Mindful Tech: Developing a More Contemplative and Reflective Relationship With Our Digital Devices and Apps

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Today's digital technologies are both powerful and powerfully distracting. The challenge we face is to use them to their best advantage, and to ours. This article describes one method that may help us to face this challenge: bringing mindful attention to the ways we currently use our digital devices and apps, discovering in the process what is harmful, or at least disadvantageous, in our current digital habits, and through this process formulating more beneficial ways to work online. The bulk of this article reports on the mindfulness exercises developed for a course on Information and Contemplation that has been taught in the University of Washington's Information School since 2006 and that form the basis for a new book, "Mindful Tech: How to Bring Balance to Our Digital Lives" (Yale, 2016).

Today's digital technologies are both powerful and powerfully distracting. They are tools that direct our attention in useful ways: to browse and investigate vast troves of information, to communicate with one another, to amuse and entertain ourselves. But at the same time, the availability of so much information, along with the social pressure to stay connected and to respond rapidly, has contributed to a widespread sense of overload and distraction. Clearly, the challenge we face in the years and decades ahead is to figure out how to use these remarkable tools to their best advantage, and to ours.

For many years, as a professor at the University of Washington's Information School, and before that as a researcher at a well-known high-tech think tank, I have been exploring the power and perils associated with our newest information technologies, focusing in particular on the problems of information overload, acceleration, and the fragmentation of attention. My interest has been in bringing a contemplative perspective to bear on these problems, asking how disciplines that train the mind and body to be more attentive and flexible might help us to make better use of these technologies—to be more healthily and effectively engaged with and through them, as well as to decide when to abstain from using them.

Since 2006, I have been teaching a course called Information and Contemplation, in which I bring contemplative practices into the classroom as a means of helping students to investigate their own use of digital technologies, to identify positive and negative features of their use, and to develop guidelines for more effective future use. The central, and perhaps most original, feature of this course is the way it helps students to become more mindful of their relationship with the information technologies they use every day as, through a series of structured exercises, they bring attention to their moment-to-moment experience while they are online, in the process learning more about what is working well for them and what isn't.

In an earlier essay, I wrote about the first version of the course that was designed for delivery in 2006 (Levy, 2014). The course has evolved considerably in the intervening years, and I have completed a book, *Mindful Tech: How to Bring Balance to Our Digital Lives* (Levy, 2016), that is intended to offer the exercises to a broader audience. This paper describes the current version of the course, focusing on the development of a sequence of four exercises, and on my growing understanding of the philosophy of learning that is central to the delivery of the course.

Overview of the Course

In 2005, I was awarded an academic fellowship by the Center for Contemplative Mind in Society (www.contemplativemind.org) to create a course that explored how contemplative practices might illuminate the use of digital tools and technologies. The initial course, which was open to both undergraduates and graduate students, was taught in spring 2006. The following year, I twice offered the course to library staff, in a not-for-credit version. Since then, I have offered shorter workshops, presenting an abbreviated version of the approach at various universities, and I have experimented with an online version of the course, in addition to teaching the original, for-credit residential course.

The course, called Information and Contemplation, is taught in the Information School (iSchool) at the University of Washington, which is an outgrowth of the university's School of Library and Information Science.[1] The iSchool offers four degree programs: an undergraduate major in informatics, which combines training in computer and information science and the social sciences; a master's in library and information science (MLIS); a master's in information management (MSIM), which is more oriented toward business than the MLIS degree; and a PhD in information science. The course is open to students in all four iSchool programs, and, space permitting, UW students in other programs—at the undergraduate, master's, and PhD level—are also welcome.[2]

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1   For more about the Information School movement, see http://ischools.org/.

2   The course is offered as an elective, and because of its somewhat unusual nature—no other course at the iSchool explicitly incorporates contemplative practices—I interview prospective students face-to-face before granting them admission.

The course has three main pedagogical threads: first-person contemplative practices, seminar-style reading and discussion, and first-person student explorations of technology.

