

## Chapter 2

# Transparent Media and the Development of Digital Habits

Daniel Susser

Our lives are guided by habits. Most of the activities we engage in throughout the day are initiated and carried out not by conscious thought and deliberation, but through an ingrained set of dispositions or patterns of action—what Aristotle calls a *hexis*. We develop these dispositions over time, by acting and gauging how the world responds. I tilt the steering wheel too far and the car’s lurch teaches me how much force is needed to steady it. I come too close to a hot stove and the burn I get inclines me not to get too close again. This feedback and the habits it produces are bodily. They are possible because the medium through which these actions take place is a physical, sensible one. The world around us is, in the language of postphenomenology, an *opaque* one. We notice its texture and contours as we move through it, and crucially, we bump up against it from time to time.

The digital world, by contrast, is largely *transparent*. Digital media are designed to recede from view. As a result, we experience little friction as we carry out activities online; the consequences of our actions are often not apparent to us. This distinction between the opacity of the natural world and the transparency of the digital one raises important questions. In this chapter, I ask: How does the transparency of digital media affect our ability to develop good habits online? If the digital world is constructed precisely not to push back against us, how are we supposed to gauge whether our actions are good or bad, for us and for others? What’s more, can it be constructed otherwise? Can we build opacity into our digital environments, and thereby better inhabit them? I argue that we can.

In the first section, I look at habits generally, and the development of good habits specifically, in non-mediated contexts. Next, I discuss technological mediation and the various modes of transparency it produces. In the third section, I bring together the insights from the first two: I examine

the effects of transparency on the development of technologically mediated habits, focusing in particular on digital media. I argue that the digital world conceals from us the “internal effects” of our actions upon the technologies we engage with—traces of our clicks and keyboard presses, transmissions of our personal information, and so on—and it provides only selective feedback about the effects of our digital actions upon other people. Our digital habits are therefore responsive only to some of the effects of our actions, and they are blind to others. But this, I argue in the final section, is something we can change. By designing digital media to reveal some of what it presently conceals—designing for what I call *strategic opacity*—we can generate the feedback necessary to form good digital habits.

### DEVELOPING GOOD HABITS

It has long been observed that we act the way we do for the most part out of habit.<sup>1</sup> Whether that is a good thing or bad thing is a matter of some debate. Clare Carlisle has surveyed a number of discussions about habits in the Western philosophical tradition and found widely diverging views. For some, habits are indispensable guides both to knowledge and action. For others, they are obstacles to overcome. “Aristotle thinks that habit lies at the heart of moral life,” writes Carlisle, “Spinoza argues that it leads us astray and prevents us from perceiving the deep intelligibility of nature. Hume regards custom as ‘the great guide of human life,’ since it helps to make our world orderly and predictable. Kant suggests that it undermines our innate moral worth, making us ‘ridiculous’ and machine-like” (2014, 3). Habit is like Plato’s *pharmakon*, Carlisle says: “both a poison and a cure” (ibid., 5).

The good and the bad of habit both stem from the fact that habits allow us to act without thinking. Having done something sufficiently many times, we need not pay much conscious attention to the task at hand when setting about doing it again. As Ed Casey writes, habitual actions are “on tap” (2013, 213). They are “ready to activate: so ready that conscious deliberation or decision is not called for” (ibid.). When I wake up in the morning I do not plot my route to the bathroom, think about where I store my toothbrush, deliberate about how long to spend brushing, and so on. I simply do these things, unthinkingly, out of habit. “Muscle memory” guides me along the right path and through the right motions, leaving my conscious attention free to contemplate other things. I can think about where I left off in my work the previous evening and what I need to accomplish today. I can listen to the weather report and think about what to wear. Being able to act out of habit means being able to multitask. It means being able to plan tomorrow’s lecture while cooking dinner, being able to type out notes while the boss is talking, and being able

to carry on a conversation with one's passengers while driving. If we had to consciously deliberate about everything we did, all of our time would be spent contemplating trivialities.<sup>2</sup>

At the same time, acting unthinkingly can obviously be a problem. For Kant, it makes us “machine-like” because freedom is precisely a function of thinking—acting freely is acting after deliberation and in accordance with rational law. Habit “deprives even good actions of their moral worth because it impairs the freedom of the mind” (Kant 2006, 40). Indeed, one need not go as far as Kant does to arrive at the issue. Simply consider the difficulty of correcting *bad* habits. Perhaps my morning routine involves leaving the water running while I brush my teeth, wasting a precious resource. I might, on conscious reflection, decide I want to act differently. But when I go to brush my teeth I do so automatically, out of habit, repeating my error without thinking. “A bad habit,” writes John Dewey, “suggests an inherent tendency to action and also a hold, command over us. It makes us do things we are ashamed of, things which we tell ourselves we prefer not to do. It overrides our formal resolutions, our conscious decisions” (1922, 24).

