

Keep Calm and Carry On:
Calm Technology as a Healthy Solution to Smartphone Addiction

I. INTRODUCTION

Technologies change the way people interact with each other and their environment. Technological tools aid, amplify or supplement human ability to achieve a new or different end. History has seen a gradual increase in the speed of communication over the past two thousand years, culminating in the creation of instantaneous communication platforms and networks like the Internet, Smartphones, Twitter and text messaging. Of course, every generation will see each subsequent form of new technology as foreign and unfamiliar. While rejecting new technologies is unrealistic and unproductive, it is equally important not to take for granted the alignment of small-scale technological goals and large-scale cultural and human values. While technology might seem complicated, people are far more so and we need to maintain perspective on why we make what we make and how it, in turn, makes us who we are.

Smartphones are one such technology that has evolved in conjunction with people's desires but which has taken on a life of its own in terms of the trajectory of interpersonal relationships and societal values. Smartphones can be lauded for their speed, ease of use and accessibility. However, there is a major difference between technologies that change how people interact and communicate and those which change the reasons for and content of human interactions and communications.

Smartphones do not just combine the features of a telephone, Internet, email, clock, games and more. They are changing the ways we, as a society, view and value ourselves and others. By shaping the ways we interact with one another, Smartphones color our perception of each other. They make our interactions more automated, easy and mechanical and limit the ways we can express ideas and emotions. Through the lens of a phone, we see each interaction with another person as insignificant. Relationships built in technology end up as hollow as the individual pieces that form them.

While we may think that our devices have set us free by allowing us to connect to everyone and everything from anywhere, the opposite has become invisibly true. Smartphones have created a culture of expectation. Rather than being freer we are more tied to our phones than we ever were to a landline or dialup Internet. Our brains are chemically induced to compel us to check our phones constantly, and our family, friends and colleagues expect us to do so. While you might not return a phone call left on an answering machine for a few days, a voicemail left on a Smartphone expects a much faster response time and a text message faster still.

Smartphones are extremely powerful tools, which makes them particularly alluring. However, we need to revisit the fundamental underpinnings of this new technology and examine the philosophy it promotes in order to productively move forward without crippling our own existence.

II. COMMUNICATION CULTURE

We can imagine the history of communication unfolding. In the beginning communication had to be done basically in person with humans passing off messages to one another or traveling long distances to see and talk to each other. First by foot, horseback, wagon, ship, train, car and then plane the potential range of communication broadened but with similar results: face-to-face contact. With a robust mail service, telegrams and the telephone, information and conversations could be conveyed with ever-greater speed as well. However, at least part of the human element of face-to-face communication was maintained through handwritten letters and a familiar voice on the phone. With the dawn of the Internet and wireless communication, this feedback became nearly instantaneous, linking up the whole world through the World Wide Web, email and cell phones.

Something has begun to change through the filter of these technologies which did not seem to exist in previous means of communication. Siphoned through wires and sorted to 1's and 0's, messages are more numerous but less substantive. People communicate much more digitally but seem reluctant to apply the same vigor to "real life" conversations. People are often more willing and excited to interact with their Smartphones than the people sitting in the very same room. We maintain vast networks of friends spread across the world who we keep up-to-date with through 140 character Tweets or text messages or through voyeuristic "facebook stalking." We can play Words with Friends and Hanging with Friends without once exchanging a word or hanging out with a friend. We have chopped up our round relationships and fit them into neat pixel compartments.

At the same time, the little devices in our pockets can allow everything from grandparents seeing their distant grandchildren grow up over Skype to citizens overthrowing corrupt governments. In fact, many would argue that the myriad benefits and conveniences of Smartphones outweigh any negative side effects. However, as technology plays an increasingly larger role in our own lives and in the lives of the next generation, we need to establish and enable a healthy balance between the pull of technology and what makes us human.

III. SMARTPHONE CULTURE

A. ADDICTION

There are a number of characteristics of mobile technology that contribute to producing unwanted behaviors, impulses and lifestyles. Smartphones have the ability to affect us in strong ways because they are not only powerful tools, but actually, intentionally and unintentionally, tap human biology and play off of human emotions. People literally love their phones. They experience the same biological reactions when they look at their iPhones as they do when they see their loved ones.¹ When this becomes the case, people amalgamate humans and machines and consequently their treatment of others can be morphed by their use of technology. People begin to see their friends and family, not as humans, but as the deliverables you can obtain from your Smartphone - as sources of information, entertainment, affirmation or facebook posts. This, in turn, leads us to treat others as little more than the deliverable that is being provided to them.

¹ Martin Lindstrom, "You Love Your iPhone. Literally." *The New York Times* 30 September 2011 <http://www.nytimes.com/2011/10/01/opinion/you-love-your-iphone-literally.html?_r=0>.

