UNESCO: Scientific Humanism and its Impact on Multilateral Diplomacy

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Special Issue Article

Abstract

The S of UNESCO stands for science, and provided some impetus for UNESCO's creation. This essay critically examines the ways in which science diplomacy at the multilateral level was mobilized to produce UNESCO's vision for a 'culture of peace'. Underlying UNESCO's vision was the diplomacy of scientific humanism, best articulated in the words and person of its first Director-General Julian Huxley, himself a scientist. The scientific method was the axiom that would bring diverse communities together. After examining the humanism of science diplomacy, this essay outlines two major effects of UNESCO's science diplomacy: science diplomacy networks and programs. The S of UNESCO contributed to global beliefs in multilateral diplomacy as a way of resolving conflicts, especially in further propagating the use of scientific evidence in multilateral negotiations. The essay also outlines the limits of these science networks, institutions, and scientific evidence in multilateral diplomacy although science may well be the unsung 'hero' of an otherwise highly politicized UNESCO.

UNESCO and science diplomacy

The S of UNESCO stands for science. This essay examines the ways in which science diplomacy at the multilateral level was mobilized to produce a vision for a 'culture of peace' at the United Nations Educational Scientific and Cultural Organization. This essay follows the definition of science diplomacy in the introduction to this special issue entailing international relations among diverse actors 'maintained through practices that are firmly scientific in purpose, process or objective' (Kaltofen, 2018, p. 8).

Science diplomacy enters UNESCO practices at all three levels identified in a recent AAAS/Royal Society (2010) study that also informs this special issue's introduction. Broadly and philosophically, underlying UNESCO's vision was the diplomacy of scientific humanism that would bring diverse communities together – analogous to what Royal Society (2010) describes as *science for diplomacy* (see also Kaltofen, this issue, p. #). Julian Huxley, UNESCO's first Director-General (1946–48), espoused this manifesto in his pamphlet *UNESCO: Its Purpose and Its Philosophy*: 'Thus the general philosophy of UNESCO should, it seems, be a scientific world humanism, global in extent and evolutionary in background' (Huxley, 1947; p. 8. See also Hoggart, 1978; Pavone, 2008; Singh, 2011). Second, UNESCO took the lead in creating global scientific networks such as the International Council for Science (ICUN) and particle physics programs such as the European Organization for Nuclear Research (CERN), which reflect notions of *diplomacy for science* that further scientific cooperation and *science in diplomacy* that informs foreign policy issues with new and old problems that science can analyze (for example, climate change).

For all three forms of science diplomacy, UNESCO contributed to global beliefs in multilateral diplomacy as a way of resolving conflicts, especially in further propagating the use of scientific evidence in multilateral negotiations and in bringing scientific communities together in consultations and joint projects. The essay also outlines the limits of these science networks, institutions, and scientific evidence in multilateral diplomacy. UNESCO, historically, has been: (1) highly politicized – during its first 50 years, East–West suspicions led to tensions in the organization; (2) unfocused – its ambitious projects often lack expertise and resources.

The philosophy of science diplomacy

Science for diplomacy has an important role to play in UNESCO; it underlies the methodological basis of the humanism fostered in the organization and arose organically through the negotiations that created it. The letter 'S' for science was a November 1945 addition to the UNESCO acronym and constitution, and included both natural and social sciences. The 1945 insertion in the organization's name is publicized in the organization's histories mostly in positive ways; scientific methods, outlook and evidence can be taken to presage progress and, therefore, the explicit inclusion of science in the organization's agenda links science to the cultures of peace and prosperity (Droit, 2005; Petitjean et al., 2006).

The Cambridge scientist Joseph Needham is widely credited for pushing the cause of science during the Conference of Allied Ministers in Education, which began in 1942 to counteract Nazi propaganda and eventually led to the formation of UNESCO. Needham's memoranda sent to the scientific communities worldwide in 1944–45 were especially important. Its late insertion is also sometimes understood as a lack of prominence given to science. Science continues to be a poor cousin to other goals at UNESCO and often gets left out at the organization's important General Conference

and Executive Board meetings unless prominent delegates or officials push its cause. Despite this lack of prominence, scientific thought informed all programs at UNESCO, especially in its early years, and led to prominent initiatives and networks described below that are globally recognizable. Science at UNESCO advanced through meager state-centric support (during the cold war) toward an indirect impact on a range of topical areas (e.g. environment, human rights, bioethics), through a renascence of science policy focus and international networks in the 21st century.

The UNESCO preamble and constitution make it clear that education, science, and culture are to be fostered for the sake of peace. Article 1 of the constitution is instructive: 'The purpose of the Organization is to contribute to peace and security by promoting collaboration among the nations through education, science and culture'. However, it is unclear if links to international peace and security cooperation through science for diplomacy were prioritized directly or indirectly. In a direct sense, scientists were asked to participate in projects that lead to peaceful uses of basic science research or in projects that seek to enlighten people on human interactions that lack a scientific basis, for example causes of racial prejudice that were explored in UNESCO in the first decade of its formation. Indirectly, a focus on the environment might speak to the long-term sustainability of the planet and global humanity in general.

Science encompasses two sectors at UNESCO: natural sciences, and social and human sciences. Historically, the outlays for the two sectors combined have hovered around the 25 per cent mark, which tended to be less than $300 million per year in the last decade and fell further by 22 per cent as the United States stopped paying its dues in 2011 after the organization admitted Palestine as a member. The United States will permanently leave the organization end of 2018. Interestingly, however, the two subsectors together also account for nearly half of the extra-budgetary outlays for all the sectors which have been above $250 million per year (UNESCO, 2017). The limited budget and resources of the natural and human sciences sectors are too meager to affect the wide scope of activities that fall within natural and human sciences. This often leads to lack of budgetary and staff support for UNESCO projects that have included communication flows, hydrology programs, scientific reports and conferences, environmental initiatives, and basic science research on geosciences and geographies and ethical and human rights issues in natural and human sciences.

