

The Retrieval of Contemplation: Mindfulness, Meditation, and Education

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Submitted in partial fulfillment of the  
requirements for the degree of  
Doctor of Philosophy  
under the Executive Committee  
of the Graduate School of Arts and Sciences

COLUMBIA UNIVERSITY

2015

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## **ABSTRACT**

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Mindfulness, meditation, and other contemplative practices are being incorporated into educational settings at increasing rates, and while there is a substantial body of empirical research in psychology and the cognitive sciences attesting to the mental and physical benefits of mindfulness and meditation, relatively little has been written about their *educational* value. In this dissertation, I offer an account of the educational value of contemplative practices. I focus on the claims that contemplative practices have a positive impact on attention, metacognition, stress levels, and empathy, all of which are important in the context of teaching and learning. The fact that there is empirical and theoretical evidence to support these claims justifies the employment of contemplative practices and contemplative pedagogy in education.

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## **Acknowledgments**

Many people helped bring this project to fruition. In particular, I would like to thank my colleagues in the program in Philosophy and Education at Teachers College, Columbia University, and especially Tim Ignaffo, Cara Furman, Yoshi Nakazawa, Alex Hunley, David Backer, John Fantuzzo, Ana Cecilia Galindo Diego, Jason Wozniak, and Yeongmin Kwan, who read and commented on early drafts. From them I have learned much. I am also grateful for the skillful instruction of my own meditation and yoga teachers, Thanissaro Bhikkhu and Lara Land, who have influenced this project in countless ways. The members of my dissertation committee, Maughn Gregory, Rene Arcilla, Thomas James, and David Hansen, have been gracious and generous with their guidance and constructive feedback, and my advisor, Megan Laverty, offered characteristically indefatigable support. Carmen James and Ashley Bregman each read drafts in far worse shape than this one, and I owe many of the improvements to them. Finally, I have a debt of gratitude to my parents, Ray and Ellen Comstock, and my brother, Tim Comstock, who have always encouraged the contemplative in me. May you all be well.

## Introduction

### Contemplative Practices in Education

Gerardo Quintero, a seventh-grader at Marina Middle School in San Francisco, California, was having a difficult year. Gerardo began school as a straight-A student, but his grades started to drop sharply midway through the year—a consequence, in part, of his parents’ recent divorce—and he was being sent out of class for disruptive behavior by his teacher, Mr. Ehnle, at ever-increasing rates. Lesly Martinez, one of Gerardo’s classmates, was also going through a rough patch. Lesly had fallen in with the wrong group of friends and her grades, like Gerardo’s, were plummeting. Gerardo and Lesly were not alone. Many of their classmates were also struggling. In fact, that year, Marina Middle School had the unfortunate distinction of leading San Francisco in the number of student suspensions. Unsurprisingly, the school’s academic performance was suffering.

In an effort to alleviate these problems, administrators at Marina Middle School turned to an unconventional educational intervention: mindfulness. The school partnered with an organization called Mindful Schools, which sent a mindfulness teacher, Megan Cowan, into Mr. Ehnle’s classroom for mindfulness instruction twice a week, at twenty to thirty minutes per session, for a total of fifteen sessions. The experiences of Megan, Gerardo, Lesly, Mr. Ehnle, and the rest of the class were depicted in the 2013 documentary film *Room to Breathe*, which portrays the mindfulness program at Marina in an overwhelmingly positive light.<sup>1</sup>

Gerardo was initially dismissive of the value of mindfulness. “When Megan first came to teach the mindfulness class, I was like, ‘Get out of here, I don’t want to do this,’” he said. “It was

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<sup>1</sup> *Room to Breathe*, directed by Russell Long (Boston: PBS World Channel, 2013).

fun throwing pencils and stuff. Not listening to teachers is always fun, you know? But it's not the right thing to do." Lesly, for her part, listened but remained skeptical.

It was not a smooth start for Megan either. She did not immediately earn attention and respect from the class, and she was discouraged by her students' overtly defiant behavior. After several frustrating sessions, however, things started to change. When she invited Gerardo to ring the singing bowl to signal the start of mindfulness practice, the class grew silent and still. Over the course of her weeks at Marina, Megan taught the students in Mr. Ehnle's class a variety of techniques, including mindful listening, mindful eating, body scanning, compassion meditation, and mindfulness of breathing. The results, by all accounts, were positive. Parents, teachers, and students all said they noticed the difference made by mindfulness practice. Disciplinary referrals from the class declined sharply and data from student surveys indicated that students felt they had more control over their actions and an enhanced ability to focus in class.

The film captured the program's impact on Gerardo and Lesly in the most detail. Lesly completed the program convinced of the power of mindfulness. Her attitude was transformed, her grades started rising, and her family reported that they noticed a difference. "I want to prove to them that I am changing my life," she said. But no student seemed to benefit from mindfulness more than Gerardo. After Megan's sessions, Gerardo's behavior and academic performance steadily improved. He was promoted to eighth grade and proceeded to win awards for most-improved grade point average (GPA) and mentoring younger students. According to his father, the evolution was "phenomenal." In a post-class interview, Gerardo explained that he had started using mindfulness as a tool. "It's like something in your backpack, you know? It's always there. You can just pull it out and use it."

Mr. Ehnle, who learned the techniques as well, underwent a transformation as significant as any of his students'. Before the intervention, he was visibly exhausted and frustrated with his students' behavior. The tone he used in class—a bit sarcastic and slightly sour—made that abundantly clear. After Megan's sessions, however, his teaching began to change. He was calmer, kinder, and less irritable, which resulted in better relationships with his students. But perhaps the biggest testament to the intervention's effectiveness was that his class continued to practice mindfulness without Megan. "Mindfulness is worth the class time—no doubt about that," he said. "It makes them feel like they have more control over themselves and their behavior, and that they aren't simply victims of external circumstances."

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The word *mindfulness* is by now a very familiar one. Mindfulness is everywhere. Almost daily, a book or article is published extolling the benefits of mindful such-and-such: *Mindful Parenting*, *Mindful Leadership*, *Mindful Eating*, and *Mindful Politics*, to name just a few examples.<sup>2</sup> Mindfulness programs have sprouted up in a diverse range of social institutions: corporations (the mindfulness program at Google is called "Search Inside Yourself"), prisons (where organizations like the Prison Mindfulness Institute teach mindfulness techniques to inmates), the U.S. federal government (Tim Ryan, D-OH, hosts a mindfulness sitting group in Congress), and even the U.S. Army (where soldiers might receive "mindfulness-based mind fitness training"). The title of a recent book seems to say it all: *Mindful America*.<sup>3</sup>

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<sup>2</sup> See Kristen Race, *Mindful Parenting: Simple and Powerful Solutions for Raising Creative, Engaged, Happy Kids in Today's Hectic World* (New York: St. Martin's Press, 2013); Maria Gonzalez, *Mindful Leadership: The 9 Ways to Self-Awareness, Transforming Yourself, and Inspiring Others* (Mississauga, ON: John Wiley & Sons Canada, 2012); Jan Chozen Bays, *Mindful Eating: A Guide to Rediscovering a Healthy and Joyful Relationship with Food* (Boston: Shambhala Publications, 2009); and Melvin McLeod, *Mindful Politics: A Buddhist Guide to Making the World a Better Place* (Somerville, MA: Wisdom Publications, 2006).

<sup>3</sup> See Jeff Wilson, *Mindful America: The Mutual Transformation of Buddhist Meditation and American Culture* (Oxford: Oxford University Press, 2014).

In educational settings, discussions of mindfulness usually fall under the broader heading of *contemplative practices*, an umbrella term used to refer to a wide range of activities and techniques, including journaling, freewriting, beholding, silent during walking, eating or other activities, yoga, mindfulness, and meditation.<sup>4</sup> The practices are diverse, and have both ancient and modern roots. Some are derived from the wisdom traditions of Stoicism, Buddhism, and Taoism; others from the monastic institutions of Christianity, Judaism, and Islam; still others from the more recent traditions of the Quakers and American transcendentalists. For all their variety, the unifying feature of contemplative practices is the intentional training of attention and awareness.

In higher education, a new academic field is emerging, called *contemplative studies* or *contemplative sciences*, depending on whether the study of contemplation takes a humanistic or scientific approach. A few subdisciplines have formed, including *contemplative neuroscience*, which investigates the relationship between contemplative practices and the brain, and *contemplative historical research*, which centers on the role of contemplative practices in ancient wisdom traditions.<sup>5</sup> In teaching and learning, the incorporation of contemplative practices into the classroom is known as *contemplative pedagogy* or *contemplative education*, and a growing number of educators are using the practices to complement and enhance instruction. One leading

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<sup>4</sup> For more on silence as a contemplative practice, See Paul Woodruff, *Reverence: Renewing a Forgotten Virtue* (Oxford: Oxford University Press, 2014), especially chapter 13, “The Silent Teacher,” and Parker Palmer, *The Courage to Teach* (New York: John Wiley & Sons, 1998). Marilyn Nelson has also written eloquently on the use of silence in courses she teaches at The United States Military Academy at West Point. See in particular “The Fruits of Silence” in *Teachers College Record* 108 (2006): 1733-1741.

<sup>5</sup> Rick Repetti identifies these two subfields in “The Case for a Contemplative Philosophy of Education,” *New Directions for Community Colleges* 151 (2010): 5–15.

advocate, Arthur Zajonc, has referred to the changes of the last ten or so years as a “quiet revolution.”<sup>6</sup>

The premise of the present work is that this phenomenon, contemplative practices in education, deserves a closer look. The experiences of Gerardo, Lesly, Mr. Ehnle, and the rest of the class suggest that mindfulness and other contemplative practices are educationally valuable. By all accounts, mindfulness had a positive impact on students’ self-control and attention, and Mr. Ehnle affirmed that it was “worth the class time.” But this evidence is anecdotal. It is reasonable to wonder whether these claims are really true, and if they are, how exactly practices like mindfulness produce such results. Answering these questions requires investigating the following question: What is the educational value of contemplative practices? This will serve as the basis for the present investigation.

My approach is to focus on four claims commonly made by advocates of contemplative practices: contemplative practices improve attention, are metacognitive in nature, relieve stress and anxiety, and contribute to the development of empathy and compassion. There is a growing body of empirical research in psychology and neuroscience to suggest that the four claims are true. But so far there have been relatively few explanations for how and why contemplative practices produce these results. My aim is to provide a general explanatory account, a theory to explain why each of the claims is true. The peculiar nature of the claims calls for a theoretical approach, as each of them can be evaluated from the third-person, objective, empirical perspective, but also from the first-person, subjective, experiential point of view.

I will focus primarily on contemplative practices and not contemplative pedagogy for several reasons. The first is that contemplative practices logically precede pedagogy.

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<sup>6</sup> See Arthur Zajonc, “Contemplative Pedagogy: A Quiet Revolution in Higher Education,” *New Directions for Teaching and Learning* 134 (2013): 83–94.

Contemplative pedagogy is rooted in the use of contemplative practices, and so an understanding of the way contemplative practices “work” stands to benefit the way they are incorporated into teaching and learning. But operating at the level of practices also leaves room for contemplative practices as modes of *self*-education. Although contemplative practices necessarily have social and political dimensions, which I address in chapter five, the practices are mostly based on one’s own personal, subjective experience, and so each practitioner must, to a certain degree, be his or her own teacher. The self-directed and teacher-directed dimensions of education are captured in John Dewey’s definition of education in his classic work *Democracy and Education*: the reconstruction and reorganization of experience in increasingly meaningful ways. Dewey’s sense of *education* will be the one in use in the pages that follow.<sup>7</sup>

I should also be clear that the present investigation is not an argument *that* contemplative practices should be carried out in educational settings. They are already being carried out in classrooms across the country, and to make such an argument would do a disservice to the voluntary nature of the practices and to the autonomy of instructors and school leaders. Rather, I hope that in giving an account of the ways in which contemplative practices may be educationally valuable, I can lend support to those who have chosen to integrate contemplative practices into their institutions and classrooms, and, at the same time, present a theoretical argument about the ways contemplative practices are good in, and for, education.

I begin with some historical context for the recent contemplative practices movement. I then turn to what contemplative practices look like on the ground, so to speak, at colleges, universities, and K-12 schools in the United States today. I go on to offer a brief overview of the research literature in the nascent fields of contemplative education and contemplative pedagogy,

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<sup>7</sup> See John Dewey, *Democracy and Education* (New York: Free Press, 1997): 76.

and I conclude the introduction by commenting on the role of empirical research on mindfulness and meditation, and by responding to what may be the primary reason for skepticism about mindfulness and meditation in schools: that contemplative practices are religious or spiritual in nature.

### *The Historical Context for Contemplative Practices in Education*

In many ways, the contemporary contemplative practices movement can be seen as the retrieval of a very ancient educational tradition. Contemplative practices have been features of religious educational institutions for millennia. The most familiar examples come from Asian educational institutions, and Buddhist monastic institutions of higher education in particular, where mindfulness, meditation, and other practices have long been parts of the curriculum.<sup>8</sup> But contemplative practices were also important features of many premodern educational institutions of Christianity, Judaism, and Islam. Contemplative prayer, *lectio divina*, and other practices were vital components of medieval European monasteries, which, over time, evolved into the modern-day university, and the contemplative legacy persists today in the form of prayer services, retreats, and spiritual direction offered at many religiously affiliated institutions.

The integration of contemplative practices into American public schools has involved a major shift in the way contemplative practices are perceived: what were once primarily religious practices have been “secularized,” at least when carried out in public educational settings, so that their meaning and value has come to be rooted in psychology and perhaps even spirituality rather than organized institutional religion. In the United States, the shift seems to have begun in the 1950s and 1960s as a result of at least three major factors: the growth of interest in Zen

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<sup>8</sup> See Robert Thurman, “Meditation and Education: India, Tibet, and Modern America,” *Teachers College Record* 108 (2006): 1765-1774.

Buddhism, the popularity of Transcendental Meditation, and the establishment of departments of religious studies at American colleges and universities.

It is fair to say that Zen Buddhism was the first Buddhist tradition to become widely known in America. A major event in its spread was the publication of Alan Watts's 1957 book *The Way of Zen*, one of the first books on Zen addressed to a Western audience.<sup>9</sup> A few years later, the beat poets Jack Kerouac and Allen Ginsberg took up Zen themes in their writing and openly practiced it in their personal lives, and subsequent books like *Zen Mind, Beginner's Mind*, and *Zen and the Art of Motorcycle Maintenance* cemented the place of the word *Zen* in American culture, or at least in the counterculture.<sup>10</sup> Zen Buddhism is a tradition of Mahayana Buddhism that developed in China in the sixth century CE before spreading into Vietnam, Korea, and Japan; the term *Zen* is derived from the Japanese pronunciation of *Chán*, a Chinese word that is itself derived from the Sanskrit term *dhyāna* (*jhāna* in Pali), which translates to the English *meditation*. A common Zen meditation practice is the practice of “just sitting,” letting go of discursive thinking in order to be with the experience of the present moment. One of the most famous Zen teachers, Suzuki Roshi, has written that the practice is enhanced by developing an attitude of “beginner's mind,” characterized by curiosity and openness to the new. Zen teachers are also known to use *kōans*, or seemingly nonsensical ideas or propositions intended to provoke doubt and test a student's progress in meditation. One familiar *kōan* is that age-old riddle about trees falling in forests making sounds.

Around the same time as interest in Zen Buddhism was growing, another meditation tradition, Transcendental Meditation, gained a widespread following, bolstered in part by

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<sup>9</sup> See Alan Watts, *The Way of Zen* (New York: Random House, 1957).

<sup>10</sup> See Shunryu Suzuki, *Zen Mind, Beginner's Mind* (Boston: Shambala Publications, 2011) and Robert Pirsig, *Zen and the Art of Motorcycle Maintenance* (New York: William Morrow & Company, 1974).

celebrity endorsers like the Beatles and Mia Farrow. Transcendental Meditation (TM for short) is a mantra-based meditation style founded on the teachings of Maharishi Mahesh Yogi (1918–2008), an Indian teacher and guru. In the 1960s, Transcendental Meditation was being practiced in a broad range of social institutions, including schools, colleges, and universities, and although the popularity of TM has ebbed somewhat since its heyday the 1960s, interest today remains strong, with adherents numbering in the millions. In the United States, Transcendental Meditation is practiced in schools via Quiet Time, a privately funded program supported by media stars like David Lynch and Russell Brand. The basic TM technique is simple: a trained instructor gives a student a personalized word or phrase (i.e., a mantra), which is memorized and kept secret. The practice consists of repeating the mantra mentally while sitting in a comfortable position for fifteen to twenty minutes twice each day. TM continues to be one of the most widely used meditation techniques in scientific research on meditation and studies have tended to support the technique's range of benefits for practitioners.<sup>11</sup>

As popular interest in Zen Buddhism and Transcendental Meditation was growing in the United States, a new academic discipline was emerging: religious studies, centered on the secular study of religious beliefs, institutions, and practices. An early work in the emerging discipline was William James's *Varieties of Religious Experience*, in which James discusses religious *experience* rather than the theology and doctrines of religious institutions.<sup>12</sup> A few decades later, Mircea Eliade, a historian of religion at the University of Chicago, emerged as a leading figure in the field of religious studies. Eliade's 1954 book *The Myth of Eternal Return* outlines a

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<sup>11</sup> For a primer on Transcendental Meditation and an overview of many empirical studies on it, see Jack Forem, *Transcendental Meditation: The Essential Teachings of Maharishi Mahesh Yogi* (United States: Hay House Publishing: 2013). Some mindfulness researchers have called into question the legitimacy of studies on Transcendental Meditation, which has led to an interesting rift between Transcendental Meditation and mindfulness-based meditation studies in the research literature.

<sup>12</sup> William James, *Varieties of the Religious Experience* (New York: Penguin, 1982)

distinction that has become fundamental to the academic study of religion, the distinction between the sacred and profane.<sup>13</sup> The field of religious studies has grown ever since, and scholars have contributed to the contemplative practices movement by translating texts from contemplative traditions and setting contemplative practices in their historical, psychological, and philosophical contexts.

Another event that set the stage for the modern-day contemplative practices movement was the establishment of Naropa University in 1974, a private liberal-arts college in Boulder, Colorado. The institution was founded by Chogyam Trungpa, a Tibetan Buddhist teacher, and describes itself as nonsectarian but “Buddhist-inspired,” and aims to bring together the best of Western scholarship and Eastern world wisdom traditions.<sup>14</sup> Since students at Naropa engage in contemplative practices as a part of the curriculum, and since teachers use contemplative pedagogy in their instruction, there is historical precedent for contemplative practices in higher education going back over forty years.

More recently, two educational movements paved the way for the return of contemplative practices in classrooms: social and emotional learning and positive psychology. The social and emotional learning movement got started with the work of Daniel Goleman, whose 1994 book *Emotional Intelligence* popularized that idea, and Howard Gardner, whose book *Frames of Mind* outlines a theory of multiple intelligences in which interpersonal and intrapersonal intelligence are two types.<sup>15</sup> Since the construct of emotional intelligence is thought to include the ability to monitor one’s own emotions and the emotions of others, to discriminate among emotions, and to

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<sup>13</sup> See Mircea Eliade, *The Myth of Eternal Return* (Princeton: Princeton University Press, 1956).

<sup>14</sup> See Naropa’s website at <http://www.naropa.edu/about-naropa/the-naropa-experience/index.php>

<sup>15</sup> See Howard Gardner, *Frames of Mind: The Theory of Multiple Intelligences* (New York: Basic Books, 1983) and Daniel Goleman, *Emotional Intelligence* (New York: Bantam Books, 1994). Goleman’s most recent book is *Focus: The Hidden Driver of Excellence* (New York: Harper Collins, 2013).

use emotional information in order to guide thinking and acting, its relevance to education is easy to see. The work of Goleman and Gardner has inspired further research into how emotional intelligence can be used in education, and a number of research centers on emotional intelligence have been established in the years since, including the Yale Center for Emotional Intelligence.<sup>16</sup> There has long been a close relationship between mindfulness and emotional intelligence, and in fact Daniel Goleman's dissertation and first book, *The Meditative Mind*, was on the psychology of meditation.<sup>17</sup>

The other movement that emerged around the same time as social and emotional learning was positive psychology, devoted to studying the conditions for positive human functioning. Martin Seligman generally receives credit for being the founder of positive psychology; his book *Authentic Happiness* offers a theory outlining some of the conditions for happiness that is supported by a wealth of empirical research.<sup>18</sup> Following the early work done by Seligman, positive psychology has made an incursion into schools in large part the result of the work of Angela Duckworth, whose research on grit and “noncognitive” character strengths has shown that those character strengths are good predictors of success in school and in life.<sup>19</sup> And though Duckworth has not yet addressed mindfulness in her research, it is a major topic of investigation for many of her colleagues at the Positive Psychology Center at the University of Pennsylvania.

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<sup>16</sup> The website for the Yale Center for Emotional Intelligence can be found at <http://ei.yale.edu/>.

<sup>17</sup> Daniel Goleman's *The Meditative Mind: The Varieties of Meditative Experience* (New York: Penguin Putnam Inc., 1988).

<sup>18</sup> See Martin Seligman, *Authentic Happiness* (New York: Simon & Schuster, 2002) and *Learned Optimism* (New York: Vintage, 2006).

<sup>19</sup> See Duckworth, Angela and Martin E.P. Seligman, “Self-discipline Outdoes IQ in Predicting Academic Performance of Adolescents.” *Psychological Science* 16 (2005): 939–944; Angela Duckworth, “Grit: Perseverance and Passion for Long-Term Goals,” *Journal of Personality and Social Psychology* 92 (2007): 1087–1101; and Angela Duckworth, “Self-Regulation Strategies Improve Self-Discipline in Adolescents: Benefits of Mental Contrasting and Implementation Intentions.” *Educational Psychology* 31 (2011): 17–26.

The contemplative practices and contemplative pedagogy movements can also be understood as reactionary in nature, however. The reaction in this case is to the educational accountability movement, characterized by curricular standards and accompanying aligned assessments, a system set up to try and distinguish effective schools from ineffective ones. One starting point for tracing the rise of the contemporary accountability movement is the 1983 publication of *A Nation at Risk*, a report written by Ronald Reagan’s National Commission on Excellence in Education, which warned in dire tones of a “rising tide of mediocrity” across American schools.<sup>20</sup> The accountability movement intensified following the 2001 No Child Left Behind Act, the Race to the Top Initiative, and, in more recent years, the widespread adoption of the Common Core State Standards. The value and effectiveness of top-down accountability reforms continues to be hotly debated, but what is not in question is the major psychological toll the heavy emphasis on testing has taken on teachers, students, administrators, and parents. The contemplative practices movement can thus be understood as a countervailing force to the accountability trend, a return to the more humanistic—and humanizing—modes of education, and to a vision of education that extends beyond mere economic viability.<sup>21</sup>

### *Contemplative Practices in Higher Education*

The most recent wave of interest in mindfulness and meditation in higher education got started in the early 2000s, when medical schools and hospitals across the country started to use mindfulness and meditation as experimental treatments for pain and other diseases. A number of

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<sup>20</sup> The full report is available at [http://datacenter.spps.org/uploads/sotw\\_a\\_nation\\_at\\_risk\\_1983.pdf](http://datacenter.spps.org/uploads/sotw_a_nation_at_risk_1983.pdf)

<sup>21</sup> See Maughn Gregory, “Ethics Education as Philosophical Practice: The Case from Socratic, Critical, and Contemplative Pedagogies,” *Teaching Ethics* 15 (2014): 31. A different kind of worry is that contemplative practices are being used simply as coping strategies to help students and teachers deal with the high-stakes environment while reducing the amount of political resistance to it. Responses to this worry are likely to vary widely; but at the very least it might be said that having a coping strategy is better than not having one.

mindfulness centers at major research universities were established around that time. In 2004, the University of California, Los Angeles, created the Mindful Awareness Research Center (MARC), in order to conduct and publish research on the medical benefits of mindfulness. In 2008, Stanford University launched the Center of Compassion and Altruism Research and Education (CCARE), where mindfulness and meditation are major topics of investigation. There is also the Penn Program for Mindfulness at the University of Pennsylvania, the Center for Mindfulness at the University of California, San Diego, and dozens of others based on a similar model.

The year 2000 was a noteworthy one for contemplative pedagogy and contemplative education, when a group of faculty members at the University of Michigan voted to establish a bachelor of fine arts degree in jazz and contemplative studies. That decision gave students the chance to major in a new field of study, the curriculum for which includes twenty to twenty-five credits of courses that fall under the heading of contemplative studies, offered in departments like psychology, philosophy, and cultural studies. Now, fifteen years later, the program is thriving. A specialty at Michigan is investigating the link between contemplative practices and musical improvisation, a line of inquiry based on the fact that a long list of jazz musicians, including John Coltrane, Sonny Rollins, and Herbie Hancock, have used meditation and other techniques to enhance their improvisation skills.<sup>22</sup>

The contemplative practice programs recently established at U.S. colleges and universities are highly interdisciplinary. They often facilitate research, run outreach programs, and offer a range of other activities for students, faculty, staff, and the general public. At Emory University, there is the Collaborative for Contemplative Studies. At the University of Miami,

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<sup>22</sup> See Barbezat and Bush, *Contemplative Practices in Higher Education*, 140.

there is the Mindfulness Research and Practice Initiative. And at the University of Virginia, there is the Contemplative Sciences Center. Campuses across the country are literally making space for mindfulness. This fall, Carnegie Mellon University created a mindfulness room, where no studying, technology, or meetings are allowed.<sup>23</sup> The room is open twenty-four hours a day and hosts a variety of workshops on mindfulness, meditation, yoga, and other contemplative practices.

Some of the most significant news from the nascent field comes from Brown University, which approved an undergraduate major in contemplative studies in the spring of 2014.<sup>24</sup> A particularly interesting feature of Brown's program is that many of the courses involve meditation labs, known on campus as "med labs," which offer students the chance to test the contemplative techniques they are learning about in the same way they would test, say, hypotheses in physics or biology. The program at Brown is partnered with three of the university's neuroscience labs in an effort to investigate the neurological correlates of contemplative practices and experiences. This dual approach is quite unique. Students have the chance to learn about various forms of contemplation not only firsthand through direct practice, but also through the third-person perspective afforded by the lenses of neuroscience, history, and religion.

Short of establishing stand-alone programs, dozens of other colleges and universities offer courses involving contemplative practices. There is Contemplative Arts and Society at Syracuse University; Food and Hunger: Contemplation and Action at the University of the South; and Physical Mindfulness: Embodying Contemplative Practice at Oberlin College and

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<sup>23</sup> Jane Karr, "Space to be Mindful, *New York Times*, October 31, 2014.

<sup>24</sup> Gabrielle Dee, "University Approves New Concentration in Contemplative Studies," *Brown Daily Herald*, May 19, 2014.

Conservatory.<sup>25</sup> As Mirabai Bush and Daniel Barbezat point out in *Contemplative Practices in Higher Education*, every discipline in professional and higher education has now integrated contemplative practices into curricula, including graduate schools of education. A contemplative pedagogy group at Vanderbilt University’s Peabody College meets monthly. Montclair State University hosts workshops on contemplative pedagogy and runs a program to support faculty members who are creating and redesigning courses to incorporate contemplative practices.<sup>26</sup> And at the University of Wisconsin–Madison School of Education, where researchers have taken the lead on investigating the impact of mindfulness on teaching and learning, recent findings suggest mindfulness may alleviate teacher burnout and further enable the self-regulation of stress.<sup>27</sup>

The growth of contemplative practices in higher education has been supported by a number of nonprofit organizations, including the Center for Contemplative Mind in Society, which offers retreats, professional development programs, and grants for educators. Several years ago, the first higher education academic association based on contemplative practices was formed under its aegis: the Association for Contemplative Mind in Higher Education, or ACMHE, which added over three hundred educators, administrators, staff, students, and researchers to its membership in the first year, and which supports a peer-reviewed academic journal, the *Journal of Contemplative Inquiry*. The journal’s first issue was published in January 2014.

### *Contemplative Practices in K-12 Education*

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<sup>25</sup> Barbezat and Bush, *Contemplative Practices in Higher Education*, 100, 114, and 159.

<sup>26</sup> See Montclair’s Contemplative Pedagogy page at <http://www.montclair.edu/academy/contemplative-pedagogy/>

<sup>27</sup> See Lisa Flook et al., “Mindfulness for Teachers: A Pilot Study to Assess Effects on Stress, Burnout, and Teaching Efficacy,” *Mind, Brain, and Education* 7 (2013): 182–95.

All of the activity in higher education has had a major impact at the K-12 level, too, where there have been three general approaches to mindfulness, meditation, and other contemplative practices: teaching contemplative practices directly to students, using them as professional development for teachers, and creating contemplative practice-based curricula. The nonprofit organization Mindful Schools, which sent Megan Cowan into Mr. Ehnle's class, has been particularly influential using the first approach, direct instruction to students.<sup>28</sup> The organization runs training programs for over 18,000 students and 750 teachers in 53 schools across the country, and is especially active in the school districts of Lancaster, Pennsylvania, where mindfulness is taught in 25 classes a week at 8 schools, and in Oakland, California, where students in 20 schools receive mindfulness training.<sup>29</sup> *Room to Breathe*, the film documenting mindfulness at Marina Middle School, has been shown at film festivals around the world.

A few hundred miles north of Marina Middle School, at Wilson High School in Portland, Oregon, the fall of 2014 brought a new class offering: mindfulness studies.<sup>30</sup> Following the suicide of a popular student, the school's principal, Brian Chatard, made what was once an after-school program into a core course like algebra or English. The class, which was started by two teachers at the school, appears to be the first for-credit mindfulness class at a public high school in Oregon, and perhaps the entire nation. In the class, students engage in a variety of contemplative practices and spend a portion of their time each day writing in journals, which are off-limits even to their teachers. In what is sure to be an interesting study, a team of researchers from Oregon Health and Science University has teamed up with the school to measure students

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<sup>28</sup> Within the last two years, Mindful Schools has switched to training teachers exclusively after an internal study found this to be a more effective strategy than sending mindfulness teachers like Megan into classrooms for direct instruction.

<sup>29</sup> See Daniel Rechtschaffen, *The Way of Mindful Education: Cultivating Well-Being in Teachers and Students* (New York: Norton, 2014): 276.

<sup>30</sup> Kelly House, "In 'Mindfulness Studies' class, Wilson High School students learn to cope with teenage stress," *The Oregonian*, October 15, 2014.

on a variety of academic and well-being indicators throughout the year. The approach at Wilson High School is being replicated at schools throughout the country, and a growing body of empirical research tends to confirm the positive results.<sup>31</sup>

There are dozens of similar programs across the country. Students at many Portland schools take mindfulness classes run by MindUP, a nonprofit similar to Mindful Schools. In Baltimore, students at Patterson High School engage in a fifteen-minute meditation at the beginning and end of each day in the Mindful Moment Program, run by the Holistic Life Foundation, a Baltimore-based nonprofit. And the Quiet Time program in San Francisco has made a remarkable impact. At Visitacion Valley Middle School, the first school to adopt the program, suspensions fell by 45 percent after the first year, and according to a survey conducted by the state of California, the school now ranks as the happiest in San Francisco.<sup>32</sup>

Although there are many external organizations that send mindfulness teachers into schools, contemplative practices have also taken root from the ground up, through K-12 teachers' own use of contemplative practices in their classrooms. Many have been trained through classes and workshops run by organizations like the Garrison Institute, a nonprofit established in 2003. The institute's education branch, called Contemplative Teaching and

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<sup>31</sup> In one study, which appears to be the largest involving a school-based mindfulness program, researchers surveyed more than four hundred students at low-income elementary schools in Oakland who participated in programs run by Mindful Schools. Results showed that students improved significantly on four measures: self-control, attention, classroom participation, and respect for others. See D. S. Black and R. Fernando, "Mindfulness training and classroom behavior among lower-income and ethnic minority elementary school children," *Journal of Child and Family Studies* 2013. In another study, researchers looked at students at a mindfulness program at a low-income school in a rural community in which students participated in thirty minute guided meditation sessions, offered twice a week for eight weeks. Results indicated that the intervention was effective at relieving stress and improving school culture, including through teacher mood. See B. L. Wisner, "An exploratory study of mindfulness meditation for alternative school students: Perceived benefits for improving school climate and student functioning," *Mindfulness* 2013.

