ask, did her ex-husband have to steer the car? Well, his ex – the one in the driver's seat on the highway – was running late for a date, and she needed her passenger to steer because she was busy, shaving her… "bikini area". Really. Now, I do *usually* encourage people to modify their tool use, but… Of course, for all I know, that *could* be precisely what Fredrik and Otto Kampfe had in mind when they patented the safety razor back in 1880.

Did you hear about the two experienced and heavily trained pilots on Northwestern Airlines flight 188, on October 21st, 2009? They were flying from San Diego, California to Minneapolis, Minnesota, and they decided to work on their laptops during the flight [2]. These professional pilots flew more than an hour past their destination, with alarms sounding and warning lights flashing, and air traffic controllers screaming at them over the radios; with fighter jets doing flyby to try and discover whether they had been hijacked, and 144 passengers wondering what the heck was going on. Seriously. The two pilots admitted afterwards that they had been distracted because they were deep in a discussion about how to use a new crew flight scheduling system, and they lost track of time. It seems to me that they were having a hard time subconsciously deciding which was the important task and which was the distraction.

Then there was the veteran train conductor in Southern California on September 12, 2008 [3]. He was sending and receiving text messages while he sped through warning light after warning light and crashed his commuter train into a freighter, killing 25 people and injuring 135 others.

We cannot multitask with our rational mind. We cannot divide our focussed attention. We do not choose wisely when we subconsciously differentiate between what is important and what is just a distraction.

And we keep building tools based on the idea that we can.

In 2014 the United Nations released a report saying that the leading cause of death for teenagers is no longer alcohol-related driving accidents. The leading cause of death for young men and women 15–29 years of age, is now largely-avoidable traffic "accidents". What's more, if you fall within that age group, you are four times more likely to be involved in a fatal crash while using a phone than if you are driving without one [4]. That means that, if you are between 15 and 29 years old, your phone is literally more likely to contribute to your death than anything else.

This section of the book will help you understand how things like that happen: how it is that our natural mental and physical limitations do not mix well with the constructed limitations of our common tools.

It is my intent that these chapters will also provide you with a simple ways to modify your tools – or your use of them – to make your life less stressful and maybe even safer.

If you want, you can stop there, but there is more. You see, these next chapters are not just recipes or simple life hacks. They're an invitation to help build a community of citizen scientists. Each chapter offers you the chance to record your attempts to improve your personal Human-Computer Interaction. You can run these experiments and then share your results with the community of readers of this book. We can pool the data and learn from it together. If – or rather, when – you come up with improvements on my ideas, you can test them and share the results and make the world a safer place.

It's much more than any one scientist could hope to do, but as a group…

…As a group, we might just be able to make our adaptations so ubiquitous that the manufacturers take notice. Imagine that… like our ancestors who figured out how to put handles on hammers, we could force our computers, peripherals, and computerized devices to take an evolutionary step towards truly Anthropology-Based Computing.

References

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