Since we rely on our habits and are in many ways beholden to them, it is important to cultivate good habits. I use the term “good” expansively here, to mean habits which are either morally good or those which are merely good for oneself. Habits are, as Hobbes says, “motion[s] made more easy and ready by [...] perpetual endeavor, or by iterated endeavors”—that is, we develop them through repetition.<sup>3</sup> We thus develop *good* habits when we are rewarded for acting well and punished for acting poorly. The former inclines us to repeat the good behavior, thereby carving a path we'll tend to travel down again. The latter steers us away from it.

Sometimes the rewards and punishments are administered intentionally by those trying to instill good habits in us. We are *taught* good habits when our parents tell us to sit up straight and to eat healthy foods, when our teachers force us to rewrite essays, and when our partners nudge us to clean the house. Aristotle suggests that to develop the right set of habits—the right *hexis* or character—we must be raised the right way from childhood. “One who is going to listen adequately to discourse about things that are beautiful and just, and generally about things that pertain to political matters,” he says, “needs to have been beautifully brought up by means of habits” (2002, 4). If our habits are shaped early in life by attentive parents and upright teachers, later in life we will recognize and tend toward the good.

In addition to having good habits cultivated in us, we develop good habits through trial and error. We act and gauge how the world responds. Children are constantly experimenting in this way—figuring out what they are capable of and how much they can get away with. They put things in their mouths that ought not to be eaten and the taste encourages them to spit it out. They

pull their friends' hair and wait to see if their own hair gets pulled back. The effects of our actions—on ourselves, on others, and on the physical world—incline and disincline us to repeat them. The *feedback* we get from the world indicates that we are acting well or poorly, to our benefit or detriment, pro- or antisocially.

Crucially, the process of internalizing this feedback is bodily. We don't (predominantly) choose how to act by recalling the feedback we have received from acting in various ways in the past, weighing in our minds the pros and cons of acting that way again, and then calculating the cost-benefit ratio.<sup>4</sup> Rather, the feedback we receive from acting in the world accrues in our bodies, as the disposition to act a certain way in response to similar situations down the road. Whether it is the glare of an angry parent or the physical jolt from a car driven too near the edge of the road, the memory that feedback leaves behind is not representational memory, but rather a kind of muscle memory. It produces not intellectual or propositional knowledge, but rather, as Merleau-Ponty says, "knowledge in the hands" (Merleau-Ponty 2002, 166). Describing the habits of moving around his apartment, Merleau-Ponty writes: "My flat is, for me, not a set of closely associated images. It remains a familiar domain round about me only as long as I still have 'in my hands' or 'in my legs' the main distances and directions involved" (2002, 150).<sup>5</sup>

Dewey points to the bodily dimension of habits by comparing them to basic physiological functions like breathing and digesting food, and describing both as products of bodily organisms interacting with environments:

Habits may be profitably compared to physiological functions, like breathing, digesting. The latter are, to be sure, involuntary, while habits are acquired. But important as is this difference for many purposes it should not conceal the fact that habits are like functions in many respects, and especially in requiring the cooperation of organism and environment. [N]atural operations, like breathing and digesting, acquired ones like speech and honesty, are functions of the surroundings as truly as of a person. They are things done *by* the environment by means of organic structures or acquired dispositions. (1922, 14)

Put another way, the feedback we get from acting in the world is not merely a resource to draw from, to consider later when we find ourselves in similar situations. When we interact with our environments the feedback it relays to us *shapes us*, producing or ingraining the habits which then determine (in part) how we act. Reflecting on Dewey's position and, in a sense, expanding Merleau-Ponty's view, Shannon Sullivan argues that "whether the activity is riding a bicycle, walking in high-heeled shoes, or interrupting people while they talk, habits are constituted in and through a dynamic relationship with the world 'outside' them [Walking in high-heeled shoes] isn't an activity

that is contained within a person's feet and legs. It is located, so to speak, between feet, legs, shoes, floors, and gendered expectations" (2013, 258).

If habits are a function of both persons and their environments, the question arises as to how habits form in environments filled with digital technologies. Our natural environment—the physical, sensible world—constantly pushes back against us. It generates feedback about the effects of our actions, indicating to us whether they are behaviors we ought to repeat or retire. The digital technologies that mediate much of our contemporary lives are designed, by contrast, to operate silently and invisibly, so that we can focus our attention on the activities we want to do through them. They are designed to be *transparent*.

### TRANSPARENT TECHNOLOGIES

When we engage with technologies and they work, when they perform their functions fluidly and without incident, the technologies themselves tend to withdraw or recede, so that we forget we are even using them. Heidegger famously drew attention to this phenomenon with the image of a hammer. When we encounter a hammer, he says, we don't encounter a *thing*—an object, simpliciter. We encounter what he calls "equipment" (*Zeug*), which is to say, a tool embedded in potential use contexts. "Equipment," writes Heidegger, "is essentially 'something in-order-to'" (1962, 97). Because what is salient to us about tools is the work they are meant to help us do (the "in-order-to"), that is what we attend to. We ignore the equipment and focus on the work. Tools "must, as it were, withdraw in order to be ready-to-hand quite authentically," Heidegger says (*ibid.*, 99). Or as Hubert Dreyfus puts it: "Precisely when it is most genuinely appropriated equipment becomes transparent" (1991, 65).