<sup>32</sup> See David L. Kirp, "Meditation transforms roughest San Francisco schools," *San Francisco Chronicle*, January 12, 2014. <http://www.sfgate.com/opinion/openforum/article/Meditation-transforms-roughest-San-Francisco-5136942.php>. Kirp, who is a professor of public policy at the University of California, Berkeley, draws on data from the California Healthy Kids Survey, administered by WestEd for the California Department of Education. See <http://www.wested.org/using-data-to-find-the-happiest-school-in-san-francisco/>

Learning, offers a range of programs for teachers, including Cultivating Awareness and Resilience in Education (CARE) for Teachers, which is currently being offered at sites in California, Colorado, New York, and Pennsylvania.<sup>33</sup>

In the past few years, a number of books have been published containing contemplative practice lesson plans and other activities for K-12 teachers, including Daniel Rechtschaffen's 2014 book *The Way of Mindful Education*.<sup>34</sup> At the same time, curriculum development has also taken place through internal channels. Many schools now employ a social and emotional learning coordinator, whose job it is to train students and teachers in social and emotional learning regulation strategies, and a growing number of coordinators are using contemplative practices in their work. Most of the organizations devoted to mindfulness in schools take all three approaches—direct instruction, professional development, and curriculum creation. Their numbers are large and growing. There is the Mindfulness in Education Network, the Association for Mindfulness in Education, the Mindful Education Institute, and Wake Up Schools, to name just a few examples.

### *The Literature on Contemplative Practices in Education*

There is a growing body of scholarly literature devoted to contemplative practices and contemplative pedagogy. Much of the early work in the field was done in the 1980s by Margaret Buchmann, who points out that teaching is a contemplative practice. In “The Careful Vision:

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<sup>33</sup> CARE has been the subject of a number of research studies indicating that mindfulness and meditation have positive effects on teachers. In 2009 and 2010, the Garrison Institute, in conjunction with the U.S. Department of Education, Institute of Educational Sciences, ran a study on the effectiveness of CARE for Teachers. Results suggested that CARE may help reduce teacher burnout and attrition, and enable teachers to better establish and maintain a positive learning environment. See P. A. Jennings et al., “Improving Classroom Learning Environments by Cultivating Awareness and Resilience in Education (CARE): Results of Two Pilot Studies,” *Journal of Classroom Interaction* 46 (2011): 37–48.

<sup>34</sup> See Rechtschaffen, *The Way of Mindful Education*.

How Practical is Contemplation in Teaching?” Buchmann examines the role of contemplation in teaching, defining contemplation as “careful attention and wonderstruck beholding.”<sup>35</sup> And in “Argument and Contemplation in Teaching,” she shows the extent to which teaching draws on wisdom and is a vocation thereby situated within the contemplative life.<sup>36</sup>

A major turning point for the field, however, was a 2006 special issue of the *Teachers College Record* devoted to contemplative practices in education. The issue emerged from a national conference on the topic held at Teachers College, Columbia University the year before. The issue featured a contribution from nearly every leader in the developing field. The foreword was written by Mirabai Bush, then director of the Center for Contemplative Mind and Society and coauthor with Daniel Barbezat, professor of economics at Amherst College, of the 2014 book *Contemplative Practices in Higher Education*, a fine overview of contemplative practices at American colleges and universities.<sup>37</sup> Hal Roth, a professor of religious studies at Brown, wrote an article articulating the major issues to be investigated in contemplative studies, and Ed Sarath, a professor of music at the University of Michigan, argued for the benefits of contemplative practices in the curriculum.<sup>38</sup>

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<sup>35</sup> See Margaret Buchmann, “The Careful Vision: How Practical is Contemplation in Teaching?” *American Journal of Education* 98 (1989): 35–61.

<sup>36</sup> Margaret Buchmann, “Argument and Contemplation in Teaching,” *Oxford Review of Education* 14 (1988): 201–14.

<sup>37</sup> See Mirabai Bush’s foreword in *Teachers College Record* 108 (2006): 1721–22; and Daniel Barbezat and Mirabai Bush, *Contemplative Practices in Higher Education: Powerful Methods to Transform Teaching and Learning* (San Francisco: John Wiley & Sons, 2014), 140.

<sup>38</sup> Ed Sarath, “Meditation, Creativity, and Consciousness: Charting Future Terrain within Higher Education,” *Teachers College Record* 108 (2006): 1816–41 and Robert Thurman, “Meditation and Education: India, Tibet, and Modern America,” *Teachers College Record* 109 (2006): 1765–74. Recently there has been a flurry of research on mindfulness from psychologists who specialize in education. For example, Shauna Shapiro and colleagues give a meta-analysis of the research that has been done to date on mindfulness and meditation in colleges and universities, and their findings suggest that mindfulness and meditation have a range of benefits for teaching and learning, including improved academic performance, reduced stress, and the education of the “whole person.” See Shauna L. Shapiro et al., “Toward the Integration of Meditation into Higher Education: Review of Research Evidence,” *Teachers College Record* 113 (2011): 497. Richard Davidson and colleagues make a similar claim for K-12 education, drawing on dozens of studies on the benefits of contemplative practices for primary and secondary

A handful of scholars in the field of philosophy of education have addressed contemplative practices; Terry Hyland was among the first to contribute. In “Mindfulness and the Therapeutic Function of Education,” published in 2009, Hyland argues that mindfulness is closely connected to learning, and that it can play an important role in the personal growth and development of students.<sup>39</sup> Hyland draws on the writings of Thich Nhat Hanh, a contemporary Vietnamese monk, and Jon Kabat-Zinn, the creator of an eight-week program called Mindfulness-Based Stress Reduction (MBSR).<sup>40</sup> In “Self-Knowledge and Its Discontents,” Richard Shusterman offers a useful term to describe one result of meditation: *somatic self-awareness*. He contends that being aware of the body, which has traditionally been regarded with disdain by Western philosophers, is an important part of learning. And Rick Repetti, in his 2010 article “The Case for a Contemplative Philosophy of Education,” presents an argument for regarding contemplative pedagogy as a philosophy of education. In making his case, Repetti draws on a number of studies on mindfulness, meditation, and learning.<sup>41</sup>

The contemplative practices movement has not been universally embraced, however. There are a number of critics of contemplative practices in education, including several philosophers of education, whose complaints are often packaged within critiques of positive psychology and social and emotional learning. Alistair Miller, for example, has argued that the field of positive psychology is founded on a series of fallacious arguments, and instead of

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teaching and learning. See Richard Davidson et al., “Contemplative Practices and Mental Training: Prospects for American Education,” *Child Development Perspectives* 6 (2012): 146–53.

<sup>39</sup> Terry Hyland, “Mindfulness and the Therapeutic Function of Education,” *Journal of Philosophy of Education Vol. 43* (2009): 119–31.

<sup>40</sup> Thich Nhat Hanh is the author of a number of books, including *You Are Here: Discovering the Magic of the Present Moment* (Boston: Shambala, 2001) and *The Miracle of Mindfulness: An Introduction to the Practice of Meditation* (Boston: Beacon Press, 1975). Jon Kabat-Zinn has published many books on MBSR, including *Wherever You Go, There You Are: Mindfulness Meditation in Everyday Life* (New York: Hyperion Books, 1994).

<sup>41</sup> See Rick Repetti, “The Case for a Contemplative Philosophy of Education,” *New Directions for Community Colleges* 151 (2010): 5–15.

demonstrating that positive attitudes explain achievement and happiness, positive psychology simply associates well-being and happiness with a particular personality type.<sup>42</sup> By the same token, Kristján Kristjánsson has criticized the idea of emotional intelligence on Aristotelian grounds and writes off mindfulness as “the flavor of the month in some intellectual circles.”<sup>43</sup> I will suggest that contemplative practices *are* forms of positive psychology and of social and emotional learning, but that the critiques offered by Miller and Kristjánsson are unpersuasive. Wading into their arguments, however, requires explaining in more detail my overall approach, so it will be helpful to offer a preview of the chapters to come.

### *Overview of Chapters*

The investigation will be carried out over five chapters. I begin, in the first chapter, with a close look at the concept of mindfulness. Although mindfulness is enormously popular, there is no clear and consistent definition of the concept. In most contemporary writings on mindfulness, the word is not defined precisely; some even refuse to define it altogether. But if we are going to use the word responsibly, we must have a clear understanding of what mindfulness means.

Part of the problem is that there seem to be two very different vocabularies for talking about mindfulness and meditation. On the one hand, there is the existential, phenomenological vocabulary, used to articulate *what it is like* to engage in mindfulness and meditation from the first-person, subjective point of view. The familiar instruction to “live in the present moment” is a common phrase in this vocabulary. On the other hand, there is a rapidly expanding scientific vocabulary for describing mindfulness and meditation, in which the content and effects of the

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<sup>42</sup> Alistair Miller, “A Critique of Positive Psychology—or ‘The New Science of Happiness,’” *Journal of Philosophy of Education* 42 (2008): 591–608.

<sup>43</sup> Kristján Kristjánsson, “‘Emotional Intelligence’ in the Classroom? An Aristotelian Critique,” *Educational Theory* 56 (2006): 39–56.

practices are rendered in operational, empirically verifiable terms. Neither approach seems entirely adequate on its own, however. What is needed is a blended approach that combines the first-person and third-person perspectives in the service of a complete account.

I begin with Ellen Langer and Jon Kabat-Zinn, whose work on mindfulness has probably done the most to shape the popular understanding of the concept. I then go on to examine how the term is used in the field of philosophy of education. It is commonly suggested that mindfulness is in some sense derived from or inspired by Buddhism, but the exact nature of the connection between mindfulness “then” and “now” is rarely explored. So in the second part of the chapter, I look at the concept of mindfulness as it is found in the Pali Canon, the earliest written account of the Buddha’s teachings, where mindfulness is understood not as a quality of awareness or consciousness, but rather a faculty of memory, and in fact very close to what is called *working memory* in psychology. If the modern sense of *mindful* is intransitive, meaning that there is no particular object to be kept in mind, the classical sense is transitive, such that there is a particular thought or perception to be remembered. Both senses of mindfulness are present in Stoic philosophy; I conclude the chapter by identifying mindfulness in the *Meditations* of Marcus Aurelius.

In Chapter 2, I address the claim that contemplative practices improve attention. In order to properly evaluate this claim, it will be necessary to clarify what attention is and how it works, and to present a theory about the mechanisms by which mindfulness, meditation, and other contemplative practices are thought to improve it. I begin the chapter by looking at the work of William James. In his 1890 book *Principles of Psychology*, James offered insights about attention that still stand up in the context of modern psychological and neurological research. James’s work was groundbreaking, but even after more than a hundred years of research and

many thousands of experiments on attention, there is still no general agreement on what attention is. Perhaps there is no single process to study. It is most helpful, then, to think of attention in terms of models, and so I offer an overview of some of the best-supported contemporary models of attention: the spotlight model, the zoom-lens model, the four processes model, the functional component model, the feature integration model, and the clinical model. Each model, I suggest, offers a framework for describing the mechanisms by which contemplative practices enhance attention. A close look at each demonstrates why it is more accurate to regard attention as a flexible, trainable skill rather than a fixed trait.

In the third chapter, I examine the claim that contemplative practices are metacognitive in nature. In recent years, metacognition has come to be seen as an important aim of education, so if contemplative practices involve metacognition, and if the metacognition involved can be transferred and applied to more traditional educational activities, then there would be reason to take contemplative practices seriously in the classroom. Most contemporary psychologists and neuroscientists divide metacognition, which often goes by the tagline “thinking about thinking,” into two subcomponents: metacognitive knowledge and metacognitive regulation. Each subcomponent, I argue, is involved in mindfulness and meditation.

In the second part of the chapter, I offer a critique of the concept of metacognition. The concept’s popularity surpasses its real explanatory power. Thinking too much about how one’s learning is going can sometimes get in the way of learning well. From a philosophical perspective, the concept of self-knowledge is more promising. I argue that metacognition is best seen as a species of self-knowledge and that there are several senses in which contemplative practices can be said to give rise to self-knowledge.

In the fourth chapter, I turn to the claim that contemplative practices are a technique for relieving stress and anxiety. My main objectives for the chapter are to define stress, argue why its relief is important for teaching and learning, and offer a theoretical account of how contemplative practices might bring about its relief. Like attention, it is best to conceive of stress in terms of models, so I begin the chapter with an overview of a few of the most compelling models: the philosophical or existential model, in which stress is an implication of free will; the psychological model, in which stress is a circumstance that disturbs normal psychological functioning; and the physiological or evolutionary model, in which stress is a result of the body's fight-or-flight response. Although many research studies have shown mindfulness and meditation to be effective ways to reduce stress, much less has been written about exactly how the causal connection works. I propose two theoretical pathways—what I will call the physiological and psychological pathways—which, taken together, might explain the mechanisms by which mindfulness and meditation bring about stress relief.

In the second part of the chapter, I argue that there are intrinsic and extrinsic reasons for stress relief's educational value. In extrinsic terms, there is a large body of research to indicate that stress inhibits learning and the formation of new memories and that it contributes to teacher burnout, so it stands to reason that contemplative practice can improve learning outcomes and teacher retention rates by relieving stress. In intrinsic terms, the condition of being less stressed means an improved state of well-being, which, I will argue, comes down to the very same thing as happiness, understood in the robust sense of flourishing, and there are good reasons for thinking of happiness in this sense as a primary aim of education.

In the final chapter, I examine the claim that contemplative practices contribute to the development of empathy and compassion. I begin by taking a close look at the concepts of

empathy and compassion, specifying how the two concepts are related to each other. As with stress, the empirical research tends to show that mindfulness and meditation enhance the expression of empathy and compassion, but investigators are typically reluctant to present a causal account to explain the effects, perhaps because such an account would move beyond the empirical and into the philosophical or theoretical realms. But, being in a position to theorize, I propose three pathways, the goodwill pathway, the attention pathway, and the well-being pathway, which might explain how mindfulness and meditation enhance empathy and compassion. The fact that contemplative practices have been linked to empathy and compassion suggests that, like attention, empathy and compassion are not stable traits, but rather flexible, trainable skills, and that contemplative practices not only benefit the people practicing them, but also people who do not.

#### *A Note on Empirical Research*

Before moving ahead, I want to comment briefly on my approach to empirical research on contemplative practices. Over the past decade, thousands of studies have been done on mindfulness and meditation, and I have tried to assemble the strongest ones here. These studies are illuminating and important, but it is worth approaching their results with a degree of caution. One reason for this is that empirical work on mindfulness and meditation is still very new. In 1982, there were only a handful of articles published on mindfulness. But, as popular interest in the techniques has grown, so has the body of research literature on them; by 2012, articles on mindfulness numbered in the thousands.<sup>44</sup> Now, empirical research on mindfulness and meditation is a well-established subfield in the mind sciences, and results from studies are

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<sup>44</sup> Daniel Rechtschaffen, *The Way of Mindful Education*, 25.

published in the news on a nearly daily basis, but many of the studies have methodological problems that are revealed in their designs.

Studies on mindfulness and meditation tend to take two general forms. In the first and more common form, investigators recruit participants, sometimes students but usually people from the general public, and divide them into two groups: an intervention group, which receives some type of mindfulness or meditation training; and a control group, which receives a different type of training or no training at all. (In many cases, participants in the control group are told that they have been put on a waiting list for a future course.) Before the experiment, investigators gather baseline data on whatever variables they are measuring. To start the experiment, the intervention group is taught mindfulness or meditation, and afterward, investigators collect data to see whether the intervention had any effect. The nature of the training program can vary considerably from study to study. In some cases, weekly or twice-weekly in-person instruction is supplemented with at-home practice using audio recordings; in other cases, the training takes place entirely at a retreat center over the course of several days or weeks.<sup>45</sup> The second approach involves studying expert meditators while they are meditating or performing some other task in order to identify mental or physical qualities that set them apart from the general population. Here, there is no defined experimental control group but the results obtained from the experts can be compared to a sample of the general population.

In both approaches, the effects of mindfulness and meditation might be evident on the neurological, psychological, and behavioral levels. On the neurological level, a common method

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<sup>45</sup> In one study on people who learned mindfulness meditation over the course of a 10-day retreat, results showed improvement on measures of working memory and sustained attention, along with decreases in depressive symptoms and rumination. See Richard Chambers et al., “The Impact of Intensive Mindfulness Training on Attentional Control, Cognitive Style, and Affect,” *Cognitive Therapy and Research* 32 (2008): 303-322.

of investigation involves using functional magnetic imaging (fMRI) technology, which traces the way blood flows in the brain when a person performs a given task. Because neural activity requires blood, investigators can infer which parts of the brain are most active by tracing the patterns of blood flow.<sup>46</sup> A slightly older technology, often used in conjunction with fMRI scanning, is electroencephalography (EEG), in which electrodes are placed along the scalp in order to record electrical activity in the brain. On the psychological level, investigators typically use written or computer-based tests to assess psychological changes in participants. The survey distributed to students and parents at Marina Middle School is a basic example of the psychological approach. There are dozens of more sophisticated psychological metrics of attention, stress, and empathy used in studies on mindfulness and meditation, and in recent years, several mindfulness scales have been developed, which will be discussed in more detail in the next chapter. On the behavioral level, investigators might test the effects of mindfulness and meditation by putting participants into a preconstructed scenario to determine whether the training impacted their behavior. The strongest studies investigate the effects of mindfulness and meditation on all three levels, which gives researchers the opportunity to cross-check their findings.

However, methodological problems often remain even in studies that use all three methods. One problem has to do with the sample sizes and time durations used in mindfulness and meditation studies. Many studies involve just twenty or thirty participants, small for a sample size, and many are carried out over just six or eight weeks. A second problem has to do with the nature of the control groups used in the studies. It is not clear what an appropriate

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<sup>46</sup> Impressive as fMRI technology is, it is worth keeping in mind the fact that heightened blood flow to a particular area does not necessarily mean that other areas are not also involved. The brain is a highly decentralized organ, and exactly what is explained by noting that particular areas of the brain show more activity during certain tasks is not obvious.

control group looks like. In some studies, participants in the control group receive no intervention at all; in others, participants are given a different form of mental training, such as “reappraisal training,” in which they are taught strategies for looking at situations in a new light. But this sort of training may also develop mental qualities like attention and metacognition, making it difficult to distinguish the effects of the two types of interventions. There are also many types of mindfulness and meditation, and of resulting experiences. It is not easy to control for teaching style and skill, the varying rates of learning and expertise among participants, or the physical environment in which mindfulness and meditation are learned and practiced. All of this can make it difficult to compare the effects of mindfulness and meditation across studies.<sup>47</sup>

This is why we should take the results of empirical studies with the proverbial amount of sodium chloride. Exactly what the studies show is not always clear so we should be cautious about inferring too much from them.<sup>48</sup> And the fact remains that even after many experiments, relatively little is known about the physiological and neurological processes involved in mindfulness and meditation, which is why I hope the theoretical account offered here will be particularly fruitful.

### *The B-Word*

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<sup>47</sup> The gold standard in empirical research is the randomized controlled trial (RCT), in which neither the investigators nor the participants are aware of the type of intervention being received. But it is very difficult to study mindfulness and meditation using randomized controlled trials because participants in the experimental group must remain unaware that they are on the receiving end of mindfulness or meditation instruction. For more on the idea of investigating mindfulness and meditation using RCTs, see Donald G. MacCoon et al., “The validation of an active control intervention for Mindfulness Based Stress-Reduction (MBSR),” *Behavior Research and Therapy* 50 (2012): 3–12.

<sup>48</sup> Francis Schrag has made a similar point about the role of neuroscience in education more generally, arguing that although evidence from the field of neuroscience can help explain *why* certain educational practices succeed or fail, it offers little guidance when it comes to practical instruction in the classroom. See Francis Schrag, “Does Neuroscience Matter for Education?” *Educational Theory* 61 (2011): 221-237.

I want to conclude the introduction by addressing an objection that is sure to arise when contemplative practices like mindfulness and meditation are brought into educational settings. The objection, in a very general form, is that contemplative practices are religious or spiritual in nature, and a more particular form of the objection is that mindfulness and meditation are Buddhist practices. In either case, the objection continues; given the history of a “wall of separation” between church and state, mindfulness and meditation occupy a suspicious place in schools. Jeff Wilson, a professor of religious studies at the University of Waterloo, makes this general point in his 2014 book *Mindful America*. Wilson sees mindfulness as a stripped-down, transformed version of Buddhist meditation, a version that has been appropriated and adapted to America.<sup>49</sup> Mindfulness in the United States, Wilson argues, is a perfect example of how Buddhism enters new cultures.

If this is true, it is interesting to note that so far there have only been very small pockets of resistance to mindfulness and meditation in public schools.<sup>50</sup> One place of resistance is Warstler Elementary School, in Akron, Ohio, which stopped its mindfulness program in April 2013 after some parents and community members raised concerns that the technique too closely resembled Eastern religions like Buddhism.<sup>51</sup> “As we kept digging and researching, we found the roots to it,” the district’s superintendent, Brent May, explained in an interview. “We have to be

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<sup>49</sup> Jeff Wilson, *Mindful America*.

<sup>50</sup> There is historical precedent for objections to meditation in schools. In the 1970s, a series of court cases involved Transcendental Meditation in schools. In 1979, the Third Circuit Court of Appeals, which has jurisdiction over New Jersey, Delaware, and Pennsylvania, ruled that Transcendental Meditation, along with the course it had developed, The Science of Creative Intelligence, were religious activities within the scope of the establishment clause of the First Amendment to the Constitution. The court wrote that although Transcendental Meditation was non-theistic, it is based on ideas about truth and ultimate concern, like those found in organized religions. As a result, since 1979, the Transcendental Meditation programs in public educational institutions have been supported by private funding. As several religious studies scholars have pointed out, the judicial rebuff did not entail a negative assessment of the program itself. See Douglas E Cowan and David G. Bromley, *Cults and New Religions: A Brief History* (Malden: Blackwell, 2008): 70

<sup>51</sup> Stephanie Warsmith. “Plain Township School Stops ‘Mindfulness’ Program after Some in Community Raise Concerns,” Akron Beacon, April 15, 2014. Retrieved from <http://www.ohio.com/news/local/plain-township-school-stops-mindfulness-program-after-some-in-community-raise-concerns-1.389761>

careful as a public school that we don't cross over church and state." A similar complaint was lodged by two parents against the school district of Encinitas, California, where yoga was being taught in physical education classes. The parents sued the school district in 2013. In the verdict of that case, however, the judge acknowledged that while yoga "at its roots is religious," it is also so deeply entrenched in modern secular society that it is a "distinctly American cultural phenomenon," and he allowed the classes to continue.<sup>52</sup>

The extent to which mindfulness and meditation are religious or Buddhist practices (and therefore religious practices) gets us into some very tricky territory indeed. *Are* mindfulness and meditation religious? The only plausible answer to this question, I submit, is "it depends." There are many factors at play: the context in which the practices are carried out, the content of the instruction (i.e. what people are actually doing while being mindful or meditating), how one feels about mindfulness, meditation, and religion, and one's own personal religious views. A key point here is that religion is not a phenomenon that exists neutrally in the world, an artifact "out there" for objective appraisal. "Religion" and "religious" are, instead, labels applied to groups of people and practices for particular purposes. To call a practice or form of life "religious" is not a statement of fact, but rather a marker of value. Someone who talks about the nonreligious, scientific practice of mindfulness is making an argument, where the hidden premises reveal where his or her values lie; the same is true for someone who emphasizes the religious nature of mindfulness.<sup>53</sup>

Even so, it is worth sketching a few of the approaches taken in the effort to respond to the question. One approach is to interrogate more fully the categories of "Buddhism" and "religion,"

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<sup>52</sup> "Judge Says Yoga Does Not Promote Hinduism in Public Schools," *The Guardian*, July 2, 2013. Retrieved from <http://www.theguardian.com/world/2013/jul/02/judge-yoga-promote-hinduism-californian-schools>

<sup>53</sup> Here I am following the basic contours of Jeff Wilson's approach in *Mindful America*, p. 9.

and to point out that Buddhism has an odd fit under the category of “religion.” In its essence and its beginnings, as Robert Thurman has noted, Buddhism is not too *religious* in the usual sense of that word, which is to say, focused on the sacred, the transcendent, and ultimate realities.<sup>54</sup> The historical Buddha was a teacher concerned with the practical matter of relieving stress and suffering, which is a basic existential problem for everyone, not just a chosen group of people, and he often compared himself to a doctor who had found a cure and was happy to give it away for free. For these reasons, among others, Thurman suggests that we think of the Buddhist tradition as primarily an *educational* tradition rather than a religious one.

A related approach is to further interrogate the ties between Buddhism, mindfulness, and meditation. Meditation is undoubtedly a Buddhist practice, in the sense that many (though far from all) Buddhists meditate, and that meditation is one of eight parts of the Noble Eightfold path, the path of practices the Buddha set out for the relief of stress and suffering. But it is safe to say that meditation is not *exclusively* Buddhist. The Buddha did not invent meditation; in fact there were many diverse meditation traditions flourishing in ancient India at the time of the Buddha. Even within the tradition he established, a wide variety of different forms of meditation are taught and practiced.

A different sort of problem is treating “Buddhism” as if it were a unitary, coherent tradition. Many people have suggested that it is more accurate to speak of Buddhist traditions, in the plural, given the vast differences among them that have arisen based on the teachings of the figure of the historical Buddha.<sup>55</sup> And there is the further point that practices like mindfulness and meditation can be found in nearly all of the world’s religious traditions, including Judaism,

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<sup>54</sup> Robert Thurman, “Meditation and Education,” 1769.

<sup>55</sup> Some have even argued that there are greater differences between the various schools of Buddhism than there are among the Western monotheistic traditions of Judaism, Christianity, and Islam. See for example Richard H. Robinson et al., *Buddhist Religions: A Historical Introduction* (Belmont, California: Wadsworth: 2005).

Christianity, and Islam, and in the philosophical tradition of Stoicism—or so I will argue in the next chapter.<sup>56</sup> All of this serves to further undermine the assumed tie between meditation, mindfulness, and Buddhism.

But the dominant approach taken in the last decade or so has been to treat mindfulness and meditation as medical and psychological practices, where the content and effects of the practices are characterized in neutral, scientific terms. Sometimes, those who investigate mindfulness and meditation under the rubric of medicine or psychology give a nod to meditation’s Buddhist roots, noting that the meditation is “inspired by” or “derived from” Buddhism; at other times, mindfulness and meditation are portrayed as generically Asian and not particularly Buddhist. An advantage of this approach, of course, is that it allows for the claim that people need not be Buddhist in order to benefit from the practices of mindfulness and meditation. Daniel Seigal, author of the 2010 book *Mindsight*, puts the point like this: “People sometimes hear the word *mindfulness* and think ‘religion.’ But the reality is that focusing our attention in this way is a biological process that promotes health—a form of brain hygiene—not

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<sup>56</sup> In Christian traditions, meditation comes in many forms. Christian meditation might mean trying to discover and understand the revelations of God; focusing on particular thoughts in the effort to discern their meaning and significance in a theological context; or engaging in petitionary prayer, in which divine intervention is sought. Traditionally, ‘meditation’ in the Christian context has referred to a practice that engages the intellect, and in this respect it is distinct from ‘contemplation,’ which is thought to somehow transcend the intellectual faculties.

In Judaism, too, there is a long history of meditation practices. Jewish meditation can be traced back to Genesis 24:62, in which Isaac, the son of Abraham, is said to have gone out into the field to *lasuach* – a Hebrew word that refers to a type of meditative practice. Two Hebrew words used on other occasions in the Torah are *haga*, which means to sigh, murmur, or meditate; and *siha*, which means to muse, reflect, or rehearse one’s own thoughts. In modern Judaism, ‘meditation’ can refer to a range of practices, including visualization, analysis of ethical or mystical concepts, or prayer. Meditation plays a major role in Kabbalah, a mystical tradition of Judaism. Practitioners of meditative Kabbalah may seek to alter the physical world via divine intervention, or to gain insight into the nature of their relationship with God.

In Islam, ‘meditation’ is the typical translation of *dhikr*, which means ‘remembrance of God,’ ‘pronouncement,’ or ‘invocation.’ *Dhikr* is usually understood as a form of prayer, and it involves reciting the names of God or passages from other sacred texts. *Dhikr* is a major element in Sufism, a branch of Islam characterized by the inner, mystical experience of God, though the content of the practice varies greatly from tradition to tradition. For a lucid overview of the variety of practices captured under the heading “meditation,” see Brendan Kelly’s article “Contemplative Traditions and Meditation” in *The Oxford Handbook of Psychology and Spirituality*, edited by Lisa Miller (Oxford: Oxford University Press, 2012).

religion. Various religions may encourage this health-promoting practice, but learning the skill of mindful awareness is simply a way of cultivating what we have defined as the integration of consciousness.”<sup>57</sup>

There seems to be a cost to treating mindfulness and meditation simply as medical and psychological phenomena, however, which is that the spiritual dimensions of the practices may be overlooked. It seems undeniable that mindfulness and meditation are spiritual practices—or at least that they have spiritual elements. In fact, I will characterize mindfulness and meditation as “spiritual exercises” of the sort Pierre Hadot identifies in ancient philosophers in the next chapter. The spiritual dimensions of contemplative practices are what may make some people uncomfortable with them. But it is worth examining this feeling of discomfort. A person’s having a spiritual side is universally admired, and, provided that a teacher is not imposing a particular brand of spirituality in the classroom, or a particular form of religion, it is hard to argue against the merits of opening up time and space for spiritual development in the classroom.

The phrase “spiritual but not religious” has entered popular discourse, and what it captures, I think, is the idea of being in tune with, and interested in developing, one’s “interior,” but not necessarily in the context of an established religious tradition. Since mindfulness and meditation are devoted to the development of the interior, they too can be understood as “spiritual but not religious,” and they *are* understood this way in several recent books on meditation penned by outspoken critics of religion, including Sam Harris’s *Waking Up*.<sup>58</sup>

There is a deeper problem that arises, however, when mindfulness and meditation are taken out of the context of religious traditions and treated as medical, psychological, and spiritual practices. The problem is this: we seem to have given up on the notion that the practices reveal,

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<sup>57</sup> Daniel Siegel, *Mindsight: The New Science of Personal Transformation* (New York: Bantam Books, 2010): 83

<sup>58</sup> Sam Harris, *Waking Up* (New York: Simon & Schuster, 2014).

or at least provide access to, Truth. To medicalize, psychologize, and spiritualize mindfulness and meditation, it may be argued, is to miss the main point of the practices, which is to provide insight into reality as it really is. In fact, it can be said that mindfulness and meditation assume a larger set of metaphysical, cosmological, and theological commitments, and the practices only make sense in light of such commitments about the way things really are.

