

TRIBUNA

## Science: a tool for peacebuilding

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Today, in an unequal world with extreme needs, science has become indispensable in the work for peace and for everything needed to care for all people, present and future. Because, as economist Herman Daly says, what we need now is a radical ethical and ecological approach, which leads us to a great challenge: this century, if we want to survive as a species, we will have to make strong growth in the level of global human development compatible with a reduction of resources in rich countries. It is not an easy task, but it is what any ecological balance approach entails. Fortunately, science and technology provide us, and can continue to provide us, with resources to eradicate hunger and poverty, improve healthcare, end energy injustice and achieve the rest of the UN sustainable development goals. Tools to improve water use efficiency, distributed green energy systems, new means to tackle diseases and solutions for many other problems. Of course it can be argued that science is behind all the great advances in weapons and other war supplies, but the fact is that many tools derived from science and technology are dual use. Drones, for example, can save lives in mountain rescues and also kill people from a distance. We have learned to make wonderful tools, but we alone are responsible for their use. We have, and will continue to have, very powerful tools to build peace; we just need to decide to use them in the pursuit of goals that are ethical, that promote peace and care for people, and not for destruction. Because only we are responsible for these tools.

Science allows us to invent systems that place people at the center of our objectives, but the scientific attitude to life can also be a very powerful tool for peacebuilding. This is what I would like to comment on in the following paragraphs, by sharing a few personal thoughts on these issues.

A year and a half ago, surgeon and writer Atul Gawande began his commencement address at the California Institute of Technology by telling graduates that “if this place has done its job, you’re all scientists now.” He was speaking to a heterogeneous group of technologists, historians, philologists and graduates in various humanistic careers. To everyone’s surprise, he explained that science is not a career, but a commitment to a systematic way of thinking, an allegiance to a way of explaining the universe through testing and factual observation.

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First of all, science is a vaccine against vanity. It makes us aware that everything, including ourselves, is limited, and it tells us that infinite yearning is a myth. Experiments and measurement and quantification constantly remind us about the limits. Einstein said that humans are nothing more than beings limited in space and time, and the philosopher Javier Gomá explains that the acceptance of the consubstantial limitation to our finitude is what makes us predisposed to take on the ethical and civic limits that end up modeling our self vis-à-vis others. Because a large part of violence and wars is based on approaches that speak of power, greed, and an illusory absence of limits, while the awareness of the limitation itself is incompatible with the desire to accumulate, through violence and the waging of war. We are part of nature and we know that nature and the Earth are limited. Science helps us understand that we must limit our instinctive desire for power and that we must care for this great limited ecosystem that includes all the people in the world. And these limits and constraints that we discover with science can help us build peace.

Secondly, the scientific attitude involves questioning all truths and dogmas and accepting only objective facts as evidence. A good scientist doubts what even he or she proposes. The critical thinking of science is a good detector and destroyer of parallel and alternative truths and of the danger of myths that the physicist Carlo Rovelli outlines in his “seven brief lessons of physics.” In doubting everything, science is very similar to philosophy and, although they use different methods, both try to turn assertions around. Given an assertion like “terrorism is scary and we must therefore protect ourselves,” perhaps what is true is that [we believe] we have to defend ourselves [to maintain our level of wealth] and this ends up promoting terrorism that scares us. Science helps us demonstrate that the second assertion involves a cause-effect relationship, not the first one, and thus helps demystify the phenomenon of fear. Because science is a shield against fallacies, self-interested lies, and false “truths,” and a way to uncover the interests that these hide - interests that often promote violence and want to move us away from peace.

**“ Science is a shield against falsehoods, self-interested lies and false “truths” ”**

Thirdly, scientific ethics, with a global and inclusive vision based on the evidence that all humans are limited and ephemeral biological aggregates that are part of nature, explains that the goals always come before the tools and that everyone has the same rights and the same dignity. Science is universal and egalitarian. I have seen groups of scientists from countries in conflict collaborating on research projects and publishing the results in an open and accessible way for everyone. That is why, from the perspective of biological equality and equal rights for all people, the scientific attitude distrusts solutions aimed at a few and always asks for what and for whom the proposed solutions are. Are they to solve (current and future) global human needs or to favor hidden interests that result in major benefits for just a handful of people? Are they tools for power and accumulation or tools for global justice and peace?

Finally, we know that science can help us decide more objectively, based on evidence, data and probability. What is the probability that what we read in the newspaper or find on the Internet and on social networking sites is false? What is the probability that what we hear in commercial ads is true? What is the probability that what we hear on a particular TV channel is a supposedly alternative truth? What is the probability that I will be the victim of a terrorist attack this year and what is the probability that I will suffer an accident or a heart attack? Science can provide us with quantified answers to all these questions. But, even if we do not have time to make an accurate estimate, the scientific attitude involves asking questions, thinking about what the answers and probabilities might be, searching for evidence (for example, contrasting with other sources and especially ensuring their reliability), and, finally, making a decision, which will then surely be based on ethical and peace principles.

**“ The scientific attitude involves asking questions, seeking evidence and making a decision based on ethical and peace principles ”**

Of course science is not the only discipline that offers us resources to constantly separate what is real from the myths and fallacies we are told, to detect what can be harmful to many people and to future generations, and, ultimately, to build peace. There are many creative disciplines that help to think critically, such as philosophy, literature, art and others. Everything is complementary and everything helps. In fact, philosopher Emilio Lledó explains the evolution of the idea of well-being for the Greeks and shows how they went from a concept based on “well-having” (having power, objects, slaves) to that of “well-being,” based on values such as balance, wisdom and joy. This road to well-being is the gateway to the world of ethics based on the dignity of all people, which we have been searching for for over two thousand years. But science is a very important factor on this road to peace because it also provides us with effective tools to access energy and water, to cure diseases, to feed everyone and much more. As the painter Antonio López once said: “Things are going to get serious. We should listen more to

scientists than to bankers. So it must be for the sake of everyone.”

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