Transparency is lost, on the other hand, when tools break or malfunction. When the hammer fails to drive in the nail we are forced to confront its objectness, to question what about it is keeping it from doing its job. We are drawn out of what Dreyfus calls "absorbed coping" (1991, 69) and the tool becomes, so to speak, opaque. Robert Rosenberger points to a familiar contemporary example of this shift from transparency to opacity: encountering a slow-loading webpage. Ordinarily, a skilled computer user does not attend to the computer itself. They are able to type on the keyboard, manipulate the mouse, and interpret the digital interface instinctively, so that their full attention is focused on the content presented on-screen. It is only when the computer fails to act as expected that their attention shifts to the computer *qua* object:

[T]he sudden and unexpected occurrence of a slowly-loading webpage can be jarring. It is more than an inconvenience with regard to one's work; it changes

the character of one's relation to the technology. The slowly-loading webpage can cause a drop in transparency. The particular ways one interfaces [sic] the computer—the keyboard, mouse, on-screen icons and buttons—reemerge into the forefront of experience. The user becomes explicitly aware of her or his own situation as a user. The computer itself appears in terms of its stubbornly limited options for interface; it is suddenly unable to mediate one's experience in a meaningful way. (Rosenberger 2009, 178)

Rosenberger's description illustrates the fact that transparency is not simply a side effect of tool use; it is required in order to become absorbed in one's work. We aren't just annoyed when a webpage fails to load, we are jolted out of our "flow." Forced to turn our attention away from the goal of our work (the "in-order-to"), and attend instead to the tool mediating it, we might lose our train of thought or forget what we were looking for in the first place. Transparency is thus both product and precondition of effective tool use: when tools function properly they withdraw or recede from conscious attention, and they must remain withdrawn in order to remain useful.

As Yoni Van Den Eede has shown, the idea of transparency can be found in discussions about technology across many different fields. In addition to Heidegger's account, Van Den Eede finds technology's withdrawal from con-scious attention thematized in the work of media theorist Marshall McLuhan (2003), sociologist Bruno Latour (1992), social psychologist Sherry Turkle (1995; 2005), cognitive scientist Donald Norman (1999), and philosopher Don Ihde (1990), among others (Van Den Eede 2010). In each field, a dif-ferent facet of technological transparency takes center stage. McLuhan, for example, is interested in how the "form" of media—which of our senses it is meant to stimulate, and how that stimulation is structured—is invisible to most media consumers, despite the fact that, according to McLuhan, the form has a greater effect on us than its content (*ibid.*, 144–45).<sup>6</sup> For Latour, on the other hand, what eludes our attention is the historical context in which the technologies we use were developed, and the moral and political values that shaped their design (*ibid.*, 147–48).<sup>7</sup>

The most systematic account of technological transparency comes from Ihde, and from those working in the field of postphenomenology, which he initiated.<sup>8</sup> Drawing from both phenomenology and the American pragmatist tradition, postphenomenologists ask: How do technologies mediate our experience of ourselves, each other, and the world? And how does technological mediation transform that experience?<sup>9</sup>

According to Ihde, we relate to and through technologies via four different "human-technology relations." We *embody* technologies (producing "embodiment relations") when they extend or amplify our basic perceptual capacities—such as when we wear eyeglasses or a hearing aid. By contrast,

when we use technologies like clocks and dashboard speedometers we pay attention to the technologies themselves, which *represent* the world through readouts or other symbolic displays. Since they require us to engage in interpretive work, Ihde terms these “hermeneutic relations.” In other cases, we relate to technologies as though they are quasi-human, such as when we ask questions of virtual assistants like Apple’s Siri or Microsoft’s Cortana. These Ihde calls “alterity relations.” And finally, some technologies operate wholly out of sight, without soliciting any interactions from users. Our relations to technologies like air conditioners and the electric grid Ihde calls “background relations” (Ihde 1990, 72–123). In what follows, I pay special attention to embodiment and hermeneutic relations, though my arguments may bear on alterity and background relations as well.<sup>10</sup>

Transparency and opacity function differently in these different relations, with human, technology, and world coming in and out of view in different ways. When we embody technologies, the instruments themselves recede and we experience the world *through* them. In order to work my eyeglasses have to be (literally) transparent enough for me to see through them, while the world on the other side of them remains opaque. The same is true for non-visual technologies: a hearing aid is embodied aurally, a cane tactilely. “Once learned,” writes Ihde, “cane and hearing aid ‘withdraw’ [...] I hear the world through the hearing aid and feel (and hear) it through the cane” (1990, 73–4). What’s more, we can embody more complex technologies than eyeglasses, hearing aids, and canes. Merleau-Ponty, whose theory of embodiment Ihde draws from in developing his own account, describes embodying a mechanical typewriter: “When the typist performs the necessary movements on the typewriter, these movements are governed by an intention, but the intention does not posit the keys as objective locations. It is literally true that the subject who learns to type incorporates the key-bank space into his bodily space” (2002, 167).