This is a very complicated problem, and I am in no position to provide a comprehensive response. But at the very least we might note that most forms of mindfulness and meditation based on the body and mind involve a very limited set of metaphysical commitments. There is a commitment to the power of one's own thoughts and actions, to the law of causality, and to the idea that it is possible to willfully direct one's own attention to a particular object. Beyond that, there is at least one sort of universal truth that mindfulness and meditation may provide insight into: truth about the nature of one's own mind. The insight here is not global or universal in scale, but rather personal, and, since the global and universal are often functions of the personal, the truth of the personal may be truth enough.<sup>59</sup>

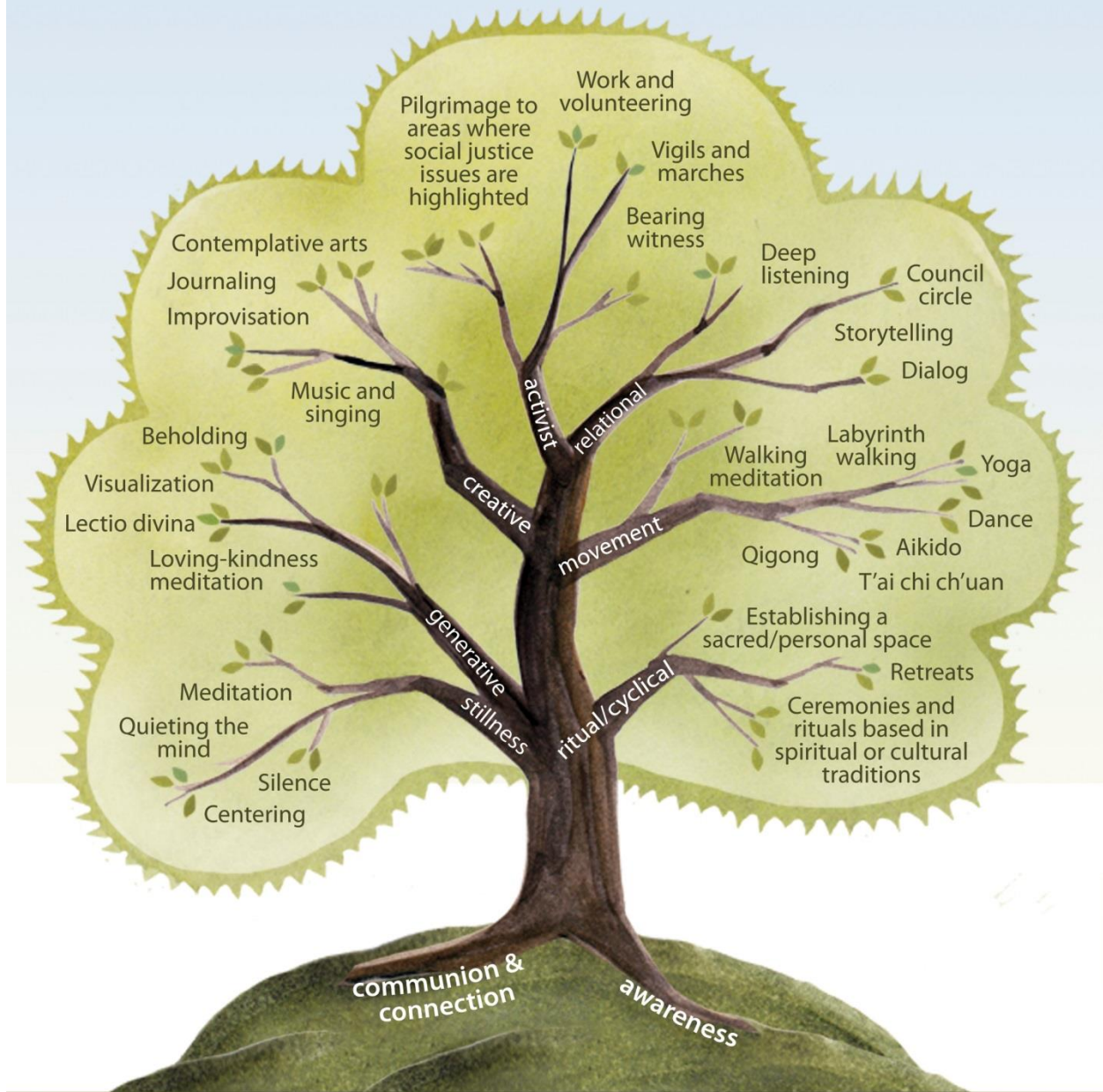
The framework in which I will examine mindfulness and meditation is what might be called nonreductive naturalism, where mindfulness and meditation are understood as naturalistic activities, consistent with what we know to be good for human beings *qua* human beings, and where there is an important place provided for the religious or spiritual dimensions of human life. The framework of nonreductive naturalism will come in handy for examining the contemplative practice that I have chosen to focus on here, which is mindfulness of breathing, or

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<sup>59</sup> A different kind of worry may come from Buddhists who feel that mindfulness has been co-opted from their religion, and so there is a tone of resentment, of the sort that sometimes creeps into *Mindful America*. I find this attitude hard to understand. If, even in their stripped-down, secularized form, mindfulness and meditation have improved the lives of millions of people, presumably the appropriate response from Buddhists would be to take joy in the happiness of others, no matter the context for their practices. It is as if major league baseball players were to look down on games of catch as an inappropriate approximation of the professional game.

breath meditation. There are several reasons I have chosen to focus on mindfulness of breathing. The first is that focusing on the breath is among the most generic meditation instructions, an instruction given as an initial step in many styles of meditation. Another is that the breath is a common property, available in equal measures to everyone, and no one tradition has a special claim on practicing breathing. That gives the practice a universal quality. But, at a slightly deeper level, there are other fascinating features of the breathing process that make it an interesting object on which to focus. Breathing is one of the few bodily processes that is both automatic and under our conscious control. We do not have to remember to breathe, fortunately, thanks to specialized areas in the brainstem, but when we want to we can deliberately adjust our breathing and the adjustment brings about a change in our mental state, however subtle. The breathing process occupies a nexus between “mind” and “body,” and exploring that nexus yields a picture of how the state of the mind impacts the state of the body, and vice versa. More special features of the breathing process will come to light in the next chapter, devoted to exploring the concept of mindfulness.

# The Tree of Contemplative Practices



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## Chapter 1

### The Concept of Mindfulness

In *Talks to Teachers*, a book based on lectures delivered to teachers in Cambridge, Massachusetts, in 1892, William James tells a story about a group of visitors from India. The visitors, who “talked freely of life and philosophy,” were struck by the troubled, anxious appearance of Americans. “More than one of them has confided to me that the sight of our faces, all contracted as they are with the habitual American over-intensity and anxiety of expression, and our ungraceful and distorted attitudes when sitting, made on him a very painful impression,” he says.<sup>1</sup> The visitors, James explains, could not understand how Americans lived as they did, without a single moment of the day given over to tranquility and meditation. An invariable part of Indian life, they pointed out, was taking time each day to practice governing the breathing process and relaxing the body’s muscles, and this was something every Indian child learned at an early age. The results of the encounter made a lasting impression on James. “The good fruits of such a discipline were obvious in the physical repose and lack of tension, and the wonderful smoothness and calmness of facial expressions,” he said. The experience led him to wonder whether Americans were doing harm to their children by neglecting to teach them such basic habits. “Perhaps you can help our rising generation of Americans toward the beginning of a better set of personal ideals.”

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Megan Cowan, in teaching mindfulness to Gerardo, Lesly, and the other students in Mr. Ehnle’s class at Marina Middle School, seems to have taken James at his word. But what *is*

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<sup>1</sup> William James, *Talks to Teachers on Psychology and to Students on Some of Life’s Ideals* (Mineola: Dover Publications, 1962): 37–8.

mindfulness, and how can it be taught and learned? The aim of this chapter is to answer those questions. I begin with a look at the work of Ellen Langer and Jon Kabat-Zinn, two of the most influential figures in the modern mindfulness movement and then turn to *mindfulness* as it is used in the field of philosophy of education. In the second part of the chapter, I look at the conception of mindfulness found in the Pali Canon, in the effort to trace the similarities between mindfulness old and new. I argue that the word is used in at least two distinct senses.<sup>2</sup> In the modern sense, mindfulness refers to a certain quality of awareness. To be mindful is to be especially aware, conscious, and alert, and often with the secondary meaning of being cautious or heedful. In the classical sense, “mindfulness” is a function of memory. To be mindful is to repeatedly remember. Both forms of mindfulness are important to Stoic philosophy, and so I conclude the chapter by commenting on mindfulness in the *Meditations* of Marcus Aurelius.

### *Ellen Langer’s Mindfulness*

A good place to begin the investigation into mindfulness is with the work of Ellen Langer (b. 1947), a professor of psychology at Harvard University and author of the 1989 book *Mindfulness*, the first book-length treatment of mindfulness in the field of psychology.<sup>3</sup> To explain mindfulness, Langer starts with its opposite: *mindlessness*, which, she explains, is going

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<sup>2</sup> The distinction between mindfulness-as-awareness and mindfulness-as-memory has a rough analogue in the empirical research literature on meditation, in which it is common to sort meditation practices into two types: open-awareness meditation, of which mindfulness meditation is usually taken to be an example; and focused-attention meditation, which involves concentration on a single object. I am not convinced that the distinction is very helpful, and as we examine mindfulness of breathing it will become clear that the practice of keeping attention on the breath requires open awareness and focused attention in equal measures. See Fred Travis and Jonathan Shear, “Focused Attention, Open Monitoring and Automatic Self-Transcending: Categories to Organize Meditations from Vedic, Buddhist, and Chinese Traditions,” *Consciousness and Cognition* (2010).

<sup>3</sup> Ellen Langer, *Mindfulness* (Cambridge, MA: Perseus, 1989). Langer’s work in 1989 eventually led to the creation of the Mindfulness/Mindlessness Scale (MMS), which assesses individual differences in the achieving mindful states. The Scale features twenty-one items that assess four components of mindfulness: flexibility, novelty seeking, novelty producing, and engagement. For more, see T. E. Bodner, and Ellen Langer, “Individual Difference in Mindfulness: The Mindfulness/Mindlessness Scale.” Poster Presented at the thirteenth-annual American Psychological Society Convention, Toronto, ON, June 2001.

through life “on autopilot.” Mindlessness, in her view, has three key features. First, it is to be trapped by categories. We make sense of reality by constructing categories into which we sort our experience, and it is easier, psychologically, to put those experiences into categories that are already constructed. When we are unaware that we are using these categories, and that they shape our experience, we are acting mindlessly. Second, mindlessness means engaging in automatic behavior. We are capable of engaging in all kinds of complex activities without really thinking; I need not consciously think about brushing my teeth, tying my shoes, or driving to my friend’s house, for example, because these behaviors have become habitual, and when behaviors become habitual, as James noticed more than a hundred years ago, it is as if our minds are freed up to think about other things. But, a wandering mind is a mind that is inattentive to the task at hand, and that, Langer says, is mindlessness. Finally, mindlessness means acting from a single perspective. Our tendency is to act from a single perspective, i.e. our own, without considering the perspectives of others. This sort of tunnel vision, according to Langer, is the final mark of mindlessness.

The antidote to mindlessness is *mindfulness*, to which there are three corresponding parts. First is the ability to create new categories of experience. Given that we tend to sort our experience into categories, mindfulness is the awareness of the sorting process and that the categories we use have a major impact on the way we experience the world. By the same token, mindfulness means being open to new information. It involves maintaining a quality of epistemological receptivity grounded in the possibility of creating new categories in the effort to make sense of experience. Finally, mindfulness means the awareness that there is more than one perspective in any given situation. To be mindful is to recognize others’ points of view.

Langer is careful to distinguish her concept of mindfulness from those found in Buddhism and other Asian traditions. Her theory of mindfulness, she says, is a scientific one, based entirely on research done in contemporary psychology, which is the ground for her claim that it does not have a moral aspect. And yet this view is hard to sustain; mindfulness seems to be intrinsically moral. If mindfulness means creating new categories of experience, being receptive to new things, and taking the perspective of others, it cannot be morally neutral; everything we do impacts others, and being more receptive, open, and aware—more mindful, rather than less—is sure to have an impact on social interactions. In any case, Langer deliberately avoids the question of how her conception of mindfulness is related to the one found in Buddhism. “I leave it to others to tease out the similarities and differences between the two concepts of mindfulness,” she writes.<sup>4</sup>

#### *From Langer to Jon Kabat-Zinn*

If Ellen Langer was the first to offer an extended treatment of mindfulness as a psychological concept, it was Jon Kabat-Zinn who made mindfulness a household word. In 1979, Kabat-Zinn, now an emeritus professor of medicine at the University of Massachusetts–Amherst, developed the Mindfulness-Based Stress Reduction (MBSR) program, a medical intervention designed to treat chronic pain and emotional and behavioral disorders. Since its creation, the program has been the subject of hundreds of research studies, most of which have confirmed its effectiveness at relieving stress, pain, and many other forms of disease.<sup>5</sup> Kabat-Zinn’s MBSR program has been so successful that it has become the foundation of a number of related programs, including

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<sup>4</sup> Langer, *Mindfulness*, p. 62

<sup>5</sup> For an overview of studies on the effect of MBSR on chronic pain, rheumatoid arthritis, fibromyalgia, anxiety, and depression, see for example A. J. Arias et al., “Systematic Review of the Efficacy of Meditation Techniques as Treatments for Medical Illness,” *Journal of Alternative and Complementary Medicine* 12 (2006): 817–32.

the Mindfulness-Based Cognitive Therapy program (MBCT), aimed at treating mental health disorders.<sup>6</sup>

Since Kabat-Zinn's account has been so influential, it is worth taking a closer look at what he means by mindfulness. In his 2005 book *Coming to Our Senses*, Kabat-Zinn characterizes mindfulness like this:

Mindfulness can be thought of as moment-to-moment, non-judgmental awareness, cultivated by paying attention in a specific way, that is, in the present moment, and as non-reactively, as non-judgmentally, and as openheartedly as possible. When it is cultivated intentionally, it is sometimes referred to as deliberate mindfulness. When it spontaneously arises, as it tends to do more and more the more it is cultivated intentionally, it is sometimes referred to as effortless mindfulness.<sup>7</sup>

In this view, mindfulness is a type of awareness—continual, nonjudgmental awareness—that can be cultivated by paying attention in a specific way, nonreactively, nonjudgmentally, and openheartedly. It is a special perceptual quality that emerges from deliberate attention, which can appear in the two forms described by Kabat-Zinn in the final two sentences. There is mindfulness developed intentionally, or what he calls deliberate mindfulness; and there is spontaneous, effortless mindfulness. It is worth noting two senses of mindfulness being used here: deliberate mindfulness, which most takes the form of mindfulness meditation, is mindfulness-as-a-practice, whereas effortless mindfulness, often the result of deliberate mindfulness, is a heightened quality of awareness.<sup>8</sup>

It is in his 1990 book *Full Catastrophe Living* that Kabat-Zinn offers his most sophisticated account of mindfulness. There he identifies seven “attitudinal factors” as pillars of

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<sup>6</sup> MBCT has been shown to prevent the relapse of depression, and research indicates that it is also effective in reducing cravings in addictions, including smoking. See for example S. H. Ma and J. D. Teasdale, “Mindfulness-Based Cognitive Therapy for Depression: Replication and Exploration of Relapse Prevention Effects,” *Journal of Consulting and Clinical Psychology* 72 (2004): 31–40, Y.Y. Tang et al, “Brief Meditation Training Induces Smoking Reduction,” *Proceedings of the National Academy of Sciences* 110 (2013): 13971–5.

<sup>7</sup> Jon Kabat-Zinn, *Coming to Our Senses* (New York: Hyperion, 2005):108–9.

<sup>8</sup> Further complicating things is the fact that mindfulness meditation is used as a compound proper noun (capitalized: Mindfulness Meditation), and also as a common noun when it remains in the lowly lower case, mindfulness meditation.

mindfulness, some of which are reminiscent of Langer's view and some of which are recognizable as Zen teachings.<sup>9</sup> First is being nonjudgmental. Our minds are constantly involved in judging—divvying up experiences into categories like “good” and “bad,” and we tend to favor or avoid certain patterns of thinking and acting in light of those judgments. What mindfulness requires, he writes, is letting go of our habitual reactions in order to simply be with the experience of thinking itself. The second attitudinal factor is patience. By patience he means the wisdom not to strive or worry about external ends or goals, which can obscure our perception of the present moment. Third is the notion of “beginner's mind,” the classic Zen teaching that means not letting past experiences get in the way of present-moment thoughts and perceptions. Having a beginner's mind involves cultivating an attitude of seeing things for the first time, being alert to previously unforeseen possibilities of experience. The fourth attitudinal factor is trust: one has to trust in the value of one's own thoughts, feelings, and experiences. It does not mean disregarding external forms of knowledge and authority; rather, it means balancing received teachings with one's own vision of the world. Fifth is non-striving. Kabat-Zinn notes that mindfulness has no goals beyond itself and so it is not subject to criticism and revision. “We are simply paying attention to anything that is happening and this is the only end,” he says.<sup>10</sup> The sixth attitudinal factor is acceptance, which, according to Kabat-Zinn, means the willingness to see things as they really are and not just how we want them to be. Finally, there is the attitudinal factor of letting go, which refers to the ability to watch thoughts and ideas appear and disappear without wanting to hold on to them.

### *Operational Definitions of Mindfulness*

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<sup>9</sup> See Jon Kabat-Zinn, *Full Catastrophe Living*, pp. 19-30.

<sup>10</sup> Kabat-Zinn, *Coming to Our Senses*, p. 26.

In the years since Kabat-Zinn laid the groundwork for the modern mindfulness movement, psychologists have developed operational definitions of mindfulness, which account for mindfulness in terms of the specific behaviors and psychological processes involved. Operationalizing mindfulness opens up the possibility of measuring and testing it. Consider the following two-part operational definition of mindfulness, developed by Scott Bishop and his colleagues:

The first component involves the self-regulation of attention so that it is maintained on immediate experience, thereby allowing for increased recognition of mental events in the present moment. The second component involves adopting a particular orientation toward one's experiences in the present moment, an orientation that is characterized by curiosity, openness, and acceptance.<sup>11</sup>

Self-regulation of attention is the first component: to be mindful is to willfully maintain attention on immediate experience. What this does, according to Bishop and his colleagues, is allow for the increased recognition of mental events in the present moment. A simpler way to express the idea here might be to say that paying attention to present experience (as opposed to, say, being lost in thought or otherwise distracted) yields a clearer sense of our thinking as it is occurring. The second component of mindfulness involves adopting a particular orientation towards one's experiences in the present moment—an orientation characterized by curiosity, openness, and acceptance. Here the similarities to the accounts of Langer and Kabat-Zinn become clear.

With the advent of operational definitions of mindfulness has come the development of instruments intended to measure it. Some of the instruments measure mindfulness indirectly, through traits associated with mindfulness, like identifying objects in unexpected contexts. Since mindfulness, through a psychological lens, means shedding preconceived ideas about what should and should not be expected, a typical hypothesis is that mindfulness practice will

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<sup>11</sup> Scott Bishop et al., "Mindfulness: A Proposed Operational Definition," *Clinical Psychology* 11 (2004): 230–41. For a review on mindfulness as a clinical intervention, see Ruth Baer, "Mindfulness Training as a Clinical Intervention: A Conceptual and Empirical Review," *Clinical Psychology: Science and Practice* 10 (2003): 125-143.

correlate with improved scores on tests for identifying objects in unexpected contexts. So, too, will a psychological trait like “dispositional openness” characterized by curiosity and receptivity to new experiences, which is used as a proxy indicator of mindfulness. Several other mindfulness assessments center on anxiety and emotional awareness, such as the Anxiety Sensitivity Index (ASI), used to predict panic attacks, posttraumatic stress, and anxiety disorders, and the Levels of Emotional Awareness Scale (LEAS), used to measure emotional awareness.

There are also instruments intended to measure mindfulness directly. One example is the Mindful Attention Awareness Scale (MAAS), developed by Kirk Warren Brown and colleagues. The MAAS has been used in many research studies on mindfulness, and it is currently in the public domain for fair use.<sup>12</sup> The scale comprises fifteen questions (e.g., “I could be experiencing some emotion and not be conscious of it until sometime later” and “I do jobs or tasks automatically, without being aware of what I’m doing”). Respondents are instructed to answer honestly, not how they think they should and answers are recorded on a six-point Likert scale (1 = “almost always”; 6 = “almost never”). The average score, according to the developers, is 3.86.

### *Mindfulness in Philosophy of Education*

From psychology, mindfulness has spread into other disciplines, including the philosophy of education, and a small but growing number of scholars in the field have started to address mindfulness. Terry Hyland, for example, has argued that mindfulness supports the personal growth and development of students, and that it prepares the way for genuinely rich and deep

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<sup>12</sup> For background to the development of the MAAS, see Kirk Warren Brown and Richard M. Ryan, “The Benefits of Being Present: Mindfulness and Its Role in Psychological Well-Being,” *Journal of Personality and Social Psychology* 84 (2003): 822–48.

learning.<sup>13</sup> Hyland covers several manifestations of mindfulness, including mindful breathing and mindful walking, which are means of getting “back in touch with our own wisdom and vitality.”

Kristján Kristjánsson takes a more critical view of mindfulness. In his 2006 article “‘Emotional Intelligence’ in the Classroom? An Aristotelian Critique,” he deals a glancing blow to mindfulness in the context of a critique of social and emotional learning. Kristjánsson characterizes the core element of mindfulness as “nonjudgmental self-observation: you patiently observe and accept what is happening within you, without acknowledging it as part of your true self.”<sup>14</sup> This is a much simpler view than those offered by Langer and Kabat-Zinn, and, so characterized, there are bound to be some questions. One has to do with what it means to maintain attention on immediate experience. Ordinarily, we talk about attention in the context of paying attention *to* something, so what, exactly, is a mindful person paying attention *to*? In Kristjánsson’s view, the answer seems to be “what is happening within you,” but that seems too vague to be helpful. A related question is why the contents of nonjudgmental self-observation are not to be acknowledged “as part of your true self.” There seems to be a paradox here. How can mindfulness be nonjudgmental self-observation when what is being observed is not part of the self?

### *The Classical Sense of Mindfulness*

In order to shed light on puzzles like these, I want to turn to mindfulness as it is depicted in the Pali Canon. The relationship between mindfulness old and new has rarely been explored, but it

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<sup>13</sup> See Terry Hyland, “Mindfulness and the Therapeutic Function of Education,” *Journal of Philosophy of Education* 43 (2009): 119–31.

<sup>14</sup> Kristjan Kristjansson, “‘Emotional Intelligence’ in the Classroom? An Aristotelian Critique,” *Educational Theory* 56, no. 1 (2006): 39–56

certainly deserves exploration. To start, we can trace the history of the word itself. The English word *mindfulness* was first used in the work of Thomas William Rhys Davids (1843–1922), a British scholar who taught at the Universities of London and Manchester and who founded the Pali Text Society, an academic society devoted to fostering and promoting the study of texts written in Pali. In the course of translating passages from the Pali Canon into English, Davids encountered the word *sati*, which appears throughout the Canon, for which there was no obvious English equivalent. So Davids coined a new word, *mindfulness*, inspired by the traditional Anglican mealtime prayer to be “ever mindful of the needs of others.”<sup>15</sup> Davids simply changed the adjective *mindful* into a noun in order to convey the original sense of mindfulness as memory applied to the present moment.

The Pali Canon is the earliest extant record of the Buddha’s teachings. It was preserved orally from the time of the Buddha’s death until 29 BCE, when it was committed to writing at the Fourth Buddhist Council in Sri Lanka. The Canon itself is divided into three “baskets,” the *Vinaya Pitaka*, the *Sutta Pitaka*, and the *Abhidhama Pitaka*. The *Vinaya* consists of rules of conduct for monastic communities; the *Sutta Pitaka*, which is considered to be the oldest part of the Canon, contains a collection of discourses attributed to the Buddha and a few of his closest disciples, as well as outlines the central teachings of Theravada Buddhism; and the *Abhidhama Pitaka*, mostly a commentary on the other two baskets, puts the basic principles of the *Sutta Pitaka* into a larger, more systematic framework.

One sutta in the *Sutta Pitaka*, the *Ānāpānasati Sutta*, is notable for its detailed description of mindfulness. The Pali word *ānāpānasati* means “mindfulness of breathing,” and the *Ānāpānasati Sutta* lists sixteen steps for how to establish mindfulness of breathing. Those sixteen

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<sup>15</sup> See Thanissaro Bhikkhu, *Right Mindfulness* (Valley Center, CA: For free distribution, 2012).

steps are divided up into four tetrads, each of which serves as a particular frame of reference: the body, feelings, mind, and mental qualities. To take the body as a “frame of reference” is to keep track of the body, or a particular aspect of the body, in the middle of other sensory experience.

Here I want to focus on the first four steps for establishing mindfulness of the body:

- 1) *Dīgham vā assasanto “dīgham assasāmī” ti pajānāti, dīgham vā passasanto “dīgham passasāmī” ti pajānāti;*
- 2) *rassam vā assasanto “rassam assasāmī” ti pajānāti, rassam vā passasanto “rassam passasāmī” ti pajānāti.*
- 3) *sabbakāyapaṭisaṃvedī assasissāmī ti sikkhati, sabbakāyapaṭisaṃvedī passasissāmī ti sikkhati;*
- 4) *passambhayaṃ kāyasaṅkhāraṃ assasissāmī ti sikkhati, passambhayaṃ kāyasaṅkhāraṃ passasissāmī ti sikkhati.*

- 1) Breathing in long, he discerns, “I am breathing in long”; or breathing out long, he discerns, “I am breathing out long.”
- 2) Or breathing in short, he discerns, “I am breathing in short”; or breathing out short, he discerns, “I am breathing out short.”
- 3) He trains himself, “I will breathe in sensitive to the entire body.” He trains himself, “I will breathe out sensitive to the entire body.”
- 4) He trains himself, “I will breathe in calming bodily fabrication.” He trains himself, “I will breathe out calming bodily fabrication.”<sup>16</sup>

The first two steps involve keeping track of the breath, noticing when it is coming in and when it is going out, and whether it is long or short. The Pali phrase *ti pajānāti*, repeated four times in the first two steps, is the third-person present tense of a verb meaning “to know clearly.” *Discerns* does a good job of conveying the kind of concentrated, sustained attention necessary for keeping attention focused on the breath. The third and fourth steps introduce the idea of training, and self-training in particular: *ti sikkhati*, “He trains himself.” The training consists of breathing in and out “sensitive to the entire body” in step three, and breathing in and out “calming bodily fabrication,” in step four. Here, “body fabrication” refers to the breathing process; breathing is *bodily* in the sense of being an aspect of the body and *fabricated* in the

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<sup>16</sup> *Ānāpānasati Sutta*: “Mindfulness of Breathing,” reprinted and translated by Thanissaro Bhikkhu in *Right Mindfulness*.

sense that it is made or produced by the body. The meaning of the fourth step is to breathe in a calming way.

The third step in particular deserves a closer look: breathing in and out sensitive to the entire body. What could being sensitive to the body mean? Here is where the scientific term *proprioception* is helpful. As it is used in the natural sciences, proprioception is one of three kinds of perception. There is *exteroception*, the processes by which one perceives the outside world via the senses; *interoception*, the processes by which one perceives pain, hunger, and the movement of internal organs; and *proprioception*, the perception of the relative positions of different parts of the body, the strength of effort being employed in a movement, and the overall sense of what the body feels like from within.

The English language has a fairly impoverished vocabulary for describing what the body feels like from within. But many of the world's cultures have more extensive vocabularies, and a central concept can be best translated into English as *breath energy*. In many Indian traditions, breath energy is called *prana*. *Chakras* are the intersections of *prana*, and the *asanas* of yoga practice are aimed at yoking *prana* to movements of the body, which allows one to better detect and manipulate the body's energy. *Qi* is essentially the same concept in Chinese traditions, and a number of techniques and therapies in Chinese medicine, including acupuncture and *Qigong*, are aimed at restoring one's *Qi* to its proper balance.

The notion of *breath energy* may seem far-out, but it has physiological correlates, including the sensation of blood flowing through the body's arteries and veins and the sense of "aliveness" of the body's nerves, both of which are sensations registered by the body's nervous system and sent to the brain. Sensations in the body are, after all, carried by electrical signals, i.e. energy. In physiological terms, then, one of the skills involved in mindfulness of breathing is

developing proprioception, and enhanced proprioceptive faculties allow for the development of the ability to willfully relax areas of tension in the body.

A more general way to capture the meaning of the first four steps is to say that establishing mindfulness of breathing means *paying attention* to the breathing process. This seems simple enough. But, like any genuinely simple task, it can be broken down into a range of subtasks and subskills, and the Pali Canon is notable for its complex and nuanced description of them. Two of the technical terms used in the Canon are *directed thought* and *evaluation*.<sup>17</sup> *Directed thought* refers to willfully directing thinking to a certain topic; in the case of mindfulness of breathing, that topic is the breathing process. *Evaluation* refers to maintaining an ongoing appraisal of how the breathing process feels. Evaluating how breathing feels is what makes it possible to intentionally breathe in a more sensitizing, calming manner.

In the Pali Canon there are traditionally three mental qualities necessary for, and developed by, the practice of paying attention to the breath: *mindfulness*, *ardency*, and *alertness*. Mindfulness is always paired with ardency and alertness in descriptions of meditation. But mindfulness (Pali: *sati*) is also used in other contexts, evident in the following passage from the Samyutta Nikaya:

And which is the faculty of sati? There is the case where a disciple of the noble ones has sati, is endowed with excellent proficiency in sati, remembering & recollecting what was done and said a long time ago. He remains focused on the body in & of itself—ardent, alert, & having sati—subduing greed and distress with reference to the world. He remains focused on feelings in & of themselves...the mind in & of itself...mental qualities in & of themselves—ardent, alert, & having sati—subduing greed & distress with reference to the world. This is called the faculty of sati.<sup>18</sup>

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<sup>17</sup> See Thanissaro Bhikkhu, *With Each and Every Breath: a Guide to Meditation* (Valley Center, CA: For Free Distribution, 2013).

<sup>18</sup> *Samyutta Nikaya*, found in and translated by Thanissaro Bhikkhu, *Right Mindfulness* (Valley Center, California: For Free Distribution).

In the passage mindfulness is used in two contexts: it is “recollecting and remembering what was done and said long ago” and it is also a factor, along with ardency and alertness, necessary for maintaining the body as the frame of reference. In both cases, mindfulness refers to a function of memory: it is what keeps the breath in mind, playing a supervisory role in concentration.

The subtle difference between the two senses of mindfulness is now easier to see. The modern sense of mindfulness most often refers to a certain quality of awareness—open, nonjudgmental, and accepting awareness—such that, in grammatical terms, mindfulness is intransitive: there is no particular object to keep in mind. In the Pali Canon, on the other hand, mindfulness is intransitive: to be mindful is to keep in mind things done and said long ago, and to maintain the body and the breathing process as a frame of reference. Both senses of mindfulness, mindfulness-as-awareness and mindfulness-as-memory, can be found in Stoicism. If this is true, it would mean that the contemporary contemplative practices movement can be seen as the continuation of a philosophical tradition native to ancient Greece and Rome.

### *Mindfulness in Stoicism*

For Stoics like Epictetus, Marcus Aurelius, and Seneca, philosophy, far from being an academic discipline, was a way of life. To be a philosopher was to *live* philosophically, which meant engaging in a set of practices that fell under the heading of *askesis*. *Askesis* was a major theme in the work of Pierre Hadot, who translates the term as “spiritual exercises,” and Michel Foucault, who uses “practices of the self” and “technologies of the self.”<sup>19</sup> As Hadot and Foucault point

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<sup>19</sup> See Pierre Hadot, *Philosophy as a Way of Life* (Malden, MA: Blackwell, 1995) and Michel Foucault, *The Hermeneutics of the Subject* (New York: Picador, 2001).

out, the most famous injunction in Western philosophy, “Know thyself” (*gnōthi seauton*), was originally understood within the framework of an even more basic principle, known as *epimeleia heauton* in Greek and *cura sui* in Latin: care of the self. Caring for the self was the context in which self-knowledge was pursued. Hadot and Foucault trace the precept of self-care back to Socrates, whose favored spiritual practice was talking to others about the important things in life. He used dialogue as a way to care for and know himself, and of encouraging others to care for and know themselves as well.

The Socratic tradition was carried on by Marcus Aurelius, Roman emperor and Stoic philosopher. Marcus left behind a collection of writings in the literary form *hypomnemata*, or *commentaria* in Latin, published today under the heading *Meditations*. The text is a series of notes written to himself, for himself—self-exhortations, things to keep in mind for living philosophically. The very practice of writing and reading these notes was a spiritual exercise, Hadot points out, as it was a way of deliberately adjusting his perceptions of the things he was likely to encounter on a daily basis. One of the major components of modern-day mindfulness classes, reflective journaling, has deep philosophical roots in such practices.

Many of the notes in Marcus’s *Meditations* are about the importance of attention (*prosoche*), where “attention” has several meanings. For one, it means seeing the world in light of the central principle of Stoicism, the difference between that which depends on us and that which does not—*appropriate* attention, it might be said. To focus on what is not up to us is to set ourselves up for unhappiness. But “attention” also refers to a mental quality characterized by consistent vigilance and a steady presence of mind, an enhanced consciousness applied to the present moment.

Both notions of attention underlie the practice Marcus himself calls “delimiting the present.”<sup>20</sup> Its resemblance to mindfulness is striking. What delimiting the present involves, at a basic level, is concentrating on the present moment. It means intentionally directing one’s attention away from the past and future in order to concentrate on what is happening *right now*.

