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Mindfulness Forward and Back

Ellen J. Langer

During the 1970s, the cognitive revolution was well under way, and social psychologists were busy researching attribution theory, the dominant concern of the time (see Harvey, Ickes, & Kidd, 1978). Although I, too, was considered a social cognition researcher, I suggested that before we concern ourselves with what people were thinking, we should consider questioning whether they were thinking at all. In 1978, we conducted one of our first studies to explicitly suggest that much of the time, people were mindless (Langer, Blank, & Chanowitz, 1978). For example, in one of these studies, people were interrupted while about to use a Xerox machine with a request that made little sense. In one condition, the experimenter asked, “Can I use the Xerox machine *because I want to make copies?*” People were more likely to comply when a reason was given than when one was not, regardless of whether the reason was informative.

Several earlier studies we conducted already suggested the absence of deep processing. In one of these studies, a request for help was made where the words spoken were identical but were spoken in a different but still sensible order (Langer & Abelson, 1972). If subjects processed the whole request, there should not be a difference in compliance. The opening words (“My knee is killing me, would you do me a favor” vs. “Would you do me a favor, my knee is killing me”), however, primed a different behavioral response. Although it was years in coming, there is now a vast literature on priming, showing that much of our behavior is controlled by primes rather than under our immediate control. Before addressing some of this work, it may be useful to consider our other early priming studies.

Early Studies on Mindless Priming

Robert Abelson and I (Langer & Abelson, 1974) had therapists watch a video of a person being interviewed. Half of the time, the person was labeled “patient,” and half

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of the time, he was called a “job applicant.” Despite the fact that these were highly educated therapists trained to be careful observers of behavior who watched the very same video, the label primed the way the person would be seen. The “patient” was in need of therapy while the “job applicant” was fairly well adjusted. This work demonstrated the illusory correlation effect and the pervasiveness of mindlessness. Study after study would eventually show that people engage in hypothesis confirming data searches, ignoring all other information (Chapman & Chapman, 1967; Hamilton & Gifford, 1976).

Also in the 1970s, I proposed a theory about the illusion of control (Langer, 1975). These studies can be understood as priming studies as well. When elements of a skill situation, such as choice, stimulus familiarity, practice, and competition, are introduced into a chance situation, they prime a skill orientation, and thus people respond in a way more sensible to situations where their behavior can affect the outcome. Choosing a lottery ticket, for example, makes the ticket more valuable to people. An extension of this finding later became known as the endowment effect (Thaler, 1980), another much researched topic suggesting once again that mindlessness is pervasive.

Social psychologists were now starting to question whether phenomena like attitude formation/change were as had been previously understood or whether they were instantiations of mindlessness. For example, Shelley Chaiken (1980) distinguished between heuristic and systematic processing, and Cacioppo and Petty (1979) discussed central and peripheral processing, where heuristic and peripheral were essentially mindless. When the source of the message was seen as credible, when the way the argument was presented was reasonable (familiar), when the source was attractive, or when the message was given in a catchy slogan, mindlessness prevailed.

When information is given by an authority, seems irrelevant, or is given in absolute language, people take in the information without questioning it and become trapped by the substantive implications of that information in the future should that information become relevant and where a deeper understanding would be helpful (Chanowitz & Langer, 1981). I would submit that most of what we learn, we learn in this absolute way. Most of our education, indeed, is geared to the giving of absolute facts, irrespective of context, and thus promotes mindlessness. How often have we been told to learn something so well that it becomes second nature? This, too, is an instruction that promotes mindlessness. We learn how to do the task and now don't have to think about it when such thought could yield superior performance (see Langer, 1997).

