



Message from the NSTF Executive Director

Science for peace and collaboration

“Intellectuals are more than their national identity.”

“Science is the search for truth, that is the effort to understand the world.”

“Since wars begin in the minds of men and women, it is in the minds of men and women that peace must be built.”

Recently, on 8 July 2022, Tshwane was announced as the Science Diplomacy Capital of Africa. The initiative was led by the Department of Science and Innovation (DSI), the Council for Scientific and Industrial Research (CSIR) and the City of Tshwane. It was, at heart, an affirmation of the government and the DSI’s commitment to diplomacy and cross-border collaborations in science and technology. It will not be too hard for all research and academic institutions in South Africa to commit themselves to these principles. However, for civil society, and the individuals therein, there is the freedom to decide with whom and in which countries, they want to communicate and collaborate.

This article is about the natures of science, diplomacy, war, peace and civil society.

Science and war

“Science is the search for truth, that is the effort to understand the world: it involves the rejection of bias, of dogma, of revelation, but not the rejection of morality.”

So said Dr [Linus Pauling](#), the recipient of the Nobel Prize in Chemistry in 1954 and the Nobel Peace Prize in 1962. *“The atom bombs dropped on Hiroshima and Nagasaki were a turning point in Linus Pauling’s life. Together with other scientists he spoke and wrote against the nuclear arms race, and he was a driving force in the Pugwash movement. It sought to reduce the role of nuclear arms in international politics and was awarded the Peace Prize in 1995. ... He was one of the prime movers who urged the nuclear powers, the USA, the Soviet Union and Great Britain to conclude a nuclear test ban treaty, which entered into force on 10 October 1963.”* ([Linus Pauling - Facts \(nobelprize.org\)](#))

Pauling understood that the applications of science and technology risk being void of morality, no matter what the science or technology is actually about. Science and technology are fundamental to conducting war, yet war disregards morality.

UNESCO: creating a culture of peace

The United Nations Educational, Scientific and Cultural Organization (UNESCO) mentions on its website: *Diplomacy is in the interest of peace*; and that the best in our shared humanity should be brought out. Furthermore, *“Since wars begin in the minds of men and women, it is in the minds of men and women that peace must be built.”*

UNESCO uses education, science and culture to inform, inspire and engage people everywhere to foster understanding and respect for each other and our planet.

As early as 1942, in wartime, the governments of the European countries, which were confronting Nazi Germany and its allies, met in the United Kingdom for the Conference of Allied Ministers of

Education (CAME). World War II was far from over, yet those countries were looking for ways and means to rebuild their education systems once peace was restored. The project quickly gained momentum and soon acquired a universal character. New governments, including that of the United States, decided to join in.

Scarcely had the war ended when the conference opened. It gathered together representatives of forty-four countries who decided to create an organization that would embody a genuine culture of peace. In their eyes, the new organization was to establish the “intellectual and moral solidarity of mankind” and thereby prevent the outbreak of another world war.

Thus science diplomacy for peace was created. Through collaborations in science, education and culture, the environment and basis for peace would be established. It is my opinion that UNESCO has succeeded in doing so. However, when fanatics are determined to wage war, it is hard and sometimes impossible to stop them despite people’s best efforts to promote peace.

Albert Luthuli’s words, when he accepted the Nobel Prize in 1961, is quoted in the flyer for the launch of Science Diplomacy Capital (Pretoria) on 8 July 2022:

“Scientific inventions, at all conceivable levels should enrich human life, not threaten existence. Science should be the greatest ally, not the worst enemy of mankind. Only so can the world, not only respond to the worthy efforts of the Nobel, but also ensure itself against self-destruction.”

Discrimination, xenophobia and the nature of war

It is deeply ingrained in human beings, as it is in animals, that one’s group must be defended and compete for resources with other groups. That is enabled by people being categorised according to groups, and in tense situations, to simplify the groups as ‘us’ and ‘them’. Some of us remember all too well how the white people of South Africa banded together to oppress the black population under Apartheid. This despite both groups being highly varied, consisting of subgroups and individuals, and there being people who didn’t belong in either the black or the white categories.

“The human brain naturally puts things in categories to make sense of the world. Very young children quickly learn the difference between boys and girls, for instance. But the values we place on different categories are learned – from our parents, our peers and the observations we make about how the world works. Often, discrimination stems from fear and misunderstanding.”