Nowadays, people frequently find themselves checking their phones every ten to twenty minutes just to see if they have received an email, message or notification. This is not only because they love their phones and want to communicate with their friends but also because the modern cell phone notification and instant data access systems actually trigger a dopamine feedback loop in the brain.² Dopamine is a neurotransmitter frequently associated with happiness. However, it actually activates more of a “seeking” impulse than a feeling of pure happiness.

This is particularly important in conjunction with Smartphones which have the ability to deliver small bits of information very quickly. The dopamine is released when someone gets an email, facebook post, tweet, notification or text message which prompts a feeling of interest and curiosity and makes the person want to find another tidbit of information and another shot of dopamine. On cell phones, in particular, this bit of information typically comes limited to 140 characters and is not very satisfying. Therefore, the seeking impulse is triggered over and over again but rarely fulfilled. The cell phone user ends up scrolling through hundreds of inane status updates and pictures of food. The loop of seek-and-don’t-find is even worse with the addition of notifications, vibrations and sounds. Like Pavlov, cell phones condition their owners to induce their searching frenzy at the sound of a chime. In fact, the anticipation of receiving a text message, facebook post or notification frequently supplants the gratification of the actual delivered content.

The system of pushing notifications and alerting Smartphone users with a sound has created what is literally a biological addiction. In addition, the omnipresent, instantaneous access that the Smartphones give both their users and the people wishing to contact their users is shaping a culture built on instant gratification.

Of course, being able to place calls, look up facts on the Internet, check our email or shoot off a text message at anytime and in almost any location seems like a good thing. And in most ways it is. No one wants to be inconvenienced by the limitations of a technology (we all know how irritating it is when you need to find a friend but there is no cell phone service).

B. CONTENT FLATTENING

In *Alone Together*, Sherry Turkle interviewed a middle-aged lawyer about his Smartphone and email use. Not only have these technologies changed the expectations of connectivity, but this man has noticed a shift in the substance of his communications as well. He said,

“ ‘I answer questions I can answer right away. And people want me to answer them right away. But it’s not only the speed.... The questions have changed to ones that I *can* answer right away.’ [He] describes legal matters that call for time and nuance and says that ‘people don’t have patience for these now. They send an e-mail, and they expect something back fast. They are willing to forgo the nuance; really, the client wants to hear something now, and so I give the answers

² Susan Weinschenk, “Dopamine Makes You Addicted To Seeking Information,” *What Makes Them Click* 7 November 2009 < <http://www.whatmakesthemclick.net/2009/11/07/100-things-you-should-know-about-people-8-dopamine-makes-us-addicted-to-seeking-information/> >.

that can be sent back by return e-mail... or maybe answers that will take me a day, max.... I feel pressured to think in terms of bright lines.”³

Smartphones do not force us to change the way we think, but they do channel us into the easy grooves they have carved out in our ever-developing mobile culture.⁴ The result, if we are not careful, is that they change us along the way.

The content of a communication is, in part, defined by its medium, and as we create faster and shorter containers for our communications we are constraining rather than freeing our interactions with others. Everyone knows that you should not end a relationship via text message because not all things can or should be fired off as 140 character blasts. But increasingly, people prefer to communicate remotely and briefly. Many frequently find themselves sitting in the same room as their family but communicating with friends on their Smartphone. Later, these same people may be with those same friends and but communicating with family members now from afar. Rather than enhancing interpersonal relationships, Smartphones can have the opposite effect. As human and machine merge, people become conflated with items in an inbox to be checked off and deleted.

C. EXPECTING LESS OF EACH OTHER

A culture has emerged around Smartphones which excuses the parallel attentions we devote to them along side our physically present companions. You can get “credit” for being in class, even if you are facebooking the entire time. You can have a sit down meal with your family even if you are reading work emails or texting friends at the same time. You can even send short, terse, spelling-mistake ridden emails as long as you have “Sent from my iPhone” at the bottom.⁵ While these actions are certainly sometimes seen as rude, they are usually attributed to the user of the cell phone: the overworked father or the thoughtless teenager. The usual prescribed remedy is to change the offender’s habits through willpower. But as Lanier said, “different media designs stimulate different potentials in human nature.”⁶ It is the design of these technologies—not just a lack of willpower—that has brought about these adverse side effects.

IV. THE USUAL REMEDY

But just because it is these technologies that lead to the problems I have described, that does not mean in an ideal world we would simply do away with them. There are huge benefits that it would be unwise to give up – that would be throwing the baby out with the bathwater. The goal, instead, should be to maintain the positive aspects of our mobile technologies while mitigating the adverse side effects they have on us. If we look at the design of current Smartphones from “a rhetorical perspective, our hypothesis should be that all products – digital and analog, tangible and intangible – are vivid arguments about how we should lead our lives (Buchanan 2001, 194).”⁷ The culture we are currently forming around mobile phones and the argument we are making

³ Sherry Turkle, *Alone Together : Why We Expect More from Technology and Less from Each Other* (New York : Basic Books, 2011) 166.