First-Person Contemplative Practices

The course brings contemplative practices into the classroom as an active object of investigation. During the first week, I introduce two simple practices, one a silent seated breathing practice (Mindful Breathing), the other a scan of body and mind (the Mindful Check-In). Over the course of the ten-week quarter, I introduce additional practices, including walking meditation, mindful reading and writing, and a dialogic speaking/listening practice. Most classes begin with fifteen minutes of contemplative practice. In the last few years, I have brought a skilled bodyworker to class to talk about sitting, standing, and walking from a physiological perspective. She explains to students how alignment and relaxation play a central role in these basic activities, and she helps them experience how posture and alignment affect breathing and emotional response. I encourage students to notice which of the different practices they are most drawn to, and to focus on those forms that work best for them (some students prefer a seated or standing practice without movement, while others are drawn to movement-based practices).

Seminar-Style Reading and Discussion

Formally, the course is organized as a reading and discussion seminar. I insist on teaching the course in a room whose chairs and tables are movable (not always easy in an institution where many classrooms consist of fixed tables arranged in stadium-like tiers), and I arrange the tables in a rectangle so we all face one another. I limit enrollment to twenty students in an attempt to create conditions conducive to active discussion. There are reading assignments for most class sessions, and a portion of most classes is devoted to active discussion of the readings. Some readings are concerned with contemplative practices, either from an experiential or from a more academic perspective. Others offer broad overviews, and sometimes critiques, of our information-intensive culture, addressing such issues as information overload, the acceleration of life, and distraction. We also read materials that discuss how contemplative practices and perspectives are being brought into contemporary culture.

First-Person Explorations of Technology Use

The third pedagogical thread gives students the opportunity to apply the contemplative practices and perspectives that we have been exploring to their relationships with their digital tools and applications. I take them through a series of exercises that ask them to investigate one or more information technologies or practices, to prepare a written reflection on what they have discovered that can

be shared with their fellow students and me, and to propose a set of personal guidelines that expresses their new understanding of how to operate online in healthier and more effective ways. In the first version of the course, there was only one such exercise (below called the Email Observation exercise), but feedback from students clearly indicated that they wanted more of them. Four of these will be discussed below.

Framing the Approach: A Contemplative Approach to IT

In the first two weeks of the course, I have two main pedagogical goals: to foreground and explore the relationship between attention and information technology and to introduce the core contemplative practices we will make use of.

Establishing a Connection Between Attention and Information Technology

We all realize at some level that attention plays a fundamental role in our use of our information technologies. As the Canadian psychologist Warren Thorngate (1988) says in an article we read in class, "Information is supposed to be that which informs, but nothing can inform without some attentional investment" (p. 248). In the first classes we identify three key modes or functions that this attentional investment may take—*focusing*, *noticing* or *monitoring*, and *choosing*—and we explore how these modes play a role in our online behavior (and, indeed, in everything we do throughout the day).

Focusing refers to our ability to sustain our attention on a chosen object. We do this when we open an email message, say, and read it through to completion. *Noticing* (or *monitoring*) refers to our ability to notice other, non-focal objects of attention, including the state of our mind and body—to maintain peripheral awareness while engaged in a task. We do this online when we hear our cell phone ring or hear the ding announcing the arrival of a new email message while we are on Facebook. Choosing is exercised when we become aware of more than one potential object of attention and decide which of them to focus on. Thus, if our cell phone rings while we're reading an email message, we need to decide whether to answer it or to continue reading the message.[3]

I explain that through first-person observation (observing ourselves) we will come to see more clearly when and how we currently exercise these three functions, as well as when these functions are deployed in healthy and effective ways and when they are not. It will be up to each student to observe him- or herself, to evaluate his or her behavior, and to decide what changes to make, if any.

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3   In the neuroscience literature on attention, these three functions roughly correspond to brain subsystems concerned with orienting, alerting, and conflict monitoring. "[A]lerting consists of achieving and sustaining a vigilant or alert state of preparedness, while orienting restricts processing to the subset of inputs relevant to current task goals, and conflict monitoring prioritizes among competing tasks and resolves conflict between goals and performance" (Jha, Stanley, & Baime, 2010, p. 213).

Core Contemplative Practices

In the first week, I introduce the two main mindfulness practices that will play a central role in the exercises: the Mindful Check-In and the Mindful Breathing practice. In the Mindful Check-In, I ask students to become aware of the current state of their mind and body—what they are experiencing in the moment—by guiding them to notice the quality of their breathing (is it fast or slow, shallow or deep?); the state of their body (what sensations do they notice? what is their current posture?); their current emotional state, however they would characterize it; and the quality of their attention (focused, distracted, or somewhere in between). I explain that a great deal of the learning they will be doing in the weeks ahead will emerge from paying attention to their present experience *while they're online*. The Mindful Check-In will give them a basis for answering questions such as "What am I experiencing when I set eyes upon my inbox?" or "What was I feeling when I decided to switch from email to Facebook?"