Consider this passage from Book 7 of the *Meditations*:

Everywhere and at all times, it is up to you to rejoice piously at what is occurring *at the present moment*, to conduct yourself with justice towards the people who are *present here and now*, and to apply rule of discernment to your *present* representations, so that nothing slips in that is not objective.<sup>21</sup>

Here Marcus is concerned with three different aspects of the present moment: what is occurring in the present moment; his own conduct in the present moment; and the representations (*phantasia*) he is making in the present moment (i.e., his immediate impressions of things), which may or may not correspond with the correct external state of affairs. Marcus sets a high bar: these aspects of the present are up to him “everywhere and at all times,” and the practice is meant to ensure that “nothing slips in that is not objective.” All of this requires great concentration and a particularly perceptive orientation to the present moment, hence a form of mindfulness.

What is so special about the present moment? In the Stoic view, the present moment is the only part of experience that is up to us. We cannot change the past and we do not know what will happen in the future, but we *do* have control over our perceptions of things. Moreover, to focus on the present moment is to be freed from our passions, which are tied to what took place in the past or what we hope will take place in the future, neither of which are under our control.

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<sup>20</sup> Hadot, 227.

<sup>21</sup> *Meditations* 7, 54, in Hadot, *Philosophy as a Way of Life*, 84, italics added by Hadot.

In fact, the Stoics held that concentration in the present moment was *sufficient* for happiness, for to fully delimit the present is to be fully free from the tyranny of the passions.

Continually focusing on the present moment requires using some substrategies, and Marcus's exhortations are rich in such tactics. Consider the following two *hypomnemata*:

You may leave this life at any moment: have this possibility in your mind in all that you do or say or think.<sup>22</sup>

Say to yourself first thing in the morning: today I shall meet people who are meddling, ungrateful, aggressive, treacherous, malicious, unsocial.<sup>23</sup>

In both cases, Marcus is urging himself not only to remember something, but to *practice* remembering something. *Have this possibility in mind*, he says in the first passage. We could die at any time. The thought is intended to guide and direct his actions, and it is a *particular* thought to be kept in mind, a good example of the second sense of mindfulness: mindfulness as a faculty of memory. The same is true for the second passage, in which Marcus engages in a kind of self-talk to prepare himself mentally for his dealings with others throughout the day: *say to yourself*. The repetition serves as a reminder to maintain the appropriate response.

The fact that mindfulness can be found in Stoicism, Buddhism, and contemporary psychology suggests that it is a phenomenon that crosses religious and cultural boundaries, and that people in many ages and cultures have recognized the benefits of paying attention to the present moment and the importance of keeping particular thoughts and perceptions in mind. But what exactly are the benefits? Many proponents would say that mindfulness improves attention, and it is to this claim that I turn in the next chapter.

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<sup>22</sup> Marcus Aurelius, *Meditations* (London: Penguin, 2006): 12.

<sup>23</sup> *Ibid*, 10.

## Chapter 2

### **“Taking Possession by the Mind”: Contemplative Practices and Attention**

If you are a proficient driver, you have probably had the peculiar experience of unconscious driving. You set out on a familiar journey, and, as you drive, your mind starts to wander. You find yourself thinking about what happened yesterday, or what will happen next week, or the destination of your next Caribbean vacation—anything, really, but the drive itself. After what seems like no time at all, you have arrived, only to find that when you reflect on the trip you just made, you can remember nothing at all about it.

Now, driving is a complex task. It takes a lot of brain power. In order to have made the trip successfully, you had to make all kinds of decisions about maintaining the proper speed and distance from other cars, negotiating turns and hills, following traffic signals, and so on, all of which required the seamless coordination of your brain’s visual, auditory, and motor control systems. But it is as though you were completely unconscious of this whole process, despite being wide awake. You were able to drive all that way, it seems, without really paying attention.

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One of the most common claims made by advocates of contemplative practices is that contemplative practices enhance attention. Mindfulness and meditation, it is argued, are direct forms of attentional training and serve as an antidote to unconsciously performing life’s daily activities, including teaching and learning. If this is true, there are important implications for education. On a practical level, attention is crucial to teaching and learning; and on a moral level,

in many cases, harm done to oneself and others is a direct result of not paying attention to one's actions and the consequences thereof.<sup>1</sup>

The prospect of enhancing attention through contemplative practices seems particularly relevant in the modern era. Smartphones, social media, and the twenty-four-hour news cycle have placed countless new demands on our attention. Multitasking has become the norm and it is increasingly common to pay simultaneous but superficial attention to several different things at once. The technology writer Linda Stone has called this activity *continuous partial attention*, which arises from the possibility, new to human history, of recording and broadcasting every waking experience.<sup>2</sup> Like unconscious driving, continuous partial attention and multitasking can be helpful behaviors in some circumstances, but research has shown that they tend to impede learning and memory and can increase stress and anxiety.<sup>3</sup>

Diagnoses of attention-related disorders like Attention-Deficit Hyperactivity Disorder (ADHD) are on the rise. According to a 2012 study, 6 to 7 percent of American children have been diagnosed with ADHD.<sup>4</sup> The current solution is medication, in the form of amphetamines that go by the trade names Adderall, Ritalin, and Vyvance. Though the drug-based approach suits pharmaceutical companies just fine, there have been no long-term studies on the effect of amphetamines on the developing brain and it is not clear, on a neurological level, exactly how the drugs work. The possibility that contemplative practices can ameliorate some of the problems

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<sup>1</sup> There is a large body of research on the role of attention in learning. See for example D. LaBerge, *Attentional Processing: The brain's art of mindfulness* (Cambridge: Harvard University Press, 1995); Yuhong Jiang and Marvin M. Chun, "Selective attention modulates implicit learning," *The Quarterly Journal of Experimental Psychology* 54 (2001): 1105–24.

<sup>2</sup> See Ellen Rose, "Continuous Partial Attention: Reconsidering the Role of Online Learning in the Age of Interruption," *Educational Technology* 50 (2010): 41–46.

<sup>3</sup> In one study on multi-tasking, for instance, investigators found that the presence of a secondary task produced primarily rote learning, while attention to a single task gave rise to the additional ability to apply the learned information to new situations. See Foerde et al., "Modulation of competing memory systems by distraction," *Proceedings of the National Academy of Sciences* 103 (2006): 11778–83.

<sup>4</sup> See Erik G. Willcutt, "The Prevalence of DSM-IV Attention Deficit/Hyperactivity Disorder: A Meta-Analytic Review," *Neurotherapeutics* 9 (2012): 490–99.

associated with ADHD—and there is some preliminary evidence to suggest that they can—is an added reason to take them seriously in education.<sup>5</sup>

At Marina Middle School, the connection between contemplative practices and enhanced attention seems to have been maintained. In a survey taken after their mindfulness sessions, students indicated that they had an improved ability to focus in class. Although this evidence is anecdotal, it is supported by a raft of psychological research on the effects of mindfulness and meditation on attention.<sup>6</sup> In fact, some studies have shown that mindfulness and meditation have a direct impact on academic performance as measured on Graduate Record Examination (GRE) scores and GPAs.<sup>7</sup>

Studies like these are promising, but relatively little is known about the mechanisms by which contemplative practices enhance attention. The aim of this chapter is to offer an account. I

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<sup>5</sup> See Shauna L. Shapiro et al, “Toward the Integration of Meditation into Higher Education: Review of Research Evidence,” *Teachers College Record* 113 (2011): 497. See also D. Chan and M. Woollacott, “Effects of level of meditation experience on attentional focus: is the efficiency of executive or orientation networks improved?” *Journal of Alternative and Complementary Medicine* 13 (2007): 651–57; and L. Zylowska et al., “Mindfulness meditation training in adults and adolescents with ADHD: a feasibility study,” *Journal of Attention Disorders* 11 (2008): 737–46.

<sup>6</sup> See for example N.J. Rani and P.J., “Effects of meditation on attentional processes,” *Journal of Indian Psychology* 18 (2000), 52–60. There is data to show that meditation has an effect on the cortical thickness of the brain, with thickening correlated with the number of years of meditation practice. See S.W. Lazar, et al., “Meditation Experience is Associated with Increased Cortical Thickness,” *NeuroReport Vol. 16 No. 17* (2005), 1893–97. One particularly intriguing study measured the effects of a mindfulness program called the Attention Academy Program (AAP) on first, second, and third graders at two elementary schools in a city in the southwest U.S. Half of the students were taught mindfulness practices; the other half served as the controls. Preparing the room for AAP sessions involved moving desks and chairs to the side to make a large space in the middle of the room where students could sit on mats or blankets. Students were taught exercises like paying attention to the breath, movement activities, and body-scanning. Investigators found that there were significant differences between the experimental and control groups on all three of the attentional measures employed. See Maria Napoli et al., “Mindfulness Training for Elementary School Students: The Attention Academy,” *Journal of Applied School Psychology* 21 (2005): 99-125.

<sup>7</sup> See for example Michael Mrazek et al., “Mindfulness Training Improves Working Memory Capacity and GRE Performance While Reducing Mind Wandering,” *Psychological Science* 24 (2013): 776–81, which suggests that an hour of mindfulness practice for eight days improved performance on the GRE; and P.D. Hall, “The effect of meditation on the academic performance of African-American college students,” *Journal of Black Studies* 29 (1999): 408–15, which showed that students in the meditation group had a significantly higher average GPA at the end of the study. There is also research evidence to suggest that meditation can counteract memory loss. See Andrew Newberg et al., “Meditation Effects on Cognitive Function and Cerebral Blood Flow in Subjects with Memory Loss: A Preliminary Study. *Journal of Alzheimer’s Disease* 20 (2010): 517–26.

begin with the work of William James, whose ideas about attention form the foundations of modern psychological research. I go on to examine several contemporary models of attention, including the four processes model, the functional component model, and the clinical model, each of which offers a useful framework for understanding how exactly contemplative practices enhance attention.<sup>8</sup> I conclude with a look at the relationship between contemplative practices and the elusive phenomenon of effortless attention, or what the psychologist Mihaly Csikszentmihalyi has called *flow*, characterized by total immersion in the events and experiences of the present moment, and by sketching the contours of a unified model of attention.

### *William James and the Origins of Research on Attention*

The definitive starting point for the investigation into attention is with the work of William James (1842–1901), the American philosopher and psychologist. In 1890, James published *The Principles of Psychology*, which effectively made psychology into an academic discipline. James devotes an entire chapter of the book to attention. Introducing the concept, he writes:

Every one knows what attention is. It is the taking possession by the mind, in clear and vivid form, of one out of what seem several simultaneously possible objects or trains of thought. Focalization, concentration, and consciousness are of its essence. It implies withdrawal from some things in order to deal effectively with others, and is a condition which has a real opposite in the confused, dazed, and scatterbrained state which in French is called *distraction*, and *Zerstreutheit* in German.<sup>9</sup>

James picks out several important features of attention in this short passage. The first is that our knowledge of attention is basic and intuitive—“every one knows” what it is—because attention is the basis of our conscious, waking experience. It is the “taking possession by the mind” of

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<sup>8</sup> There are a few reasons I have chosen to look at several models of attention and stress rather than just one. First, attention and stress are still very much contested concepts, and each of the existing models offers only a partial explanation. Second, such a strategy illustrates the extent to which the way contemplative practices work can be understood in the context of *any* of the models. Juxtaposing them enriches the understanding of each.

<sup>9</sup> William James, *The Principles of Psychology* (New York: Dover, 1950): 403–404.

some object or train of thought, he continues, and “focalization, concentration, and consciousness are of its essence.” The idea here is that paying attention entails *selectivity*; it means intentionally focusing on or directing awareness toward something. James does not go into detail about what exactly is involved in getting the mind to “possess” an object, but for this we cannot fault him, since the issue remains as vexing today as it was when James wrote.

What James does make clear is that there is a close relationship between attention and *interest*. Many items in the environment come to our senses at any given time, but most of them do not enter into our experience because they do not interest us. “Only those items which I *notice* shape my mind,” James writes, “without selective interest, experience is an utter chaos.”<sup>10</sup> It is the combination of these two elements, attention and interest, that shapes our experience, and James can even be read as suggesting that attention and interest together *constitute* experience: “*My experience is what I agree to attend to,*” he says.<sup>11</sup>

James spends the bulk of the chapter making distinctions among different types of attention. One distinction is between what he calls *sensorial attention* and *intellectual attention*, or attention directed to things perceived externally, through the senses, and to internal objects—beliefs, desires, and the like. Another distinction is between *immediate* and *derived attention*. Immediate attention is used for objects directly present in the environment, while derived attention is devoted to objects in the mental environment. According to James’s view, intellectual attention is always derived, since all of our beliefs, desires, and the like can be traced back to immediate sensory impressions.

Perhaps the most important distinction James makes is between *passive* and *voluntary* attention. Passive attention comes in many forms. In some cases, it is immediate and unwilled, as

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<sup>10</sup> James, *Principles of Psychology*, 402. All italics in James are in the original.

<sup>11</sup> *Ibid*, 402.

when a loud noise or sudden movement gets our attention without our having consciously decided to turn and look. In other cases, the objects that capture our attention have a kind of natural, instinctual draw, and James offers an interesting list of things that are naturally, instinctually exciting: “strange things, moving things, wild animals, bright lights, pretty things, metallic things, words, blows, blood, etc., etc., etc.”<sup>12</sup> In still other cases, we pay passive attention to the thoughts and images that parade through our minds. James calls this mode of attention *passive intellectual attention*. It is familiar enough to anyone who has been lost in thought or caught daydreaming. “When absorbed in intellectual attention,” James says, “we may become so inattentive to outer things as to be ‘absent-minded,’ ‘abstracted,’ or ‘*distracts*.’”<sup>13</sup>

Voluntary attention is different. It is always derived, since we only pay voluntary attention for the sake of some interest of ours, however remote. But what is truly distinctive about voluntary attention is that, in most cases, it takes effort. Keeping the mind focused on a single thing requires resisting impulses to pay attention to other things, and that turns out to be an awful lot of work. The fact that voluntary sustained attention is difficult helps explain why James argues it can only be deployed over short stretches of time and why sustained voluntary attention actually requires the repeated application of attention:

*There is no such thing as sustained voluntary attention for more than a few seconds at a time. What is called sustained voluntary attention is a repetition of successive efforts which bring back the topic to the mind. The topic once brought back, if a congenial one, develops; and if its development is interesting it engages the attention passively for a time.*<sup>14</sup>

If sustained attention requires the “repetition of successive efforts,” as James indicates, it helps if the object of concentration is interesting. In that case, the topic develops and with time can become an object of passive attention.

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<sup>12</sup> James, 417.

<sup>13</sup> Ibid, 419.

<sup>14</sup> Ibid, 420.

James remains agnostic about the *source* of the ability to direct and redirect attention on a voluntary, continual basis, but he mentions two possibilities. The first is the gift of genius, which, he notes, has historically been associated with strong powers of attention. The second is simply drumming up the effort required for it, which is the harder route, but more common. Either way, the result of paying close, sustained attention to something is that it allows us to get to know the object very well—to achieve mastery over it, even—which is an insight directly relevant to education, as James points out:

But, whether the attention comes by grace of genius or by dint of will, the longer one does attend to a topic the more mastery of it one has. And the faculty of voluntarily bringing back a wandering attention, over and over again, is the very root of judgment, character, and will. No one is *compos sui* if he have it not. An education which should improve this faculty would be *the education par excellence*. But it is easier to define this ideal than to give practical directions for bringing it about. The only general pedagogical maxim bearing on attention is that the more interest the child has in advance in the subject, the better he will attend.<sup>15</sup>

The passage is remarkable for several reasons. One is that James identifies a particular mental faculty that consciously directs attention: the faculty of “voluntarily bringing back a wandering attention.” He does not give the faculty a formal name, but for simplicity’s sake let us call it *voluntarily directing attention*. Voluntarily directing attention, in James’s view, is exceedingly important, morally speaking. It is the “very root of judgment, character, and will,” and a basic requirement for self-mastery. Two of the claims in the latter part of the passage are directly relevant to teaching. The first is about the significance of voluntarily directed attention with respect to education: an education that would improve the faculty of voluntarily directing attention would be “*the education par excellence*,” he says. The second is about the relationship of interest and attention in learning: because interest drives attention, in order to gain students’ attention, teachers should do what they can to get students interested in the subject.

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<sup>15</sup> James, 424.

With James's framework in mind, let us consider again mindfulness of breathing. We can take Lesly, from Megan's mindfulness class, as an example. As we saw in the previous chapter, the basic task of mindfulness of breathing is breathtakingly simple: Lesly's task is to focus on the feeling of the breathing process and to breathe in a comfortable, easeful way. The breath cannot be seen but it can be *felt*, so Lesly might choose to focus, say, on the sensation of air moving past the tip of her nose, or on the feeling of her rib cage and abdomen rising and falling. In the first case, she would be using her sense of touch as the medium for sensorial attention. In the second case, focusing on the sensation breathing in her rib cage and abdomen, she would not be using any of the five exteroceptive senses but rather proprioception, her sense of the body as it is felt from within. At the same time, in order to stay focused on the sensation of breathing, Lesly has to continually *remember* to focus on it, and these thoughts about the breath are objects of intellectual attention. Mindfulness of breathing, then, requires both sensorial and intellectual attention.

The breathing process also seems to blur James's distinction between immediate and derived attention. The sensation of breathing is immediate; it occurs in the present moment. Lesly cannot pay attention to a past breath, or a future breath, which means that, by focusing on the sensation of breathing, she stays in the present moment. Even so, remembering to stay focused on the breathing process is a function of derived attention, given that she will have to develop and apply a range of mental strategies to help her maintain focus.

James's distinction between voluntary and passive attention may be most helpful in illuminating the mechanisms by which mindfulness of breathing enhances attention. It is clear that Lesly has to use the faculty of voluntarily directing attention in order to stay focused on her breath. This requires a great deal of effort at first and the task is complicated by the fact that the

sensation of breathing is not an external, space-based object. Breathing happens “inside” rather than “outside,” and English-speaking cultures have an undeveloped vocabulary for describing what the body feels like from within. Part of Lesly’s challenge, then, will be to develop a better language for describing the way the breathing process feels, which opens up a broader range of perceptions with which she can work. It helps that the breath can be made interesting. It is possible, with practice, to breathe in a way that gives rise to a sense of comfort and ease, which is why the advice to *take a few deep breaths* is so often given to people who are nervous or upset. Mindfulness of breathing is just doing this for an extended period of time. And because it is direct practice in voluntarily directing attention, it seems to be a perfect example of James’s education *par excellence*.

#### *Research after James: The Stroop Task and Cocktail Party Problem*

In the decades after James, behaviorism became the dominant mode of psychological inquiry. Because attention is a process that cannot be observed directly, few researchers were interested in studying it. An exception was Ridley Stroop (1897–1973), an American psychologist and the creator, in 1935, of the task that bears his name: the Stroop Task. The Stroop Task has become the classic psychological test of attention.<sup>16</sup> In the typical version of the task, people are presented with a series of words denoting colors (e.g., blue, orange, red) and the text of each word is also printed in a particular color. Administrators of the test record the speed at which a person can name the color in which each word is printed. Usually, people take much longer and are more likely to make a mistake when the color of the ink and the color denoted by the word are mismatched—a pattern known as the Stroop Effect.

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<sup>16</sup> See John R. Stroop, “Studies of Interference in Serial Verbal Reactions,” *Journal of Experimental Psychology* 18 (1935): 643–66.

Fig. 2.1



What the Stroop Effect indicates is that many factors interfere with our perception, attention, and reaction time.<sup>17</sup> Stroop himself called the type of interference *semantic interference*; he hypothesized that because our minds automatically determine the meaning of a word, we must purposefully recalibrate our attention to the color of the word rather than its meaning.<sup>18</sup>

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<sup>17</sup> Research has shown that many factors influence attention, including similarity among stimuli, the difficulty of a task, our emotional state, stress and anxiety, drugs, boredom, and sensory habituation, the last of which is the tendency to get used to things that do not change and pay attention to new ones. Among the reasons it is safer to use trains instead of cars to transport people over long distances underground is that, without sufficient stimulation, drivers quickly become habituated to their surroundings and stop paying attention to the road.

Closely related to attentional habituation is *inattention blindness*, or the failure to perceive something in the environment on account of remaining focused on something else. In a classic study, investigators asked participants to watch a video of a group of people passing a basketball around for several minutes. The objective was to keep track of the total number of passes made (or, in a slightly more difficult task, the ratio of bounced passes to passes made aurally.) In the middle of the game, a person in a gorilla suit walked right through the circle of ball-passers, and in subsequent interviews, about half of the participants said that they did not see the gorilla at all. What the study suggests is that, among other things, when it comes to visual attention, the relationship between what is in our visual field and what we actually perceive is very complex indeed. See Arien Mack and Irvin Rock, *Inattention Blindness* (Cambridge: MIT Press, 1998); Christopher Chabris and Daniel Simons, *The Invisible Gorilla* (New York: Random House, 2009); Ulric Neisser et al., “Selective Looking: Attending to Visually Specified Events,” *Cognitive Psychology* 7 (1975): 480–94; and Steven B. Most et al., “How Not to be Seen: The Contribution of Similarity and Selective Ignoring to Sustained Inattention Blindness,” *Psychological Science* 12 (2001): 9–17.

<sup>18</sup> Investigators have found that unusual difficulty with the Stroop Task is present in many mental disorders, including brain damage, dementia, schizophrenia, and attention-deficient hyperactivity disorders. See M. P. Milham

In general, studies have shown that mindfulness and meditation improve performance on the Stroop Task.<sup>19</sup> There is not a consensus about why this is the case, but my own hypothesis is that the Stroop Task requires voluntarily directing attention (to borrow a phrase from James) to a specific detail in the visual field, the color of the word, as opposed to its meaning, and paying attention in this way involves consciously overriding the habitual perception and processing of a word's semantic meaning. Because mindfulness and meditation require voluntarily directing attention to a particular object, like the breathing process, and because directing attention voluntarily is a skill that can be developed and strengthened, it stands to reason that the sort of attentional control and flexibility practiced in the context of mindfulness of breathing can be employed in many other domains and measured in tasks like the one created by Stroop.

A few decades after Stroop devised his task, there was renewed interest in attention among psychologists, catalyzed in part by the Cocktail Party problem, introduced into the research literature in 1953 by the British cognitive scientist Colin Cherry.<sup>20</sup> He describes the following problem: At a cocktail party, or any other event where a lot of people are talking simultaneously, how do we “tune in” to the conversation we are having and “tune out” of all the rest? And how can we account for the experience of suddenly perking up upon hearing our name mentioned in a nearby conversation?

Many kinds of solutions have been offered to the Cocktail Party problem, but the central issue remains a live one. The most influential explanation, based on the work of James, is that

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et al., “Practice-related Effects Demonstrate Complementary Roles of Anterior Cingulate and Prefrontal Cortices in Attentional Control,” *NeuroImage* 18 (2003): 483–93.

<sup>19</sup>See for example Adam Moore et al., “Regular, brief mindfulness meditation practice improves electrophysiological markers of attentional control,” *Frontiers in Human Neuroscience* 6 (2012): 18; Elisa H. Kozasa et al., “Meditation training increases brain efficiency in an attention task,” *NeuroImage* 59 (2012): 745–49; and H. Wenk-Sormaz, “Meditation can reduce habitual responding,” *Alternative Therapies in Health and Medicine* 11 (2005): 42–58.

<sup>20</sup> See Colin Cherry, “Some Experiments on the Recognition of Speech, with One and Two Ears,” *Journal of the Acoustical Society of America* 25 (1953): 975-979.

background conversations are registered by our brains subliminally; only when a sound captures our interest, like the sound of our name, do we tune in to what is being said. Although the debate is ongoing about the extent to which subliminal awareness is a factor in ordinary experiences, it is worth pointing out that there are good evolutionary reasons for it, including the swift detection of predators. Some have suggested that the brain's preconscious filtering mechanisms have evolved to prevent us from consciously noticing potential psychological threats.<sup>21</sup> One thing the Cocktail Party Problem indicates is that there is a distinction between attention and *awareness*. Focusing on a conversation we are having requires voluntarily directing attention to it; hearing our name mentioned in an adjacent conversation, on the other hand, is a function of a broader type of unconscious awareness.

The distinction between conscious, voluntary attention and passive, subliminal awareness has been a hot topic in psychology recently. One of the most convincing accounts has been given by Daniel Kahneman, who, in his 2011 book *Thinking, Fast and Slow*, presents what might be called the Two Systems view, based on the metaphor of two types of thinking, System One and System Two.<sup>22</sup> System One is fast, instinctive, and emotionally rooted. It encourages the brain to make decisions immediately, and reacts to strange things, moving things, wild animals, bright lights, etc.—all of the things James vividly described as grabbing our immediate, unwilled attention. System Two, on the other hand, is slower, more deliberate, and logical. System Two is what we use to play chess, say, or analyze the validity of an argument.

The distinction between the two systems has a neurological basis. System One is rooted in the amygdala, an evolutionarily ancient part of the brain associated with emotional arousal—

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<sup>21</sup> See Gillian Butler and Freda McManus, *Psychology: A Very Short Introduction* (Oxford, Oxford University Press, 1998), 43.

<sup>22</sup> See Daniel Kahneman, *Thinking, Fast and Slow* (New York: Farrar, Straus, and Giroux, 2011).

sometimes called our “lizard brain,” tongue only partly in cheek. System Two, in contrast, involves parts of the brain that are much newer evolutionarily: the prefrontal cortex and the anterior cingulate, which are thought to be involved in self-control and conflict monitoring and are much more developed in humans than they are in any other animals.

One way to understand mindfulness of breathing is that it is practice in bringing these two types of thinking together. System Two is what voluntarily directs attention to the breathing process, which takes deliberate effort. But the breathing process itself is intimately connected with System One and with the body’s cardiovascular and nervous systems, which is why our breathing changes with the onset of emotions. So it is by applying the focused, conscious type of awareness that is characteristic of System Two to the body’s background awareness, a function of System One, that mindfulness of breathing is direct practice in gaining increased control over what were formerly automatic physiological responses.

### *Visual Models of Attention*

Kahneman’s Two Systems view offers a useful framework for understanding the way we make broad judgments about the world. But it does not explain the phenomenon of voluntarily directed attention per se. So I want to turn now to several models of attention that better explain how it is we go about deliberately paying attention. Each model offers a helpful framework for understanding the relationship between contemplative practices and attention.

The intuitive way of thinking about attention is that it is like a spotlight we can shine on things more or less at will. This model of attention, known in the literature as the *spotlight model*, can also be traced back to James, who spoke of attention as having a focus, a margin, and

a fringe.<sup>23</sup> Sometimes, the spotlight is grabbed without our consent and we automatically turn and look. More often, though, we can voluntarily direct it. In the 1980s, a group of researchers, led by the psychologist Charles Eriksen, gave the spotlight model a major upgrade. The more apt model, they argued, was the *zoom lens model*, inspired by the sort of zoom lens found on a camera. The zoom lens model retains all the features of the spotlight model, but it has the added property of being able to change in size and focusing power, allowing for the possibility of widening and narrowing the “spotlight” at will.<sup>24</sup> Today, the best-supported model of visual attention is known as the *feature-integration model*, developed by Anne Treisman and her colleagues.<sup>25</sup> Under the feature integration model, paying attention to something takes place across two stages. First is the pre-attentive stage, in which an object’s features are registered automatically in multiple, parallel pathways in the brain. Second is the focused attention stage, in which the features of an object are combined to give rise to the perception of it as unified.<sup>26</sup>

#### *Four Processes Model*

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<sup>23</sup> See James, especially 435–37.

<sup>24</sup> See Charles Eriksen and James D. St. James, “Visual attention within and around the field of focal attention: A zoom lens model,” *Perception and Psychophysics* 40 (1986): 225–40.

<sup>25</sup> See especially Anne Treisman and Gary Gelade, “A feature-integration theory of attention,” *Cognitive Psychology* 12 (1980): 97–136. In 2013, Treisman received the National Medal of Science for her research on attention.

<sup>26</sup> The feature integration model has supplanted the zoom lens model because it better corresponds to how the brain’s visual system works. We have two distinct visual pathways: a ventral stream, which runs from the primary visual cortex into the temporal cortex, and which is involved in building up accurate perceptions of the world; and a dorsal stream, which leads into the parietal lobe and coordinates fast visual-motor control. The presence of separate visual streams explains why certain fast actions—jumping out of the way of an oncoming car, say—can happen before we consciously decide to move. It also explains why it is often the case that people who have had their vision restored surgically are not immediately thrilled at the result. Initially, the world is all features and no objects, and it takes some time for the brain to learn to identify objects as such. See Richard Held et al., “The Newly Sighted Fail to Match Seen with Felt,” *Nature Neuroscience* 14 (2011): 551–53.

Though the spotlight, zoom lens, and feature-integration models work well for explaining visual attention, the breathing process is not an object of visual attention.<sup>27</sup> It is instead an object of intellectual and proprioceptive attention, and so we must turn to models that can account for this. Most contemporary models of nonvisual attention are known as multiple resource models, in which attention is understood not as a single process, but as a system for allocating the brain's resources. Particularly influential has been what might be called the *four processes model*, developed by Eric Knudsen, a professor of neurobiology at Stanford University.<sup>28</sup> In the four processes model, attention is defined in terms of working memory, top-down sensitivity control, bottom-up saliency filtering, and competitive selection, which operate in a continuous feedback loop.

*Working memory*, which is often used synonymously with *short-term memory*, is the type of memory that keeps information in mind temporarily. When a person pays attention to something, information associated with it enters working memory, where it can be stored for more detailed analysis. Working memory is a theoretical construct—there is no “center” for working memory in the brain—and its capacity at any given time is thought to be limited to about seven items.<sup>29</sup> The second process, *top-down sensitivity control*, operates with working memory.<sup>30</sup> It regulates the quality of information that enters working memory and allows us to

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<sup>27</sup> The technical terms used for visual and nonvisual attention are *overt* and *covert* orienting. Overt orienting means selectively paying attention to an object by moving the eyes to point in its direction, and it can be tracked using large, very expensive eye-tracking machines. Covert orienting, in contrast, refers to changes in attention unaccompanied by eye movements. For more on the distinction between overt and covert orienting, see R. D. Wright and L. M. Ward, *Orienting of Attention* (Oxford: Oxford University Press, 2008) and Michael I. Posner, “Orienting of Attention,” *Quarterly Journal of Experimental Psychology* 32 (1980): 3–25.

<sup>28</sup> See Eric Knudsen, “Fundamental Components of Attention,” *Annual Review of Neuroscience* 30 (2007): 57–78.

<sup>29</sup> More precisely, the number is  $7 \pm 2$ —a figure known in psychology as Miller's law. See George Miller, “The magical number seven, plus or minus two: Some limits on our capacity for processing information,” *Psychological Review* 63 (1956): 81–97.

<sup>30</sup> The distinction between *bottom-up* and *top-down* processing is central to modern theories of attention. *Bottom-up processing* reacts immediately to an external stimulus. Also called *exogenous* or *stimulus-driven* processing, it is driven by the properties of the objects themselves, and tends to be employed when the conditions for seeing,

adjust the focus of our attention. Through top-down sensitivity control, we can deliberately “zoom in” to get more information. It is a higher-order process, and underlies judgments about the object to which we are paying attention. Third, *bottom-up saliency filters* work to let in what is relevant to us and keep out what is not. At the cocktail party, bottom-up saliency filters remove the background noise and trigger our attention when we hear our name. Saliency filters are also responsible for our automatic response to sudden and unexpected things and for directing the startle response. Last is *competitive selection*, which determines what information gets processed by working memory. Countless things are present to our senses at any given time, as James pointed out, but relatively few of them enter into our conscious awareness. Competitive selection is what “selects for” the sensations and perceptions that enter our consciousness.

These four processes provide a good framework for understanding what Lesly is doing when she practices mindfulness of breathing. Each process is involved. Working memory, first, is what she uses to keep the breathing process immediately in mind. By continually remembering to stay focused on her breathing, Lesly is training her working memory. In fact, here we can see the very close relationship between mindfulness-as-memory and the psychological construct of working memory.

