The Dalai Lama on Quantum Physics and Spirituality
Excerpt from Exploring Your Mind, June 13, 2019


Historically, science and spirituality have tended to butt heads. These days, however, more and more researchers are looking at the common threads that tie the two disciplines together.

The Dalai Lama believes that the connection between quantum physics and spirituality is obvious. According to the world-renowned spiritual guide and teacher, all of the atoms in your body include part of the ancient canvas that used to make up the universe. You’re stardust, connected biologically to all living creatures. You’re made of invisible, humming energy, connected all at once to everything that exists.

Science and spirituality haven’t always co-existed harmoniously. In the Middle Ages and the Enlightenment, it was very dangerous to be a scientist or talk about scientific principles. Society at the time was dominated by the Church, and anything else was heresy (one example is the sad story of Giordano Bruno). These days, the scientific world criticizes spiritual ideas and theories.

To claim that these two traditionally opposing worlds are suddenly in harmony would be an overstatement. However, now there are proposals that link these two ideas in new ways that invite you to reflect. Buddhist philosophy, for example, provides a framework for exploring a fascinating and complex area of science: quantum physics.

The Dalai Lama

The first time anyone brought these two concepts together was in 2015 in New Delhi. The Dalai Lama went to a two-day conference about quantum physics and Madhyamaka philosophy where a group of physicists and scientists from diverse fields looked for commonalities between different subjects. They believed that finding these commonalities would further enrich human knowledge.

“When I was about 19 or 20, I developed a curiosity about science that had begun with an interest in mechanical things and how they worked. In China, in 1954/5, I met Mao Zedong several times. Once he commended me for having a scientific mind, adding that religion was poison, perhaps presuming that this would appeal to someone who was ‘scientific minded’.

Thirty years ago, I began a series of dialogues focusing on cosmology, neurobiology, physics, including quantum physics, and psychology. These discussions have been largely of mutual benefit. Scientists have learned more about the mind and emotions, while we have gained a subtler explanation of the matter.”

-Dalai Lama-
Religious And Values-based Diversity

On Being a Scientist: Responsible Conduct in Research, Second Edition
Excerpt from National Academy of Sciences, 1995

Source: https://www.nap.edu/read/4917/chapter/5

Chapter: Values in Science

Scientists bring more than just a toolbox of techniques to their work. Scientists must also make complex decisions about the interpretation of data, about which problems to pursue, and about when to conclude an experiment. They have to decide the best ways to work with others and exchange information. Taken together, these matters of judgment contribute greatly to the craft of science, and the character of a person's individual decisions helps determine that person's scientific style (as well as, on occasion, the impact of that person's work)...

...When judgment is recognized as a scientific tool, it is easier to see how science can be influenced by values. Consider, for example, the way people judge between competing hypotheses. In a given area of science, several different explanations may account for the available facts equally well, with each suggesting an alternative route for further research. How do researchers pick among them?

Scientists and philosophers have proposed several criteria by which promising scientific hypotheses can be distinguished from less fruitful ones. Hypotheses should be internally consistent so that they do not generate contradictory conclusions. Their ability to provide accurate experimental predictions, sometimes in areas far removed from the original domain of the hypothesis, is viewed with great favor. With disciplines in which experimentation is less straightforward, such as geology, astronomy, or many of the social sciences, good hypotheses should be able to unify disparate observations. Also highly prized are simplicity and its more refined cousin, elegance.

Other kinds of values also come into play in science. Historians, sociologists, and other students of science have shown that social and personal beliefs—including philosophical, thematic, religious, cultural, political, and economic beliefs—can shape scientific judgment in fundamental ways. For example, Einstein's rejection of quantum mechanics as an irreducible description of nature—summarized in his insistence that “God does not play dice”—seems to have been based largely on an aesthetic conviction that the physical universe could not contain such an inherent component of randomness. The nineteenth-century geologist Charles Lyell, who championed the idea that geological change occurs incrementally rather than catastrophically, may have been influenced as much by his religious views as by his geological observations. He favored the notion of a God who is an unmoved mover and does not intervene in His creation. Such a God, thought Lyell, would produce a world in which the same causes and effects keep cycling eternally, producing a uniform geological history.

Does holding such values harm a person's science? In some cases the answer has to be “yes.” The history of science offers a number of episodes in which social or personal beliefs distorted the work of researchers. The field of eugenics used the techniques of science to try to demonstrate the inferiority of certain races. The ideological rejection of Mendelian genetics in the Soviet Union beginning in the 1930s crippled Soviet biology for decades.

Despite such cautionary episodes, it is clear that values cannot—and should not—be separated from science. The desire to do good work is a human value. So is the conviction that standards of honesty and objectivity need to be maintained. The belief that the universe is simple and coherent has led to great advances in science. If researchers did not believe that the world can be described in terms of a relatively small number of fundamental principles, science would amount to no more than orga
Teaching Ethics Should Be a STEM Essential
Excerpt from MiddleWeb by ANNE JOLLY, 10/11/2015

Source: https://www.middleweb.com/25600/teaching-ethics-should-be-a-stem-essential/

“We've been screaming about this since February [2014] and people, they've just blocked us out," exclaimed an exasperated Melissa Mays, a resident of Flint, Michigan.