The evidence that mindlessness is pervasive was mounting. Numerous studies showed that people respond passively to cues in the environment rather than actively make choices. For example, (1) affective priming asserts that affective reactions can be evoked with minimal stimulus input and virtually no cognitive processing (Zajonc, 1980); (2) intentions and goals can be activated nonconsciously by the environmental context (Bargh & Chartrand, 1999); (3) the chameleon effect (Chartrand & Bargh, 1999) demonstrates that people unwittingly mimic others so that their motor behavior unintentionally matches that of strangers with whom they worked together on a task; and (4) the vast literature on stereotyping shows that single cues like gender or race can overshadow an enormous amount of countervailing information and be

automatically activated (Blair & Banaji, 1996). Each of these and more speak to the mindlessness of everyday behavior.

In one study, for example, Bargh, Chen, and Burrows (1996) found that simply cuing old age led subjects to walk more slowly. In an extension of that work, we had people categorize photos by age, thereby priming old age for young subjects, or we had them categorize the same photos along several dimensions. This mindfulness treatment erased the mindless effect of priming (Djikic, Langer, & Stapleton, 2008).

Most recently we have studied the mindlessness that results from reliance on GPS systems. To do this, Jaewoo Chung and I (Chung & Langer, 2013) developed a mindful indoor navigation system that provides choice to users. Choice promotes mindfulness. It is through noticing differences among alternatives that one arrives at a decision. We found that the mindful GPS system increased perceived control; decreased travel time, errors, and confusion; and increased the number of landmarks noticed.

Even multitasking looks different through the mindlessness/mindfulness lens. The mindless use of so many electronic gadgets now available has been shown to result in decrements in performance. Nevertheless, we found that people with higher trait mindfulness scores on the Langer Mindfulness Scale (LMS; Langer, 2004) are better able to multitask (Ie, Haller, Langer, & Courvoisier, 2012).

From Mindlessness to Mindfulness

Some argue that there is a place for mindlessness. I believe mindlessness is reasonable only when two conditions are met: when we have found the very best way of doing something, and when nothing changes. Clearly, from Heisenberg forward we know that everything is always changing. I further have argued that not only is everything changing but also at any one time things look different from different perspectives. Most typically, we're unaware of subtle changes because we confuse the stability of our mindsets with the stability of the underlying phenomenon. By freezing our understanding, we forfeit the possibility of choosing to act differently. The counterargument is usually that mindfulness takes more time than mindlessness and is more effortful. I'm not sure that is so, but even if true, the difference is only milliseconds and rarely does that small time difference truly matter. In making this argument, someone once created the condition where a child is about to walk into oncoming traffic. The person thought that mindlessly pulling the child to safety would be best done mindlessly. I countered that if the adult had been mindful, the child wouldn't have gotten to the curb in the first place. Moreover, there may be some advantage in mindfully scanning the driver's behavior to see which way would actually be safest to take the child. When we are mindless, we give up the option to make that choice. To see mindfulness as being more effortful is to confuse it with controlled processing as discussed below.

My original research on mindlessness gave way to questions about the other side of the coin, mindfulness. My particular approach to mindfulness grew out of our early work on choice. In the illusion of control studies, it was clear that choice was important—so important that even in situations that were deemed chance-determined, choice mattered to people. The most telling study on the topic was the research Judith Rodin and I were to conduct with elderly nursing home adults

(Langer & Rodin, 1976; Rodin & Langer, 1977). The experimental group was given choices to make (e.g., a plant to take care of) and a pep talk encouraging them to make the choices they used to make when they were younger. To control for all of the content provided, comparison subjects were given tender loving care and were told the nurses would help them care for the plants. Our follow-up study revealed that twice as many people in the group given choices to make were still alive 18 months later, compared to the control group. What was it about making choices that produced such extreme effects?

To actively make a choice, we notice aspects of the alternatives. If these aspects are novel, we may be led to choose other than our habitual choice. To always select the same alternative may seem like a choice from the observer's perspective, but for the actor it may be a habitual response. As such, it requires very little from us and may seem almost a nonevent. If everyday I have orange juice without considering whether today I might prefer grapefruit juice, no choice is being made. To make a choice, there has to be a consideration of one or more of the options not taken. Thus, actively drawing novel distinctions was taken to be the crucial element of the nursing-home findings. To test this idea, we gave nursing-home residents instructions in mindful distinction drawing and replicated the longevity findings (Alexander, Langer, Newman, Chandler, & Davies, 1989; Langer, Beck, Janoff-Bulman, & Timko, 1984).