The process of top-down sensitivity control is what allows Lesly to evaluate the breathing process and adjust it in turn. Using top-down sensitivity control, she can manipulate her

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hearing, touching, tasting, and smelling are good. Exogenous attention corresponds to what James called passive attention, and involves the parietal and temporal cortices, as well as the brainstem, which are older parts of the brain, from an evolutionary perspective. *Top-down processing*, on the other hand, reflects the contribution of our own thinking and awareness, including past experiences, powers of attention, and the expectations we have about whatever it is to which we are paying attention. Also called *endogenous*, goal-driven, or executive attention, top-down processing is under conscious control. It closely resembles James’s notion of voluntary attention, and is related to other “executive” functions like working memory, conflict resolution, and inhibition. For more on the distinction between top-down and bottom-up processing, see Jan Theeuwes, “Exogenous and Endogenous Control of Attention: The Effects of Visual Onsets and Offsets,” *Perception and Psychophysics* 49 (1991): 83–90; Michael I. Posner and Steven E. Peterson, “The Attention Systems of the Human Brain,” *Annual Review of Neuroscience* 13 (1990): 25–42; and M. R. Rueda et al., “Training, Maturation, and Genetic Influences on the Development of Executive Attention,” *Proceedings of the National Academy of Sciences* 102 (2005): 14931–36.

breathing to be more comfortable, making it an easier object on which to focus. Mindfulness of breathing also illustrates why top-down sensitivity control is metacognitive in nature: in order to improve, Lesly has to keep in mind the fact that her task is to focus on the breath. Mindfulness of breathing also trains bottom-up saliency filters. As she sits down to focus on her breathing, many thoughts will vie for her attention. But, with practice, she will become better able to tune out irrelevant ones, and the things that once grabbed her attention automatically will gradually lose their power.<sup>31</sup> The possibility that mindfulness and meditation can alter bottom-up salience filters has been confirmed by empirical research. For example, studies have shown that mindfulness and meditation tend to reduce the intensity of the startle response, making people less disturbed by otherwise disturbing things.<sup>32</sup> Competitive selection, finally, is also trained through mindfulness of breathing. When Lesly focuses on the breathing process, she must center on one object out of many other possibilities, so she will use competitive selection to repeatedly “select for” sensations related to the process of breathing and “select against” competing thoughts.

### *The Functional Component Model*

The four processes model plays rival to another contemporary theoretical model of attention, known as the *functional component model*, developed by the American psychologist Michael Posner.<sup>33</sup> In Posner’s model, attention is defined in terms of three functional components:

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<sup>31</sup> The fact that it we are used to getting distracted by things in the external environment helps explain why mindfulness and meditation are typically practiced in quiet places with eyes closed.

<sup>32</sup> See R. W. Levenson et al., “Meditation and the startle response: A case study,” *Emotion* 12 (2012): 650–58. In the study, investigators played sounds approaching 115 decibels near Matthieu Ricard, a scientist-turned-monk, who (one imagines) barely even flinched.

<sup>33</sup> See Michael Posner and S. J. Boies, “Components of Attention,” *Psychological Review* 78 (1971): 391–408; and Michael Posner and Steven Peterson, “The Attention System of the Human Brain,” *Annual Review of Neuroscience* 13 (1990): 25–42.

alerting, orienting, and executive attention, each of which is associated with distinct subsystems of the brain.

*Alerting* is the process most directly involved in becoming and staying attentive. It maintains what psychologists call “response readiness,” or being prepared for a stimulus to come. Alertness is task-specific, which means that the level of alertness varies depending on the activity in which one is engaged, and, as such, it is distinct from one’s overall level of cognitive arousal. Investigators typically measure alertness using reaction time in a given task. *Orienting* is the function responsible for selecting specific information from a range of possibilities.<sup>34</sup> It is what directs attention to a particular item and allows us to adjust the scope of our attention to zoom in on and out of objects. Orienting resembles competitive selection on the four processes model, and sustained, voluntary attention on James’s account. In Posner’s model, however, there is an additional element required, *executive attention*. Executive attention refers to a family of mental operations. Psychological literature provides no consensus on just who these family members are, but most psychologists use the term to refer to the mental skills of planning, conflict monitoring and resolution, and working memory. Executive attention is what is used when there are multiple objects competing for attention. As the executive, it has the final say.<sup>35</sup>

With the functional component framework in mind, let us return to Lesly. It is clear that she has to remain alert in order to keep her attention trained on the breath, alert to each in-breath

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<sup>34</sup> Studies have shown that the neural correlates of alerting can be found in the frontal and parietal lobes of the right hemisphere in the brain. The pulvinar, superior colliculus, superior parietal lobe, temporoparietal junction, superior temporal lobe and frontal eye fields are activated in the orienting network. See Amir Raz and Jason Buhle, “Typologies of attentional networks,” *Nature Reviews Neuroscience* 7 (2006): 367–79.

<sup>35</sup> The neural correlates of top-down, executive processing tend to be clustered in the frontal cortex and basal ganglia, which are newer parts of the brain, from an evolutionary perspective. See A.C. Rosen et al., “Neural Basis of Endogenous and Exogenous Spatial Orienting: A Functional MRI Study,” *Journal of Cognitive Neuroscience* 11 (1999): 132–52.

and each out-breath, and alert to when her attention has been distracted.<sup>36</sup> Lesly will also have to use orienting to direct her attention to the object of the breath. She must continually select for sensations related to breathing. It is in this way that she orients her attention to the body itself. Finally, when practicing, Lesly will have to handle distracting thoughts and to disengage from them repeatedly, a process directed by executive attention.<sup>37</sup>

The idea of executive attention is a metaphor: the role of an executive is to carry out—to *execute*—decisions. In politics, an executive acts on behalf of a body of people and what makes the job difficult is that there are many competing voices trying to be heard. The very idea of an executive assumes the presence of competing interests. What this means is that the metaphor of executive attention is based on the idea that the mind is not a unitary thing. To take the idea of executive attention seriously is to think of the mind as more like a committee or an unruly city council, rather than as a single agent. It has many impulses, beliefs, and desires, some of which conflict with others. This idea is an old one. It can be traced back at least as far as Plato, who, through Socrates, offered the image of the tripartite soul, in which spirit and the appetites wrestle for power with reason, the original executive function.<sup>38</sup> The idea of executive attention highlights what is happening during mindfulness of breathing: the practice can be viewed as the gradual transfer of power over to the mind's chief executive.

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<sup>36</sup> It is notable that, in the Pali Canon, alertness, along with ardency and mindfulness, is one of the three factors for establishing mindfulness of breathing. It seems that here, too, an ancient text anticipated modern psychological distinctions with respect to attention.

<sup>37</sup> There is a growing body of research evidence regarding the impact of mindfulness and meditation on attention using the functional component model. The studies that have been done tend to show that mindfulness and meditation training improves the efficiency of each component. See Y.Y. Tang et al., "Short-term meditation training improves attention and self-regulation," *Proceedings of the National Academy of Sciences* 104 (2007): 17152–56; and Amishi Jha et al., "Mindfulness Training Modifies Subsystems of Attention," *Cognitive, Affective, and Behavioral Neuroscience* 7 (2007): 109–119; and Antoine Lutz et al., "Mental Training Enhances Attentional Stability: Neural and Behavioral Evidence." *Journal of Neuroscience* 29 (2009): 13418–27.

<sup>38</sup> See Plato, especially the *Republic* and *Phaedrus* in *Plato: Complete Works*, edited by John Cooper (Indianapolis: Hackett, 1993).

## *The Clinical Model*

The four processes model and the functional component model are theoretical and investigative in nature, used to make and test hypotheses about attention. The final model we will look at, the clinical model, is based on the recovery of attention in patients with brain damage. The most widely used model is described in the work of psychologists McKay Moore Sohlberg and Catherine A. Mateer, who specify five attentional skills of increasing difficulty:<sup>39</sup>

1. focused attention
2. sustained attention
3. selective attention
4. alternating attention
5. divided attention

*Focused attention* is the ability to respond to a particular visual, auditory, or tactile stimulus. In cases of brain damage, focused attention is recovered first. *Sustained attention*, also known as *vigilance*, refers to the ability to maintain consistent attention when carrying out a repetitive task. The third level is *selective attention*, choosing one thing to focus on over others. Selective attention is more cognitively demanding, since it requires creating and implementing strategies for avoiding distractions. Fourth is *alternating attention*, which involves moving between different tasks. Alternating attention requires a degree of mental flexibility, and in cases of brain damage, it is recovered relatively late. The highest level is *divided attention*, the ability to pay attention to several tasks simultaneously.<sup>40</sup>

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<sup>39</sup> McKay Moore Sohlberg and Catherine A. Mateer, *Introduction to Cognitive Rehabilitation: Theory and Practice* (New York: Guilford Press, 1989).

<sup>40</sup> Divided attention is the last to be recovered in cases of brain damage, but there is a large body of research literature on divided attention (also known as multitasking) to show that it has major drawbacks. The general pattern that emerges from multitasking studies is this: when trying to simultaneously perform two tasks, x and y, people tend to make more mistakes, and perform both at a slower rate, than if they were to do x and y serially—especially if x and y involve the same modalities, like listening to two sets of verbal instructions at once. What is really happening in multitasking—even with people who *think* they are doing it effectively—is the rapid toggling back and forth between two different tasks. Three groups routinely involved in multitasking studies are air-traffic controllers, pilots, and drivers. For the first two groups, the most important variable seems to be the rate of the information flow.

With the clinical framework in mind, we can see that paying attention to the breath seems to be a task of focused attention at first, and then sustained attention and selective attention as the practice develops. *Maintaining* focus, which requires both sustained and selective attention, is what makes staying with the breathing process so difficult. Alternating attention and divided attention are not involved, apart from switching between substrategies that might be used for staying mindful of the breathing process.

### *Effortless Attention*

Paying attention, as we have seen, usually takes effort. That is why William James characterized sustained, voluntary attention as the “repetition of successive efforts” and why Daniel Kahneman defines attention *as* mental effort.<sup>41</sup> Indeed, the very expression *paying attention* underscores the mental costs involved. The effort it takes to pay attention can be measured objectively, in terms of calories burned, or subjectively, by reported experience.

There are times, though, when attention comes effortlessly. This elusive phenomenon goes by many names, but most people have experienced it at some time or another. Athletes call it *getting in the zone*. Mihaly Cszenzmihalyi has called it *optimal experience*, or *flow*, in a nod to the idea of being carried along, as if by a current.<sup>42</sup> In the technical jargon of psychologists, it is

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As long as the flow of information is steady and manageable, air-traffic controllers and pilots generally are able to divide their attention. But when information starts flowing in fast, the likelihood of error increases greatly. When it comes to driving, researchers typically find that drivers engaged in other tasks while driving tend to make more mistakes, brake harder and later, and get into more accidents than those who are not. Interestingly, little difference has been found between using a handheld and hands-free cell phone device. See D. L. Strayer and F. A. Drews, “Multitasking in the Automobile” in *Attention: From Theory to Practice*, Kramer et al., eds. (New York: Oxford University Press, 2007): 121–33. The modern findings on multi-tasking would come as no surprise to James, who wrote a long section in *Principles of Psychology* on what we would now call multitasking. To the question of how many things we can pay attention to simultaneously, he replies: “*Not easily more than one, unless the processes are very habitual; but then two, or even three, without very much oscillation of the attention.*” See James p. 409.

<sup>41</sup> See Daniel Kahneman, *Attention and Effort* (New Jersey: Prentice-Hall, Inc., 1973).

<sup>42</sup> See Mihalyi Cszenzmihalyi, *Flow: The Psychology of Optimal Experience* (New York: Harper Collins, 1990).

known as *autotelic experience*, and it has been found in a wide range of activities, from rock climbing to chess to factory line working to intimate conversations.<sup>43</sup> Very little is known about the psychology of effortless attention because it does not fit neatly into any of the contemporary models of attention that we have just seen. Historically, the experience has been explained by appealing to the mystical, divine, or the Freudian unconscious. Whatever its source, the experience is extremely rewarding and pleasurable. When you are in the zone, your sense of self, time, and all ordinary concerns fall away, and you are totally absorbed by the present experience. There seems to be a connection between mindfulness and meditation and effortless attention. Many people experience meditation as an activity that induces flow and there is some empirical evidence to show that the neural structures involved in high-attention states are especially well-developed among meditators.<sup>44</sup> But the connection is not well understood, and so I want to conclude the chapter with some speculation about it.

One way of thinking about the connection might be this: When Lesley practices mindfulness of breathing, she is practicing focusing on just one thing, the sensation of the breathing process. Naturally, in the course of practicing, all sorts of thoughts will enter into her conscious awareness—some based on things in the immediate environment, like the sound of a car going by, and others that seem to bubble up out of nowhere, like the argument she had with her mother last week. In these cases, her attention has drifted from the topic on which she had made up her mind to focus. Attention tends to move from one topic to another very quickly and the transition often occurs under the radar of our conscious awareness. This has been called

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<sup>43</sup> See Brian Bruya's introduction to the volume of which he is editor, *Effortless Attention: A New Perspective in the Cognitive Science of Attention and Action* (Cambridge: MIT Press, 2010): 2.

<sup>44</sup> See Richard Davidson et al., "Alterations in brain and immune function produced by mindfulness meditation," *Psychosomatic Medicine* 65 (2003): 564–570.

*attention substitution*, or the process by which one topic of attention gets replaced by another.<sup>45</sup>

The claim I would like to make is that by focusing attention on the breathing process, Lesly will develop a sharpened sense of the process of attention substitution *as it occurs*. In other words, she will become familiar with the kinds of cues and other mental events that lead her away from the breath, to the car going by or the argument last week, and she will gain firsthand knowledge of her own attention span. As she deliberately returns her attention to how the breathing process feels, she is quite literally training her mind to think the thoughts she wants. She is able to get direct practice in manipulating attention substitution, slowing the process down, and putting it increasingly under her control.

Effortless experience is characterized by lack of evaluative, discursive thoughts; you are in the zone precisely because no thoughts are bubbling up to take you out of it. Given that effortless experience is characterized by the absence of distracting thoughts and that mindfulness of breathing is precisely practice in dealing with distracting thoughts, it stands to reason that mindfulness of breathing can directly contribute to the experience of effortless attention. This line of thinking helps explain why many people regard mindfulness and meditation as meta-skills, or skills that apply to multiple domains. If learning any skill requires paying attention to what you are doing at the present moment, and if the rate of learning is a function of the attention paid to the subject in which you are engaged, then the skill of filtering out distracting thoughts is indeed applicable to other domains. This means that contemplative practices can be seen as direct strategies for making attention more and more effortless.

### *Toward a Unified Model*

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<sup>45</sup> See Bryan Bruya, “Apertures, Draw, and Syntax: Remodeling Attention,” in *Effortless Attention*.

Attention, as we have seen, comes in many different forms and is used in many different ways, but it nevertheless may be worthwhile to end the chapter by sketching the contours of a unified model of attention, a model consistent with the framework of nonreductive naturalism. One place to start building the model is with the following foundational principle: the way we pay attention, and what we pay attention to, shapes who we are. This principle is revealed in Iris Murdoch's essay "The Idea of Perfection."<sup>46</sup> Murdoch asks us to imagine a mother-in-law, M, who considers her daughter-in-law, D, to be juvenile, unsophisticated, and unpolished. M feels that her son has married beneath him. But what Murdoch points us to is the possibility that her view can evolve. M may soften her view to become more accepting of her daughter-in-law, so that what was once tiresomely juvenile comes to be seen as youthful and refreshingly simple. The key point is that this transformation in M can occur even without contact between the women, as the result of a shift of *attention*, a shift that involves an internal reflective process by which M examines—*really looks into*—her own attitudes and assumptions about D. Murdoch writes, "M tells herself: I am old-fashioned and conventional. I may be prejudiced and narrow-minded. I may be snobbish. I am certainly jealous. Let me look again."<sup>47</sup>

What allows M to "look again" is the capacity for voluntarily directing attention, as described by James. In M's inner monologue, she is voluntarily directing attention to her own preconceptions and biases, which is the ground for the possibility of changing them. So while Murdoch highlights the importance of attention when it comes to one's moral vision of the world, James articulates the mechanisms through which we control what receives our attention. Together, the two theorists provide a reason to think that contemplative practices advance attention and can improve much more than academic performance.

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<sup>46</sup> Iris Murdoch, "The Idea of Perfection" in *The Sovereignty of Good* (London: Routledge, 1970).

<sup>47</sup> Murdoch, 17.

### Chapter 3

#### Thinking about (Not) Thinking: Contemplative Practices, Self-Knowledge, and Metacognition

Nearly everyone has had a tip-of-the-tongue experience. It usually goes like this. In the middle of a conversation, you try to recall something—the name of an acquaintance or a famous person or a well-known landmark—and right when you want to, you can't. The word just escapes you. It is blocked from your immediate conscious awareness, even though you had successfully remembered it many times before. You may be able to recall a few letters of the word, or how many syllables it has, and, if you are like me, the word will occur to you when you are not actively searching for it—in the shower, perhaps, or while brushing your teeth. The experience is discomfiting, like an impending sneeze. When the word finally dawns on you, it comes as a relief. What makes the experience so frustrating is that you *know* that you know it.

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Over the past several decades, metacognition, described shorthand as “thinking about thinking” or “knowing about knowing,” has come to be seen as an important aim in education. Teachers are encouraged to teach with metacognitive strategies in mind and students are taught to use them in their work. The “think-aloud,” in which a teacher narrates his or her thought processes while reading a text or solving a problem, is among the most familiar metacognitive strategies. The emphasis on metacognition is understandable; the benefits of thinking about thinking are easy to see. We learn better, and have more control over our own learning, when we have a sense of what we know and how we learn.

The rise of metacognition in education is especially notable because contemplative practices are said to be metacognitive in nature. Rick Repetti, for example, makes this argument

in his 2010 article “The Case for a Contemplative Philosophy of Education.” With a tip of the hat to a familiar passage from William James, Repetti says,

It follows logically, and cannot be overemphasized, that research on learning establishes that since meditation is metacognitive training, it supports ideal learning, if not education par excellence, given James’ argument for attention training and the fact that meditation is the science of metacognitive attention-training par excellence.<sup>1</sup>

The claim here is that since meditation is metacognitive training, it therefore supports ideal learning—or *is* ideal learning, given James’s remark. It is reasonable to wonder, though, exactly what this means. In what sense is meditation metacognitive training and why is metacognition important to learning? The aim of the first half of the chapter is to answer those questions. I begin with a brief history of the term *metacognition*. Although people have been thinking about thinking for a very long time, the word itself is a recent invention, first used by psychologists in the 1970s. After a short overview of some of the basic distinctions within metacognition, I use an example of the sort the Gerardo and Lesly might encounter in math class to illustrate how metacognition is involved in problem-solving. I conclude the first part of the chapter with an argument for why mindfulness of breathing and other contemplative practices involve, and train, metacognition.

The discourse on metacognition is the dominant one, which is why I have used it so far. But am I not convinced that the word is all that helpful. It affixes a tidy, scientific term to what is in fact an extraordinarily complex set of processes. More promising, I think, is the language of self-knowledge and self-awareness, so in the second half of the chapter, I shift from talking about metacognition to talking about self-knowledge. If metacognition means thinking about thinking, and if thinking is a characteristic activity of the self, it is reasonable to understand

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<sup>1</sup> See Rick Repetti, “The Case for a Contemplative Philosophy of Education,” *New Directions for Community Colleges* 151 (2010): 7.

metacognition as a species of self-knowledge, where the “knowledge” refers to knowledge about one’s own habits of thinking and learning. There are at least three senses in which metacognition reveals or generates self-knowledge. One is based on a particular conception of “self” found in the work of John Dewey; the others are based on an understanding of self-knowledge as the knowledge of an *embodied* self, a self in which the body, whether we are aware of it or not, plays a significant role in our consciousness.

### *A Very Short History of Metacognition*

The first thing to say about the word *metacognition* is that it is slightly intimidating. That is because it is jargon from the field of cognitive psychology. The word combines *meta* (from the Greek for “after” or “beyond,”) with *cognition*, which, in a very general sense, refers to thoughts about or awareness of our conscious subjective experience. *Cognition*, along with *metacognition*, is an artifact of the “cognitive revolution” of the 1960s and 1970s, an intellectual movement that took place across a range of fields, from psychology and anthropology to linguistics, computer science, and neuroscience. At the time of the revolution, the prevailing psychological paradigm was behaviorism, associated with figures like Ivan Pavlov and B. F. Skinner. Behaviorists ruled out studying invisible mental processes and focused instead on the behavior exhibited. The cognitive revolution shifted the paradigm because of its basic assumption that the mind was not an impenetrable black box, but rather like a computer. The mind came to be seen as an information processor—programmed, at the most basic level, for survival.

In the large body of research on metacognition in psychology and cognitive science, there is no single thing to which *metacognition* refers. The word covers a variety of mental processes, but there is no agreement on what these processes are or how to sort them out. The earliest

research on metacognition as such (i.e. as distinct from regular old cognition) was done by the psychologist J. T. Hart in 1965. Hart's dissertation and early work addressed what he called the "feeling of knowing." His experiments confirmed a widely shared intuition that we are more likely to remember something when we feel that we know it.<sup>2</sup>

A few years later, three psychologists from the University of Pennsylvania, Lila R. Gleitman, Henry Gleitman, and Elizabeth F. Shipley, first used the word in its hyphenated form (meta-cognition) in a 1972 article called "The Emergence of the Child as Grammarian." In the effort to characterize changes in self-reflection that occur over the course of childhood, the authors show that, from a young age, children have a "meta-linguistic" capacity, an ability to reflect on the structure of language *using* language.<sup>3</sup> To make their case, the authors draw on a range of studies involving the way children use language. One set of interviews is particularly illuminating. In the interview, investigators posed this question to children: *Is the following sentence "good" or "silly"?* Here is part of a transcript of an interview with Lila Gleitman (LG) and a seven-year old child, Claire (CG):

- LG: How about this one: *Boy is at the door.*  
CG: If his name is *Boy*. You should—the kid is named *John*, see? *John is at the door* or *A boy is at the door* or *The boy is at the door* or *He's knocking at the door.*  
LG: Okay, how about this one: *I saw the queen and you saw one.*  
CG: No, because you're saying that one person saw a queen and one person saw a one—ha ha—what's a one?  
LG: How about this: *I saw Mrs. Jones and you saw one.*  
CG: It's not okay—I saw—*You saw Mrs. Jones and I saw one* (ha ha). Besides there aren't two Mrs. Jones.  
LG: Is that the problem there? Is that why the sentence sounds so funny?  
CG: No, the other problem is *I saw—You saw Mrs. Jones and I saw one—a one.*  
LG: A one, you mean like a number one?  
CG: No—a one, whatever a one—well, okay, a number one.  
LG: How about this: *Be good!*

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<sup>2</sup> See J. T. Hart, "Memory and the feeling-of-knowing experience," *Journal of Educational Psychology* 56 (1965): 208–16.

<sup>3</sup> Lila R. Gleitman, Henry Gleitman, and Elizabeth Shipley, "The Emergence of Child as Grammarian," *Cognition* 1 (1972): 137–64.

CG: That sounds okay.

From the interview it is obvious that Claire has a sharp awareness of the structure of English syntax, even if she is unable to explain the problem in the technical terms of linguists (e.g. collective vs. distributive use of *and*; pronominal referents; definite vs. indefinite noun-phrases). She can see language as a kind of object, a system with a set of rules. This ability, the authors suggest, is linked to a host of other closely related “meta-cognitive” processes, the essential feature of which is thinking itself as the object of another, higher-order thought.

It is John Flavell, however, who receives credit for giving the first extended account of metacognition as such. In a book chapter called “Metacognitive Aspects of Problem Solving,” Flavell, a psychologist at Stanford University, characterizes metacognition like this:

Metacognition refers to one’s knowledge concerning one’s own cognitive processes and products or anything related to them, e.g. the learning-relevant properties of information or data. For example, I am engaging in metacognition if I notice that I am having more trouble learning A than B; or if it strikes me that I should double check C before accepting it as fact.<sup>4</sup>

In Flavell’s account, metacognition is knowledge about one’s own thought processes. The thought “I am having more trouble learning A than B” is metacognitive because it is based on a higher-order assessment of my own learning with respect to A and B; so too for the thought “I should double-check C before accepting it as fact,” which is higher-order thinking about a strategy I can use to confirm that C is the case.

Over the last few decades, a number of categories for sorting out different aspects of metacognition have emerged. Two basic categories are metacognitive knowledge and

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<sup>4</sup> John H. Flavell, “Metacognitive Aspects of Problem Solving” in *The Nature of Intelligence*, ed. L. B. Resnick (Hillsdale, NJ: Erlbaum, 1976), 232. See also Flavell, “Metacognition and Cognitive Monitoring: A New Area of Cognitive Development Inquiry,” *American Psychologist* 34 (1979): 906-911.

metacognitive regulation.<sup>5</sup> Metacognitive knowledge refers to what we know about ourselves and others as thinkers. Knowing that I learn French vocabulary words efficiently using flashcards is a piece of metacognitive knowledge, for example; so is knowing that you understood the sentence you just read.<sup>6</sup> The tip-of-the tongue phenomenon, described at the beginning of the chapter, is metacognition—or rather a failure thereof, as some have argued.<sup>7</sup> In fact, researchers are studying the phenomenon in the hopes of gaining a better understanding of how memory works.

Metacognitive regulation refers to strategies for regulating our own thinking and learning. It is what allows us to control our experience of learning. Three basic skills are thought to be involved: planning, monitoring, and evaluating.<sup>8</sup> Planning refers to selecting strategies for carrying out a given task; monitoring means maintaining an ongoing assessment of how things are going; and evaluation is a retrospective assessment of how things went, and along with the success or failure of the strategies used to carry it out.

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<sup>5</sup> See for example A. Brown, “Metacognition, executive control, self-regulation, and other more mysterious mechanisms,” in F.E. Weinart and R.H. Kluwe, eds., *Metacognition, Motivation, and Understanding* (Hillsdale, NJ: Erlbaum, 1987).

<sup>6</sup> Donald Rumsfeld, former U.S. Secretary of Defense, once offered a pithy metacognitive insight at a press conference in 2003. Addressing the absence of evidence for weapons of mass destruction in Iraq, Rumsfeld said, “Reports that say that something hasn’t happened are always interesting to me, because as we know, there are known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns—the ones we don’t know we don’t know.” Rumsfeld’s comment earned him that year’s ‘Foot-in Mouth’ award for a baffling comment by a public figure. And while the possibility of unknown unknowns is a pitiful justification for waging war, we can at least credit Rumsfeld for expressing a complicated idea quite clearly.

<sup>7</sup> See Steven M. Smith, “Frustrated Feelings of Imminent Recall: On the Tip of the Tongue” in *Metacognition: Knowing about Knowing*, Metcalf and Shimamura, eds. (Cambridge: MIT Press, 1996).

<sup>8</sup> For these distinctions, see for example Gregory Schraw, “Promoting General Metacognitive Awareness,” *Instructional Science* 26 (1998): 113–125.

All of this has been very abstract, so an example will help make things more concrete. Consider the following math problem, based on the Common Core State Standards, the likes of which Lesly and Gerardo might encounter in math class.<sup>9</sup>

Marcus has forty dollars in his bank account. He withdraws fifty. How much money does he have to add to his account to have a balance of zero?

This sort of problem involves metacognition at many levels. Because a useful way to conceptualize metacognition is through self-talk, I will give an example in parenthesis of the sort of inner conversation Lesly might be having as she works through the problem.

First, Lesly will have to identify and define the problem. In this case, *that* there is a problem is obvious, since it is a question on a test. But the general nature of the problem must be assessed up front and that involves thinking about what she already knows. (“Okay, it says that Marcus had forty dollars in his bank account, and then he took out fifty. Now, I know that that’s more than he had in in his account—fifty is more than forty—so what I’ve got to figure out is how much he has to add to get back to zero.”) To work it out, Lesley will have to use some general knowledge about how bank accounts work, as well as a bit of technical knowledge about the meaning of *balance*. By laying out the general features of the problem in her mind, she is able to see the nature of the problem. After reading the problem, she will probably realize that it is multi-step, and that it will likely involve addition and subtraction with negative numbers.

After getting a sense of the problem, Lesly will have to plan out how to proceed. This usually means dividing the problem into sub-problems. (“All right, I know *withdraw* means takes away, which means subtraction. So first I am going to take fifty dollars from forty, and then I’ll see how much needs to be added.”) During the planning stage, Lesly might come up with

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<sup>9</sup> The problem is based on Common Core Math Standard 7.NS.A.3:“Solve real-world and mathematical problems involving the four operations with rational numbers.” See [www.corestandards.org](http://www.corestandards.org).

particular strategies to use. She might draw a diagram depicting Marcus, his money, and the bank, or use a number line, which would be handy for solving a problem that involves a negative difference and adding to a negative number.

As she works out the solution, Lesley will have to monitor her own progress, another metacognitive skill. (“Okay, so I subtracted fifty from forty and got negative ten. That’s a negative balance, but I checked my work, and it looks right. I’m only ten away from zero on the number line, so I just have to add ten dollars in order to get back to zero. Let me make sure that’s right.”) And when she is finished, she will evaluate her answer in order to see whether it makes sense as a response to the question. (“Okay, so I added ten dollars, and that got me back to zero—is that what the question was asking? I think so—but let me go back and make sure I did everything right.”)

### *How Is Mindfulness of Breathing Metacognitive?*

I have just shown how problem-solving involves metacognition. But how is metacognition involved in mindfulness and meditation? Let us imagine that, the next morning, Lesly is practicing mindfulness of breathing with her classmates. What she is doing is bringing attention to her breathing process. Now, among the first things she will notice is that this is not easy. Her attention, like everyone’s, tends to wander. Merely noticing that her mind is like this is metacognitive knowledge; it is a higher-order observation about her mind’s internal discourse. As she practices keeping her attention on the sensation of breathing, Lesly is developing her sense of the observer-self, the self that is able to see thoughts as events and is increasingly able to disengage from them at will. Lesly is developing the knowledge that she can influence the

way she feels by adjusting the way she breathes, as well as the understanding that she does not have to believe everything she thinks.

Mindfulness of breathing involves all three subskills of metacognitive regulation: planning, monitoring, and evaluating. To stay focused on the breath, Lesly will have to plan and implement strategies for keeping it in mind. She might challenge herself to count ten straight breaths, or twenty, or she might try to direct the feeling of breathing to her shoulders and neck. She might use anchor words, like *breathe in* for the in-breath and *breathe out* for the out-breath, in order to maintain focus. She will also have to actively monitor her own attention in order to keep the feeling of breathing as the primary object of her awareness. She will develop ways of talking herself into doing something that is hard. And with each breath she is evaluating its quality, adjusting so that it feels more comfortable. In all of these ways, mindfulness of breathing is a form of metacognitive regulation. By focusing attention on the breathing process, Lesly is using higher-order thinking to regulate her own internal discourse, a deliberate strategy for strengthening her self-as-observer.

If metacognition can be developed through contemplative practices, can it be transferred to and used in more traditional educational activities, like reading, math, social studies, and science? There is reason to believe so. Research has shown that metacognition is not domain-specific; the metacognitive knowledge and skills developed in one context can be employed in other contexts.<sup>10</sup> This means that Repetti and others are justified in claiming that contemplative practice are metacognitive in nature and thus support learning.

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<sup>10</sup> See for example A.F. Gourgey, "Metacognition in Basic Skills Instruction," *Instructional Science* 26 (1998):81-96 and Michael Martinez, "What is Metacognition?" *Phi Delta Kappan* 1 (2006): 696-99.

### *Critiques of Metacognition*

I have used the term metacognition so far because it is a fixture in the discourse of educational psychology. The popularity of the term is not hard to understand, for it clearly maps onto ordinary experience. Indeed, the fact that we can think about our own thinking has been treated by some as the primary feature of human consciousness. The problem, though, is that the term metacognition affixes a tidy scientific label to what in reality is an enormously complex set of processes. As John Issitt has pointed out, the word's popularity surpasses its real explanatory power.<sup>11</sup>

Consider just the ambiguities in the phrase “thinking about thinking.” For one thing, it is not clear *whose* thinking is being thought about. The usual meaning of metacognition is thinking about our own thinking. But there is also the possibility of thinking about the thinking of others. We are obviously equipped with the ability to think about what others are thinking; sometimes we even say we know what another person is thinking (how this is possible at all has come to be known in philosophy as the Problem of Other Minds). The problem is only theoretical for teachers, who have to think about their students' thinking on a daily basis in order to help them learn.

