



The Science of Love

Are there provable methods we can use to become more altruistic and compassionate? Can Buddhist compassion practices be adapted for a secular society?

BARRY BOYCE reports on the growing number of scientists and researchers who are studying how to bring out the best in human nature.

In 1961, FOLLOWING THE TRIAL of Nazi war criminal Adolf Eichmann in Jerusalem, Yale social psychologist Stanley Milgram conducted a study to find out how much pain test subjects would be willing to inflict on other people at the behest of an authority figure. He was trying to ascertain whether people could perform acts that went against their conscience merely as a result of “taking orders.” When the results were published in 1963, the Milgram Experiments became instantly famous and controversial. Advertised to would-be participants as a study of memory ability, the experiment asked them to act as “teachers” who would test the memory ability of a “learner.” When the learner offered a wrong answer, the teacher was to administer electric shocks of increasing severity, up to four hundred and fifty volts. These produced screams from the learner, whom the teacher could hear but not see. If the teacher resisted applying more shocks, the experimenter verbally prodded him to do so, issuing increasingly stern commands. In reality, there were no shocks, the cries of the learner (an actor) were taped, and the commands came from a script.

*Left: The Venice
Night, by Jim Dine*

Sixty-five percent of participants overcame their reluctance and administered the maximum voltage. Commenting on the results, Milgram concluded that when “asked to carry out actions incompatible with fundamental standards of morality, relatively few people have the resources needed to resist authority.” The experiments (which incidentally would not meet today’s standards for ethical psychological testing) looked at moral fiber and conscience in the way that most of Western psychology and neuroscience has tended to: from the point of view of dysfunction, pathology, and neurosis, with an eye perhaps to fixing what’s wrong.

Fifty years later a number of scientists and scholars are taking a new approach. They are trying to understand the nature and depth of our empathetic behavior toward other beings. A colleague of Milgram’s—the renowned social psychologist Philip Zimbardo—is updating the Milgram Experiments by using assessment tools to measure people’s empathy, compassion, and altruism, and then putting them in a situation requiring them to buck authority in order to prevent harm to others. The study will try to determine whether we can predict how readily someone is willing to act heroically. If the measurements work, they can be used to assess the effectiveness of training people to cultivate compassion. That’s one of the main interests of the new group funding the study: the Center for Compassion and Altruism Research and Education at Stanford University, known as CCARE.

WHERE DOES ALTRUISM reside? Can it be cultivated? And if so, what kind of training could work to make us more compassionate? In a world with so much violence and suffering these are not trivial questions, and the search for their answers has inspired the creation of a new academic field, one that looks at behavior not so much from the perspective of the dark side of human nature—our proven ability to inflict harm on each other—but from the perspective of our capability for compassion and altruism.

At the University of Wisconsin, as part of his ongoing study of meditation adepts, Richie Davidson has been studying a group of Tibetan monks to see what effects their compassion meditation practice has on their brains, as measured by functional magnetic resonance imaging (fMRI). Researchers at Emory University in Atlanta have studied the effects of compassion meditation on the body’s systemic responses to psychosocial stress. Kristin Neff has established the Self-Compassion Research Lab at the University of Texas to investigate both the effects of self-compassion and possible methods for training people, mainly schoolchildren, in self-compassion. Dacher Keltner, author of *Born to Be Good: The Science of a Meaningful Life*, researches “pro-social behavior” and directs the Greater Good Science Center at the University of California at Berkeley, whose aim is to report on groundbreaking



James Doty MD, founder of CCARE

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scientific research into the roots of compassion and altruism and share inspiring stories of compassion in action on their website, peacecenter.berkeley.edu/greatergood/.

CCARE (pronounced “see care”) is the capstone in this emerging field. It’s a multidisciplinary effort that brings together the work of psychologists, neuroscientists, physicians, religious scholars, and a variety of other scientists and researchers to study compassion rigorously. According to its founding documents, CCARE is a collaboration between scientists, who use objective measures to study brain and behavior, and practitioners of meditation, who “study the mind using first-person subjective observation, as in the Buddhist and other contemplative traditions.” The center intends to fund not only scientific research “into the neural, mental, and social basis of compassion and altruistic behavior,” but also explorations of “testable cognitive and affective training exercises through which individuals and societies can learn to employ these complex behaviors.”