In the Mindful Breathing practice, I offer students a version of the most basic of mindfulness practices: paying attention to the sensation of one's breathing and bringing one's attention back to the breath whenever it wanders. I explain that this is an attention-training exercise. Bringing the attention back again and again can be likened to doing reps in the gym as a means of strengthening our attention muscle.

Both of these practices require the student to deploy all three attentional modes—focusing, noticing or monitoring, and choosing—but the emphasis (and the intended learning) is different in each of them. In the Mindful Check-In, students are monitoring their current state of mind and body, as well as the relationship between this current state and what they are currently doing online. In the Mindful Breathing practice, by contrast, the emphasis is on focusing—on repeatedly bringing the attention back to a single object of focus.

Exploring Monotasking and Multitasking: Four Exercises

I turn now to discuss four of the five exercises I currently assign in class.[4] The first two of these give students the opportunity to explore a single information practice, to monotask, using email. While another application could be chosen, such as texting or the use of Facebook, I've discovered that email is one of the few that all students are guaranteed to use—not everyone uses Facebook or has a cell phone—and it is crucial to the group reflection and discussion that everyone study and report back on the same application. The first exercise asks students just to observe their current use of email, while the second asks them to adopt a specific, focused approach. The second set of exercises asks students to investigate how they multitask: the way they shift focus among multiple tasks. Thus these latter two exercises parallel the monotasking exercises: the first asks students just

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4   The fifth is an unplugging exercise, in which students are asked to abstain from one or more devices or apps for a period of their choosing, typically 24 hours to one week.

to observe their current multitasking practice, while the second engages them in a more focused method.

The terms "monotasking" and "multitasking" merit some further discussion, because there is no single agreed-upon definition of these practices.[5] What's more, whether one is monotasking or multitasking will depend upon how one draws the lines between tasks. For the purposes of these exercises, *monotasking* means staying focused on a single application, such as email, while *multitasking* means switching between different applications, such as email and Facebook.

What follows is a brief description of each of the four exercises. (Readers interested in greater detail will find it in *Mindful Tech*.) Following the description of each exercise, I discuss the kinds of discoveries students make in performing it.

Exercise 1: Email Observation

This is the first exercise I developed for the course in 2006, and it remains the first exercise students undertake. It provides them with an opportunity to observe one of their technology practices close-up and see what can be learned by attending to their moment-to-moment experience of the practice.

The first step is to observe their email behavior for a week, for roughly a half-hour a day, using the Mindful Check-In to monitor their experience, and to keep a running log of their observations. At the end of the week, they prepare a written reflection on what they've learned, as well as a set of personal guidelines for future email use based upon what they've discovered. These are distributed to everyone in the class so they can be discussed in class.

What do students discover? It is common for them to express surprise at what they find out. My students are tech-savvy people pursuing information-related degrees, and they are surprised to discover how much they still don't know about their own experience, behavior, and practices. They are also often surprised to discover how much they can learn by observing the state of their minds and bodies while they're online. One of their most common discoveries is how emotional using email can be. As one student observed, "The most surprising thing for me throughout this process was the realization that I have a very negative relationship with email." Or as another commented, "I am surprised that as someone who embraces technology and an 'online life,' I hold such resentment and hatred towards one of my email accounts."[6]

Students also regularly notice and comment upon what triggers their desire

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5   Within the multitasking literature there is no single agreed-upon definition. A 2009 Stanford workshop on "The Impacts of Media Multitasking on Children's Learning and Development," for example, proposes several different kinds of multitasking, including macro-multitasking, micro-multitasking, and three different kinds of media multitasking (Wallis, 2010, p. 8).