The word *thinking* itself is hardly straightforward. It can refer to at least three different features of mental life.<sup>12</sup> One sense of thinking is as a particular kind of mental faculty—the thinking faculty, which makes thought possible. By this definition, thinking is unlike the other senses because it is not necessarily connected to perception. In order to perceive the tree outside my window, for example, there must be a direct causal connection between the tree and me: the

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<sup>11</sup> See John Issitt, “Evidence and Metacognition in the New Regime of Truth: Figures of the Autonomous Learner on the Walls of Plato's Cave,” *Journal of Philosophy of Education* 41 (2007): 381–93.

<sup>12</sup> This typology of “thought” is found in Tim Bayne's *Thought: A Very Short Introduction* (Oxford: Oxford University Press, 2013).

light that shines on the tree is reflected and processed by my visual system, where the concept *tree* enters into my conscious awareness. Seeing a tree is not necessary for thinking about it, however; using the faculty of thought, it can be brought to mind.

A second meaning of thinking is a mental state or event. Thinking about something requires holding it in the mind in some way. To say that so-and-so is thinking about something is to say that he or she is in a certain mind state, usually characterized by effort and concentration to bring something to the forefront of conscious awareness. And a third meaning of thinking is a distinctive kind of activity. Just as we can be engaged in the activity of playing a game or talking to someone, so too can we be engaged in the activity of thinking, where the thought “I don’t want to think about it” signals the unwillingness to engage in the activity. The phrase “thinking about thinking” has to cover all of this ground—thinking as a faculty, a mind state, and an activity—and so already it appears to be stretched pretty thin.

A different line of critique is that metacognition is not always a good thing. Sometimes—perhaps even often—thinking about thinking just gets in the way. There are all kinds of cases in which reflecting on how I am doing on a task diminishes the capacity to perform it well; thinking about what I am thinking and doing in real time can be disruptive. It is probably fair to say that metacognition is most heavily involved at the beginning stages of learning a skill; as one advances, the meta-level commentary becomes a distraction. This seems to be the case in a flow state, which might be characterized by the *lack* of metacognition. One’s internal discourse has been silenced by total absorption. This line of thinking also helps explain why cravings have been labeled metacognitions, as statements indicating a desire to modify experience.<sup>13</sup>

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<sup>13</sup> See for example Tony Toneatto, “A Metacognitive Analysis of Craving: Implications for Treatment,” *Journal of Clinical Psychology* 55 (1999): 527–37.

But the most basic reason to regard metacognition with a skeptical eye is that the metaphor at the heart of the cognitive revolution, mind-as-computer, is a dubious one. Certainly there are senses in which the mind is like a computer. Memory is central to both computers and minds, and it seems fair to say that the mind processes information about its internal and external environments. But computers are passive processors of data, and they are not aware of themselves as computers. Minds, on the other hand, are active shapers of experience and aware of themselves. And, perhaps most important, minds, unlike computers, are *embodied*. The physical has an impact on the mental, and the mental on the physical. For all of these reasons, I want to shift the language used to talk about the type of knowledge contemplative practices involve to the idea of *self-knowledge*. What I hope to show is that metacognition can be seen as a species of self-knowledge, for the type of knowledge it involves is of the self as thinker and knower.

### *Contemplative Practices and Self-Knowledge*

Inscribed on a wall of the Temple of Apollo at the Oracle of Delphi in ancient Greece, the phrase “Know thyself” lies at the heart of Western philosophy. It captures the lifelong pursuit of Socrates, who, as Plato depicts him, sought self-knowledge above all else. Here is Socrates in the *Phaedrus*, explaining why he has chosen to put self-knowledge at the center of his life:

I am still unable, as the Delphic inscription orders, to know myself; and it really seems to me ridiculous to look into other things before I have understood that. This is why I do not concern myself with them. I accept what is generally believed, and, as I was just saying, I look not into them but into my own self: Am I a beast more complicated and savage than Typhon, or am I am tamer, simpler animal with a share in a divine and gentle nature?<sup>14</sup>

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<sup>14</sup> See Plato, *Phaedrus*, 229e in *Plato: Complete Works*, John Cooper, ed. (Indianapolis: Hackett, 1997). For other discussions of “know thyself” in Plato’s dialogues, see *Charmides* (164d), *Protagoras* (343b), and *Alcibiades* (124a, 129a, 132c) in the same collection.

Socrates admits to having been unable to follow the Delphic injunction, but he is nevertheless undeterred from its pursuit. So important is self-knowledge that it is “ridiculous” to look into anything else before it.

Self-knowledge has been a philosophical ideal—perhaps *the* philosophical ideal—ever since. It has also been an educational ideal, especially in higher education. There is a rich literary and philosophical tradition to support of self-knowledge as an educational aim. That self-knowledge is simultaneously a philosophical and an educational aim comes out clearly in the work of John Dewey, who defined philosophy as the general theory of education.<sup>15</sup> Given the influence Dewey has had on education in the U.S., it is no surprise that self-knowledge is addressed in the mission statements of many schools, colleges, and universities across the country. Here, for instance, is the closing sentence of the mission statement of Bowdoin College:

The purpose of a Bowdoin education—the mission of the College—is therefore to assist a student to deepen and broaden intellectual capacities that are also attributes of maturity and wisdom: self-knowledge, intellectual honesty, clarity of thoughts, depth of knowledge, an independent capacity to learn, mental courage, self-discipline, tolerance of and interest in differences of culture and belief, and a willingness to serve the common good and subordinate self to higher goals.<sup>16</sup>

Self-knowledge tops a list of intellectual capacities associated with maturity and wisdom, important outcomes of what has been called the called the education of the “whole person.”<sup>17</sup>

There is a puzzle, however. Philosophers since Socrates have warned *against* self-knowledge, calling it a dangerous, torturous undertaking. Montaigne is one example. Although he makes self-knowledge a major aim of his *Essays*, he also argues that the task is perilous when taken to extremes. He calls the Delphic injunction a paradoxical command, since we are naturally inclined to look outside of ourselves. The fact that we are such flawed creatures makes

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<sup>15</sup> See John Dewey, *Democracy and Education* (New York: Free Press, 1916): 328.

<sup>16</sup> Bowdoin College’s mission statement can be found at <http://www.bowdoin.edu/communications/publications/mission.shtml>

<sup>17</sup> See Shauna Shapiro et al., “Towards the Integration of Meditation into Higher Education: A Review of the Research Evidence,” *Teachers College Record* 113 (2011): 493–528.

sustained self-study a depressing and difficult exercise. “We are an object that fills us with discontent; we see nothing in us but misery and vanity,” he writes. “In order not to dishearten us, Nature has very appropriately thrown the action of our vision outward.”<sup>18</sup>

Friedrich Nietzsche, by the same token, suggests in “Schopenhauer as Educator” that the pursuit of self-knowledge is psychologically unhealthy. “It is an agonizing, dangerous undertaking to dig down into yourself in this way, to force your way by the shortest route down the shaft of your own being,” he writes. “How easy it is to do damage to yourself that no doctor can heal.”<sup>19</sup> Instead of looking *into* ourselves, we should be looking above ourselves, to our highest aspirations, a redirection process that can be achieved with the help of educators.

The puzzle, then, is this: why has self-knowledge been both lauded as *the* philosophical ideal but also dismissed as an enterprise too deep and too dangerous to be safely undertaken? In order to solve the puzzle, it will be necessary to make some distinctions among different types of self-knowledge, to differentiate among the various modes through which it can be obtained, and to make a case for why mindfulness and meditation might give rise to it.

### *Self, Choice, and Contemplative Practices*

There are two bodies of literature on self-knowledge in philosophy. The first and larger body focuses on knowledge of our own mental states—our beliefs, desires, intentions, and the like. Major questions under consideration include whether our knowledge of our own mental states is especially secure, epistemologically speaking, and what sorts of methods we use to regulate or determine our own mental states. The other is body of literature concerns the nature of the self—

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<sup>18</sup> Michel Montaigne, *Complete Essays of Montaigne*, trans. Donald M. Frame (Stanford: Stanford University Press, 1958): 766 and 821.

<sup>19</sup> Friedrich Nietzsche, “Schopenhauer as Educator,” in *Unfashionable Observations*, Richard T. Grey, ed. (Palo Alto: Stanford University Press, 1995): 174.

what the self is like (i.e., its identity conditions and character traits). For the time being I will focus on the second sort of question, but the discussion will touch on the epistemological questions later on.

One basic distinction to make about the nature of the self is between soul/ego theories and bundle theories, a distinction that is at the heart of Derek Parfit's article "Divided Minds and the Nature of Persons."<sup>20</sup> On the one hand, there is the view that my "self" refers to my soul or ego—the unique, immaterial, eternally existing kernel of my existence. According to this theory, my soul or ego is what makes *me*. It explains the connection between me now, me when I was five years old, and me (I hope) when I am ninety-nine. Bundle theories, on the other hand, maintain that the word "self" does not refer to a fixed essence, but rather to a bundle of traits and qualities constantly undergoing revision and reconstitution. David Hume is often said to be the first Western philosopher to present a bundle theory view; a century and a half later, William James and John Dewey saw the self in a similar light.<sup>21</sup> In his book *Theory of the Moral Life*, Dewey devotes an entire chapter to the moral self, capturing what the self is and does particularly eloquently. He writes,

Except as the outcome of arrested development, there is no such thing as a fixed, ready-made, finished self. Every living self causes acts and is itself caused in return by what it does. All voluntary action is a remaking of self, since it creates new desires, instigates to new modes of endeavor, brings to light new conditions which institute new ends. Our personal identity is found in the thread of continuous development which binds together these changes. In the strictest sense, it is impossible for the self to stand still; it is becoming, and becoming for the better or the worse.<sup>22</sup>

The self, then, is in a constant process of *becoming*. Since every action remakes the self, creating new desires and new areas to explore, the word *self* is really just shorthand for capturing the

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<sup>20</sup> See Derek Parfit, "Divided Minds and the Nature of Persons" in *Mindwaves*, Colin Blakemore and Susan Greenfield, eds. (Oxford: Basil Blackwell, 1987): 351–56.

<sup>21</sup> See David Hume, *A Treatise of Human Nature*, D.F Norton and M. J. Norton, eds. (Oxford, Oxford University Press, 2000).

<sup>22</sup> Dewey, *Theory of the Moral Life* (New York, Irvington, 1980): 172.

“thread of continuous development” that binds together a person’s actions. The fact that behind every deliberate action is a *choice* is what leads Dewey to say that choice is the most characteristic activity of the self.<sup>23</sup>

To see why Dewey describes choice as the most characteristic activity of the self, it is worth taking a brief look at his basic theory of moral development. It begins at the level of appetite and impulse. Every appetite and impulse is a form of preference. By nature and by nurture, we prefer some things to others. There are times, though, when our preferences conflict, and in these cases, we hesitate. If hesitation goes on long enough, it becomes *deliberation*, and deliberation opens up the possibility of choosing what to do—and hence who to become. In this sense, Dewey says, every choice has a double relationship to the self: it reveals the existing self and forms the future self.

Dewey’s conception of the self is helpful for illustrating the way contemplative practices give rise to self-knowledge. In the case of mindfulness of breathing, the practice consists of concentrating on the feeling of the breathing process, which means making the choice over and over again to keep attention there. It is practice, in other words, making and executing the decision to focus on one thing rather than anything else—direct practice in exercising the faculty of choice or willpower and in gaining awareness of choices that were formerly made unconsciously.

### *Somatic Self-Awareness and Proprioception*

The metaphor of self-as-chooser is a good one, but we also have to reckon with the fact that we are embodied beings, which, in a culture of people “stuck in our heads,” is easy enough to forget.

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<sup>23</sup> Dewey, *Theory of the Moral Life*, 148.

It is no help that the legacy of Cartesian dualism, the basic idea of which is that mind and matter are distinct, is built right into the structure of our language: I talk about “my brain” or “my body,” as if *I* were something different from *them*.<sup>24</sup> Thankfully, there are those who remind us that the relationship between mind and body is much closer and much more complex than is generally admitted. Richard Shusterman is one example. In “Self-Knowledge and Its Discontents,” Shusterman investigates the history of self-knowledge in the philosophical tradition and helps solve the puzzle of self-knowledge as an educational and philosophical aim.<sup>25</sup> He argues that what Montaigne and Nietzsche warned against is what would now be called *rumination*, or focusing on negative thinking and other symptoms of distress. There are other, healthier types of self-knowledge, however, like *reflection*, which turns on curiosity about the self, and *somatic self-awareness*, or awareness of the body.

As Shusterman points out, many practices are thought to develop somatic self-awareness, including yoga, body scanning, meditation, and the Alexander Technique, a method of getting rid of unnecessary muscular and mental tension of which John Dewey was a practitioner. Dewey took up the practice for relief from stress, and in fact wrote the introduction to Alexander’s book *Constructive Conscious Control of the Individual*.<sup>26</sup> Breath meditation is the practice Shusterman addresses in detail, however. He describes the practice as exercising one’s power of volition through deliberately bringing attention to the breathing process and one of the best features of using breathing as the object of concentration is that it is always there so long as we are alive. Some of the most interesting passages in Shusterman’s article are about his own reflections on learning meditation. “When I began my meditation training, it was hard for me to keep my focus

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<sup>24</sup> See Rene Descartes, *Discourse on Method and Meditations on First Philosophy* (Indianapolis: Hackett, 1998).

<sup>25</sup> See Richard Shusterman, “Self-Knowledge and Its Discontents,” *Philosophy of Education* (2007): 25–37.

<sup>26</sup> See F. M. Alexander, *Constructive Conscious Control of the Individual* (New York: E. P. Dutton and Company, 1923).

for more than a single breath, but after continued, strenuous effort, I was able to sustain such concentration for much longer periods, yet do so with feelings of relaxed ease and pleasure,” he writes. Shusterman found that the quality of attention he developed through meditation could be used in other contexts. “My increased powers of attention could then be shifted beyond the breathing or meditative walking, so that everyday objects and familiar people were suddenly perceived with greater intensity, depth, and accuracy.”<sup>27</sup>

Why is somatic self-awareness important? One response is based on the fact that our bodily state has a major impact on our mental state—a theme at the heart of Antonio Damasio’s 1994 book *Descartes’ Error*.<sup>28</sup> What we have, Damasio argues, is a “body-minded brain” since the body and brain are two components of one system. The book’s central idea is what Damasio calls the “somatic marker hypothesis,” the notion that the way the body *feels* serves as the basis for decision-making, even if we are not consciously aware of it. A somatic marker functions as a kind of automated alarm signal indicating danger ahead, which is a phenomenon captured in the expression of having a “gut feeling” about something. And while we are not always aware of this fact, we can increase our awareness of it with practice.

At one point in *Room to Breathe*, Gerardo describes how he usually feels right before getting sent out of class. “If I get frustrated, I get hot, and after, I get cold—all the heat goes away. It’s not a good feeling that I have.” The promise of mindfulness and meditation is that with practice, Gerardo will develop a sharper sense of the connection between his mind and body, and come to employ strategies for using the mind to influence the body and the body to

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<sup>27</sup> Shusterman, “Self-Knowledge and its Discontents,” 34.

<sup>28</sup> See Antonio Damasio, *Descartes’ Error: Emotion, Reason, and the Human Brain* (New York: Putnam, 1994). There is also research evidence indicating that advanced meditators can intentionally raise their body temperature. See Herbert Benson et al., “Body Temperature Changes During the Practice of G-tummo yoga,” *Nature* 298 (1982): 402.

influence in the mind—strategies, in short, for regulating his own emotions and therefore staying in class. The benefits of taking the mind-body approach will become even more apparent in the next chapter, devoted to the effect of contemplative practices on stress and anxiety.

## Chapter 4

### Learning to Breathe Easy: Contemplative Practices and Stress Relief

A few years back, I had the chance to take part in a psychology study on stress. On the day of the experiment, after signing the requisite paperwork ensuring me no permanent damage would result, I changed into a hospital gown and was escorted into an fMRI room, where a lab technician was waiting to give me instructions. I was told I was going to do some computer-based tasks in the fMRI scanner. The technician hooked electrodes to my head, neck, and chest, to measure electrical activity in my body, and rolled me, supine, into the long, narrow tube.

The primary task I had to complete was the *n*-back task, a classic test in psychology designed to assess working memory and other mental functions. (In the task, a word flashes onto a screen every few seconds, and the objective is to indicate whether the word that appears is the same one as *n* words earlier.) It was challenging, but I did my best. All the while, the machine's magnets whirred and clanked around me, capturing images of my brain in action. After half an hour, I was taken out of the scanner and given a new set of instructions. I was told that I was to give a ten-minute speech in front of a panel of doctors on why I thought I would be a good fit for my chosen career. I had ten minutes to prepare the speech and it had to be given from memory. When the technician rolled me back into the machine, there was a digital clock displaying a countdown timer that was already running. In those ten minutes, I did what I could to plan what I was going to say, but it was difficult to concentrate. I was getting anxious. Before I knew it, my time was up.

When I emerged from the scanner, the first thing I noticed was a video camera trained on me. Its image—*my* image—appeared on a monitor on the wall. I could see myself clearly. Lying

on my back in a hospital gown, covered in wires, I looked ridiculous. No one told me the speech was going to be videotaped. As the doctors entered the room, I felt my heart rate accelerate. They formed a circle around me, paused momentarily, and started writing furiously in their clipboards. There were no introductions, and none of the doctors were smiling. When the lead doctor gave instructed me to begin my speech, I started talking about why I thought I would be a good professor. I was interested in research and writing, I said, and most of all, I loved to teach.

About a minute after I began, one of the doctors interrupted me. "Please stay on topic," he said. There was no trace of sympathy in his voice. Beads of sweat formed on my forehead, and a wave of nausea swept over my body. I thought I *had* been on topic. I told myself: *This is only an experiment. There is no reason to be anxious.* True as it was, the thought did not help very much. As I continued, the team of doctors interrupted me several more times, and with each interruption, I felt my body's visceral response. Eventually, I arrived at the end of my speech, but there were no words of congratulation. There was only the sound of the doctors writing in their notebooks.

"The next task will be a subtraction exercise," the lead doctor began. "You will start from the number 1017 and count backwards by 29." "Go ahead," he said, even before I could signal that I understood.

"Oh. Uh, okay. Let me see, nine hundred and...eighty-eight, nine hundred and...fifty eight...wait, I mean..."

"That is *incorrect*. Please start again from the beginning."

Each time I made a mistake, I was interrupted and told to begin again. Each time I began again, it got harder and harder to concentrate. Finally, after what seemed like forever, the doctors jotted down their last notes and left. The technician returned and told me I was going to go back

in the scanner for a few more tasks. By now I was sweating profusely and my heart was pounding in my chest. The *n*-back task, which had been fairly straightforward before, was now extremely difficult. My mind was racing and I couldn't focus. I replayed the previous scene over and over again in my mind, rehearsing what I could have done better. With my confidence and concentration thoroughly undermined, I muddled through the rest of the tasks.

At the conclusion of the experiment, I was taken to a room for debriefing, where there were several large bowls of snacks. I was told to help myself to as much to as much as I'd like. I was hungry, so I helped myself generously. An investigator entered and asked how I was feeling. ("Kind of shaky," I said.) The experiment was designed to measure neurological and physiological responses to stress, she told me, and the doctors who had listened to my speech were actually actors. She thanked me for my participation and sent me on my way. Still feeling frazzled, I left, and it took most of the day to get back to normal.

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Academic environments can be stressful places. For students, there are personal, developmental, and social challenges to accompany academic ones, and many have to balance part-time jobs and family obligations with the demands of coursework. American college and graduate students are also increasingly in debt, which is itself a major source of stress. Furthermore, the learning process is often inherently stressful because it entails making errors, a process few people enjoy. Empirical research has documented that rates of stress and anxiety are high and climbing among students in higher education. In a study of fifteen thousand American college students, more than half said they had contemplated committing suicide at some point in their lives and 8 percent had

actually attempted it.<sup>1</sup> There are other extreme cases, in which a student lashes out violently on campus, but also more subtle signs, like rising rates of prescription drug use and abuse. For the most part, colleges and universities have responded in recent years by ramping up their mental health and counseling programs, a wonderful development for thousands of students. However, rates of stress and anxiety among students remain disconcertingly high, and new ways to address the problem are needed.

The stresses of academic life are not limited to students, of course. Stress, anxiety, and other mental illnesses are major issues for professors and administrators, too, and these rates appear to be climbing as well. In one recent study, nearly half of professors surveyed showed symptoms of psychological distress.<sup>2</sup> For those in the academy, this may come as no surprise. Job security is being eroded and the unrelenting pressure for results has become characteristic of a market-oriented, data-driven university system. These facts, coupled with the traditional “if you can’t take the heat, stay out of the kitchen” attitude have increased the need to address the mental health and well-being of professors and administrators.

At the K-12 level, the era of accountability has made it a particularly stressful time to be a teacher or student. The teachers I advise, most of whom are in their second year of teaching, are under enormous pressure to “hit the numbers” and show that their students have mastered a certain number of learning standards or have achieved a certain level of growth in order to graduate and, in many cases, keep their jobs. There is a diminished sense of professional

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<sup>1</sup> David Drum et al., “New Data on the Nature of Suicidal Crises in College Students: Shifting the Paradigm,” *Professional Psychology: Research and Practice* 40 (2009): 213–22. See also Justin Hunt and Daniel Eisenberg, “Mental Health Problems and Help-Seeking Behavior Among College Students,” *Journal of Adolescent Health* 46 (2010): 3–10 and L.N. Dyrbye et al., “Systemic review of depression, anxiety, and other indicators of psychological distress among U.S. and Canadian medical students,” *Academic Medicine* 81 (2006): 354–73.

<sup>2</sup> See Stephen Court and Gail Kinman, “Tackling Stress in Higher Education,” *University and College Union*. Retrieved from [http://www.ucu.org.uk/media/pdf/8/a/ucu\\_hestress\\_dec08.pdf](http://www.ucu.org.uk/media/pdf/8/a/ucu_hestress_dec08.pdf)

autonomy among teachers, and rates of attrition and dissatisfaction are growing.<sup>3</sup> The stress that teachers are under is surely a contributing factor.

Students are also feeling the pressure. Several recent studies have provided some alarming evidence about the mental health and well-being of American K-12 students. In one study involving tenth grade girls living in an affluent suburb, 22 percent had clinically significant symptoms of depression and anxiety.<sup>4</sup> In another study of ninth and tenth graders, nearly half reported that they had engaged in some form of self-injury or self-mutilation in the past year.<sup>5</sup>

Making matters worse is test anxiety. Though there may be valuable aspects to feeling a little nervous before a test (motivating better preparation, for instance), students today are tested so frequently, with so much at stake in the results, that we need to take seriously the idea that this might be doing some harm. I can say from personal experience that the low points of my K-8 teaching career have come in April, a month that seems to be completely devoted to testing. More than a few of the fourth graders I have taught became physically sick with nausea from the prospect of having to take...The Test.

All of this makes advocates' claim that contemplative practices can relieve stress and anxiety particularly promising. If this is true, given the high levels of stress currently exhibited in schools, there is good reason to integrate the practices into education. In general, research in psychology suggests that mindfulness and meditation are effective strategies for stress relief, and a number of studies have found this to hold true for teachers and students.<sup>6</sup> But the causal

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<sup>3</sup> See David A. Stuit and Thomas M. Smith, "Explaining the gap in charter and traditional public school teacher turnover rates," *Economics of Education Review* 31 (2012): 268–79.

<sup>4</sup> See Suniya Luthar and Bronwyn E. Becker, "Privileged but Pressured? A Study of Affluent Youth," *Child Development* 73 (2002): 1593–1610.

<sup>5</sup> Elizabeth E. Lloyd-Richardson et al., "Characteristics and Functions of Non-suicidal Self-injury in a Community Sample of Adolescents," *Psychological Medicine* 37 (2007): 1183.

<sup>6</sup> For a study on the general public, see for example Jon Kabat-Zinn, "The Relationship of Cognitive and Somatic Components of Anxiety to Patient Preference for Alternative Relaxation Techniques," *Mind/Body Medicine* 2

connection is not well understood, and so the aim of this chapter is to give an explanatory account.

I begin by taking a closer look at the concept of stress. Stress is a complex phenomenon, and how best to define it is a matter of debate. But, to paraphrase U.S. Chief Justice Potter Stewart, we know it when we feel it. Stress has existential, physiological, neurological, and psychological dimensions, among others, and it is unique insofar as it is a naturally normative concept, one that blurs the distinction between fact and value—or so I shall argue. I focus primarily on the physiological and psychological dimensions of stress in order to sketch two mechanisms by which contemplative practices produce relief from it: a physiological pathway and a psychological pathway, which together might explain the way in which the practices work. The second half of the chapter is devoted to the question of why stress relief is important in an educational context. I suggest that there are extrinsic and intrinsic rationales for thinking that stress relief is important in schools. The extrinsic line of thinking is pragmatic: students tend to learn better and teachers tend to teach better when they are less stressed. But stress relief is also significant in light of the corrosive impact stress has on happiness and well-being. Before these claims can be justified, however, let us start with the concept of stress itself. What is it?

### *The Many Dimensions of Stress and Anxiety*

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(1997): 101–109. For four studies on the effects of mindfulness on students, see S. Jain et al., “A randomized controlled trial of mindfulness meditation versus relaxation training: effects on distress, positive states of mind, rumination, and distraction,” *Annals of Behavioral Medicine* (2007): 11–21; S. Rosenzweig et al., “Mindfulness-based stress reduction lowers psychological distress in medical students,” *Teaching and Learning in Medicine* 15 (2003): 88–92; Shauna L. Shapiro et al., “Effects of Mindfulness-Based Stress Reduction on Medical and Pre-medical Students,” *Journal of Behavioral Medicine* 21, no. 6 (1998): 581–99; and Shauna L. Shapiro et al., “Teaching Self-Care to Caregivers: Effects of Mindfulness-Based Stress Reduction on the Mental Health of Therapists in Training,” *Training and Education in Professional Psychology* 1, no. 2 (2007): 105–115.

We can say about stress what William James said about attention: everyone knows what it is. Everyone has experienced stress and everyone agrees that it is no fun. It is less easy to define stress precisely, however, because it comes in so many forms and has so many different causes, and although stress is a major topic of investigation in the fields of psychology, biology, neuroscience, and medicine, there is still no universally accepted definition of it. Etymologically, the fourteenth century Middle English word *stress* referred to hardship, adversity, or the state of being in an unfortunate condition. It likely originated as a shortened form of *distress*, which conveyed an existential, not psychological, state. Over time, though, the word's meaning has expanded, and *stress* now has existential and psychological connotations, which are apparent in the *Oxford English Dictionary's* definition:

An adverse circumstance that disturbs, or is likely to disturb, the normal physiological and psychological functioning of an individual; such circumstances collectively. Also, the disturbed state that results.

Here we can see that *stress* actually refers to three different things: a circumstance that disturbs, or is likely to disturb, normal functioning; the set of disturbing circumstances collectively; and the disturbed state that results. What is notable about the definition is that stress can be both a cause *and* an effect: it is what disturbs normal functioning (psychologists call stress-inducing circumstances *stressors*), but also the disturbed experience itself. An obvious point, but still worth noting, is that stress has an impact on both mind and body—an individual's "physiological and psychological functioning"—and so might be called a *psychophysical* phenomenon.

Many scales designed to measure stress have been developed over the past few decades, the best of which take into account its psychological and physiological effects. Perhaps the classic scale is the Holmes and Rahe Stress Scale, developed in the 1960s by psychiatrists Thomas Holmes and Richard Rahe, which is based on "life change units" on a hundred-point

scale, where a score of over three hundred points indicates a high risk of illness.<sup>7</sup> The death of a spouse tops the chart at one hundred points. Other stressful events include going through a divorce (seventy-three points), being fired from a job (forty-seven points), and beginning or ending school (twenty-six points). Stress researchers have found that living in urban environments is more stressful than living in suburban and rural environments, and that boredom is actually a species of stress—two facts that are particularly relevant for urban educators.

Closely related to stress is *anxiety*, which is understood as a future-oriented feeling of unease. Psychologists typically distinguish between the concepts of stress and anxiety, but in reality the distinction is not so clear. To see why, consider the definition of anxiety found in the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-4), according to which anxiety is

The apprehensive anticipation of future danger or misfortune accompanied by a feeling of dysphoria or somatic feelings of tension. The focus of anticipated danger may be internal or external.<sup>8</sup>

Anxiety, in this definition, is anticipating the future and focusing on how bad things could get. It is accompanied by “dysphoria or somatic feelings of tension,” meaning unpleasantness in the mind and tension or tightness in the body, and the fact that “the focus of anticipated danger may be internal or external” means that anxiety can be produced by actual, imminent threats, but also imagined, internal ones. In fact, the idea that anxiety has physical manifestations is built right into the word’s etymology: *anxiety* derives from the ancient Greek *angh*, which appears in words meaning “to press tight,” “to strangle,” and “to be weighed down with grief.”<sup>9</sup> Ancient as the

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<sup>7</sup> The Holmes and Rahe Stress Scale can be found in Herbert Benson’s *The Relaxation Response* (New York: Harper Collins, 1975): 83–87.

<sup>8</sup> American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition (Arlington, VA: American Psychiatric Association, 2000)

<sup>9</sup> See Daniel Freeman and Jason Freeman, *Anxiety: A Very Short Introduction* (Oxford: Oxford University Press, 2012): 2.

concept is, anxiety emerged as a diagnostic category in psychology and psychiatry only very recently, in the 1980s, when anxiety disorders were introduced into the DSM. It has since become a major issue in the modern world. According to the National Institute of Mental Health, one in seven people are suffering from an anxiety disorder at any given time and treatments for stress and anxiety account for a full 31 percent of health-care expenditures in the United States.<sup>10</sup>

So what is the difference between stress and anxiety? Both stress and anxiety involve dysphoria and tension in the body, and stress, like anxiety, can arise from situations real or imagined. Both are rooted in the body's flight-or-fight response, which is aroused automatically in response to danger. The major difference is that the set of circumstances under which stress arises is much broader than those under which anxiety arises. Anxiety is future-oriented, but all kinds of circumstances can give rise to stress, not only the possibility of future danger. For the purposes here I will treat anxiety as a species, or indicator, of stress, given that high levels of anxiety are likely to disturb normal psychological and physiological functioning. All cases of anxiety entail stress, in other words, but not all stressful situations involve anxiety per se.

Stress and anxiety are closely related to fear and depression, but here too the distinction is not crystal clear. When it comes to fear, the difference usually lies in the *object* and *intensity* of the fear. It typically has a clear object and it functions as an instinctual, intense emergency reaction to danger. With stress and anxiety, though, things are murkier. There may not be a clear object (we may not know why we are stressed or anxious) and the experience is usually less intense than being afraid. By the same token, when it comes to depression, there are substantial similarities between stress and depression. On the physiological level, stress and depression are both associated with the hormone cortisol, and they share many neuroanatomical features, like

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<sup>10</sup> See P. E. Greenberg et al., "The economic burden of anxiety disorders in the 1990s," *Journal of Clinical Psychiatry* 60 (1999): 427–35. See also Scott Stossel, *My Age of Anxiety* (New York: Knopf, 2013).

the shrinking of the hippocampus in the brain.<sup>11</sup> On the psychological level, their common ground is the lack of self-esteem and self-efficacy, and stress is often a major factor in cases of depression.

