NEUROSCIENCE

Neuroscientists Welcome Dalai Lama With Mostly Open Arms

A controversy over the Society for Neuroscience's (SfN's) decision to invite the Dalai Lama to its annual meeting faded last week when the Buddhist leader charmed an estimated audience of 14,000 in Washington, D.C., with a talk presenting meditative practice as an empirical way to investigate the mind and emphasizing his preference for scientific inquiry over religious dogma. His remarks were followed later in the meeting by a number of research presentations addressing whether meditation can alter brain physiology and offer health benefits.

More than 500 researchers, including many SfN members, had signed an online petition opposing the Dalai Lama invitation, arguing that it would blur the distinction between science and religion. And the furor took on a political element when neuroscientists supporting his invitation argued that the petition organizers were largely of Chinese ancestry and were trying to stifle recognition of Tibet's spiritual leader.

Open mind. Before reporters besieged him, the Dalai Lama told neuroscientists that they and meditators may have a lot to learn from each other.

But the only acts of protest at the meeting were the withdrawal of six posters from among thousands of submissions and a graduate student holding a sign that read "Dalai Lama not qualified to speak here," said SfN officials. The Dalai Lama's talk was the first in a series called Dialogues between Neuroscience and Society that SfN hopes will stimulate researchers to think more deeply about their roles in the larger world. "We thought he could draw our attention to the question of how compassionate behaviors can be developed," says SfN president Carol Barnes. (Celebrity architect Frank Gehry will be the speaker in the series next year.)

Calling for greater interaction between neuroscience and contemplative traditions, the Dalai Lama urged researchers to work toward human happiness by finding ways to reduce negative emotions and enhance positive ones. Judging from the laughter and applause that greeted some of his remarks, the talk itself seemed to have triggered a wave of good feeling. But some neuroscientists in the audience said the lecture didn't provide them with insights that could be useful to their field.

The Dalai Lama's presence did shine a spotlight on meditation research, which some scientists view as controversial because meditation is an integral part of many religions. Others see problems in the varying definitions of meditation and in the fact that scientists must rely on a meditator's claim of a subjective experience.

Nonetheless, Sara Lazar, a psychologist at Harvard Medical School in Boston, reported that she and her colleagues had found differences in brain structure between meditators and nonmeditators. Using magnetic resonance imaging scans, Lazar's group discovered that areas of the cortex associated with attention and sensory processing were thicker in subjects who had been practicing meditation for many years than in subjects with no meditation experience. "The differences in thickness were most pronounced in older subjects, suggesting that regular practice of meditation might reduce normal age-related thinning of the brain," Lazar says. This could, in theory, stem some of the cognitive decline typically seen with aging, she suggests.

In another study, Richard Davidson and his colleagues at the University of Wisconsin, Madison, examined the brain activity of six long-term practitioners of a type of meditation in which individuals attempt to generate compassion and kindness toward all by focusing their attention on an image or on their breathing. As they meditated, the subjects rated the intensity of their effort using a scaling arrow on a computer screen while the researchers recorded so-called gamma band rhythms in the subjects' brains using an electroencephalogram. The researchers found that the intensity of these impulses, which are associated with activities such as attention and learning, increased in correlation with the increase in intensity of the meditation effort. Davidson says the results show the possibility of tracking the activity of meditation through external means.

Experienced meditators such as the ones who participated in Davidson's study could help revive a tradition of introspective psychology, says neurologist Vilayanur Ramachandran of the University of California, San Diego. By asking them to describe internal experiences while meditating, it may be possible to figure out "fundamental laws of emotions, if there are any," he says. "As long as such studies are rigorous and subject to cross-subject verification, I don't see a problem."

Brian Knutson, a cognitive psychologist at Stanford University in Palo Alto, California, says the mental skills conferred by long-term practice of meditation could be invaluable in teasing out the neural mechanisms that underlie phenomena such as visual perception. "Some meditators claim to have the ability to slow down their cognitive processes," he says. "If that's true, one could in theory ask the subject to pinpoint different stages in the deconstruction and reconstruction of information that takes place during visual processing and discover the neural correlates for each of those steps."

Although receptive to using meditation as a scientific tool, some researchers questioned whether the Dalai Lama's talk added much on that issue. "He made some nice jokes," says Oliver Bosch, an empathy researcher at the University of Regensburg, Germany, referring to a remark by the monk that if researchers came up with a surgical technique to eliminate jealousy and hatred from the human mind, he'd be the first to sign up for it. "But he didn't offer any new ideas."

What the Dalai Lama may have offered is a plug for more funding for neuroscience. Humans spend "billions of dollars" exploring external space, he said, but not enough on probing their "inner space, where there are still a lot of things to explore." Few among the more than 33,000 people attending the SfN meeting would find that sentiment controversial.

–YUDHIJIT BHATTACHARJEE

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