The above quote is from the American Psychological Association: [Discrimination: What it is, and how to cope](#) (apa.org) in October 2019. It also points out that *“For many people, discrimination is an everyday reality. Discrimination is the unfair or prejudicial treatment of people and groups based on characteristics such as race, gender, age or sexual orientation.”*

Even where an Apartheid type of government policy is not in place, discrimination still takes place. Ongoing and extreme discrimination leads to violence.

A variation on discrimination is xenophobia. Like the above description of discrimination, xenophobia arises from fear of the ‘other’, as the suffix ‘phobia’ indicates.

Xenophobia is defined by Wikipedia as *“the fear or hatred of that which is perceived to be foreign or strange.”*^{[2][3][4]} *It is an expression of perceived conflict between an [ingroup](#) and an [outgroup](#) and may manifest in suspicion by the one of the other’s activities, a desire to eliminate their presence, and fear of losing national, ethnic, or racial identity.*^{[5][6]} ([Xenophobia - Wikipedia](#))

Discrimination and xenophobia tend to lead to an escalation of tension and violence. South Africa has a huge problem with xenophobia against foreigners from the rest of the continent. This often leads to violent attacks by South Africans. See [Xenophobic violence in democratic South Africa | South African History Online](#) (sahistory.org.za).

SA’s xenophobic problem complicates diplomacy, and will not be resolved by scientific, educational and cultural collaborations.

Xenophobia and war are not that different. Fear of the 'other' applies in both cases, and grows more intense as resources become scarcer. Antagonism turns violent, and it becomes a fight to the death. So it is with clashing groups within a country as well as war across borders.

Science diplomacy

Now that we hover on what is possibly the brink of a third world war, science diplomacy is more important than ever. It should assist, by continuing and thriving, and a new assertion that the solution of the immense global problems we face can only be solved by joint efforts – in research, knowledge creation, and education. The 'best minds' in the world should be applied towards the survival of humanity AND the survival of what is **best** about humanity.

Scientists are often the 'voice of reason', with some able to speak rationally to power during crises, while arguing for the continuation of science and scientific collaborations. In relation to the Ukraine war, Russian scientists objected to their exclusion from scientific collaborations, and condemned the war on Ukraine. They pleaded with their president Vladimir Putin in an open letter on 3 March 2022, which was published here: [Thousands Of Russian Scientists Slam Ukraine War | Barron's](#) (barrons.com) (By AFP - Agence France Presse).

The letter says:

"Nearly 7,000 Russian scientists, mathematicians and academics had signed an open letter addressed to President Vladimir Putin "strongly" protesting against his war in Ukraine.

"Russia finds itself in a situation of international isolation, without the possibility to conduct in-depth scientific exchanges or work with scientists in other countries," the letter said.

See also this article which appeared on 17 March, appealing to the world not to boycott Russian scholars, writers and artists: [Don't wage war against Russian scholars | The College Fix](#), by Margaret Kelly, Assistant Editor.

"More fundamentally, cultural and scholarly boycotts are an insult to intellectual freedom. Good scholarship and art depend on independence and integrity. Our policies should reflect the reality that intellectuals are more than their national identity.

"The individual – scholar, writer or artist – is greater than his nationality, ethnicity or race.

War and civilians

Despite the vast body of knowledge generated by and available to humanity, what we have not yet succeeded in doing is preventing a country or group from going to war. We have also not succeeded in drawing a distinction between war and civilian life, and between military technologies and peacetime technologies. This does have the advantage that military technology is often repurposed for civilian use (e.g. the internet). But the severe drawbacks include that military grade weapons find their way into civilian life, leading to escalation of crime and violence against minorities, and in the USA in particular, to mass murder of children and other civilians, by civilians. In war, civilians are regarded as an acceptable target, even if their murder is labelled as 'collateral damage'. Russia is currently deliberately targeting civilians, including children and pregnant women in its wanton destruction of Ukraine. This kind of cruelty has often taken place in various parts of the world. Despite the level of insight that researchers have developed into the factors of war, social dynamics wherever people are together, and even the way in which human thought processes work, humanity has not found a way to conduct war in a more ethical way by preventing civilian casualties. A third failure of humankind is that a lasting peace has not been established despite the best efforts of the best of humanity.