The earliest accounts of stress and anxiety were philosophical, existential accounts, in which stress and anxiety were seen as implications of free will. The Danish philosopher Soren Kierkegaard (1813–1855) and the Austrian psychoanalyst Sigmund Freud (1856–1939) were among the first to write about stress and anxiety in the existential sense. In his 1844 book *The Concept of Anxiety*, Kierkegaard described anxiety as a spiritual condition—a vague, inescapable sense of unease resulting from the capacity to choose how to act in the world. For Kierkegaard, one choice was particularly fraught: the choice to accept or reject God, for entailed in that choice is the capacity to *doubt* the decision—a condition he called the “dizziness of freedom.”<sup>12</sup>

Freud’s early account, outlined in *The Problem of Anxiety*, was based on the idea that anxiety was the result of transformed libido. It could be cured, he said, by working out one’s instinctual impulses.<sup>13</sup> Freud’s later theory, outlined in *Inhibitions, Symptoms, and Anxiety*, was considerably more complex. It involved three types of anxiety: objective anxiety, which results from a real threat in the physical world; neurotic anxiety, in which the ego feels overwhelmed by the id and is fearful of punishment; and moral anxiety, which turns on the thought that one’s values are about to be compromised, and which is a function of the superego.<sup>14</sup> *Angst*, the German word Freud used, has since become an English word, and it retains the existential connotations *anxiety* lacks.

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<sup>11</sup> K.S. Kendler et al., “The Sources of Co-morbidity Between Major Depression and Generalized Anxiety Disorder in a Swedish National Twin Sample,” *Psychological Medicine* 37 (2007): 453–62.

<sup>12</sup> Soren Kierkegaard, *The Concept of Anxiety* (Princeton: Princeton University Press, 1980).

<sup>13</sup> See Sigmund Freud, *The Problem of Anxiety* (New York: W. W. Norton, 1936).

<sup>14</sup> Sigmund Freud, *Inhibitions, Symptoms, and Anxiety* (New York: W. W. Norton, 1959).

Around the same time as Freud's method of psychoanalysis was growing in popularity, the physiological changes accompanying stress began to receive attention. A pioneer in investigating the physiology of stress was Walter Canon (1871–1945), a professor of physiology at Harvard. His 1915 book *Bodily Changes in Pain, Hunger, Fear, and Rage* was the first to describe the body's fight-or-flight response to real or perceived danger.<sup>15</sup> Canon noticed that the human body undergoes a number of major changes in situations that evoke fear, stress, and anxiety. For example, blood vessels on the outside of the body constrict, conserving blood and sending it to the major muscle groups and vital internal organs, which explains why people tend to turn pale when frightened. Breathing rate increases, in order to keep the blood better supplied with oxygen, and the liver secretes glucose, which provides an extra burst of energy for the body's muscles. In the eyes, pupils dilate, and hearing becomes more acute, the better to detect and respond to a potential threat. Over the course of our evolutionary history, the fight-or-flight reflex has developed to warn us against danger, but when it occurs frequently and over prolonged periods of time, there are all sorts of negative consequences.

In more recent years, neurological models of stress have been developed, which account for stress in terms of changes to the brain and involuntary nervous system. Stress and anxiety involve an enormously complex set of processes that take place in multiple regions of the brain, but here is one basic pathway: in response to stress, the hypothalamus, an ancient part of the brain just above the brainstem, releases a hormone called corticotropin-releasing factor (CRF), which signals the brain's pituitary gland, located at the bottom of the hypothalamus, to release a hormone called adrenocorticotropin (ACTH). ACTH travels through the bloodstream to the kidneys, where two stress hormones, norepinephrine (also known as adrenaline) and cortisol, are

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<sup>15</sup> See Walter Canon, *Bodily Changes in Pain, Hunger, Fear, and Rage* (New York: Appleton, 1915).

released. The presence of adrenaline and cortisol in the bloodstream creates a positive feedback loop that puts the body and mind in a state of high alert.<sup>16</sup> Research has shown that high levels of adrenaline and cortisol over long periods of time tend to increase blood pressure, weaken the immune system, promote weight gain, and impair short-term memory, the last of which I can confirm firsthand from the experience described earlier. In the short term, the neurological changes stress makes are usually reversible, but over the long term, they can become permanent.<sup>17</sup>

The way we experience stress and anxiety is quite far removed from the processes in the bloodstream, however. We feel stress and anxiety primarily as psychological, mental phenomena. The mental content evoked by stress and anxiety is different for each person, of course, but in very general terms, it is negative, repetitive thinking. Two types of thinking are especially prominent: *worrying*, which, as it is used in the technical sense by psychologists, refers to negative, anticipatory thoughts about the future; and *rumination*, which refers to the imaginative rehearsal of past events. Worrying and rumination are in large part what makes being stressed and anxious so awful. Any account of the effects of contemplative practices on stress and anxiety must not only address the physiological changes that take place in the body, but also the psychological changes that occur in the mind.

### *Stress as a Naturally Normative Concept*

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<sup>16</sup> See Z. Wang et al., “Magnetic Resonance Imaging of Hippocampal Subfields in Posttraumatic Stress Disorder,” *Archives of General Psychiatry* 67 (2010): 296–303.

<sup>17</sup> In the past few years, investigators in the field of epigenetics have uncovered evidence that stress leaves its mark at a genetic level, too. Researchers have shown that stress increases one’s risk of disease later in life, and there is even the possibility that stress can be passed on to children through genetic changes. See Marilyn J. Essex et al., “Epigenetic Vestiges of Early Developmental Adversity: Childhood Stress Exposure and DNA Methylation in Adolescence,” *Child Development* (2011): 1–18.

Before moving on to the mechanisms by which contemplative practices relieve stress, it is worth pointing out one last unique feature of stress, its natural normativity. It is a convention in philosophy to distinguish between two basic types of claims, descriptive and normative claims. Descriptive claims are claims about what is the case; normative claims, on the other hand, are about what *ought* to be the case. This distinction, the general idea of which has also been called the fact/value dichotomy, or the gap between “is” and “ought,” continues to be a major issue in modern moral philosophy, and particularly in the field of metaethics, but its roots can be traced as far back as David Hume. In his 1739 book *A Treatise of Human Nature*, Hume pointed out that in every moral theory he had encountered, the authors moved nearly imperceptibly between statements about what is and statements about what ought to be.<sup>18</sup> But it is not obvious that we are justified in grounding normative statements in descriptive ones, he argued, and he cautioned readers about making such inferences without an explanation of how exactly how the two kinds of statements are related.

The same basic problem is also addressed in the writings of G. E. Moore, who called the issue the naturalistic fallacy. In his 1903 book *Principia Ethica*, Moore argued that we cannot define the concept “good” in terms of natural properties like “desirable” or “pleasant” because these are natural properties, while goodness is not. Goodness, Moore said, cannot be defined, except by pointing out examples of it. It is “one of those innumerable objects of thought which are themselves incapable of definition, because they are the ultimate terms by reference to which whatever *is* capable of definition must be defined.”<sup>19</sup>

The very idea of stress collapses the supposed distinction between normative and descriptive, natural and non-natural. To see why, let’s take Mr. Ehnle, Gerardo and Lesly’s

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<sup>18</sup> See David Hume, *A Treatise of Human Nature* (New York: Penguin, 1985).

<sup>19</sup> G. E. Moore, *Principia Ethica* (Cambridge: Cambridge University Press, 1903).

teacher, as an example. In *Room to Breathe*, before Megan's mindfulness sessions, Mr. Ehnle was clearly stressed out. So consider the following statement:

*Mr. Ehnle is stressed.*

On the one hand, this seems like a straightforward case of a descriptive statement. That Mr. Ehnle is stressed (or *was* stressed, when the film was made) is a fact about the world and if there were some doubt about whether or not this was true, people could get together and come to a consensus. But, on the other hand, entailed in the proposition that he is stressed is the idea that he is *not as he should be*. Here the term *should* has sneaked in and what it indicates is that his normal functioning has been disturbed. What we have in the case of stress, then, is what Philippa Foot calls natural normativity, a form of evaluation in which goodness and defect can be attributed to living beings *qua* living beings. To explain the idea, Foot offers the image of an oak tree:

We are, let us suppose, evaluating the roots of a particular oak tree, saying perhaps that it has good roots because they are as sturdy and deep as an oak's roots should be. Had its roots been spindly and all near the surface they would have been bad roots; but as it is they are good. Oak trees need to stay upright because, unlike creeping plants, they have no possibility of life on the ground, and they are tall heavy trees. Therefore oak trees need to have deep sturdy roots: there is something wrong with them if they do not, and this is how the normative proposition can be derived.<sup>20</sup>

On Foot's view, "good" and "bad" are natural qualities when connected to what living things need to survive and flourish. In oak trees, spindly, superficial roots are bad roots, while deep, sturdy ones are good ones because in order to remain upright and living, oak trees must remain anchored firmly in the ground. The same sort of reasoning applies to human beings, given the ways in which stress and anxiety disrupt our normal biological, psychological, and social functioning. In fact, Foot's example serves as a useful reminder that stress is not a uniquely

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<sup>20</sup> Philippa Foot, *Natural Goodness* (Oxford: Clarendon Press, 2001).

human phenomenon. Plants get stressed when they are transported or living in drought conditions; animals get stressed when they are caught and put in captivity. In each case, the presence of stress, particularly when it is chronic, is a signal that things are not as they should be.

### *The Relaxation Response*

The fact that chronic stress prevents human beings from being as they should be has been a major focus of the work of Herbert Benson (b. 1935), a professor at Harvard Medical School and founder of the Mind/Body Medical Institute at Massachusetts General Hospital. Benson, considered to be one of the pioneers in the field of mind/body medicine, gives a medical explanation for the effects of meditation on stress and anxiety in his book *The Relaxation Response*, first published in 1975. Early in his career, Benson noticed that a patient's blood pressure was usually higher when measured in the doctor's office than it was when measured at home. Since a visit to the doctor's office is usually stressful, Benson hypothesized that there might be a relationship between stress and high blood pressure, and when he began testing that hypothesis in the 1960s with students of Transcendental Meditation, he found major physiological and psychological differences between meditators and non-meditators. Meditators tended to have lower heart rates, lower metabolism, slower rates of breathing, decreased rates of addiction, and overall better health.<sup>21</sup> Meditation seemed to counterbalance the body's fight-or-flight reaction through a process Benson called the relaxation response. Hundreds of subsequent studies have confirmed his original findings.<sup>22</sup> Initially, Benson listed four essential components

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<sup>21</sup> See Herbert Benson, *The Relaxation Response* (New York: Harper Collins, 1975).

<sup>22</sup> See for example Stefan Hofman et al., "The effect of mindfulness-based therapy on anxiety and depression: A meta-analytic review," *Journal of Consulting and Clinical Psychology* 78 (2010): 169–83. The authors of the study conclude that mindfulness-based therapy is a promising intervention for anxiety and mood problems in clinical populations. See also Sanford I. Nidich et al., "A Randomized Controlled Trial on Effects of the Transcendental

required for eliciting the relaxation response: a quiet environment, a mental device (i.e., a sound, word, or technique), a passive attitude, and a comfortable position. More recently, however, Benson and his colleagues have written that only two of the components, a mental device and a passive attitude, are required.

In metabolic terms, the relaxation response puts the body into a *hypometabolic* state, functioning smoothly and efficiently, and brings it out of the *hypermetabolic* state brought on by stress and anxiety. The heightened metabolic activity brought on by stress is directly related to tightness and tension in the body—what the DSM referred to as “somatic feelings of tension”—because it takes energy to keep muscles tensed and tightened. Often, major muscle groups are involved, especially areas of the neck and back, which is why massage and other forms of body work are effective means of stress relief, but involuntary muscles called smooth muscles, which are found within the arteries, veins, and capillaries of the body’s circulatory system, are also tightened. When the body’s smooth muscles are tensed, blood flow is constricted, which increases blood pressure and leads to the build-up of plaque on the arteries, a condition known in the medical literature as *atherosclerosis*. The presence of constricted blood vessels, in conjunction with hardened arteries, means that the same volume of blood has to squeeze through ever-smaller passageways, which may result in high blood pressure, or *hypertension*. Because the whole circulatory system has to work harder to pump blood throughout the body, muscle fibers in the heart increase in size, enlarging the heart. An enlarged heart, having to work overtime, is more prone to heart attacks and other heart diseases. The term *hypertension* is more apt than generally realized: the word *tension* is built right into it.

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Meditation Program on Blood Pressure, Psychological Distress, and Coping in Young Adults,” *American Journal of Hypertension* 22 (2009): 1326–31.

Other physical indicators of stress and anxiety include blood lactate and oxygen levels. Research has shown that stress and anxiety tend to bring about increases in blood lactate, or lactic acid, which is a byproduct of muscle exertion. The relaxation response has been shown to lower levels of blood lactate, a finding consistent with self-reported feelings of being more relaxed and less anxious during and after meditation.<sup>23</sup> There is also research evidence to show that stress and anxiety are associated with the subconscious perception of a lack of breathable oxygen. In his research on panic attacks and anxiety, the psychiatrist Donald Klein found that he could provoke feelings of anxiety and panic in people simply by asking them to inhale carbon dioxide.<sup>24</sup> He hypothesized that people who suffer from repeated panic attacks have an oversensitive “suffocation alarm system,” and showed that panic attacks are almost always associated with shortness of breath and difficulty breathing.

All of this helps bring to light some of the particular benefits of mindfulness of breathing, which, at a very basic level, is practice in breathing well. Because breathing well means consciously relaxing areas of tightness or tension in the body, and because it means deliberately supplying the body and brain with oxygen, mindfulness of breathing seems to be a particularly effective way to evoke the relaxation response. There is a famous “rule of three” among outdoorspeople: you can go three weeks without food, three days without water, and three minutes without oxygen. Given that breathing is the body’s most primary physical need, and that it has such a major impact on health, the benefits of paying good attention to it seem clear.

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<sup>23</sup> See Robert K. Wallace and Herbert Benson, “The Physiology of Meditation,” *Scientific American* 226 (1972): 84–90 and Herbert Benson, “The Relaxation Response: Therapeutic Effect,” *Science* 27 (1997): 1694-95.

<sup>24</sup> See Donald Klein, “False Suffocation Alarms, Spontaneous Panics, and Related Conditions: An Integrative Hypothesis,” *Archives of General Psychiatry* 50 (1993): 306–17. Klein hypothesized that stress and anxiety is rooted in the body’s suffocation alarm signal, which has been confirmed in subsequent studies, but so far no one has been able to identify a suffocation alarm signal location in the body or brain, and it seems likely that panic and anxiety are induced by a broad range of circumstances, and not just the perception of lack of breathable oxygen.

### *Psychological Pathways*

The mechanisms by which mindfulness and meditation impact stress and anxiety can also be explained in psychological terms. Stress and anxiety, as we have seen, are characterized by worry and rumination—negative, habitual, “what if” thinking. These sorts of thoughts can multiply and spin out of control, resulting in worry *about* worry, and so on. What mindfulness of breathing offers is a mental device to escape the negative feedback loop. Because we are able to pay conscious, voluntary attention to just one thing at a time, by our directing conscious, voluntary attention to the way the breathing process feels, we are out of necessity *not* paying attention to worrisome, ruminative thoughts, the very thoughts responsible for feeling stressed and anxious in the first place. By focusing on the breathing process, we are freed from the physical and mental consequences that follow from the sort of thinking that causes harm. Mindfulness of breathing can be seen as a distraction technique of sorts, but the object of distraction, the breathing process, is a salutary one.

A slightly different explanation stems from the idea of *attention substitution*, presented in Chapter 2. The claim in that chapter was that mindfulness of breathing puts one in a position to see the process of attention substitution as it occurs. That is because focusing on the feeling of breathing as it occurs means staying in the present moment, where the process of attention substitution takes place. With practice, it becomes easier to recognize the process by which we *decide* to follow a certain line of thinking and to guide our thinking in a more helpful direction.

For these reasons, it is not hard to see why mindfulness, meditation, and other contemplative practices have been treated as forms of cognitive therapy.<sup>25</sup> One basic assumption

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<sup>25</sup> There is a growing literature on Mindfulness-Based Cognitive Therapy. See Zindel V. Segal, J. Mark G. Williams, and John D. Teasdale, *Mindfulness-Based Cognitive Therapy for Depression*, 2nd edition (New York: The Guilford Press, 2013); Jennifer Felder, “Collaboration in Mindfulness-Based Cognitive Therapy,” *Journal of Clinical*

of cognitive therapy is that negative emotions like stress and anxiety emerge from our appraisal or judgment of a situation: we *perceive* a situation as anxiety-provoking or fear-inducing. Cognitive therapy works in part by rebuilding our perceptions to reduce fear and anxiety. The perception that one is in control is particularly crucial to reducing treating stress and anxiety. What the device of mindfulness of breathing offers is a stable, permanent sense of control. The breathing process that is one that is always up to us, which means that in any situation, however stressful, there is always the possibility to ourselves generate a sense of ease and well-being.

### *An Extrinsic Rationale for Stress Relief in Education*

With the physiological and psychological pathways in mind, I want to turn now to two rationales for why stress relief is important in educational settings: the extrinsic and intrinsic rationales. The extrinsic rationale is rooted in a basic finding in psychological research: positive emotions tend to enhance learning, while negative emotions hinder it. The psychologist Barbara Frederickson provides ample empirical support for these twin claims in her 1998 article “What Good Are Positive Emotions?”<sup>26</sup> In it, Frederickson answers the title’s question by proposing a “broaden and build” model of positive emotions, according to which positive emotions broaden the scope of thinking and build intellectual and physiological resources. She shows that positive emotions restore a sense of calm to the body after the onset of negative emotions (what she calls the *undoing hypothesis*), and work to preserve health (the *protection hypothesis*). Both hypotheses are consistent with Benson’s research.

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*Psychology* 68 (2012): 179-186; and L.O. Fjorback et al., “Mindfulness-Based Stress Reduction and Mindfulness-Based Cognitive Therapy: a Systematic Review of Randomized Controlled Trials,” *ACTA Psychiatrica Scandinavica* 124 (2011): 102-119.

<sup>26</sup> Barbara Frederickson, “What Good Are Positive Emotions?” *Review of General Psychology* 2 (1998): 300–319.

One mechanism by which positive emotions broaden the scope of thinking is through enhanced attention. Positive emotions have been shown to improve attention, while negative emotions, especially anxiety and fear, tend to narrow attentional focus.<sup>27</sup> On the neurological level, stress and anxiety have been shown to interfere with working memory and disrupt the brain circuitry associated with learning and memory.<sup>28</sup> This makes good sense in light of the fight-or-flight response: when there is danger, our utmost concern is safety, not learning. What this means, though, is that contemplative practices may actually have a double impact on attention; mindfulness and meditation are themselves forms of attentional training, but they also enhance attention as a secondary effect of reducing stress and anxiety.

Positive emotions have also been shown to broaden the scope of thinking and foster creativity. Happiness, joy, and other states of well-being open up space to elaborate on ideas or concepts, which may underlie the finding that positive emotions enhance memory.<sup>29</sup> In one study, for example, investigators asked four-year-old participants to recall a positive, negative, or neutral memory and think about it for thirty seconds before performing a mental task. Researchers found that children who recalled a positive memory did significantly better than the other groups.<sup>30</sup> The very short time frame in the study (a mere thirty seconds) is especially notable. As Frederickson puts it, “Remarkably, simply asking students to think for less than one minute of a happy moment from their lives before learning or test taking produces significant

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<sup>27</sup> A classic study on negative emotions and narrowed attention is J. A. Easterbrook, “The Effect of Emotion on Cue Utilization and the Organization of Behavior,” *Psychological Review* 66 (1959): 183–201. For a review of the empirical evidence in support of positive emotion’s impact on attention, see D. Derryberry and D. M. Tucker, “Motivating the Focus of Attention,” in *The Heart’s Eye: Emotional Influences in Perception and Attention*, P. M. Neidenthal and S. Kitayama, eds. (San Diego: Academic Press, 1994).

<sup>28</sup> See Shackman, et. al., “Stress potentiates early and attenuates late stages of visual processing,” *Journal of Neuroscience* 31 (2011): 1156–61.

<sup>29</sup> Frederickson, “What Good are Positive Emotions?” 308.

<sup>30</sup> J. C. Masters, R. C. Barden, and M. E. Ford, “Affective States, Expressive behavior, and learning in children,” *Journal of Personality and Social Psychology* 37 (1979): 380–90.

increases in intellectual gains and performance.”<sup>31</sup> Studies like these are consistent with research linking mindfulness and meditation to improved academic performance.<sup>32</sup>

Creativity, too, seems to be enhanced by mindfulness, meditation, and positive emotions in general. Positive emotions have been shown to improve creativity, and research has linked mindfulness and meditation to improved performance on creative tasks.<sup>33</sup> In one study involving the Torrance Tests of Creative Thinking, a standard creativity metric in psychology, researchers found that students trained in Zazen meditation showed significant gains on many of the test subscales, including heightened consciousness of problems, perceived change, invention, sensory experience, and expression of emotion.<sup>34</sup>

#### *An Intrinsic Rationale for Contemplative Practices in Education*

Relief from stress and anxiety is not only valuable because it improves learning, however. Stress relief is intrinsically valuable because of the corrosive impact of stress on our happiness and well-being. It diminishes our capacity to enjoy the good things in life. It undermines the pleasure we experience from them, and indeed, for people who are chronically stressed, there is less *to* life to enjoy.

The idea that happiness should be an aim of education tends not to be taken very seriously by researchers these days. One exception is Nel Noddings. In her 2003 book *Happiness*

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<sup>31</sup> Frederickson, 308.

<sup>32</sup> See Kam-Ti So and David W. Orme-Johnson, “Three randomized experiments on the longitudinal effects of the Transcendental Meditation technique on cognition, *Intelligence* 29, no. 5 (2001), 419–40; and Robert W. Cranson, et. al., “Transcendental Meditation and improved performance on intelligence-related measures: a longitudinal study,” *Personality and Individual Differences* 12, no. 10 (1991), 1105–16.

<sup>33</sup> See A. M. Isen, “Positive affect, cognitive processes, and social behavior,” *Advances in Experimental Social Psychology* 20 (1987): 203–53.

<sup>34</sup> E. L. Cowger and E. Torrance, “Further examination of the quality of changes in creative functioning resulting from meditation (Zazen) training,” *Creative Child & Adult Quarterly* 7, no. 4 (1982), 211–17.

*and Education*, Noddings argues that happiness is, and should be, a goal of education.<sup>35</sup> To prove why, Noddings asks us to consider the responses we might get if we asked parents what they most wanted for their children. Likely responses would be: health, happiness, and fulfilling lives. The responses from teachers and administrators, on the other hand, would probably be much more narrowly circumscribed, framed in terms of learning standards and lesson objectives. In the effort to bridge that gap, Noddings addresses a number of topics that need to be addressed if we are serious about making a place for happiness in education, including making a home, parenting, and preparing for work. Her book is a much-needed counterpoint to the present accountability movement, and although Noddings does not explicitly address contemplative practices in education, there is reason to think that contemplative practices might be offered a place in her vision of education.

But is stress relief the same thing as happiness? I want to argue that it is, at least in a certain sense of happiness. Happiness is predicated of human beings in a wide variety of ways. We might say that a person is happy doing something or in a happy frame of mind or living a happy life. Sometimes, when we say that so-and-so is perfectly happy doing x, we mean nothing more than an absence of restlessness, or the absence of effort to change a situation. Because happiness is such a slippery concept, I want to conclude the chapter by sorting out some of the many senses of the word, which will give us a better idea of the relationship between stress and happiness. For the task, I draw on the work of Daniel Haybron, who offers a detailed map of the conceptual terrain in his 2008 book *The Pursuit of Unhappiness*.<sup>36</sup> The most conventional way of

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<sup>35</sup> Nel Noddings, *Happiness and Education* (Cambridge: Cambridge University Press, 2003)

<sup>36</sup> Daniel Haybron, *The Pursuit of Unhappiness* (Oxford: Oxford University Press, 2008). For an abridged version of the same material, see Daniel Haybron, *Happiness: A Very Short Introduction* (Oxford: Oxford University Press, 2013). For another philosophical treatment of the concept of happiness, see Fred Feldman, *What Is This Thing Called Happiness?* (Oxford: Oxford University Press, 2010).

viewing happiness, Haybron says, is as a positive emotional condition. He calls this *emotional state theory*, according to which happiness is *feeling* good. In this view, happiness is a psychological notion that refers to a certain mood. For instance, when I got a free burrito last week at Chipotle, my happiness was a positive emotional condition.

A second sense of happiness is *hedonism*, which equates happiness with pleasure—or, more precisely, the favorable balance of pleasure and displeasure. Early hedonists included the classical utilitarian philosophers Jeremy Bentham and John Stuart Mill, who built moral theories based on the idea of the greatest good for the greatest number. Hedonistic theories of happiness usually get a bad rap, and one reason, perhaps, is that the view seems too inclusive: all kinds of fleeting pleasures would count toward happiness, even, say, the relief that comes from scratching an itch. But, intuitively, pleasures like these are not “deep” enough to really count as *happiness*. As Haybron says of such shallow, fleeting pleasures, “They just don’t *get* to us; they flit through our consciousness and that’s the end of it.”<sup>37</sup>

A different view of happiness altogether involves a judgment about one’s life. Haybron calls this *life satisfaction theory*. According to life satisfaction theory, happiness turns on making a positive judgment about how one’s life is going, all things considered. Notably, one could be happy in this sense in dire straits—in prison, say—provided that one could reflect on one’s life and say that it has gone well overall.

The sense of happiness most commonly used in psychology, *subjective well-being*, has two parts: life satisfaction and a positive emotional condition. On psychological surveys, for example, participants are asked to reflect on their lives and make a judgment about how things are going, and also rate how happy they *feel*, which means that subjective well-being is actually a

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<sup>37</sup> Haybron, *The Pursuit of Unhappiness*, 63.

combination of emotional state theory and life satisfaction theory. But, as Haybron points out, this view unhelpfully combines two very different things, and a lot of confusion can be avoided by keeping them disentangled.

Finally, there is happiness as *eudaimonia*, a concept that lies at the heart of Greek philosophy. *Flourishing* and *well-being* are sometimes used as translations of *eudaimonia*; just as common, though, is *happiness*. *Eudaimonia* differs from the other four views of happiness insofar as it is a value notion. It refers to what ultimately benefits a person, serves her interest, and makes her ultimately better off, which is quite different from happiness as a certain state of mind. Most everyone would agree that someone who spent every waking hour watching TV and eating junk food is not doing well, not living a happy life, because that sort of life is not one that is ultimately beneficial for him or her. Most theories centered on *eudaimonia* are naturalistic theories, like Foot's, based at least in part on the idea that we are biological, embodied creatures, with needs and capacities that are tied directly to our life form as human beings.

These distinctions put us in a better position to see the relationship between contemplative practices and happiness. For most people, focusing on the sensation of breathing does not immediately bring about happiness in the sense of a positive emotional condition, or happiness in the sense of pleasure. But, with practice, it is possible to generate a sense of ease and well-being in the body—one that approaches, or at least establishes the conditions for, happiness in the usual psychological, emotional sense. In this line of thinking, happiness is a skill that can be developed over time. Contemplative practices also seem to be aligned with the life of *eudaimonia*. If stress and anxiety indeed disrupt our normal psychological and social functioning, and if contemplative practices are in fact effective ways to reduce the disruptions, then they are also helpful strategies for living well.

One of the remarkable things about stress and anxiety is that they tend to spread around. We pick up on the feelings of others. Someone else's bad mood can rub off on me, just as someone's radiant smile can elevate me. So long as we are around other people, then, our emotional states necessarily have a social dimension. It is to this basic idea—that our moods and emotions are, in a sense, contagious—that I turn in the next chapter, which is devoted to empathy and compassion.

## Chapter 5

### **The Capacity to Feel Into: Contemplative Practices, Empathy, and Compassion**

A few years ago, a team of researchers conducted an experiment designed to test the effects of meditation on empathy and compassion. The team, led by psychologists Paul Condon and David DeSteno of Northeastern University, recruited thirty-nine meditation-naïve participants from the Boston area and divided them into two groups. Those in the experimental group were trained in compassion meditation; participants in the control group were told that they had been put on a waiting list for a future course. After an eight-week period of instruction, which for the experimental group included weekly meditation classes and at-home practice using audio recordings, participants were invited, one at a time, into the waiting room of a medical office. They had been summoned there for tests on their memory and attention—or so they were told.

When the participants arrived, there were three chairs, two of which were already occupied by confederates of the investigators. Naturally, each participant sat in the empty chair. Moments later, a fourth person—another confederate of the investigators, it would later be revealed—entered the room. She was on crutches and wearing a boot, nursing a broken foot. Seeing all of the chairs occupied, she leaned against the wall with an audible, pained sigh. The participants were thus presented with a dilemma: give up their seat, or quietly ignore her distress.

There was a significant difference between the meditators and non-meditators. While only 16 percent of non-meditators gave up their seat (an admittedly uninspiring figure), the number rose to 50 percent among the meditation group. Even more striking is the fact that the results were obtained in a context known to discourage compassionate behavior: the bystander effect, as it is known in psychology, a fairly well-documented phenomenon in which witnessing

others ignore a person in distress greatly reduces the chances that any single individual will help. Compassion meditation, even after only eight weeks of practice, increased empathetic and compassionate behavior in participants more than threefold.<sup>1</sup>

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The last claim to be examined is the claim that contemplative practices are means of developing empathy and compassion, which are important outcomes of education, broadly understood. Everyone would agree that empathy and compassion are essential for living together in an increasingly crowded world, and that they are qualities that can be formed in and through education. And yet there seems to be little evidence that empathy and compassion are taken seriously as educational outcomes today; in fact, it could be argued that the more time K-12 students spend taking standardized tests independently, the less time there is for their social and emotional development. Contemplative practices and contemplative pedagogy are viewed as a way to change the status quo. In the study above, participants practiced compassion meditation for just eight weeks, with rather striking results, which makes it worth considering what effects compassion meditation might have when done a few minutes each day in a classroom over the course of a semester or year.

Daniel Barbezat and Mirabai Bush are two writers who connect empathy and compassion to contemplative practices. In *Contemplative Practices in Higher Education*, they write, “Practices that can cultivate and support compassion are extremely important, and we need to foster environments in which our students can explore and nurture it. Contemplative practices do exactly that.”<sup>2</sup> Along the same lines, in *The Way of Mindful Education*, Daniel Rechtschaffen,

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<sup>1</sup> See Paul Condon et al., “Meditation Increases Compassionate Responses to Suffering,” *Psychological Science* 24 (2013): 2125–27.

<sup>2</sup> Barbezat and Bush, *Contemplative Practices in Higher Education*, 16.

elaborating on his experiences with mindfulness in the classroom, writes, “What is most inspiring to me is the way I see children, through mindfulness, learning to feel fully comfortable in their own skins, trust themselves, and be more compassionate to the world around them.”<sup>3</sup> The basic claim, in both cases, is that contemplative practices are a direct way to develop empathy and compassion.

In general, the research literature suggests that they are right.<sup>4</sup> Mindfulness and meditation have been shown to bring about observable behavioral and neural changes related to empathy and compassion. In one study, participants trained in compassion meditation were more likely than those in the control group to help the victim in an unfair social interaction, and accompanying fMRI scans showed increased activity in brain systems involved in social and emotional regulation, leading researchers to conclude that compassion and altruism are better viewed as trainable skills than stable traits.<sup>5</sup> In another study, investigators found that mindfulness practice led to increased levels of self-reported empathy in medical students in comparison to a control group.<sup>6</sup> And in a study on expert meditators, researchers found heightened activity in brain regions associated with emotional monitoring and regulation, suggesting that empathy and compassion are flexible, trainable skills, and that, over time, mindfulness and meditation can make lasting changes to the brain.<sup>7</sup>

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<sup>3</sup> Rechtschaffen, *The Way of Mindful Education*, 35.

<sup>4</sup> See for example Cendri Hutcherson et al., “Loving-Kindness Meditation Increases Social Connectedness,” *Emotion* 8 (2008): 720–24. For two studies with similar findings, see M.E. Kemeny et al., “Contemplative/Emotion Training Reduces Negative Emotional Behavior and Promotes Prosocial Responses,” *Emotion* 12 (2012): 338–350 and Antione Lutz et al., “Regulation of the Neural Circuitry of Emotion by Compassion Meditation: Effects of Meditative Expertise,” *PLoS ONE* 3 (2008): 1–10

<sup>5</sup> See Helen Y. Weng et al., “Compassion Training Alters Altruism and Neural Responses to Suffering,” *Psychological Science* 24 (2013): 2125–27.

<sup>6</sup> See Shauna Shapiro et al., “The Effects of Mindfulness-Based Stress Reduction on Medical and Pre-medical Students,” *Journal of Behavioral Medicine* 21 (1998): 581–99.