In one of these studies (Alexander et al., 1989) we compared mindful-noticing subjects and transcendental meditators to relaxation control subjects. The procedure was tailored to meditation (i.e., sitting still with one's eyes closed) so not the best way of testing mindfulness as we study it. Still, the results for the mindful-noticing group were clearly superior to the control group, as was the Transcendental Meditation treatment. Meditators and mindful-noticing subjects demonstrated improvements on measures of cognitive flexibility; paired associates learning; word fluency; mental health; systolic blood pressure; treatment efficacy; ratings of behavioral flexibility and perceived control; aging; and higher survival rate. The process of meditation helps loosen the grip of categories over us; meditation results in postmeditative mindfulness. Mindfully noticing different aspects of these categories similarly—and perhaps more directly—loosens their grip.

Over the last 40 years, in study after study, we increase novel distinction-drawing—mindfulness—and find significant improvements in psychological and physical functioning (see Langer, 1989, 1997, 2005, 2009, for reviews). It is not incompatible with meditation. It is a different way to get to essentially the same place. When we actively draw distinctions, we come to see that context and perspective matter, we see we didn't know it as well as we thought we did, and this uncertainty keeps our attention on the topic. We see that our evaluations change depending on the context, and thus we become less evaluative (e.g., rigid from one perspective is consistent from another). And all of these years of study suggest that mindfulness is literally and figuratively enlivening.

In a very different arena, we asked whether aspects of childbirth were mindless (Zilcha-Mano & Langer, 2013). In this instance, we operationalized mindfulness as attention to variability—the essence of which, again, is noticing novelty—to examine whether mindfulness would result in better health outcomes for mother and infant. At week 25–30 of pregnancy, participants were given instructions to attend to the

variability of their sensations (positive/negative). The LMS was used to assess trait mindfulness and to see its relationship with health outcomes (see Chapter 45). The mindfulness training resulted in better health for both mother and infant. In addition, trait mindfulness predicted the well-being of the expectant mother and better neonatal outcomes. Our newest work is aimed at testing the effects of attention to variability on disorders such as depression, multiple sclerosis, amyotrophic lateral sclerosis, and cancer.

There are numerous other findings regarding the LMS. Most recently, we found a strong correlation between the scale and measures of subjective well-being in participants in mainland China, replicating the work in the US. Indeed, in study after study, we've found that both trait and state mindfulness are strongly related to happiness.

Mindfulness: What It Is and What It Isn't

More formally, mindfulness is defined as an active state of mind characterized by novel distinction-drawing that results in being (1) situated in the present; (2) sensitive to context and perspective; and (3) guided (but not governed) by rules and routines. The phenomenological experience of mindfulness is the felt experience of engagement. Noticing/creating novelty reveals inherent uncertainty. When we recognize that we don't know the person, object, or situation as well as we thought we did, our attention naturally goes to the target. By attending to variability, the hallmark of mindfulness, eventually we stop confusing the stability of our mindsets with the stability of the underlying phenomena.

Mindlessness, by contrast, is defined as an inactive state of mind characterized by reliance on distinctions/categories drawn in the past. Here (1) the past overdetermines the present; (2) we are trapped in a single perspective but oblivious to that entrapment; (3) we're insensitive to context; and (4) rules and routines govern rather than guide our behavior. Moreover, mindlessness typically comes about by default not by design. When we accept information as if unconditionally true, we become trapped by the substantive implications of the information. Even if it is to our advantage in the future to question the information, if we mindlessly processed it, it will not occur to us to do so (Chanowitz & Langer, 1981). The same rigid relationship results from mindless repetition (Langer & Imber, 1979, 1980).