How do the innovators feel who have developed new technology for the war enterprise? Especially once the innovation is used by statesmen, leaders and the military to kill and maim civilians? How do the scientists feel who did the basic science research and discovered the principles on which yet another cruel and powerful weapon is developed?

As individuals in society, and individual scientists and innovators, we are left with our own consciences to decide how to deal with the conundrum that the scientific discoverers, engineers and innovators are not the ones deciding how to use the products of their labour. Nor do they have any influence on whom the technologies will assist with their endeavours, and whether for good or ill.

Civil society

Civil society is a term that indicates the part of society that is not government. Non-governmental organisations (NGOs) are a case in point. It seems that civil society is a term that is not exactly defined, and so has various definitions. It is possibly derived from the need to distinguish the military from civilians. Business, in its various forms, is also non-governmental (or should be...). All individuals who do not work inside government structures are also part of civil society – academics, researchers, lecturers, etc. The freedom of speech that is enshrined in our Constitution applies to civil society especially, whereas government officials can be under restrictions in terms of what they may say in public, and what not.

Civil society is highly diverse. It can range from highly organised to completely disorganised and fragmented, from credible to totally lacking in credibility or being suspicious, from beneficial to society to detrimental.

However, often civil society is freer and more flexible when it comes to critical thinking and expressing criticism. Sometimes its observations are more objective, precisely because it doesn't have vested interests in government. It is a product of democracy, where individual rights are protected, including freedom of association. A democratic country is one where government is willing to listen to civil society – to the findings of its research, the data it collects, its protests, complaints and criticisms.

This is a conundrum – that science diplomacy involves maintaining the peace among countries and taking action for the common good, whereas civil society in every country is not obliged to be diplomatic and maintain the status quo.

Having said that, it is important to keep the doors of scientific collaboration open. Scientific work today takes place in teams of scientists, often of a variety of disciplines. Collaborations across borders are of critical importance. For the advancement of science, for peace, and the sharing of outcomes and innovations benefitting all the countries involved, as well as the transfer of skills.

Governments would do well to heed what civil society is saying in their countries. Where civil society bodies have integrity and offer reliable advice, they can be valuable allies.

Education as the basis for science, the SDGs and peace

Science and innovation can only thrive where there is ongoing education and learning. Education has been set back in many places in the world by the need for isolation during the COVID-19 pandemic. The closing of schools was common, so was rotational schedules, with each country choosing its own measures to try and curb the pandemic. The consensus seems to be that education has been set back all over the world. Education systems must be restored, and learners assisted to catch up with their interrupted learning. See: *The Effect of COVID-19 on Education* by [Jacob Hoofman](#) and [Elizabeth Secord](#).

COVID-19 has changed education for learners of all ages. Preliminary data project educational losses at many levels and verify the increased anxiety and depression associated with the changes, but no data on long-term outcomes are available yet. Guidance from oversight organisations regarding the safety and efficacy of new delivery modalities for education have been quickly forged. It is no surprise that the socioeconomic gaps and gaps for special learners have widened. The medical profession and other professions that teach by incrementally graduated internships are also severely affected and have had to make drastic changes.

To ensure quality education and recovery from the ill effects on education after the COVID-19 pandemic, countries should share expertise and assist each other where possible to build/re-build education systems.

While the formal education system wasn't functioning, it was civil society (parents, relatives, friends, NGOs) that had to stand in. And now, in the process of recovery, civil society has to step up again, helping learners to catch up to the standard required by each grade or phase of learning. The teachers are of course doing their best, and many worked extremely hard during the pandemic and are continuing to do so. Just like at the end of WW2, education needs to be restored in all countries and especially in Africa, where we have a historical backlog in providing universal education to our citizens. We need education to fight pandemics, and the ongoing epidemics. The diseases and health conditions suffered on our continent should be fought by our people through education, science, and innovation.

Sharing knowledge for education across borders is essential for societies to recover after the pandemic, and for the future.

Scientific diplomacy and cooperation in this time of Russia's war on Ukraine

I end by quoting from the opinion piece written by Nithaya Chetty and published in Wits News, in March 2022,: [2022-03 - Scientific diplomacy and cooperation in this time of war - Wits University](#):

"Scientific diplomacy must be given a chance to help enhance mutual understandings across political divides.

As the vice-president of the International Union of Pure and Applied Physics (IUPAP) responsible for membership matters, I have been involved in formulating a position for the IUPAP about scientific cooperation with Ukraine and with Russia in this extremely difficult time of war.