In order for this to happen, for the technology to become incorporated into the user’s “bodily space”—their pre-reflective sensorimotor orientation to the world—and thus recede from view, the technology has to generate feedback about the world, which the user can feel, and which accurately orients them to it. Ihde illustrates this by describing the devices used to manipulate radio-active materials:

[T]he mechanical arms and hands which are designed to pick up and pour glass tubes inside the shielded enclosure have to ‘feed back’ a delicate sense of touch to the operator. The closer to invisibility, transparency, and the extension of one’s own bodily sense this technology allows the better. Note that the design perfection is not one related to the machine alone but to the combination of machine and human. The machine is perfected along a bodily vector, molded to the perceptions and actions of humans. (1990, 74)

In other words, what makes us able to embody technologies, and therefore what allows technologies to become transparent enough to withdraw from our attention, is the connection they maintain between our perception and the world we are experiencing through them. Embodied technologies have to be reliable sensory conduits. If my glasses are too dirty for light to pass through them it is the glasses I will attend to, not the view beyond.

Hermeneutic relations work differently. Rather than extending our sensorimotor experience, technologies we relate to hermeneutically represent the world to us symbolically. When I look at my watch, the directions the hands face visually represent the time. When I listen to a Geiger counter beeping sounds aurally represent the presence or absence of radiation. Braille represents text through touch. Hermeneutic relations thus require interpretation—I must learn to read the hands of a clock, the beeps of a Geiger counter, and the bumps of braille. As with embodiment relations, once I've learned to read these technologies well they too begin to recede. Only the transparency that is produced is different from the transparency of eyeglasses and hearing aids.

To perceive the temperature outside through the thermometer I can see out my window, the instrument itself must remain opaque enough for me to attend to its display. Of course, once I am sufficiently accustomed to reading it, I need not attend to the display all that carefully. As long as the readings are accurate, some degree of what Ihde calls “hermeneutic transparency” allows me to forget that I am looking at a device at all, and to simply gauge the temperature through it. But this form of technological withdrawal is different from the withdrawal that occurs in embodiment relations, for the ultimate object of perception is not the world but a representation of it. “You read the thermometer, and in the immediacy of your reading you *hermeneutically* know that it is cold,” writes Ihde, “[...] But you should not fail to note that *perceptually* what you have seen is the dial and the numbers, the thermometer ‘text.’ And that text has hermeneutically delivered its ‘world’ reference, the cold” (1990, 85, original emphasis).

For technologies we relate to hermeneutically to recede from view, they must—like embodied technologies—produce a reliable connection between user and world. They must generate perceptual feedback. The feedback is different from that produced in embodiment relations, since hermeneutic relations connect us to the world only abstractly. But in both cases, with embodiment relations and hermeneutic relations, it is the feedback technologies generate or transmit, the connections they facilitate between user and world, that allows the technologies themselves to recede from view. Transparency derives from perceiving the effects of my actions upon the world instead of upon the technology through which I experience it.

Importantly, Ihde stresses that no matter how fully we embody technologies, nor how skilled we become at interpreting their displays, the transparency



that results is always partial. And as a consequence, the world we experience through mediating technologies is always a world transformed. It is, as Ihde says, “non-neutral” (1990, 75). Indeed, though we may dream of perfectly transparent, fully embodied technologies, we can see upon reflection that we adopt technologies precisely *for* the transformations they afford. Eyeglasses would be useless if they didn’t bring our vision into focus. We would have no need for thermometers which failed to transform the feeling of ambient temperature into an abstract, numerical representation. “The desire [for fully transparent technological mediation] is, at best, contradictory,” Ihde writes, “[...] Such a desire both secretly *rejects* what technologies are and overlooks the transformational effects which are necessarily tied to human-technology relations” (1990, 75, original emphasis).

At the same time, these transformational effects aren’t arbitrary—they have a particular structure or form, which Ihde describes as a “magnification/reduction structure” (1990, 76). Perceiving the world through technology means having some aspects of that world magnified or emphasized and other aspects reduced or “placed aside.” Eyeglasses, for example, focus our attention on what is directly visible in front of us, reducing our sensitivity to peripheral phenomena. Similarly, hearing aids are designed to magnify sounds associated with human voices and to reduce background noises, like strong winds or the din of construction. Technologies we relate to hermeneutically produce a magnification/reduction structure as well—a function of which aspects of the world a particular technology has been designed to represent, and what form that representation takes. For instance, analog clocks represent time in relational terms, while digital clocks represent time in discrete, measurable units. Reading the time in these two different ways is experienced differently: “The person who awaits the train, who once could glance at his watch and *see* that it was yet ten minutes until arrival time by *seeing* the relation between the pointers and the span, now sees only the number and must infer or calculate the span” (Ihde 1983, 39).