6   I have chosen these and subsequent quotations from the student reflections that were written during the last three years of the course. Prior to that, I hadn't thought to get written permission from students to reproduce what they'd written. I have not attempted a formal analysis of these reflections, and I offer the quotations to give the reader a sense of the range of discoveries people make and the way they articulate them. Most important, for my pedagogical purposes, is that people are free, indeed encouraged, to make their unique discoveries.

to check email, and to check it frequently. Sometimes it's the hope that they will find something special waiting for them, a hope that is rarely fulfilled. As one student wrote, "The reason I feel the need to check my email all the time on my phone is the hope that I will have a new message from one or two people that I would love to hear from. But the fact is that 90+ percent of the time my emails are not of that personal nature. . . I am always hoping it will be the email I have been waiting for." Others notice that email is a way to get away from unpleasant feelings: "I most often feel the urge [to check email] when I would rather be doing something else. The most common time is during work. I use email checking as an excuse to defer the unpleasant and unstimulating task of doing my job."

Students also learn more about the quality of the attention they bring to email. Some notice that they are often distracted. "When checking email," one student observed, "I notice many voices and images in my head. I think about assignments due, meals I need to cook, people I need to call and meet up with, bills I need to pay, and the pain of my recent break-up." Others, however, are surprised by how attentive they are: "The quality of my attention to my email is very high—when I am actively reading or responding to messages, I am perhaps the most intensely focused of any activity throughout my whole day. I am more able to shut out distractions while doing email than while reading or engaged in conversation."

Once students have made these observations and reflected upon them, it is fairly straightforward for them to formulate personally meaningful guidelines. The person who realizes that she's checking email somewhat obsessively in the hope of finding the kind of message that rarely arrives might decide to notice the impulse to check email arising but not act upon it, at least some of the time. The person who realizes that her attention is especially deep might want to spend more time on email, or she might ask how she can carry this quality of attention into other activities as well.

Exercise 2: Focused Email

One of my students, as just noted, discovered that while using email she was often distracted by "many voices and images in [her] head." "This email exercise," she explained, "has taught me how cluttered my mind is and how it really disables me from truly being present with the task at hand." She then took this observation a step further, realizing that she might be able to counteract this tendency toward distraction by "remain[ing] conscious of my breathing and . . . focus[ing] my eyes and mind on the task at hand." This led her to conclude that "the act of email checking can be like meditation," and she wrote a guideline that reads, "Use email as a method of meditation and concentration."

The second exercise, on focused email, is meant to help students explore this possibility. In explaining this exercise, I draw a parallel with the Mindful Breathing practice, which asks students to repeatedly bring their attention back to the

breath when their minds have wandered. Here, in this second exercise, their task is to keep their focus on email (for example, reading an email message all the way through to completion), to notice distractions that pull them away from this focus, and then to bring their attention back to their email. As in the Email Observation exercise, they are to keep a log of their experience and to prepare a written reflection and a set of personal guidelines that can be shared with their fellow students.

What do they learn from this? One student summed up her experience by saying: "Overall, I felt that the exercise was very hard at the beginning, as I wasn't used to keeping my attention focused on one single task. I felt I started becoming more focused in my third and fourth attempt…[W]hen I became more focused and in my zone the quality of my emails improved…In general, I felt that this is a wonderful practice, as it helped me with not forgetting to reply to emails, as in my regular email activity I would check emails as soon as I received them and tell myself I would respond to the email but then I forget."

Another student discovered that in order to use email more mindfully he needed to slow down. "To keep my focus on the email I needed to slow down and really read the contents. In other words, I committed to investing real time to do email. Usually I rush through the email's contents, just scanning through the words as fast as I can, making quick judgments about its value and whether I should invest time into it. When I committed to actually reading each email slowly, I found my experience to be a much calmer one than usual. Strangely enough, emails that I regularly would delete or find irritation with suddenly seemed kind of interesting. They seemed to have value."

He also found that attending to his breath helped him to stay focused, especially when faced with stressful email messages, and this led him to a further insight that the stress of email was partly associated with the way it oriented him to the future and to tasks not yet done: "These exercises have shown me that email has been one of the triggers that would set me off worrying about the future. It makes sense that I tried to get through [the messages] as fast as I could. I was trying to avoid letting my mind get a chance to worry about the future; better to move on to the next one quick!" He concluded, "Email can be valuable and appreciated when managed in a slow and mindful way. I can't believe I just said email can be valuable and appreciated."

Yet another student was able to see value not only in using email more mindfully but in generalizing to other practices in her life: "I will certainly continue to explore methods of focus like this. My favorite part is the scalability: any task can be approached with the same careful attention. It may be a useful way to get a better gauge on what I really want to do, what actually deserves my careful attention."