Because my work on mindfulness began during the "cognitive revolution," it was cast in cognitive terms. It was never meant to describe a cold cognitive process. Indeed, as the mind/body discussion below makes clear, the dualism distinction is questionable at best. Nevertheless, we recently set out to test the effects of mindfulness without meditation on our senses. Participants were given instructions and practice in noticing novelty regarding vision or touch. Relative to control groups, these participants showed enhanced functioning. That is, mindful instructions improved both vision and kinesthetic senses (Langer, Reece, & Rood, 2013).

The many health-related experiments we have conducted make clear that our mindfulness treatments result in better health and increased longevity (Langer, 2009). For medical conditions in general, there is a mindless illusion of stability, where people often implicitly expect their condition to either stay the same or get worse if it is

chronic. Although nothing stays the same, minor positive fluctuations may be overlooked. It is in noticing these minor changes that control over the disease may lie. Several things follow from this attention to symptom variability: (1) we come to see that we don't have the problem all of the time; (2) if sometimes it is better than other times, we may ask why; (3) after asking why, we generate answers and may be able to solve the problem; and (4) even if we don't find a solution, the mindfulness that the search entails is good for our health. Thus, noticing novelty has a direct effect on health and an indirect effect (i.e., considering potential solutions); the more mindful we are, the more likely we will avert the health danger before it has arisen.

The Mind/Body “Problem” Reconsidered

The age-old mind/body problem (i.e., how can something nonmaterial, a thought, affect the material body?) continues to challenge philosophers and scientists alike. The implicit assumption—that mind and body are separate entities—may be the problem, however, that needs to be addressed. From Plotinus to Nagarjuna to Spinoza, a long line of thinkers through the ages have proposed that mind and body are but two sides of the same coin. That many such thinkers were often dwelling over concerns of philosophy or religion when they developed this idea may unfortunately have caused this insight to be met with suspicion, even outright derision, by the modern scientific academe. Current findings from fields as diverse as social psychology, neurobiology, and cognitive science, however, indicate that the tides of popular sentiment may once again be turning.

The Langer and Rodin (1976) study discussed above indicated that merely changing the content of one's thinking could indeed generate significant effects in the body and that mind and body were not as divorced from one another as the dominant scientific paradigm at that time had theretofore assumed. Now, it is more or less taken for granted that mind affects body, although the pathways are still unknown.

My newest work proposes a reworking of our understanding of the relationship between mind and body where the search for pathways from one to the other may be misguided, and do so from the perspective of mindfulness theory. It begins with the view that mind and body are just concepts. We have accepted them mindlessly as if they are more than a particular way to organize information.

Mindful Choice: Questioning the Basic Assumptions

Mindfulness allows for doubt and that allows for choice. When mindless, by contrast, our behavior is predetermined by the past, closing us off to choice and new possibilities. We live in a world governed by the principles of science. The precision with which we can now measure the world in and around us is, however, only as useful as the degree of mindfulness we employ to analyze it. Science becomes mindless when we automatically begin to conflate *precision* with *certainty*. Certainties lead to mindlessness; when we think we know, there is no reason to find out. Too often, scientists observe a phenomenon, create a theory to explain it, and then collect data to prove

their theory. Not surprisingly, confirmation is found. Theory is supposed to be understood as possibility, but at least in the social sciences, it most often is taken as absolute fact leaving little experienced difference between laws and theories. These theories build upon each other with the result of a series of concatenated probabilities making it harder and harder to question the basic assumptions of the original proposition. Scientific evidence can only yield probabilities, but science in use takes these probabilities and converts them into absolutes.