Now, having thus far emphasized the differences between embodiment and hermeneutic relations, it is important to point out that many complex technologies afford relations of both kinds. To return to the example of slow-loading webpages, we can see that this is certainly true in the case of computers. We interact with computers, and other digital technologies, both through physical interfaces, like keyboards and mice, and representational interfaces, such as monitors and LED displays. As we become skilled at manipulating the physical interfaces, we learn to embody them. Just as Merleau-Ponty embodied his mechanical typewriter by “incorporating” it into his bodily space, we incorporate electronic keyboard and mouse into our bodily spaces. We need not think about where and how to maneuver the mouse in order to click on objects of interest on-screen. Once we’ve used a computer mouse for

long enough, the screen simply becomes an extension of our spatial field. The same is true of hermeneutic relations to computers: once we become accustomed to interpreting the visual metaphors and other on-screen signifiers—“files,” “folders,” “windows,” “scrollbars,” et cetera—the representations recede and we are able to simply see and do our work through them. Just as I’m able to navigate my physical desktop without paying conscious attention to each item on it, I’m able to navigate my computer desktop without giving it a thought.

Our ability to navigate computers and computer interfaces is, of course, a product of habituation—of developing bodily and interpretive habits. “Through the development of expectations and bodily habits,” writes Rosenberger, “one comes to embody the computer as it is used” (2013, 291). But the habits we develop around our computers and other digital technologies are not as straightforward as the non-mediated habits discussed in the previous section. For, as we’ve seen, technologies transform the way we experience the world, and the effects of our actions upon it. Since we develop bodily habits by gauging such effects, the habits we develop toward and through technologies reflect those transformations.

## DIGITAL HABITS

In order to understand precisely how habits develop when our activities are technologically mediated we must examine two things. First, we have to look at what exactly recedes from view when technologies become transparent. To that end, I distinguish between *internal* and *external effects*. Second, since technological transparency is always partial, we have to look at how the things that don’t recede from view are presented to us. I describe this in terms of *selective feedback*.

### Internal and External Effects

When we embody technologies, what recedes from view is, again, the technology itself—the material instrument or device. Depending on the nature of that device, however, more or less may escape our attention.

Consider once more Heidegger’s hammer. When I use a hammer to strike a nail into the wall, I feel the nail through the hammer. I sense whether the nail is meeting any resistance, and if so, how much. If it meets only a little bit of resistance I can tell I’ve only penetrated sheetrock. If I feel slightly more, I know I’ve hit a stud. Because the feedback I receive through the hammer is feedback about the nail and the wall—rather than about the hammer—the hammer itself withdraws from conscious attention and I am able to

concentrate fully on my work. Now, in this case, what has receded from view is an inert object. There is nothing interesting going on *inside* the hammer; it is just a slab of metal and wood that enables me to more capably transfer force from my arms onto objects around me.

Now consider Merleau-Ponty's typewriter. When I type on a mechanical typewriter, I feel it through my fingertips as the typebars strike the page. I sense whether or not they have traveled the appropriate distance. I see letters appear, confirming that my typing is going as expected. Like Heidegger's hammer, Merleau-Ponty's typewriter transmits feedback. And since it is feedback about the end product of my activity—in this case, ink on paper—rather than about the typewriter itself, the instrument withdraws from attention and I become absorbed in my work. Unlike Heidegger's hammer, however, Merleau-Ponty's typewriter is a complex mechanical device. It contains hundreds of parts, large and small, which fit together in just the right way. When I type I not only affect the page I'm focusing on, but the entire series of gears and levers extending from each key to each letter plate. As long as I type properly I receive little feedback about the effects I am having on the typewriter itself—what I will call *internal effects*. For the typewriter has become transparent in use and withdrawn from conscious attention.<sup>11</sup>

Finally, consider using a digital technology, such as a personal computer. When I type on the computer's keyboard and move the cursor with the mouse, I receive feedback about the effects of my actions on the monitor. As I feel my fingers strike the keyboard I see letters appear. As I drag the mouse across my desk I see the cursor glide across the screen. The feedback I receive is, again, feedback about what I am working on—in this case, the content on the screen. It is feedback about *external effects*, rather than about what is happening inside the device. And as a consequence of this feedback the device is once again able to withdraw from conscious attention and I can focus on the work at hand. The difference, however, between hammer and mechanical typewriter on the one hand, and digital computer on the other, is that in the case of digital technologies like computers, what is happening inside the device is enormously complicated. When I interact with a keyboard and mouse I produce multitudinous internal effects. Electronic signals pass from interface device to computer processor, where they are stored and processed as data. That data is then passed through countless layers of software, which register and transform it. What I perceive on my screen as the effects of my actions—characters appearing, cursor moving—are only the very last stages in long series of events.