<sup>7</sup> See Antoine Lutz et al., “Meditation and the Neuroscience of Consciousness: An Introduction,” in *The Cambridge Handbook of Consciousness*, P.D. Zelazo et al., eds. (Cambridge: Cambridge University Press, 2007): 543.

The research conclusively establishes a correlation between contemplative practices and enhanced empathy and compassion. Much less has been said, however, about the causal connection. The aim of this chapter is to give a causal account, a theoretical description of the mechanisms by which contemplative practices cultivate empathy and compassion.

I begin by taking a close look at the concepts of empathy and compassion. In order to see how they can be developed in, and through, contemplative practices, we will need clear definitions of the two notions. I then go on to propose three theoretical pathways—what I will call the goodwill pathway, the attention pathway, and the well-being pathway—which, together, might explain the mechanisms by which contemplative practices develop empathy and compassion in those who practice them, and perhaps even those who do not.

### *What Are Empathy and Compassion?*

The word *empathy* has several meanings, but the most common sense is experiencing the world as others do—or as one thinks they do.<sup>8</sup> Empathy is what enables one person to genuinely express to another “I feel your pain,” or “I am happy for you.” This definition of empathy is what the eighteenth-century English philosophers David Hume and Adam Smith originally called *sympathy*. Sympathy, they reasoned, is what explains why a person can be motivated to act on behalf of another. In Hume’s account, found in his 1738 book *A Treatise on Human Nature*, sympathy is not primarily a feeling or emotion, but rather a psychological mechanism by which one person is able to receive, and then actually feel, another’s sentiments.<sup>9</sup> Smith’s version

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<sup>8</sup> Susan Verducci offers a clear overview of the many meanings of empathy in her article “A Conceptual History of Empathy and a Question It Raises for Moral Education.” The question that is raised for her is this: among the many species in the taxonomy of empathy, which forms should be cultivated in and through education? Verducci suggests one possible answer in the form of aesthetic empathy, which can be cultivated through literature, but she wants the question to remain a live on for those working in philosophy of education. See Susan Verducci, “A Conceptual History of Empathy and a Question it Raises for Moral Education,” *Educational Theory* 50 (2000): 63-80.

<sup>9</sup> See David Hume, *A Treatise of Human Nature* (New York: Penguin, 1985).

differs slightly. In his account, outlined in *The Theory of Moral Sentiments*, sympathy is what arises when we imagine how we would feel in another's situation.<sup>10</sup> Hume and Smith set in motion a long tradition in moral philosophy that places the capacity for sympathy at the center of ethics. In recent years, the tradition has been carried on by a number of thinkers, including the philosopher Simon Blackburn and the primatologist Frans de Waal.<sup>11</sup>

Over the past few decades, the word *empathy* has come to redefine or completely replace *sympathy*, and although the two are often used interchangeably, there is a subtle distinction between them. Sympathy, unlike empathy, is not an emotion congruent with the emotions of another person. One can show sympathy for a person from afar, without actually experiencing that person's weal or woe. In many cases, empathy gives rise to sympathy, but there is distance built into sympathy not present in empathy. For this reason, sympathy is best understood as an emotion of its own, one that takes another person's feelings or situation as its object from the perspective of someone who cares.

The other concept closely related to empathy is *compassion*. Although empathy is often a source of compassion, compassion is more active than empathy. Unlike empathy, compassion entails the desire to relieve suffering and is usually expressed in action. This means that compassion, like sympathy, affords some cognitive distance, since showing compassion for a person need not involve actually taking on his or her feelings. If empathy is "feeling with," compassion is "feeling for."

The psychological distance that compassion offers allows it to be more expansive, which is a point made by one early theorist of compassion, Jean-Jacques Rousseau, who was among the

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<sup>10</sup> Adam Smith, *The Theory of Moral Sentiments* (New York: August M. Kelley Publishers, 1966).

<sup>11</sup> Phillip Kitcher makes this point in his recent book *The Ethical Project* (Cambridge: Harvard University Press, 2011): 17. See also Simon Blackburn, *Ruling Passions* (New York: Oxford University Press, 1999) and Frans de Waal, *Primates and Philosophers* (Princeton: Princeton University Press, 1999).

first to offer an extended treatment of its psychic mechanisms. Crucial to Rousseau's vision of the education of the "natural man," illustrated vividly in his book *Emile*, is an education in compassion—*pitié*, in the original French—a force that directs us to relieve the suffering of others when we can do so without putting ourselves in danger.<sup>12</sup>

Much of the ambiguity surrounding sympathy, empathy, and compassion stems from the fact that the emotions often occur simultaneously or in close sequence: empathy tends to arise automatically and without conscious effort, and sympathy and compassion follow closely on its heels. In the study described at the beginning of the chapter, for instance, trying to pin down whether the participants who gave up their chairs were moved by sympathy, empathy, or compassion seems like a fruitless enterprise. Each was likely involved.

A further complication is the fact that the word *empathy* itself is fairly new to the English language. Although its roots are in ancient Greek (*empathēia* means "passion"), the English word was coined in 1909 by the British psychologist Edward Titchener as a translation of the German term *Einfühlung*, meaning "feeling into," in order to describe the mind's ability to feel into nature.<sup>13</sup> After Titchener, writing on empathy proliferated, especially among philosophers, and it was Theodor Lipps, a German philosopher at the turn of the twentieth century, who left perhaps the most lasting legacy. Lipps regarded empathy as a kind of psychological resonance phenomenon—a capacity of "inner imitation"—through which we are able to mirror the experiences and feelings of others.<sup>14</sup>

During the early twentieth century, work on empathy transitioned from philosophy into psychology and by the 1950s, it had become a major topic of empirical investigation. Empathy

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<sup>12</sup> Jean-Jacques Rousseau, *Emile* (United States: Basic Books, 1979).

<sup>13</sup> Edward Titchener, *Lectures on the Experimental Psychology of Thought-Processes* (New York: MacMillan, 1909).

<sup>14</sup> See Theodor Lipps, "Empathy, Inner Imitation, and Sense Feelings," in *A Modern Book of Esthetics*, M. M. Radar, ed. (New York: Holt, Rinehart and Winston, 1979).

remains a hot topic in contemporary psychology, but progress has been hindered somewhat by conceptual confusions and the many definitions associated with the empathy. Today, there are nearly as many accounts of empathy as there are investigators of it.

Even so, one major distinction has emerged, the distinction between “cognitive” and “affective” empathy. Cognitive empathy involves assessing what other people are thinking; it is what allows us to infer the intentions and beliefs of others.<sup>15</sup> Most theorists think that compassion stems from the cognitive side of empathy, given that it involves the more distant, imaginative apprehension of another’s suffering.

Affective or emotional empathy, on the other hand, involves *feelings*. Affective empathy is what enables us to feel another person’s sorrow or joy, and it is affective empathy that tends to receive the lion’s share of attention. Unlike cognitive empathy, affective empathy is, at least to a certain extent, involuntary and automatic, which suggests that human beings evolved to be capable of sharing in the feelings of others.

Many theories have been offered to explain how the phenomenon of affective empathy is possible. One theory involves the idea of *emotional contagion*, the intuitive idea that emotions are, in a sense, contagious. Emotional contagion occurs when people start feeling similar emotions simply by being around other people. A person might feel joyful because people around him are expressing joy or panicky because others are panicking.

Some have looked to neuroscience for an explanation of emotional contagiousness. At the neurological level, there is a heated contemporary debate about the role and nature of so-called “mirror-neurons,” a term used to refer to the significant overlap between the brain areas that are activated when we observe another person’s action and those that are activated when we

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<sup>15</sup> One line of argument, which can be traced back to the work of John Stuart Mill, is that what is now known as “cognitive empathy” is the closest we can get to solving the philosophical problem of others minds.

perform the same action ourselves. In recent years, investigators in the field of social neuroscience have begun to investigate the neural underpinnings of empathy in more depth and researchers are developing a more precise picture of what is happening in the brain when we feel empathy. Yet exactly what can be inferred from the presence of mirror-neurons is a matter of ongoing debate.

Although there is some evidence from neuroscience to support the distinction between the two types of empathy, suggesting that they emerge from different brain processes, not everyone is convinced the distinction is very helpful. The objection is that the distinction is based on a misleading division between “thinking” and “feeling.” In reality, it may not be that our actions can be so neatly divided, since what we think and do is often a product of thought *and* emotion, or “cognition” and “affect,” in the jargon of psychologists. This is a point Damasio makes convincingly in *Descartes’ Error*, where he shows that reasoning is based, at least to some extent, on feeling.<sup>16</sup>

In more recent years, there has been surge of interest in empathy, evidenced by the sheer number of books and articles published on the topic. For example, in his 2010 book *The Empathic Civilization*, Jeremy Rifkin argues that the only way humans will survive in the future is through the development of a sense of global empathy.<sup>17</sup> Similarly, Michael Ignatieff has suggested that empathy can provide the basis for a “universal secular ethics.”<sup>18</sup> And one of the most significant recent contributions has come from the social psychologist C. Daniel Batson, who, in his 2011 book *Altruism in Humans*, presents evidence for what he calls the empathy-

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<sup>16</sup> See Antonio Damasio, *Descartes’ Error* (New York: Putnam, 1994).

<sup>17</sup> Jeremy Rifkin, *The Empathic Civilization: The Race to Global Consciousness in a World of Crisis* (New York: Penguin, 2009).

<sup>18</sup> Michael Ignatieff, “Human Rights: The Midlife Crisis,” *New York Review of Books*, May 20, 1999: 58–62.

altruism hypothesis, the idea that when you empathize with others, you are more likely to help them.<sup>19</sup> It is an intuitive idea that has received plenty of empirical support.

### *The Issues with Empathy*

The ability to feel what others are feeling does have some drawbacks, however. One is that empathy is biased. Research has shown that we are more likely to empathize with family members, friends, and people we find attractive.<sup>20</sup> Another drawback is that empathy is narrow. Empathy allows us to establish a connection to particular people, but not to groups of people, and not after learning statistics about the suffering of others, no matter how dire they may be. Furthermore—and this may come as no surprise—empathy is affected by our attitude towards others. We are more likely to empathize with people we like and trust, and less likely to empathize with those we do not. One logical extension of this is that empathy tends to be suppressed in competitive situations.<sup>21</sup> Research indicates that competition can actually produce a counter-empathic response: we tend to feel happy when a competitor loses, and angry or hurt when the competitor wins. The effect is more pronounced in men than in women.<sup>22</sup>

Moreover, it may be that people's capacity to feel empathy naturally differs. One leading researcher of empathy, the psychologist Simon Baron-Cohen, argues in his 2011 book *The Science of Evil* that the notion of evil should be replaced with that of "empathy erosion." In making his case, Baron-Cohen offers the idea of an empathy curve.<sup>23</sup> On the low end of the curve, Level 0, is a person who feels no empathy. On the high end, Level 6, is a person who is

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<sup>19</sup> Daniel Batson, *Altruism in Humans* (Oxford: Oxford University Press, 2011).

<sup>20</sup> See Martin Hoffman, *Empathy and Moral Development* (Cambridge: Cambridge University Press, 2000): 206–17.

<sup>21</sup> See for example Basil Englis et al., "Conditioning of counter-empathetic responses," *Journal of Experimental Social Psychology* 18 (1982): 375–91.

<sup>22</sup> See Tania Singer, "The neuronal basis and ontogeny of empathy and mind reading: Review of literature and implications for future research," *Neuroscience and Biobehavioral Review* 30 (2006): 855–63.

<sup>23</sup> Simon Baron-Cohen, *The Science of Evil* (New York: Basic Books, 2011).

continually focused on the feelings of other people, to the point of being in a constant state of hyperarousal.

The latter extreme illustrates the most problematic feature of empathy, that there can be too much of it. Too much empathy is what psychologists call *empathic overarousal*; it occurs when a person's empathic distress becomes so painful and intolerable that it is transformed into personal distress, which can move a person away from empathy entirely.<sup>24</sup> Empathy overarousal is often found in the so-called helping professions, in which engaging with others' negative emotions is routine. If teaching is considered a helping profession, it may not be a stretch to speculate that empathic overarousal, combined with the social expectation of selflessness, contributes to teacher burnout and attrition.

Empathic overarousal is often used synonymously with "compassion fatigue," used to describe the growing apathy or indifference toward the suffering of others on account of frequent appeals for assistance. But compassion fatigue may in fact be a misnomer. As the French scientist-turned-monk Matthieu Ricard has pointed out, a better description might be "empathy fatigue."<sup>25</sup> Since empathy is limited and reactive in nature, it is what actually gets fatigued, while compassion, which affords more cognitive distance, is, from a psychological standpoint, a renewable resource.

The fact that empathy has these drawbacks has led some to argue that the more appropriate other-regarding response is compassion. It is not hard to see the merits of this argument. In many cases, compassion does seem to be a better approach. Take, for example, the case of the doctor-patient relationship. Sharing in the fear, anxiety, and uncertainty of sick

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<sup>24</sup> Hoffman, *Empathy and Moral Development*, 198.

<sup>25</sup> Matthieu Ricard, *Happiness: A Guide to Developing Life's Most Important Skill* (New York: Little, Brown, and Company, 2006).

patients may hamper a doctor's ability to effectively heal them. A doctor who shows compassion can establish a clear understanding of what his or her patients are going through while also remaining calm and reassuring precisely when patients are apprehensive or fearful.

The fact remains, though, that empathy is automatic and immediate. It is built into the nature of human beings. What is needed, therefore, are strategies for moderating our own empathic distress and channeling that distress into compassion—strategies for transforming “feeling with” into “feeling for.” One of the leading theorists of empathy, Martin Hoffman, has addressed these points in his work, so it is to his account of empathy that I now turn. I go into Hoffman's theory of empathy in some detail not only because it is currently the most comprehensive account of empathy, but also because his work provides the theoretical framework for describing the mechanisms by which contemplative practices develop empathy and compassion.

### *Martin Hoffman on Empathy*

In his 2000 book *Empathy and Moral Development*, Hoffman offers a comprehensive theory of empathy, combining empathy's behavioral, cognitive, and affective dimensions. His definition of empathy is strikingly simple: an affective response more appropriate to another's situation than one's own.<sup>26</sup> Empathy, in his view, is aroused through five modes, which roughly correspond to the stages of human development: motor mimicry, classical conditioning, direct association, mediated association, and role- or perspective-taking.

The first mode is *motor mimicry*, a phenomenon familiar to every new parent. Babies specialize in mimicry; they imitate the facial and bodily expressions of others, and cry because

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<sup>26</sup> Martin Hoffman, *Empathy and Moral Development*, 37–45.

other babies are crying. The tendency to imitate others is not limited to babies, however. Adults do it, too.<sup>27</sup> We imitate each other's facial expressions, body language, and tone of voice, and the process often flies under the radar of our conscious awareness.<sup>28</sup> A particularly intriguing aspect of motor mimicry is the fact that merely imitating others can change the way we feel. Researchers have found that the mere act of smiling—even if it is not done out of happiness—makes people feel happier; the opposite is true for frowning. Such findings suggest there is significant overlap between mimicry and emotional contagion, and that mimicry is one of the modes through which emotions spread.<sup>29</sup>

The second mode of empathic arousal is *classical conditioning*, a concept made famous at the turn of the twentieth century by the Russian psychologist Ivan Pavlov and his dogs. Consider, for example, a mother holding her baby. When the mother feels anxiety or tension, her body stiffens, and this natural reaction, over time, gets registered by her baby as a signal of distress. In this way, a mother may pass on distress to her child through conditioning.

The third mode Hoffman calls *direct association*, which is a variation on classical conditioning. Direct association involves associating cues from another person's situation with one's own past experience. Suppose that, from the safety of my house, I see people caught outside during a severe summer thunderstorm. In this case, cues in the situation may remind me of my own experience being caught outside during a bad storm, which may bring about an involuntary, automatic empathic response from me.

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<sup>27</sup> Nor, for that matter, is motor mimicry uniquely human; many other animal species, especially primates, imitate gestures and facial expressions. See for example Frans de Waal, *Primates and Philosophers*, 1999.

<sup>28</sup> There is research evidence indicating that when a person perceives another person's facial expression—a smile or frown—corresponding facial expressions appear in the observer. See Ulf Dimberg and Arne Oehman, "Behold the Wrath: Psychophysiological Responses to Facial Stimuli," *Motivation and Emotion* 20 (1996): 149-182.

<sup>29</sup> See Elaine Hatfield et al., *Emotional Contagion* (Cambridge: Cambridge University Press, 1994): 7-47.

In the fourth mode of empathetic arousal, *mediated association*, empathy is aroused through language. If, say, I read a letter from a friend going through a difficult time, her words may cause me to take on her emotion. Here, the empathy I feel is mediated through language. Processing language is more demanding, from a cognitive standpoint, but it opens up the possibility of feeling empathy for people who are not physically present.

The fifth and final mode of empathic arousal is *role- or perspective-taking*. In this mode, one imaginatively puts oneself in another's place. Perspective-taking comes in two varieties: self-focused and other-focused. In self-focused perspective-taking, I imagine how I would feel in another person's situation; in the other-focused version, I imagine how *that* person would feel in a given situation.<sup>30</sup> In both cases, empathy is triggered.

With Hoffman's framework in mind, I want to turn now to the mechanisms of action. How exactly do contemplative practices contribute to the development of empathy and compassion? I propose three theoretical pathways: the goodwill pathway, the attention pathway, and the well-being pathway, which together might explain the connection.

### *The Goodwill Pathway*

The first pathway is based on the style of meditation known as compassion or loving-kindness meditation. Many contemporary teachers of compassion meditation base their instructions on the ancient Indian practice of *mettā*, which is a Pali word meaning "goodwill," but many of the

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<sup>30</sup> The distinction between self-focused and other-focused perspective-taking may not be entirely warranted, since, as Thomas Nagel and others have pointed out, there is considerable doubt about whether it is possible to know what it is like to be a particular person from *their* perspective. See for example Thomas Nagel, "What is it Like to be a Bat?" *The Philosophical Review* 84 (1974): 435–50 and *The View From Nowhere* (Oxford: Oxford University Press, 1986).

world's religious and cultural traditions have a practice similar to *mettā*.<sup>31</sup> So far, there has been relatively little empirical research done on compassion meditation, but that is changing rapidly. Institutions like the Center for Compassion and Altruism research at Stanford University are leading the way in investigating compassion meditation experimentally. The studies that have been done so far suggest that the practice leads to more altruistic behavior and to changes in brain areas associated with other-regarding thought and actions.

The basic task of compassion meditation is simple. The task is to sit and think thoughts of goodwill, directed first to oneself and then to others. The propositional content of the thinking might be: "May I be happy, and may all living beings be happy." Many teachers recommend spreading thoughts of goodwill in an outwardly expanding circle: after beginning with oneself, one moves on to family members and close friends, and then to classmates, colleagues, and acquaintances, and finally to all living beings, including those to whom we are not especially inclined to show goodwill. Other teachers recommend spreading thoughts of goodwill more generally, without focusing on particular people. In either case, it is easy to see why compassion meditation can be viewed as a very basic form of positive psychology: the practice consists in thinking positive thoughts about oneself and others.

There are a number of sub-strategies for practicing compassion meditation. To see how they work, let's imagine for a moment Gerardo, from Megan's mindfulness class, practicing compassion meditation. One sub-strategy he might use is bringing to mind images of the people to whom he wants to express goodwill. He might picture, for instance, his father, and wish that,

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<sup>31</sup> There are many advantages to translating *mettā* as "goodwill" instead of "loving-kindness," the main one being that it seems highly implausible to be able to show *love* for all beings. Love, as it is usually understood, is far too intimate a feeling to be able to be broadcast to everyone in the world. More realistic, I think, is the idea of thinking thoughts that express *goodwill* to everyone, since showing goodwill towards a person need not entail the feeling of love.

whatever his father is doing right now, he is happy. This kind of thinking can take two different forms. Gerardo might imagine how his father feels, or how he himself would feel in his father's shoes. In both cases, there seems to be a perfect correspondence to Hoffman's fifth, and highest, mode of empathic arousal, role- or perspective-taking.

Another sub-strategy Gerardo might use is recalling times that his father and others have shown *him* goodwill. This line of thinking serves two purposes. First, it can be a motivating factor for continuing to practice. By bringing to mind the times he has been the recipient of compassion, and how he felt upon receiving it, Gerardo can generate an additional reason to wish for the happiness of others. Recalling the generosity of others is also direct practice in feeling gratitude; there is a body of research in psychology to indicate that gratitude tends to create the urge to reciprocate—an intuitive idea captured by the popular expression “paying it forward.”

A third sub-strategy Gerardo might use is reflecting on instances of his own past generosity to others and how his generosity made others feel. Reflecting on these occasions can offer a sense of perspective; it can also be inspiring and energizing, and a good way to generate a sense of ease and well-being. Indeed, there is a long line of research in psychology indicating that kindness and altruism are associated with all sorts of positive psychological and physiological outcomes, both in the short term, affecting mood, and in the long term, impacting overall happiness.

A fourth strategy Gerardo might use is developing the capacity for empathetic joy. In this case, he would bring to mind thoughts about people he is close to who are happy, and practice being happy *for* them. It is remarkable that most of the discussion of empathy occurs in the context of negative emotions. Equally significant, however—if not more significant—is the capacity to feel happy about others' happiness. Taking this approach, Gerardo can use emotional

contagiousness to his advantage. By envisioning the happiness of others, he can generate his own.

An advantage of each of the sub-strategies is that they feel good, mentally and physically. This has been confirmed subjectively, by practitioners, and objectively, through empirical research, which has tied the techniques to decreased stress responses.<sup>32</sup> The phenomenon may be obvious: the way we think can have an impact on the way we feel. And, with practice, it becomes increasingly easier to associate thinking thoughts of goodwill with feeling good—a perfect example of self-directed classical conditioning, Hoffman’s second mode of empathic arousal.

Feeling good may be an end in itself. But there is also a sense in which feeling good impacts others. If the idea underlying the emotional contagion theory is correct—if emotions are in a sense contagious—then feeling good can make others feel good. The ease and well-being that Gerardo might generate through compassion meditation can be picked up on by his peers, which is why the practice may have an especially strong impact in the classroom.

### *The Attention Pathway*

The second pathway is the attention pathway, alluded to by David DeSteno, one of the lead investigators in the study described at the beginning of the chapter. DeSteno offered two explanations for experiment’s results.<sup>33</sup> The first centered on meditation’s ability to foster the view that all beings are interconnected, which, he speculated, might dissolve artificial social

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<sup>32</sup> In one study, for instance, investigators found that compassion meditation lowered stress responses using standard psychological stressor tests. Those who received compassion meditation training maintained immune system strength and their bodies did not have the same physiological reaction to the lab-induced stressors as those in the control group. See T.W.W. Pace et al., “Effect of Compassion Meditation on Neuroendocrine, Innate Immune, and Behavioral Responses to Psychosocial Stress.” *Psychoneuroendocrinology* 34 (2009): 87–98.

<sup>33</sup> See David DeSteno, “The Morality of Meditation,” *The New York Times*, July 5, 2013.

distinctions and make people more likely to help others. The second explanation—and the one I will focus on here—involves meditation’s ability to enhance attention.

Here is the basic idea of the attention pathway: because mindfulness and meditation have a well-documented ability to enhance attention, it stands to reason that enhanced attention may in turn increase the likelihood of noticing when someone is undergoing pain or suffering—as opposed to, say, daydreaming or otherwise being lost in thought. The assumption is that, in order to empathize with and show compassion to others, we must actually pay attention.

In *Empathy and Moral Development*, Hoffman highlights the close link between attention and empathy. When it comes to showing empathy to a victim in distress, he writes,

If one pays attention to the victim, then one should respond automatically with empathic distress. Since paying attention is to an extent under voluntary control, it follows that socialization experiences that direct the child’s attention to the inner states of others should contribute to empathy development.<sup>34</sup>

Because it involves voluntarily directing attention to the inner states of others, compassion meditation thus seems like a clear case of an activity that promotes empathic development. Indeed, it is easy to imagine all kinds of scenarios in which compassion meditation might be fruitfully combined with more traditional classroom activities. As a very basic example, a teacher might have students read a text about a person or group of people who are suffering—refugees or political prisoners, for example—and, at the conclusion of the class period, ask students to spend a few minutes directing thoughts of goodwill to the people they just read about. An activity of this type would draw directly on Hoffman’s fourth mode of empathic arousal, meditated association, and channel the empathy aroused into self- and other-regarding compassion.

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<sup>34</sup> Hoffman, *Empathy and Moral Development*, 289.

A number of research studies have provided insight into the link between attention and empathy. In one particularly interesting study, when participants were shown pictures of painful experiences, like a hand getting caught in a door, there was increased activation in areas of the brain associated with pain. But, when participants were instructed to count the number of hands shown in a particular picture—an experimental manipulation designed to distract participants—the same brain patterns were not seen.<sup>35</sup> The results suggest that where we look, and *how* we look, significantly impacts the degree of empathy and compassion we exhibit.

In the case of compassion meditation, maintaining thoughts of goodwill directed toward self and others requires a great deal of attentional control. If, as we saw in the second chapter, attention is flexible and trainable, like a muscle, then it seems clear that focusing on thoughts of goodwill for self and others is a practice that directly trains attention. But the same basic principle—that enhanced attention increases the odds of exhibiting empathy and compassion—applies to other contemplative practices as well, all of which involve the self-regulation of attention. In the case of breath meditation, in which one focuses on the feeling of the breathing process, the enhanced powers of attention developed thereby can be used in all sorts of other domains, including situations in which others are in need of help.

The line of thinking here is intuitive. We can be un-empathetic and unsympathetic, even with people very close to us, when we are preoccupied or distracted. But if contemplative practices enhance attention, and if attention is a precondition for helping others, then it is reasonable to think that contemplative practices contribute to the development of empathy and compassion.

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<sup>35</sup> See X. Gu and S. Han, “Attention and reality constraints on the neural processes of empathy for pain,” *NeuroImage* 36 (2007): 256–67.

### *The Well-Being Pathway*

The third and final pathway is the well-being pathway. Like the attention pathway, the idea is fairly straightforward. If contemplative practices relieve stress and make people feel better, then we are more likely to exhibit empathic and compassionate behavior when we ourselves are feeling better. The converse is also true: we are less likely to help others when things are going badly for us. As a general observation about the world, it seems true that much of the harm that is done is done by people who are themselves badly off, who are threatened, fearful, and in a negative psychological state, which helps explain why contemplative practices are so often employed as a form of therapy in psychological settings. There is empirical support for the well-being pathway, in the form of a long tradition of research in social psychology that suggests experiencing positive emotions increases the odds that people will help others who are in need.<sup>36</sup> The three pathways are by no means mutually exclusive. Indeed, we might speculate that all three pathways were involved in the experiment described in the beginning of the chapter: participants' empathy may have been aroused by compassion meditation practice, but they also may have been paying closer attention to the events in their immediate environment and feeling better at the same time.

All of this supports the idea that contemplative practices necessarily have social, political, and moral dimensions. Empathy and compassion are fundamentally other-regarding qualities (though there has been some research in psychology on the construct of self-compassion). There is also the fact that contemplative practices are almost always learned and carried out in a social context. Mindfulness and meditation are supported by communities of practice, whether they are

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<sup>36</sup> Barbara Frederickson, "What Good Are Positive Emotions?" *Review of General Psychology* 2 (1998): 300–19. For a review of the literature on the connection between positive emotions and altruism, see A. Isen, "Positive Affect, Cognitive Processes, and Social Behavior," *Advances in Experimental Social Psychology* 20 (1987): 203–53.

“religious” or “secular,” which further reveals their social and political nature. Indeed, several recent theorists have even gone so far as to connect contemplative practices to democracy. Andrea Hyde and James LaPrad, for instance, point out in a forthcoming article that mindfulness is a major asset to the democratic process. Since social change often requires changing beliefs, a good way to change beliefs, they argue, is by working on the self through mindfulness and other contemplative practices.<sup>37</sup> And Robert Thurman has offered one of the most eloquent accounts of the simultaneously personal and political nature of contemplative practices. Like Hyde and LaPrad, he highlights the centrality of mindfulness to the democratic way of life. “If the liberal education so essential to a modern democratic society really wants to empower the individuals who must constantly re-create democracy, it needs to incorporate contemplative dimensions in its curriculum,” he writes. “For liberal education to fulfil its responsibility, the teaching of contemplative skills is a necessity, not a luxury.”<sup>38</sup>

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<sup>37</sup> See Andrea Hyde and James LaPrad, “Mindfulness, Democracy, and Education,” *Democracy & Education* (forthcoming).

<sup>38</sup> Robert Thurman, “Meditation and Education: India, Tibet, and Modern America,” 1767.

## Conclusion

In the preceding chapters, I have tried to construct a theoretical account of the educational value of contemplative practices in order to show that that mindfulness, meditation, and other practices benefit attention, metacognition, stress levels, and empathy, all of which are important to teaching and learning. If the account I have offered is accurate, there is justification for the use of contemplative practices as educational interventions. Although I have tried to be as objective as possible throughout the proceedings, I would like to conclude by offering some thoughts on future directions and possibilities for contemplative practices in education.

The need for more empirical research on contemplative practices in educational contexts is obvious, both at the K-12 level and in higher education. Over the past few years especially, a number of studies have yielded positive results, but more large-scale investigations are needed to further support the use of contemplative practices as an educational tool. At the same time, given that there are often methodological problems with research on mindfulness and meditation, the studies should involve a robust qualitative component, such as interviews with teachers and students, which would yield a better understanding of the subjective impact contemplative practices have on practitioners.

In order to support contemplative practices, institutions of higher education could create grants, fellowships, and other forms of support for instructors who wish to incorporate contemplative pedagogy and contemplative practices in the curriculum. Many nonprofit organizations like the Garrison Institute and the Center for Contemplative Mind and Society already do this, but in-house support from colleges and universities would serve as an important vote of confidence for contemplative practices and contemplative pedagogy. By the same token, facilitators of academic conferences should encourage cross-disciplinary research on

contemplative practices. The “Philosophy: East and West” program sponsored by Columbia University is as a good example of this sort of cross-disciplinary approach. Faculty and administrators might also consider establishing departments of contemplative studies, like the one at Brown University, in order to solidify the study of contemplation as an academic discipline. And whenever possible, courses and instructors should continue to blend the first-person and third-person approaches to contemplative practices by facilitating meditation labs and other hands-on learning opportunities, which give students the opportunity to try out and grow familiar with various forms of contemplation.

Professors and administrators should also continue to support the many existing programs that may contribute to the development of the contemplative mind in the classroom. Studying abroad, for instance, is often a formative and transformative experience for students. Colleges and universities should encourage these programs and ensure that there are opportunities to visit regions with strong contemplative traditions, like India, Thailand, Burma, and Tibet. Colleges and universities can also encourage the formation of student groups committed to contemplative practices and support them with funding for meetings, hosting speakers, and running workshops on contemplative practices for members of the school and community. And, in light of the ever-increasing pressures associated with higher education, campuses should do their part to make physical space for contemplative practices, following the example of institutions that have created mindfulness rooms, like Carnegie Mellon University and Teachers College, Columbia University.

At the level of K-12 education, there are many ways to open up space for the contemplative mind in the classroom, including using yoga as an activity in physical education classes. There is ample empirical research (and common sense) to support the idea that physical

activity has a major impact on attention and learning. Since yoga is essentially mindfulness of breathing with the added dimension of physical postures, it is a practice that combines the mental and physical, and thus seems to be a particularly good fit in K-12 institutions. Outdoor education programs, too, should be encouraged as a complement to the development of the contemplative mind. The fact that there has always been a close connection between nature and contemplation is surely no coincidence.

We should continue to support the many programs and workshops in which teachers are trained in mindfulness and other contemplative techniques and encourage teachers to make space for contemplation in their daily instruction. Schools of education and other teacher-training institutions are uniquely positioned to support contemplative practices and contemplative pedagogy, and there are many possibilities for equipping teachers with the knowledge and skills to build their classroom communities and enhance learning. And above all, in light of an educational environment that prioritizes accountability and testing over reflection and contemplation, schools should resist the impulse to suspend contemplative practices for the sake of immediate efficiency and expediency, for the difficult times—the times at which students and teachers are truly *tested*—are when they may need them the most.

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