Take medicine, for example. Many diseases are labeled chronic. Chronic is understood as uncontrollable. If something is understood to be uncontrollable, we would be foolish to try and control it. Yet no science can prove uncontrollability. All science can prove is that something is possible, or it is indeterminate. Indeterminate is very different from uncontrollable. Moreover, by generalizing the findings to the population because of methodological considerations like random assignment without due regard to the subject population actually used (e.g., all of those people who self heal are missing from the medical database), we are discouraged from trying to self heal. In any experiment, the researcher has to make many hidden decisions regarding the parameters of the study (e.g., who the subjects actually are, the time and circumstances in which they'll be tested, the amount of the independent variable to administer). With these dimensions out of mind, findings seem more stable than they might otherwise seem. Couple this with the mistaken tendency of people to seek certainty and confuse the stability of their mindsets with the stability of the underlying phenomena, and we end up with an illusion of knowing and unnecessary limits to what we might otherwise find out.

This illusory sense of knowing is pervasive, extending even to the point where we misconstrue the nature of our own mental processes. What are we actually doing when we hold a certain concept in our mind's eye? Picture a car, for example. Now, start taking away individual elements that seem essential to the "car-ness" of it all, and ask yourself if you'd still know it's a car. A car without wheels? Still a car. Minus a steering wheel, or a bumper or an engine? Still seen as a car (albeit perhaps not one you'd want as yours). A Jeep and a station wagon and a Smartcar all somehow fit into this same category of "car," despite their clear diversity in features and appearance. Wittgenstein (Mora, 1953) famously performed a similar dissection of conceptual categories, effectively demonstrating (in his case, with the concept of "game") the inherent illusion that our mental categories for things are actually based upon some identifiable set of core features. So, what is it that makes a car a car? Not much, as it turns out.

Recent findings in the field of cognitive neuropsychology have begun to indicate that this assertion—that conceptual categories lack inherent unifying features—is backed by more than just sound logic. Barsalou (2009) and Wilson-Mendenhall, Barrett, Simmons, and Barsalou (2011) have established that the brain doesn't actually use a set of core concepts to define mental categories of objects and phenomena. Rather, our thought processes remain in a perpetual state of collection, assessment, and reaction to incoming information. It is only at the point of higher-level cognitive processes that we begin to grow lazy and assume that all examples of cars have some inherent "car-ness" about them. (Or, for that matter, that all instances of fear, or anger, or pride, must necessarily be connected by some unifying element.) In

reality, the idea of “car” (or “fear,” or any other concept) is actually represented in our brains as a loose amalgam of instances (this morning on the way to work in traffic, on a showroom floor, in a junkyard), specific examples (a Smartcar, a station wagon, a Jeep), functions (creating momentum, providing shelter, controlling climate), and other characteristics of certain objects that we learn at some point to clump together. In short, there’s no core element that makes a car a car every time, all of the time. Mindfulness requires that we engage the world with this same degree of dynamism and flexibility.

Reuniting the Mind and Body

No matter what we are doing, we are doing it mindlessly or mindfully, and the consequences of being in one state or the other are enormous. Research described in over 150 research papers and four books on the topic of mindfulness reveals that the simple process of creating/noticing novelty is literally and figuratively enlivening. We’ve found increases in well-being, health, competence, relationship satisfaction, effective leadership, and creativity to name a few of the many findings. Perhaps the most startling findings are the most recent. In one study (Langer, Russel, & Eisenkraft, 2009), we instructed symphony musicians to play a familiar piece of music and either make it new in very subtle ways that only each musician would individually know or recall a performance of the music that they were very pleased with and replicate it. We taped the performances and played them for audiences, blind to our instruction, and they overwhelmingly preferred the mindfully played piece. The musicians showed a similar preference. An interesting aspect to this work is that rather than cacophony, when each individual “did it their own way,” superior coordinated performance resulted. In other work we also showed that mindfulness seems to leave its imprint in the products of our labor (Langer, 2005).

More important to the present discussion is recent work that follows up on research originally conducted in 1981. The idea was and is deceptively simple. Mind and body are just words, concepts to which we rigidly adhere. What would happen, we asked, if we got rid of the distinction between mind and body? If we put the mind and body back together so to speak, then wherever the mind is, so too would be the body. Within this understanding, there is no reason to search for mediating mechanisms. Whatever is going on at the level of the brain is happening simultaneously with the thought and is just another level of analysis. With this view in mind, we conducted a series of investigations where we put minds in healthy places and took physical measurements.