Yet computers generally do not alert us to the fact that we are producing all of these internal effects. Which, from the perspective of computer interface design, is a good thing. If we received constant feedback about

what was happening inside of our computers it would be difficult to focus on the work we wanted to do *through* them. Transparency, as we've seen, is necessary for effective tool use. The last thing technology designers want to do is draw us out of absorbed use of their tools. As Donald Norman suggests, well-designed technologies should be "invisible" (Norman 1992). We should also notice, though, what this transparency means for our habits. If we develop habits by gauging the effects of our actions, and a large subset of those effects—the effects internal to our devices—are invisible to us, then our habits are partially blind. They are geared to the effects we have on the world through our devices, but are non-responsive to what goes on inside them. We are forced, as Sherry Turkle puts it, to take our devices at "interface value" (1995, 23).

This is cause for concern, since what goes on beneath the surfaces of our computers can have very important consequences. For example, say I open a harmless-looking email attachment, purportedly from a colleague, and a computer virus quietly installs itself on my machine. Perhaps it includes a keystroke logger—software that records each keyboard press. Now, when I type, the data about my keystrokes is intercepted before it can reach the open document I'm editing, and is transmitted to the virus's creator online. It could record me entering passwords to sensitive websites, like my bank or health insurance company. If I were at work it might record me discussing tightly held trade secrets. Since none of this would generate feedback (at least until much later), I wouldn't know—and more importantly, wouldn't *feel*—that I had done anything wrong. Nothing would chasten me for opening the email attachment without verifying its origins, and bad behavior that I ought not to repeat would continue unabated.

The same is true for good behaviors that ought to be reinforced. For instance, it is good practice to frequently update computer software, since updates generally make software more reliable and secure. Most computer users fail to do this, however, because doing it produces no positive response. If we remember to upgrade once, we don't sense the enhanced reliability and security of our system, at least not directly. So nothing reinforces the behavior and inclines us to do it again.

To develop good habits we need positive feedback in response to good behavior and negative feedback in response to bad behavior. But the feedback we get from interacting with digital media is designed to impress upon us only *some* of the effects of our actions. Specifically, digital feedback is designed to indicate external effects, so that the media itself recedes from view and our attention stays focused on the activities we're using it *for* (Heidegger's "in-order-to"). The transparency of digital media therefore makes it difficult to develop good digital habits—habits which are responsive to the full range of effects our actions have on and through technology.

## Selective Feedback

In fact, the situation is even worse than that. Not only don't we receive feedback about most internal effects of our actions, we also only receive partial feedback about the *external* effects. Technological mediation is, as Ihde says, "non-neutral": the world we experience through technology is a world transformed. And the particular structure of that transformation, as we saw above, is that technologies magnify some aspects of the world and reduce others. When we interact with digital media, its magnification/reduction structure thus shapes how we perceive the effects of our actions on the world. Certain facets of those effects are brought to the fore, while others are relegated to the background. We receive *selective feedback* about the former, while remaining unaware of the latter.

Take, for instance, our interactions with other people. When we interact face-to-face with friends or colleagues what we say and do affects them, but not always in the ways we intend. Maintaining healthy interpersonal relationships therefore requires gauging how others react to us and modulating our behavior in response. Friendly advice can come across as patronizing. What is intended as a joke might trigger or offend. Some people—"no-nonsense" types—respond better to directness. Other people prefer to be eased into difficult conversations. Face-to-face interaction produces a wide variety of feedback, which allows us to determine, with great subtlety, how our words and actions affect others. People can react verbally, of course, and tell us that we are making them unhappy or uncomfortable. But they might also simply look away or adopt a hushed tone. If we are trying to cheer up a friend who has fallen on hard times, we can detect that it's working if they smile a little or move more airily around the room. This nuanced information registers as positive and negative feedback, which shapes our social habits. We become habituated to social norms, like courtesy and civility, in part by acting rudely and intolerantly and discovering how people respond.

Now consider social interactions that take place through digital media. Just like in face-to-face interaction, when we interact with other people through social media technology our actions can have an impact on them. Clever tweets can make other people laugh or cry. Facebook posts can intrigue or bore them. A text message can enrage or console. But how do we gauge our impact? In all of these cases our connections to other people are mediated through hermeneutic relations—the feedback we get about our effects on them is representational feedback, usually text or images. Understanding and internalizing how our Facebook post or text message was received therefore requires interpretive work. It requires decoding text or evaluating images, and those representations are necessarily incomplete. Rather than being able to assess the totality of an interpersonal interaction—not just the words another

person speaks or the face they make, but their body language and gestures, whether communication is fluid or stilted, the overall gestalt or “feeling in the room”—we must draw our conclusions from words or images on a screen. Oftentimes we lack even a name or face to give textual feedback context, as much of our digitally mediated activity is anonymous.

This kind of multidimensional feedback is especially important in heated or tense exchanges. When we are angry or indignant we sometimes lash out, saying things we hope will hurt or offend. Debates about politics can become snarky or demeaning. In arguments with family members we might dredge up painful episodes from the past. Yet when we see the effects of our words on our interlocutors, that feedback can stop us in our tracks. Realizing that we have hurt or offended someone is often enough to steer us toward a different course. What’s more, we remember the negative feedback. We internalize it, make it muscle memory. And the next time we are in a similarly heated exchange we might be less disposed to let our anger get the best of us.