CCARE emerged following a dialogue at Stanford in October



2005 between scientists and the Dalai Lama that focused on depression, addiction, and other sources of human suffering. One of the attendees, James Doty, a Stanford neurosurgeon, entrepreneur, and philanthropist, was so inspired by the dialogue that he soon proposed—and provided the seed money for—a center to study and promote compassion. When he and others informed the Dalai Lama of the idea, he not only endorsed it, he made the largest personal donation he has ever given to scientific research. Soon, two Silicon Valley philanthropists, Chade-Meng Tan of Google and Wayne Wu, chairman of Accuray, provided substantial funding to help launch the center.

JAMES DOTY FEELS he came by his interest in compassion and altruism as a result of difficulties he faced in his early life. His family lived on public assistance. His father was an alcoholic and his mother disabled. His life, he says, exposed him to “the underbelly of life, to the suffering of people in hospitals, prisons, and on the street, and to the ways that people can treat each other.” It also bred in him an interest in examining “what drivers cause people to act compassionately toward others.”

When Doty became successful and prosperous—not only as a surgeon but as an inventor and entrepreneur—he became an enthusiastic donor. At one point, having amassed a \$75-million fortune, Doty decided to go into semi-retirement and do neurosurgery in third world countries for three months of the year. He also made substantial pledges to Stanford and a variety of charities, only to see his fortune evaporate in the dot-com meltdown. To honor his existing commitments, he liquidated his only remaining asset, stock in the medical technology company Ac-

“The Heart Machine” by Jim Dine, painted bronze.



some \$25 million in charitable pledges he had made when he was a much wealthier man. He saw to it that a portion of the money was directed to found CCARE.

“Buddhist contemplative practices are quite evolved and there is an extensive technical language, a taxonomy, surrounding them,” Doty says. “Yet I agree with His Holiness that ethics and compassion are universal. They can occur without the foundation of a specific religion, and for them to be embraced by a larger group of people they must not be tied to any faith.” The kinds of practices Doty describes generally fall under what’s known in Tibetan Buddhism as *lojong* (literally “mind training”) and in Theravada Buddhism as *metta* (loving-kindness). They employ various kinds of thought exercises to increase openness, empathy, and willingness to help others. In one such practice, known as *tonglen* (“sending and taking”), you visualize taking in others’ pain with your in-breath and sending out relief with the out-breath. Doty points out that other traditions, including Catholicism, also contain contemplative practices that cultivate the heart.

When he first floated his idea, Doty encountered resistance from many faculty members, who feared a religious agenda might be masquerading as science, but he now feels that CCARE’s commitment to rigor and secularism has been amply demonstrated and most of the resistance has fallen away.

Doty and his colleagues look to the exercise movement as a model. Google’s Meng points to the Harvard Fatigue Laboratory, started in 1927. “Their pioneering work in creating the field of exercise physiology,” he says, “changed the world.” It has led, he notes, to a world where gyms are filled with people whose doctors have suggested exercises scientifically proven to improve health.

“If we could come up with a set of mental practices and show that these improve personal and communal well-being,” Doty says, “it could become the basis for a huge pro-social movement.” Doty postulates that many prisoners end up in a penitentiary because of an insufficiently nurturing environment in their early lives. He argues that teaching compassion practices to prisoners would



Thupten Jinpa

reduce recidivism by getting to the core of their criminality. He and others have also been looking at large corporations in Silicon Valley that have self-insured health plans. “One of the prime expenditures,” he says, “is for mind–body disconnect issues, including depression, anxiety, stress, back pain, and neck pain. Many of these can be traced to a lack of caring—of self-compassion—and they spur a lack of caring and attention to the needs of others, such as children, family, colleagues, and community. If we demonstrate the cost of a lack of compassion, organizations will pay attention. Further than that, wouldn’t it be helpful to know why some children become bullies; whether parents can be taught to be more compassionate; how clergy, chaplains, and others in helping professions could use exercises to overcome compassion fatigue; whether everyday people can attain levels of compassion observed mainly in monks?”

If CCARE is to succeed in bridging—and even transcending—the divide between Eastern spiritual practice and Western science and scholarship, it needs people with a firm grasp of both. So one of the first people recruited to be part of the CCARE team was Thupten Jinpa, who, among his many other roles and accomplishments, is the Dalai Lama’s principal English translator. In addition to his Tibetan monastic scholarly training, Jinpa

holds a bachelor’s degree in philosophy and a doctorate in religious studies, both from Cambridge University. He moves easily from Buddhist perspectives to Western perspectives and back again, with no sense of holding one or the other viewpoint as dominant. “Western science and Buddhism both have meticulous understandings of the human mind, but so far Western investigations of the mind have focused mainly on pathologies,” Jinpa told me. “There has been little focus on the more constructive and positive qualities of the human mind, and very little research into how people can be trained to cultivate those.”