In the first of these studies (see Langer et al., 1990), elderly men were taken to a timeless retreat retrofitted to 20 years earlier. To firmly anchor their minds in that earlier time, they would speak for the week in the present tense about the past for the full week they spent there. A comparison group of men lived the week at the retreat reminiscing about the past. For them, their minds were firmly in the present. The results were notable, especially considering that the study was conducted back in 1981 before there was any mind/body research and before 80 became the new 60. Despite

how enfeebled these men in their 80s were at the start of the study, both groups improved significantly from where they started. Hearing, vision, memory, and grip strength were significantly different after the week. The experimental group showed further improvement differing significantly from the comparison group with respect to manual dexterity; digit–symbol substitution scores (63% of the experimental group improved compared to 44% of the control group); height; gait; posture; joint flexibility; and diminished symptoms of arthritis. We photographed everyone before and after the week and found that all of the experimental participants looked noticeably younger at the end of the study.

In my view, it was the change in mindset, much the same way a placebo works, that accounted for the difference between the two groups. By priming a time when they were vital, their mindsets of old age as a time of debilitation became irrelevant. (Of course, over the week, many things could have varied that we couldn't possibly control in such an ambitious undertaking. We were, however, able to use tighter controls in more recent investigations.) Two things should be addressed regardless of the explanation for the findings one may choose. The first is the widespread belief that elders are not supposed to improve their hearing and vision—or indeed improve on any of the measures we took. Below I'll return to this in a discussion of science. The second issue to consider is that the idea of mind/body unity led to these findings, and thus at the least the theory serves a heuristic purpose.

Alia Crum and I (Crum and Langer, 2007) tested this mind/body hypothesis in a very different setting with chambermaids. We started by inquiring about how much exercise they thought they got in a typical week. Surprisingly, they thought they didn't get exercise, despite the fact that their work is exercise. Exercise, they thought, was what one did after work. If exercise is good for our health, and they get more than the surgeon general recommends, then we should expect that they would be healthier than socioeconomically equivalent others who do not exercise as much or as consistently. Interestingly, they were less healthy. While noteworthy, this was not the focus of the study. We randomly divided the participants into two groups and taught one group to change their mindset to view their work as exercise. We took as many measures as we could think of regarding food eaten in the course of the month between tests, exercise intensity at work, and exercise outside of work. We found no differences between the two groups on any of these measures. Nevertheless, the two groups significantly differed on measures of waist to hip ratio, weight loss, body mass index, and blood pressure. We attribute these improvements for the experimental group to the change in mindset.

We tested this mind/body hypothesis in another series of experiments (Langer, Djikic, Pirson, Madenci, & Donohue, 2010). Here we focused on vision. The standard Snellen eye chart has letters that get progressively smaller as one reads down the chart. Implicitly this creates the expectation that soon we will not be able to see. In one study, we reversed the eye chart so that the letters get progressively larger, thereby creating the mindset that soon we will be able to see. With the change in mindset, participants were able to see what they “couldn't” see before. With the standard eye chart, there is also an expectation that we will start to have difficulty around two-thirds of the way down the chart. Accordingly, we adapted the standard eye chart such that it began

a third of the way down the standard chart. Again, participants could see what they couldn't see before. In yet another study, we took advantage of the mindset that pilots have excellent vision. We had men don the clothes of air force pilots and fly a flight simulator. Control participants simulated flying the simulator. Vision improved for those embodying the mindset of pilot.

Finally, we wanted to see if we could condition improved vision (Pirson, Ie, & Langer, 2012). Participants in two experimental groups read a chapter of one of my books where the font of either the letter "a" or the letter "e" was much smaller than other letters (e.g., can, take, many) while participants in the control group read the chapter in a standard font size. Over time, those in the experimental groups would of course come to know what the smaller letter represented. After reading the chapter, participants' visual acuity was assessed. Regardless of the specific letter that was manipulated, results across three experiments showed that participants in the experimental groups scored higher on visual acuity than the control group, once again demonstrating the malleability of visual acuity.