There are fewer avenues through which to detect these effects when we interact through digital media. Given the technical constraints of social media technologies, the selective feedback we receive generally takes the form of written or graphical responses. This not only privileges (or “magnifies”) written text and images over other (“reduced”) modes of expression, such as tone of voice, bodily gesture, tempo of speech, and so on, it privileges intentional expression over all manner of unconscious response. Though what we indicate or emote without consciously knowing it is often far more expressive and impactful than the words we use to describe how we feel, that feedback is not usually relayed through digitally mediated interactions. And again, the habits we develop in a world of digital media reflect this. They reflect the fact that we are only partially attuned to how we impact others, that many facets of their reactions remain invisible to us. It shouldn’t be surprising, as a result, that good social habits—tendencies toward kindness and civility—are rarer than they should be online.

## CONCLUSION: DESIGNING OPACITY

As the examples in the previous section illustrate, we develop different kinds of habits around digital media. Like non-digitally mediated habits, some of these habits are what we might call *self-regarding*, while others are *other-regarding*. Which is to say, in some cases we are the beneficiaries of our good habits and the ones who suffer from our bad habits, while in other cases it is others who benefit from and bear their consequences. Examples of good self-regarding digital habits are protecting your own privacy and online security. Good other-regarding digital habits might involve things like civility in

online comments sections. In addition, growing accustomed to digital media means developing *technology-regarding* habits—patterns of action which either preserve or deteriorate the tools themselves—such as keeping on top of software upgrades.

The transparency of digital media prevents us from learning many of these habits through trial and error. So unless we are explicitly taught to develop good digital habits (which we ought to be), many of us won't develop them. This raises the question: If the problem is transparency, can we make our media more opaque? Can we design the tools which mediate much of our lives to give us more feedback? Should we be drawn out of our technological absorption more frequently, and forced to reflect on what we're doing? While this is largely a question for technology designers, models for creating what I will call *strategic opacity* already exist. I conclude by briefly describing two.

First, the standard computer interface design strategy for conveying feedback to users: the text alert. Since the development of the earliest personal computers, software designers have used text feedback to give users information about the internal states of their computers and their options for altering them. If my web browser detects that I am about to send sensitive information over an unencrypted server, it asks me if I want to proceed. If I try to close a document without saving it, my word processor produces a text prompt encouraging me to think twice. These alerts are designed to interrupt our normal “flows,” to bring particular aspects of our technologically mediated activities into focus—to make them, in the language of this essay, more opaque.

This strategy can be used to interrupt bad habits. The designers of a website familiar to many philosophers employed it to considerable effect. Philosophers on the academic job market often visit the “Philosophy Jobs Wiki,”<sup>12</sup> a website where users can note whether or not particular jobs have been filled. At the height of job market season, job candidates have been known to sit on the Jobs Wiki, refreshing it over and over again, desperate to learn about any changes to their odds. In response, the website's owners built in a text alert. Now, if a user visits or refreshes the page sufficiently many times in a given period a text box emerges at the top of the page reading: “We notice you've been coming here a lot. Maybe you'd be better off if you blocked yourself from looking at the wiki for a while. Then you could go do something more productive, like getting up to speed on a new philosophical topic.” A little bit of negative feedback to make people think explicitly about otherwise unthinking digital habits.

At the same time, many have recognized the limits of text-based alerts. A common method for forcing website visitors to consciously consider whether or not they consent to a website's legal terms has historically been to present them with a “clickwrap” agreement—a statement of terms which must be accepted (by clicking “I agree” or “I accept”) before they can

proceed. Over time, people have become habituated to this process, to the point where most people click “I accept” without bothering to read the terms. The agreements have become transparent.

In response to this problem, some scholars have turned their attention to how we might counteract this bad habit—how, we might induce users to pay more conscious attention to privacy and other legal implications of their online activities. Legal scholar Ryan Calo, for instance, advocates an alternative to text-based forms of legal notice, which he calls “visceral notice” (2012, 1027). “Language is not the only means to convey information,” Calo writes, “Nor is it always the most efficient” (*ibid.*, 1034). Rather than presenting website visitors or software users with written policies, Calo suggests that website and software designers generate user *experiences* that make the choices they face opaque. He points to examples of computer programs generating sounds or attention-getting images, and websites showing users the particular pieces of information about them that they have collected and are preparing to transmit (*ibid.*, 1034–44). “[T]he experience of [online] commenting could be made to feel more like an in-person conversation by graphically representing that a comment to a post is also a comment directed at the author,” Calo writes (*ibid.*, 1041).

These are just a few examples of how technology designers might create strategic opacity. Whether it takes the form of text alerts or more visceral feedback or some other form entirely, our digital media can be designed to demand more of our attention. They can reveal to us the internal effects we are having on our devices, and give us a more robust sense of the external effects we are having on other people. In other words, we can construct our digital environment to be more like our natural one—an environment in which we feel the effects of our actions. If we want to promote cherished values, like privacy, security, and civility online, this is the kind of environment we will have to build. For the activities we undertake through digital media are driven by digital habits, and those habits are blind without it.