Mays was referencing a dangerous water pollution crisis in Flint, Michigan where some children are experiencing elevated levels of lead in their blood and the lead levels in some drinking water samples are so high they are defined as hazardous waste. The lead-laced water appeared after city officials decided to end a water supply contract with Detroit as a cost-saving measure and take water from the Flint River instead.

Lead poisoning in children causes developmental and behavioral problems, and, according to the Detroit Free Press, it has taken 16 months for Flint officials to take action. In at least three Flint elementary schools children have been drinking lead-contaminated water during those 16 months as have residents of homes throughout Flint.

The Detroit Free Press describes this as a clear example of a trade-off: downgrading some services to save money vs. the risk of increasing health problems among the population. These are among the types of decisions that our students will one day confront as STEM professionals or in other capacities...

...Our students will deal with decisions involving food shortages, housing shortages, cloning, adapting to climate change, drones, availability and affordability of medicines, data chip implants, genetic testing, and hundreds more. Are they prepared to make those decisions ethically?

The shortfall in STEM ethics emphasis

A child's earliest exposure to morals, values, and ethics happens in the family – where character first finds its roots. Exposure to culture and learning during the school years further shapes the child's ethical outlook.

Jackie Gerstein in her post Teaching Ethics in the Age of Technology writes that teaching ethics in STEM fields is overdue. She explains,

“Ethical decision-making should be included as a 21st century skill... we are living in the most complex era of human history.”

Gerstein goes on to point out that students have access to copious, often conflicting information. Technologies are emerging, being developed, advancing, and being disseminated at rates that the human mind often cannot comprehend.

Ethics studies can help students develop critical thinking skills; explore and evaluate real problems; make wise choices concerning technologies; and develop knowledge, skills, and judgement that they can use in their personal lives as well as in the workforce.

Our ability to create, invent, and innovate has begun to outstrip our ability to manage those technologies appropriately. And in this rapidly changing century, a STEM workforce unprepared to make ethical decisions could have devastating effects.
Humanity is in a state of debit. Year after year, it consumes more resources than nature can provide. This over-consumption has a direct effect on the climate. To better understand the issues at stake, the Belgian philosopher and biologist Bernard Feltz sheds light on the complex relationships between humans and nature and then focuses on the ethical aspects of climate change management.

A major challenge for our time, climate change concerns both our daily lives and the world geopolitical order. It is one of the dimensions of a global ecological crisis, a direct consequence of the complex interactions between humans and nature. These relationships can be divided into four main approaches.

The first, that of Descartes, considers nature to be a set of objects made available to human beings. The seventeenth-century philosopher – a contemporary of Galileo and considered a great initiator of modernity – advocated establishing life sciences that were similar to the emerging physical sciences. He defends the idea of an “animal machine”. Living things are nothing more than inert matter organized in a complex way. Only the human being has a substantial soul distinct from the body, making it the only respectable species. The rest of nature, living or inert, is part of the world of objects at humanity’s disposal. Descartes has no regard for the environment, which he views in a utilitarian way, and considers an infinite resource that humans can draw upon without any qualms. We can see to what extent such assumptions have led to the shameless exploitation of nature in all its forms: agriculture, fishing, intensive livestock farming, mineral depletion, pollution of all kinds.

Ecological science is another approach, which conveys a completely different vision of the world. In 1937, the British botanist, Arthur George Tansley, proposed the concept of the ecosystem that would revolutionize the scientific relationship with nature. This concept refers to all the interactions of the various living species among themselves, and of all living organisms with the physical environment: soil, air, climate, etc. In this context, man rediscovers himself as belonging to nature, as an element of the ecosystem. Moreover, this ecosystem is a finite environment, with limited resources, both upstream and downstream of human activities.

But many thinkers consider that the ecological science approach is insufficient. Deep ecologists, for example, believe that the core of the problem in the scientific approach, including the ecological one, is anthropocentrism. They advocate a philosophy of the totality that integrates humans with living organisms as a whole, without granting them any particular status. Respect for animals is the same as respect for humans.

A final understanding of human-nature relations attempts to keep a fair distance from the radicality of deep ecologists, while emphasizing the relevance of the criticism of ecological science. Nature and humans coexist and interpenetrate in a more respecting way of living. An animal can be respected for itself, without being given the same status as a human being.

A Belgian biologist and philosopher, Bernard Feltz is Professor Emeritus at the Catholic University of Louvain. His research focuses on the philosophy of ecology, bioethical issues and science-society relations. He is currently Belgium’s representative on UNESCO’s Intergovernmental Bioethics Committee (IGBC).