It should be noted, however, that not all students found the exercise valuable to this extent. Some students, for example, realized that prior to the course they were *already* fairly focused in their email practices: "This assignment wasn't hard for me. I'm not really a multitasker when it comes to email." Others had discovered enough in the first exercise that they had already begun to change their email practice before approaching the Focused Email exercise: "Since [the first exercise], my interactions with email have changed dramatically." Still others found the exercise challenging, and at times resisted doing it: "That is an artificial exercise. I could also barely stand the thought of not going from email to calendar to email. The feelings of restriction were intensified by the fact that I made my email browser full-screen." Yet their reflections make clear that most students find value in it, gaining further insight into their use of email whether or not they ever intend to fully adopt this mode of focused engagement.

As in the previous exercise, the observations students make suggest changes to be adopted: to check email more slowly, to use awareness of breath as a way of staying focused, and so on. These are personal responses to personally-identified problems or limitations, not universal guidelines.

Exercise 3: Multitasking Observation

Today there is much concern about when and whether multitasking is healthy and effective (Wallis, 2010). Yet, while some believe it is a problem, others have concluded that it is a 21st-century literacy skill (Jenkins, 2009). The next two exercises steer clear of these broad pronouncements, instead asking students to investigate their own multitasking practice: to discover for themselves when it is useful to multitask and when it isn't, and how to multitask more effectively when it is useful or necessary.

The focus in the third exercise is on observing their current multitasking practice. But this exercise differs from the first (the prior observation exercise) in two important respects. First, I give students detailed directions about what to pay attention to. In multitasking, I explain, one of the central questions concerns when to stay focused on one's current task and when to switch to a different one; thus the attentional mode I have called *choosing* comes centrally into play. So it will be useful for them to notice when a new task has announced itself (e.g., because their phone has started ringing or a new email message has just appeared on the screen) and whether or not they have decided to switch to that new task or to stay put. Similarly, it will be useful to notice those points where they *did* switch to a new task and to investigate why they did so. This is a huge amount to try to observe, all the more so while one is engaged in densely textured, fast-paced activity, and so the second departure from the Email Observation exercise asks

students to *record* their multitasking sessions and replay them as a means of close-ly observing their behavior.[7]

I ask students to conduct several multitasking sessions, to record and observe them, to keep a log of their observations, and to prepare a written reflection and a set of personal guidelines that they can share with others. They are free to decide how many activities they will interleave; it isn't uncommon for students to bring email, texting, Facebook, Twitter, and other online practices into the mix. I also suggest that they consider varying the amount and degree of multitasking across the sessions (perhaps increasing or decreasing their load) or performing the sessions in different locations (at home versus in a coffeehouse).

What do students learn through this exercise? Some notice that their current multitasking practice works well for them: "Overall, I would characterize my mul-titasking strategy as one that seems balanced and I'm comfortable with." Others, however, are troubled by what they see: "My habits consist of a kind of scattered, hare-brained approach…I found my habits alarming. I really hope that part of my distractibility was due to trying to meet the requirements of the assignment, because otherwise I honestly don't know how I do anything effectively when the Internet is involved."

Between these two poles lie the majority of student responses, which indi-cate that they see aspects of their multitasking behavior that are working well and others that could use improvement. Some students observe their tendency to be easily distracted from their current task, and notice what triggers them: "Throughout the recording, I noticed that I kept on distracting myself many times. Especially when I was stuck with a problem or when I was not very interested in the task. It looked like I was bored and wanted to find something to entertain me."

Others notice a tendency to stay "stuck on the screen" in ways they find unhelpful and unproductive. One student coined the term "nullti-tasking" for this behavior: "I could call [this behavior] 'nullti-tasking,' where, once I've completed the full suite of Internet sites and email messages that I feel I need to get through, I'll sometimes pathologically refresh inboxes and watchlists, checking to see if any-thing new has come in over the past thirty seconds. This is really just an indication that I'm bored and haven't been confronted with anything new and demanding. It is time I could make much better use of by doing anything else in the world."

Once again, the guidelines that students compose are directly tied to their observations. If they've come to see a certain amount of their multitasking as a means of procrastinating or of avoiding certain emotions, they may propose

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7   There are a variety of commercial tools on the market that can be downloaded onto one's PC or Macintosh computer that will record everything happening on the screen, as well as comput-er-generated sounds (e.g., the ding of an email message arriving), ambient sounds (the sound of a phone ringing or a nearby face-to-face conversation), and the contents of the webcam (and thus the user's face while he/she is multitasking).

becoming more vigilant so they can catch those moments and make different choices. The final exercise in the series, on Focused Multitasking, gives them a further opportunity to notice these patterns and to change their habitual mode of operating online.