## REFERENCES

- Aristotle. (2002). *Nicomachean Ethics*. Trans. J. Sachs. Newburyport, MA: Focus Publishing.
- Calo, R. (2012). “Against Notice Skepticism in Privacy (and Elsewhere).” *Notre Dame Law Review* 87 (3): 1027–72.
- Carlisle, C. (2014). *On Habit*. London: Routledge.
- Casey, E. S. (2013). “Habitual Body and Memory in Merleau-Ponty.” In T. Sparrow and A. Hutchinson (eds.), *A History of Habit: From Aristotle to Bourdieu*. Lanham, MD: Lexington Books.
- Dewey, J. (1922). *Human Nature and Conduct*. New York: Henry Holt and Company.



- Dreyfus, H. (1991). *Being-in-the-World: A Commentary on Heidegger's Being and Time, Division I*. Cambridge, MA: MIT Press.
- Duhigg, C. (2014). *The Power of Habit: Why We Do What We Do in Life and Business*. New York: Random House.
- Heidegger, M. (1962). *Being and Time*. Trans. J. Macquarrie and E. Robinson. Oxford: Blackwell Publishers Ltd.
- Ihde, D. (1979). *Technics and Praxis*. Dordrecht: D. Reidel Publishing Company.
- . (1983). *Existential Technics*. Albany, NY: State University of New York Press.
- . (1990). *Technology and the Lifeworld: From Garden to Earth*. Bloomington, IN: Indiana University Press.
- Kant, I. (2006). *Anthropology from a Pragmatic Point of View*. Trans. and ed. R. B. Loudon. Cambridge, UK: Cambridge University Press.
- Latour, B. (1992). "Where Are the Missing Masses? The Sociology of a Few Mundane Artifacts." In W. E. Bijker and J. Law (eds.), *Shaping Technology/Building Society: Studies in Sociotechnical Change*. Cambridge, MA: MIT Press.
- McLuhan, M. (2003). *Understanding Media: The Extensions of Man*. Corte Madera: Ginkgo Press.
- Merleau-Ponty, M. (2002). *Phenomenology of Perception*. Trans. C. Smith. London: Routledge Classics.
- Norman, D. (1999). *The Invisible Computer: Why Good Products Can Fail, the Personal Computer Is So Complex, and Information Appliances Are the Solution*. Cambridge, MA: MIT Press.
- Rosenberger, R. (2009). "The Sudden Experience of the Computer." *AI and Society* 24: 173–80.
- . (2013). "The Importance of Generalized Bodily Habits for a Future World of Ubiquitous Computing." *AI and Society* 28: 289–96.
- Rosenberger, R. and P.-P. Verbeek. (2015). "A Field Guide to Postphenomenology." In R. Rosenberger and P.-P. Verbeek (eds.), *Postphenomenological Investigations: Essays on Human-Technology Relations*. Lanham, MD: Lexington Books.
- Sullivan, S. (2013). "Oppression in the Gut: The Biological Dimensions of Deweyan Habit." In T. Sparrow and A. Hutchinson (eds.), *A History of Habit: From Aristotle to Bourdieu*. Lanham, MD: Lexington Books.
- Turkle, S. (1995). *Life on the Screen: Identity in the Age of the Internet*. New York: Simon and Schuster.
- . (2005). *The Second Self: Computers and the Human Spirit*. Cambridge, MA: MIT Press.
- Van Den Eede, Y. (2010). "In Between Us: On the Transparency and Opacity of Technological Mediation." *Foundations of Science* 16 (2): 139–59.

## NOTES

1. It has also been observed that we *think* the way we do for the most part out of habit. In what follows I focus almost entirely on habits of action, rather than habits

of thought, but my arguments about the former pertain to some degree to the latter as well.

2. For an accessible discussion of neuroscience research showing that the brain is less active while executing habitual activities than novel ones, see the first chapter in Duhigg 2014.

3. Cited in Carlisle 2014, 8.

4. Of course we do in fact go through this process on occasion, but those are the exceptions not the rule.

5. Or as Ed Casey puts it, describing Merleau-Ponty's view: "In brief: no habit or past without body; no body without habit or past" (2013, 214).

6. See McLuhan 2003, cited in Van Den Eede 2010.

7. See Latour 1992, cited in Van Den Eede 2010.

8. Ihde first developed many of the ideas which follow in *Technics and Praxis* (1979). However I will refer mostly to their more mature formulations in his *Technology and the Lifeworld* (1990).

9. For an excellent, detailed overview of the central concepts of postphenomenology, as well as its philosophical origins and trajectories, see Rosenberger and Verbeek 2015.

10. In particular, my observations are likely relevant for thinking about how we comport ourselves in relation to the range of sensors beginning to be embedded in our built environments.

11. If I type too quickly, though, and two typebars get crossed, the internal effects present themselves immediately and transparency is lost.

12. <http://phylo.info/jobs/wiki>.