Our accepted theories and mindsets tell us that vision is not supposed to improve. But from where do these mindsets come? We accept negative mindsets (e.g., vision will necessarily worsen over time) and we create theories of the eye to show why this must be. The expectation becomes self-fulfilling, further validating the original supposition. Yet with this simple understanding that our own minds create our seeming limitations, we may come to be more than alternative mind/body views currently enable.

Support for this view comes from recent work on embodied cognition. While our research has focused on measuring mind changes on the body, this work focuses on body changes affecting the mind. The idea is the same. Put the body in a particular position, and the entire individual is in that mode. For example, stand tall, and we become more confident (Carney, Cuddy, & Yap, 2010); think about the future or the past, and we lean forward or back (Miles, Nind, & Macrae, 2010); squeeze something soft/hard, and we perceive gender ambiguous faces as female/male (Slepian, Weisbuch, Rule, & Ambady, 2011).

As work on embodied cognition reveals, social psychologists are beginning to circumvent presumed limits that result from dualist thinking. I think the entire research enterprise would prosper from consideration that virtually all of our findings are only part of the picture. When, in a typical experiment, the researcher puts in some strong cue that people follow, yielding significant results, we might consider that our subjects do so mindlessly. As Helen Newman and I argued, the typical social psychological experiment might be an exercise in testing mindlessness. Those who do not give us what we expect are part of the variability. This variability, however, might be understood as mindful responses. In that study (Langer & Newman, 1979), we used the popular Kelley (1950) paradigm where participants were led to believe that the speaker they would soon hear was personally warm/cold. Those who confirmed the experimenter's hypothesis were reasonably oblivious to what was said.

Consider some of our field's most important research. Findings from research on "thin-slices" of behavior (Ambady & Rosenthal, 1993) may rely on mindlessness. If we were mindful, our tendency to make dispositional attributions might change since the situation would no longer be ignored, and so the effect might disappear. Similarly,

priming and the chameleon effect rely on mindlessness, so these findings would also look very different if mindfulness prevailed.

Conclusions

Is mindfulness more effortful? At least up to some point, mindfulness is energy begetting not consuming. Part of the reason people think of mindfulness as effortful is because it is confused with worry. It is not thinking novel thoughts about a problem that is effortful. It is worrying that the answer will be wrong that takes effort. In general, controlled processing is confused with mindfulness. Controlled processing is the operation of overlearned thought to a problem. Adding or multiplying numbers for example without regard to choosing different number systems on which to base one's answer is effortful. Moreover, play and enjoying humor are not effortful, and both rely on novelty. Recognizing that evaluations are in our minds and not in events leaves us less stressed and less reactive, both of which are energy consuming.

Because this work began with the cognitive revolution, it did not seem important then to stress that mindfulness—West or East—is not solely a cognitive process. Indeed, the idea of cognition as being separate from other ways of responding runs counter to my research but follows from mind/body dualism.

Just as psychologists are becoming increasingly aware of mind/body unity and what it promises for our well-being, the culture at large may also be in the midst of an evolution in consciousness. When we become mindful, either in our waking state by allowing and encouraging all of our senses to notice novelty or through meditation, the outcome is the same. These are two roads to the same place. They are neither mutually exclusive nor at odds with each other. There are contexts where one or the other may be preferable. Those who want a major life change, for example, may find meditation to be the path to take. Those who find meditation difficult or too unfamiliar, mindfulness as I study it may be more appropriate. Until schools and organizations provide opportunities or encourage students and employees to meditate, it may be worth while to recognize that mindfulness without meditation can be easily accommodated into present organizational structures. As all of us come to see that mindfulness is effortless and always available, and results in better health, effectiveness, and happiness, it is likely to become the preferred choice to the currently more normative version of being sealed in un-lived mindless lives.

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