Exercise 4: Focused Multitasking

In the final exercise, students are asked to engage in multitasking with greater focus than they normally do. In the Focused Email exercise, the instructions were to keep bringing the attention back to email. Thus the element of choice was minimized: when in doubt, come back to email. But as I noted above, multitasking is different because it requires the person to choose when to shift their attention. In my instructions, I tell them that their primary concern will be to make *mindful choices* about when to stay with their current task and when to switch to a different one. I suggest that they pay special attention to trigger events—those points where some external event occurs (their phone rings) or where an internal thought or feeling arises that might lead them to switch to a different task (a desire to check Facebook or to get a cup of coffee). Their task is to notice these triggers, to pause, and then to make a deliberate choice to switch or to stay. The exercise doesn't prescribe a particular multitasking strategy (minimizing or maximizing the number of task switches), leaving this up to the individual student; it does, however, ask them to make choices that are healthy and effective, however they understand this. As in the three previous exercises, the structure of the assignment is the same: observe, log, reflect, and prepare guidelines.

What do students learn? They generally respond to this exercise quite positively. One student reports, "After this exercise, I feel it is hard to switch back to the unmindful multitasking, because I am aware of what went wrong and what went right. In addition, I would like to adopt this practice for a few reasons: (1) to be able to reduce the time I spend in multitasking; (2) for an improved quality of work; (3) effective and efficient sessions." Another says, "I think mindful multitasking in this way is a good strategy, because it can prevent me from switching tasks for no reason. Noticing and responding to the default instinct to switch to a new source of information is much more sane than following the instinct for no discernible reason, and it'll probably help with procrastination too."

A great deal of the learning seems to result from becoming more mindful of the triggers that might lead them to switch to another task: "I learned a lot about my triggers in this exercise. This seemed counterintuitive to me at first, as the multitasking observation sessions seemed like the likelier place to observe my triggers. However, mindfully staying with the trigger instead of immediately attending to it gave me a chance to more deeply understand both the trigger source and my reaction to it."

For some, becoming mindful of the breath contributes to this learning: "The thing that helped me most during this meditation was using my breath. I found that in order to be mindful of how I was feeling before I switched a task, I had to stop and really breathe. I wonder what this act alone might do for my multi-tasking stamina and alertness during times when I have a lot of different tasks to get through. I think it provides a useful way to slow my body down—almost like resting between sets of yoga moves—and to return to a state where I am again fully ready to tackle the next thing."

Interestingly, even a student who in the Multitasking Observation exercise had claimed to be a high-functioning multitasker now felt she had more to learn about staying focused: "Generally, it was very difficult for me to keep my mind on task. I rarely was motivated to switch tasks by external triggers, but my internal triggers were like little bells going off so frequently I was actually very surprised at their insistence and frequency. Alas, noticing these moments often enough to where I could make a conscious choice as to whether or not to follow my instincts was difficult, and I'm sure I only succeeded in noticing these triggers a fraction of the time."

These last two exercises give students a better understanding of their default multitasking behavior and show them how a more mindful approach can lead them to formulate a personally more effective strategy. The guidelines they draw up thus tend to address when they will multitask (and when they won't), how they will respond to (or ignore) interruptions, and how they will arrange their imme-diate informational environment (windows on the screen, apps opened or closed, cell phone on or off) in order to facilitate their new strategy.

Some Pedagogical Reflections

It seems clear that these exercises work: students report making useful discov-eries about their relationship with their digital tools, and they propose making meaningful changes to their practices. (I am unable to say, however, how many of these changes are permanent.) They regularly express appreciation for the oppor-tunity to engage in the learning process. As I continue to teach the course and to make changes to it, I also continue to reflect on the pedagogical assumptions that underlie it, and that seem to contribute to its success.

Mindful Observation Is Central

In changing one's behavior—stopping smoking, for example, or developing a healthier diet—honest observation is often the first, crucial step. Once one sees what one is doing and the effect it is having upon on one's life, the possibility arises of choosing to behave differently. The exercises I have described here fit this pat-tern: students learn first and foremost by directly observing their own behaviors and motivations. If there is anything novel about these exercises, it is the applica-tion of this process to people's online behavior.