Jinpa feels that the imprimatur of a university as respected for rigor and innovation as Stanford is helping to legitimize an area of research that would have been stigmatized even a decade ago. Studying the effects of mindfulness has become almost mainstream, but

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compassion has been regarded as too fuzzy. The Dalai Lama's universal appeal and his engagement in the Mind and Life dialogues have helped bring many skeptical scientists and scholars around to thinking that compassion and altruism are not only worthy but vital areas of study. In offering his donation to CCARE, Jinpa says, "His Holiness asked for only two things: make sure the science is impeccable, and make sure all the work is universal and secular."

Jinpa developed the compassion-cultivation training protocol—essentially an eight-week course—that is being used and tested in a pilot program at Google and in other contexts. It is one of the core tools that will likely emerge from CCARE's work and speaks to the "education" aspect of the center's mandate. The course is taught only by instructors who combine academic understanding and "intimate familiarity with the contemplative practices associated with cultivating compassion." As currently structured, the course consists of a two-hour session once a week that includes lecture and discussion; guided group meditation; interactive exercises; and what Jinpa refers to as activities to "moisten" the heart, such as poetry or reflecting on inspiring stories. The course takes a stepwise approach to developing compassion, beginning with settling and focusing the mind, and proceeding through cultivating feelings for loved ones, oneself, others, and, ultimately, all beings. Daily practice suggestions and encouragement are offered throughout, and the final week is dedicated to preparing participants to undertake a daily compassion practice. It is striking how masterfully this curriculum presents traditional Buddhist practices in a completely secular way and integrates them with contemporary Western approaches.

Birgit Koopman-Holm, a doctoral candidate who came to Stanford from Germany to study with prominent psychologist Jeanne Tsai, has used Jinpa's protocol in a CCARE study Tsai is leading that compares the effects of mindfulness meditation with compassion meditation. Koopman-Holm said that preliminary study results indicate that while mindfulness practice does not



Birgit Koopman-Holm

seem to perceptibly increase compassionate behavior, practices specifically intended to cultivate compassion do so. "We operationalized compassion," she says, "by first having subjects read a letter from a prisoner serving a life sentence and comment on it." The letter presented a detailed mix of positive accounts (he was painting and learning to enjoy music) and negative accounts (he talked about his anger and regret). Once the participants had been queried, they were told the study was effectively over, but if they wished to write the prisoner, they could do so. "With their permission, we reviewed these letters, and coded them as to their length, expressions of encouragement, empathetic statements, and various other variables. More of the people who were randomly assigned to the compassion class wrote letters, and they were longer and displayed more acceptance, encouragement, and empathy."



Joel Finkelstein

Like Tsai, Koopman-Holm specializes in how culture can shape our emotional life. She regards compassion meditation as a Buddhist cultural practice, but concludes that deep methods that evolved in one culture may well be applied effectively in other cultures. "Our research gives me some hope that these practices could work just as well with people of many different cultures."

CCARE HAS MORE THAN half a dozen research projects in various stages of completion. In addition to the work at Google and the Tsai and Zimbardo projects, the research agenda includes a comparison of the neural activity of compassion meditation adepts with that of novices; an investigation in the new field of neuroeconomics to determine the effect of charitable giving on its recipients; a clinical trial examining the effects of compassion-cultivation training on the empathetic engagement (bedside manner) of medical students; and a study in mice to try to determine the neural networks in the mammalian brain that underlie social compassion and nurturing.

James Doty's enthusiasm for this work is infectious, and it has clearly infected Joel Finkelstein, a soon-to-be neuroscience

➤ page 96

CCARE

continued from page 49

graduate student recruited to be CCARE's program director and Doty's go-to guy. If you have an hour or so and you can catch him, Finkelstein will share with you the activities the center is sponsoring with the bubblyness generally reserved for summer camp counselors, while describing CCARE's varied research efforts with the precision of a well-tuned academic mind.