⁴ Jaron Lanier, *You Are Not a Gadget* (New York: Random House, 2010) 22.

⁵ Paul Horowitz, “3 Simple Gmail Tips to Boost Email Productivity,” *OSXDaily* 9 December 2012 <<http://osxdaily.com/2012/12/09/3-simple-gmail-productivity-tips/>>.

⁶ Lanier 5.

⁷ Carl DiSalvo, *Adversarial Design* (Cambridge: MIT Press, 2012) 15.

about how to live our lives is one that either celebrates or bemoans the demanding and addicting omnipresence of our phones.

Frequently, the topic of Smartphone addiction is touted in magazines and newspapers, and the prescription, across the board, is to just put down your phone.⁸ Leave it at home, turn it off or have a friend hold it hostage. The implication is that you need to use your willpower to fight the machine because otherwise it will pull you relentlessly in. Despite a slew of sources confirming that multitasking, endless web surfing and mobile phone addiction are not good for you, it is not surprising that people find it no easier to unplug in the past few years than before they were told it was bad for them. This is because the solutions commentators provide rely almost solely on the individual's willpower to cut themselves off from their enchanting Smartphones.

There are two things wrong with this type of approach. One, we do not simply want to be disconnected; we want to be connected in a healthy way. And two, it is the design of the technologies that makes them so addictive, so we need a little help from the technologies themselves.

V. HELP FROM WITHIN

There are a various ways one could imagine a technology helping enable people to moderate their usage. As we have discussed, most of the researchers and commentators of digital addiction say that we should unplug during our downtime or when we are trying to focus on a particular task or person. The problem for most people is that they are not able to resist the urge to check their phones in the present, even if they resolved not to do so in the past because there is always the option to push the resolution off into the future. Technology could help us make the decision immediate by offloading the responsibility to someone or something else.

For example, a classroom could be lined with conductive wallpaper that, when switched on, would create a shield against incoming wireless data. It would block cell phone, data and wireless Internet service but would only be activated when the switch was on. Teachers could decide when to make the classroom an “off-zone” preventing distracting multitasking. This would be akin to the suggestion to give a friend your phone for a period of time. But this option might seem a bit dictatorial for most, who would like to regulate themselves but lack the here-and-now motivation.

For those people, one could imagine an app which helped a person stick to their previous resolutions. A strategy that works very well is called a Ulysses Pact. It combats the tendency to put off or disregard decisions you made in the past. When you make a Ulysses Pact your present self binds your future self.⁹ Technology could be the mediator of such a bargain. The way this would work is that your present self would know that you don't, for example, want to check your phone right before you go to bed because it makes you sleep poorly. So you would set a time range when your phone itself would prevent you from accessing it, and you would set a value to your intention (e.g. if you really did not want to open your phone you would say it was worth \$500 to you). During the prearranged time range you would not be able to open your phone without paying out your prearranged price. This could be reinforced by picking a cause that was very

⁸ Martin Lindstrom, “You Love Your iPhone. Literally.” *The New York Times* 30 September 2011 <http://www.nytimes.com/2011/10/01/opinion/you-love-your-iphone-literally.html?_r=0>.

⁹ “Help,” *RadioLab* 8 March 2011 <<http://www.radiolab.org/2011/mar/08/>>.

undesirable to you and having your money given to them (e.g. if you were a pacifist you might pick the NRA). This would give ample motivation to do something (or in this case, not do something) that you know you wanted to do anyway.

These options would help people apply their willpower and do what many suggest should be done: unplug; however, they are too austere and blunt an instrument. The goal is to remain connected but to mitigate the biological/physiological seek-and-don't-find reactions that lead to unhealthy use of Smartphones, thereby giving control and autonomy back to the user. Keeping Lanier's words in mind: "Different media designs stimulate different potentials in human nature." We should try to introduce a calm technology that would help design a mobile culture which parallels a human culture we deem healthy and positive.

VI. A HEALTHY TECHNOLOGY IS A CALM TECHNOLOGY

A calm technology is one which "engages both the center and the periphery of our attention, and in fact moves back and forth between the two."¹⁰ This means that you can gain information from a technology even though you are not focusing directly on it. Smartphones constantly call for us to focus directly on them, bombarding us with updates and notifications. They are built "on the excitement of interaction."¹¹ The goal of a calm technology is to minimize the effects of an interaction so that it can blend into the background while still relating valuable information. It does so by boarding our "peripheral reach [to] increase our knowledge and so our ability to act without increasing information overload."¹² Currently Smartphones greatly broaden our information reach, but they do so in an intrusive and overwhelming way. Truly calm technology may not be possible until computers are ubiquitous so that their presence goes without notice, much as the technologies of writing and electricity are so pervasive that we barely notice interacting with them now.