Cultivating Curiosity and Honesty and Avoiding Self-Criticism

But observing in this way depends on certain conditions. It helps to be curious about what one may discover, and to be willing and able to observe honestly, even when what one sees may have (or be thought to have) a negative character. It is common for students to experience negative self-judgment when they see themselves exhibiting behaviors that are unhelpful, such as continually refreshing a browser despite the fact that nothing new is being revealed. I work with the students to distinguish between honest self-observation and evaluation ("oh, I'm doing such and such, and I can now see it's not very smart to continue doing this") on the one hand and destructive self-criticism ("I can't believe I did something so stupid") on the other. It generally isn't difficult for them to see the difference, although avoiding or minimizing the latter is not always straightforward.

Embracing Diversity of Views, Avoiding Judgment of Others

Much of the learning in the course comes not only from students' self-observation and assessment but from sharing what they are learning with their fellow students and with me. In the course of our discussions, students discover that different people have different opinions about the technologies and they exhibit different patterns of use. What constitutes healthy and effective use will differ from person to person, and there can be no single, universal set of guidelines for email or for multitasking.

Given this diversity of views and practices, it is important that students not leap to criticize other students' discoveries. The classroom needs to be a place not only where self-criticism is minimized but where criticism of others is as well. I try to model this behavior from the very beginning. When a student reveals something about their own online behavior (especially a form of behavior that they or others may take to be negative), I express *interest* in that student's discovery and appreciation for their honesty. And when two students begin to disagree about how something should be done online (i.e., what is the "right" way), I point out that there can be legitimate differences of approach and attitude. One size does not fit all. This approach, I've discovered, not only helps to limit criticism but helps students to recognize the diversity of approaches and opinions as real and legitimate.

Allowing Room for People's Buttons to be Pushed

Despite the care I take to avoid self- and other-directed criticism, there are moments when someone's buttons get pushed, either by one of the course readings or by a student's reflection or in-class comment. I've come to see these moments as highly "teachable," and I prepare the class from the beginning by suggesting to the students that nearly every one of them will have their buttons pushed at least once during the quarter. When this happens, the class is prepared to recognize

what is happening and, once the initial flare-up of emotion has subsided, to hold the disagreement in a more helpful and understanding light.

Recognizing My Own Biases and Limitations, and Embracing My Own Ongoing Learning

Finally, some of the ongoing work to create a safe atmosphere for honest and curious observation and reflection is my own. For, much like my students, I, too, hold strong views about the technologies—about how they can and should be used most effectively and what role they are playing, or ought to be playing, in society (Levy, 2007). My buttons get pushed too. Sometimes this happens in the exercises, when students give voice to views that I personally disagree with; and sometimes it arises when students criticize some of the assigned readings that are particularly meaningful to me. I am generally able to recognize these moments as they arise, and to use them as opportunities for self-learning and discovery as my strong emotions show me the edges of my own strongly held beliefs. These moments offer a reminder that I too am a student in the class, albeit a student with a unique and privileged status.

Conclusion: Beyond the Argument Culture

Deborah Tannen (1998) has suggested that we live in an "argument culture," in which difference is often characterized as binary opposites and pundits hold to and debate the merits of simplistic positions. It isn't hard to recognize this tendency in relation to our digital technologies, where positions are often characterized as utopian (digital technologies are our salvation) or dystopian (no, they are ruining us), and where serious, credentialed thinkers actually debate whether the Internet is making us smart or stupid (Carr, 2010; Shirky, 2010).

An alternative to engaging in such oversimplified arguments is to observe more closely what is actually happening. (Is the Internet really making *all* of us smarter, or stupider? Is it so clear what "smart" and "stupid" actually mean?) Through the exercises, readings, reflections, and discussions in this course, I believe that students come away with a much more nuanced understanding of their relationship with their digital tools. They come to see that their own attitudes and behaviors are diverse, partial, and changing, and they come to recognize that their fellow students' attitudes and behaviors are similarly diverse, partial, and subject to change. I like to imagine that if more of us could observe ourselves with greater curiosity and honesty, we would be able to engage in a broader, deeper, and more nuanced cultural conversation about the place of these remarkable tools in our lives.

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