Finkelstein is particularly excited about the development of a for-credit meditation course using the Jinpa protocol. The course would be open to any interested undergraduate at Stanford, and he thinks there would be lots of interest, given that two recent lectures sponsored by CCARE attracted packed houses. In October, Matthieu Ricard—a longtime monk who has been one of the subjects in fMRI studies of the effects of lifelong meditation practice—discussed the roots of altruism, a topic that plays an important role in his book *Happiness: A Guide to Developing Life's Most Important Skill*.

And in January, Philip Zimbardo delivered the inaugural lecture of CCARE's Meng-Wu Lecture Series. (Upcoming speakers include renowned emotion-researcher Paul Ekman and theologian Karen Armstrong, who is spearheading the multi-faith Charter for Compassion campaign). Zimbardo designed the celebrated Stanford Prison Experiment, which pitted students identified as guards against students identified as prisoners in a mock prison in the basement of the Stanford psychology building. The experiment had to be stopped after just six days, when the jailers' cruelty reached levels that shocked and disturbed participants and researchers alike. (The experiment attracted recent interest in the wake of the Abu Ghraib scandal.) Zimbardo, who sits on CCARE's board, discussed how his research focuses on the causes of heroism and whistle-blowing, in his view a form of altruism.

These lectures, along with conferences and symposia sponsored by CCARE, help build the networks and thought partnerships that can get a new academic disci-

pline off the ground. CCARE's first conference, in March 2009, invited scholars from psychology, neuroscience, philosophy, religion, and economics to discuss how each discipline presents its own perspective on the meaning of compassion, altruism, and empathy. The aim is to help scholars from diverse disciplines effectively discuss compassion-related topics among themselves and develop findings that more readily complement and integrate with each other—the essence of interdisciplinary work.

CCARE's second conference, the Conference for the Language of Mental Life, to be held this July in Telluride, Colorado, will consider the way Western psychology talks about the mind and mental events in the light of descriptions in the Pali, Sanskrit, and Tibetan Buddhist canons. One of the participants will be Philippe Goldin, a clinical psychologist and neuroscientist who also trained in Buddhist monasteries in Nepal and leads the CCARE research on compassion in medical professionals. Goldin points out that, "There are many Buddhist texts but little research, in the way Western science would use the term. Also, the texts might offer gradations of experiences such as the four *brahmaviharas* [usually rendered as loving-kindness, compassion, sympathetic joy, and equanimity], but they are described in words we're not clear about, even after we translate them into English." As an example, Goldin, who knows both Sanskrit and Tibetan, mentions the Tibetan word that is generally translated as equanimity, noting that the average person, when told to develop equanimity, would likely ask what "equanimity" specifically means. Furthermore, a term used in science must be not only precise but demonstrable through observation or experimentation. It can't be merely descriptive; it must be "operational." The Telluride conference will start a dialogue about key words that indicate mental states and qualities. The result will be a published lexicon that will help shape how researchers talk about key terms.

The crowning event for CCARE this year, Finkelstein says, will be an October state-of-the-field conference at Stanford

that will update the cutting edge research on compassion in all the various disciplines CCARE is interested in. It will be followed by a public event with the Dalai Lama, who has expressed strong interest in keeping abreast of CCARE's progress in creating usable definitions for compassion-related terminology and a methodology for measuring results.

MEASURABLE RESULTS are key because many sectors of our society—schools, corporations, and healthcare organizations, to name just a few—demand research-based proof of the efficacy of any training before they will incorporate it in their institutions. And large public institutions will generally only accept training methodologies that have a secular rationale and can be carried out using secular language and methods. Religious devotion and ritual cannot form the basis of a public school program, for example. Philippe Goldin feels this is one of the great contributions CCARE can make. "People are very hungry for evidence. The Dalai Lama himself told us to 'measure, measure, measure.' If we can show other research institutions and other sectors of society that this work is legitimate and helpful, that will be a big contribution."

Goldin points out that traditionally there haven't been many objective tests for compassion, but he firmly believes that altruism and compassion can be tested. "We can test resilience, attention, emotion regulation skills, whether people can stay clear under pressure. We can see heart rates, skin conductance, whether the quality of someone's voice or language changes. We can see whether they're able to recognize their own emotions in the moment, and modulate those.

"It would be good to do a study like that, and it would be good to provide an interpersonal challenge, like someone rubbing you the wrong way. The Indian sage Atisha, who brought lojong meditation to Tibet, also brought along an obnoxious Bengali cook to teach him patience. Well, let's give everybody an obnoxious cook and see how cool or not cool they are. That would test compassion." ♦