In order to move our interactions with Smartphones more inline with the principles of calm computing, we should focus on two things: that they involve senses other than just sight and that they be analogue not binary. In terms of Smartphone, binary notifications are ones that are either on or off – your phone is either lit up or dark, making a sound or not. These are the triggers that trip the Pavlovian switch in the dopamine feedback loop.

Rather than delivering clearly delineated visual stimulants, I propose a wristband which would communicate with your phone though notification-prioritizing software and let you become aware of information on your phone as the buildup of pressure on your wrist. This notification delivery system would take the Pavlovian response and make it a gradient. It would act in your periphery, allowing you to let the pressure of the band give you unconscious information, but also come into the center of your focus when appropriate. Of course, you will always have some sort of reaction if you are getting any information from your phone at all, but this method would moderate the biological response and make it easier to control your reactions and behaviors.

¹⁰ John Seely Brown and Mark Weiser, "The Coming Age Of Calm Technology," (Palo Alto: Xerox PARC, 5 October 1996) 8.

¹¹ Brown 7.

¹² Brown 11.

The bracelet would be wirelessly linked to your Smartphone through Bluetooth and would operate in conjunction with software on your phone. In the software, you could prioritize the information coming from your phone. You could set which notifications and events apply more pressure or no pressure at all. Rather than having a notification trigger a biological response in you, only to realize that you didn't really care that your high school classmate joined Spotify, you will be able to subconsciously and peripherally know when your phone has information worth leaving "real life" for. Dopamine feedback loops would be triggered less frequently because signals would only be sent in accordance with your own priorities. You would know when relevant information was on your phone, as opposed to when *any* information was on your phone. This is an important distinction because it is the lack of fulfillment which fuels the dopamine feedback loop and leads to obsessive and sometimes compulsive phone checking.

VII. THE RESULT

This tool, in conjunction with existing phones, would allow for choice and self-motivation because ultimately the impulses which corrupt the usefulness of Smartphones arise from the individual as well as the design. The Smartphone-paired bracelet would allow prioritized, analog build-up of pressure which could act at the periphery of a person's focus to relay information while minimizing the direct technological stimuli which trigger an emotional and biological response. This would make the interface between human and machine more manageable for the person to navigate, so that he remains in control.

Using this device in combination with Smartphones would not necessarily dramatically change a person's individual interactions with their phone. Instead, it would shift the perspective of the person as they approached and operated their device. Instead of having a constant pull towards the virtual and harboring a fear of missing out, people could transition to absorbing information from their phone as they would other sources of information in the physical world. Just as you are aware of the temperature of a room at the periphery of your attention, so you would be of the information on your phone. We do not check the thermostat every ten minutes to see if it is the right temperature in the room. We become aware of the temperature when it is too hot or too cold and then the thermostat can pass into the center of our focus. This wristband would do physically for the Smartphone what our own internal thermometer does for the thermostat.

By mitigating the biological dependency created by dopamine, the wristband would make us less dependent on our Smartphones. Rather than amassing a thousand insubstantial interactions with our phones and those on the other side of them, people would be less tempted to dilute the "real life" interactions with their Smartphones' interactions. Instead, they could concentrate on one or the other, making each more meaningful.

VIII. CONCLUSIONS

Smartphones are just tools for connecting people, so there is no reason that a mobile culture should value real people less than a societal culture does. But, as we have seen, this is what is not-so-slowly coming to pass. This proposed wristband that would act in cooperation with Smartphones is just one small sample of ways the principles of

calm technology could help the culture we are developing around mobile phones mirror the values we hold dear as a society. If small steps like the one I have proposed could be implemented over the next decade, more and more interfaces would arise that allow human/computer interaction on human terms.

We have seen that technology has the capacity to unlock different potentials in human nature. Currently, we are tapping the wrong wells. People, obsessed with their Smartphones, withdraw into the virtual, create harmful and addictive habits and put their human relationships at risk. As Adorno expressed sixty years ago, “Technology is making gestures precise and brutal, and with them men.”¹³ Smartphones don’t just change the frequency and means our communications. They change how we relate to others, how we define our friendships, and they even change what we say. It is not just a matter of aesthetics; the way we construct our interactions with Smartphones really does matter because these same interactions are quickly becoming the main foundations of our relationships with people. While our short-term technological goals of speed, accessibility and ubiquity have gained us much, we need to channel these benefits into a healthy form. By applying the principles of calm technology, we can let the technology itself fade into the background, making room once again for people. We are currently the architects of our future. It is up to us whether we are swept away by maelstrom of technology we are presently developing or whether we take control and build a healthy technology that will let us define a mobile culture we want to be a part of.

¹³ T. Adorno, Minima Moralia, trans. E.E.N Jephcott (London: Verso, 1984) 40.