... South Africa was one of only 13 founding members of the union that committed to a global agenda for physics ahead of many more scientifically advanced countries of that time, ...

Jan Smuts was prime minister of the Union of South Africa at that crucial time following World War I, but he had the vision for science as a catalyst for peace, and this remains truer today than ever before.

A global, communicative, collaborative, and cooperative community for science is of paramount importance for critical, evidence-based thinking and discourse as it impacts on human lives and on our planet with existential proportions, and increasingly now we should think about our interests in space as well.

The IUPAP, during the darkest days of the cold war, apartheid and many other difficult political eras over the past 100 years, has always been able to do two things with care and responsibility.

Firstly, the global physics community has kept open the channels for scientific cooperation across all political and other divides, including with apartheid South Africa, in the hope and expectation that enhanced scientific collaborations are an important means to develop improved understandings between different peoples that contribute to world peace.

Secondly, and it has also at various times in its history expressed its concerns about any activity or intervention, including war, that impacts negatively on our ability to engage scientifically on a global scale.

On the other hand, I think it would be inappropriate for the international science community to bar any scientist from any scientific activity, including in this time of war.

So long as the work upholds the ethics and principles of science of the highest ideals, for example, the endeavour does not contribute to weapons capabilities or does not enhance in any way Russia's

war effort, I can see no reason to disallow Russian scientist participation in international scientific activities.

Scientific diplomacy must be given a chance to help enhance mutual understandings across political divides,

The academic process ideally is based on independent, critical thinking, on evidence-based research, on reproducibility of results, on pursuing the facts, on unearthing the truth, on not seeking favours, on interrogating ideas rather than which office or hierarchical structure this comes from, and so on, and so on.

Political discourse, on the other hand, is a different type of conversation, and it is seeping more and more into our science spaces, with negative consequences.”+-

Summary

1. Nobel Prize winner Pauling understood that the applications of science and technology risk being devoid of morality.
2. UNESCO uses education, science and culture to inform, inspire and engage people everywhere to foster understanding and respect for each other and our planet. Its establishment was the start of science diplomacy.
3. *Scientific inventions, at all conceivable levels should enrich human life, not threaten existence. Science should be the greatest ally, not the worst enemy of mankind. (Albert Luthuli)* Thus the role of science in war should be limited, at all times, and all places.
4. *The human brain naturally puts things in categories to make sense of the world. (American Psychological Association)* This is the underlying principle of discrimination and xenophobia, when there is competition for scarce resources.
5. Xenophobia is defined by Wikipedia as *“the fear or hatred of that which is perceived to be foreign or strange.”*
6. Now with the threat of a third WW, science diplomacy should assist in promoting world peace through scientific collaborations. The channels for scientific cooperation should ideally be kept open across all countries. Science diplomacy must be given a chance to enhance mutual understandings across political divides.
7. Solutions to the immense global problems we face can only be solved by joint efforts.
8. In this time of misinformation and anti-science in society, the voice of science is more important than ever. Independent, critical and evidence-based thinking should be advanced.
9. Vibrant civil society role players are valuable to ensure democracy and provide a sounding board for government.
10. Education
 - To ensure quality education and recovery from the ill effects on education after the COVID-19 pandemic, countries should share expertise and assist each other where possible to build/re-build education systems.
 - Civil society has stepped into the breach in education, and in other respects like health and water provision.
 - As at the end of WW2, when UNESCO was formed, education should be restored urgently as the start to building up and strengthening countries, and to promote peace.

Conclusion

Scientists and related professionals must unite in their pursuit of inclusivity, the creation of an enabling environment for collaboration (both inside countries and across borders). They should also unite around the improvement of education systems, which must be effective, have STEM education of the highest standards, and promote a culture of scientific thinking, innovation, independent thought and life-long learning. We all need scientists and related professionals to be the voices of reason that give evidence-based advice to governments, for the socio-economic development of countries, and for peace.

Postscript

This article is based on the speech by the author on the occasion of the launch of the Science Diplomacy Capital on 8 July 2022; as well as a previous article and desktop research.

Sources

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The opinions expressed above are those of the Executive Director, Ms Jansie Niehaus, and do not necessarily reflect the views of the [Executive Committee](#) or [members](#) of the NSTF.