UNESCO is the only organization in the United Nations with a unique mandate for science though, as discussed later, it is overlapped in this mandate on specific issues by other international organizations. The postwar thinking on harnessing science for humanistic notions of progress was reflected in UNESCO's push to encourage these endeavors through raising the cause of science at the national level. Finnemore (1993) makes a compelling case for the factors that spurred UNESCO's cause leading to norm formation facilitated by an international organization rather than on the behest of member-states or their demands. She argues that UNESCO '"taught" states the value and utility of science policy organizations' (Finnemore, 1993, p. 566). While the United States, the United Kingdom, or Germany might have created science policy organizations for security reasons prior to the great wars, over 100 states in the postwar era responded to suasion from UNESCO. In the case of small or resource poor postcolonial states, there was little or no demand for science policy organizations prior to UNESCO suasion. In the mid-1950s, Finnemore shows that transnational scientific networks like the International Council of Scientific Unions (ICSU) gave way to a shift in the postwar climate from 'Kantian transnationalism to cold war Hobbesian nationalism' among member states in UNESCO. UNESCO meanwhile set up several science programs, like the interdisciplinary arid zones program, and established field offices around the world. While it remained involved in UNESCO's program, science policy was now refracted through state instruments: 'States were now understood to be primary purveyors of development and progress. Thus, it was states, not scientists, who could best bring the fruits of science and technology to their citizens' (Finnemore, 1993, p. 585). UNESCO officials would travel to various countries providing science policy advice and in a few cases even helped to draft the legislation that would lead to the creation of science policy organizations in these countries.

Interestingly, although UNESCO documents acknowledge the role that UNESCO played in science policy deliberations and diplomacy, they seldom refer to setting up science and technology policy organizations in member-states – one of the key achievements of the organization's diplomacy. This is in marked contrast to the way UNESCO takes credit for various achievements in other scientific areas such as environment, sustainability and water issues. There may be some 'UN speak' here in not overplaying the role of an international organization in setting up science policy agencies in member states, which may like to take the credit themselves for these efforts. In a 700 page-long anthology summarizing 60 years of natural sciences at UNESCO, there is only one short chapter on this subject (Hillig, 2006). Nevertheless, the chapter acknowledges the impetus provided by the UN to examine science policy issues through UNESCO's Science Policy Division.

While science policy organizations proliferated at the national level, UNESCO began early on to also focus on grassroots education in science. In promoting the purpose of science among teachers and children, UNESCO was refreshingly direct and postmodern in acknowledging that science is not neutral. *The UNESCO Courier* wrote in 1963: 'There is a fallacious idea that science is objective while the humanistic studies are subjective. This is complete nonsense. Science is always the record of someone's personal experience' (Gould, 2005, p. 87).

Science education was pursued through teacher training, science manuals and setting up of prototype schools that UNESCO often financed. It also produced manuals and textbooks. *UNESCO Sourcebook for Science Teaching*, initially published in 1956, remains a bestseller with over a million copies in more than 30 languages sold and has been revised in over 25 editions. The book not only spells out

scientific principles but also makes a compelling case for the importance of scientific education. It shows science teachers in elementary and lower secondary schools how to set up simple activities with limited resources to introduce students to science through experiential learning. The *Sourcebook* was conceived around the time of UNESCO's creation and points to the effectiveness of many UNESCO projects at that time with limited budget.

There were limitations to UNESCO's approach. Science diplomacy at UNESCO was, for example, beholden to East–West tensions during the Cold War. There was a decline of science policy advice in the 1980s, with some resurrection of the theme in the 21st century (de Padirac, 2006). Science policy had been modeled along the lines of Soviet planning or mixed-economy experiences such as France. This remained problematic for scientists who wanted science to be neutral and for a few member-states such as the United Kingdom and the United States who eventually withdrew from UNESCO in 1986 (US rejoined in 2004 and left again in 2018). 'Some Member States, in the name of laissez-faire – and endowed with strong scientific potential, mainly in the private sector – systematically attacked UNESCO's science and technology policy programme during each General Conference in the 1970s and 1980s' (de Padirac, 2006, p. 477).

In the 1970s and 1980s, East–West tensions also influenced the postcolonial countries' multilateral advocacy for a New World Information and Communication Order (NWICO) that make North–South communication flows through media more symmetric and provide less biased and negative representations of the Global South (Frau-Meigs et al., 2013). The Eastern bloc supported the developing world and blamed Western media organizations and journalists, while the latter defended press freedoms and speech. Given the context of the cold war, the developing world's concern with information imbalances was lost in the way the West perceived the UNESCO movement as a left-wing/communist aligned initiative. The Soviets presented the state as the embodiment and guardian of the people's interests and hence could not acknowledge any contradiction between state interests and media freedoms.

The NWICO process may be divided into two periods. The period 1976–81 witnessed rising militancy on the part of the developing world and the period after 1981 was marked by a harsh counter response from the West (especially from US President Ronald Reagan and British Prime Minister Margaret Thatcher) which resulted in the United States and the United Kingdom pulling out of UNESCO. The latter action brought the NWICO movement to a close even though during early 1990s many observers hoped that it would make a comeback. While accomplishing a lot intellectually in terms of collecting data on information imbalances, few actual agreements were reached.

UNESCO's multilateral diplomacy in hindsight did set the stage for the importance of communication technology issues in international development at the turn of the century, just as this diplomacy had made science itself important in the 1950s. The ideas about modernization and mass media would find full expression in communication scholar Wilbur Schramm who served as a UNESCO consultant, though later he was denounced by NWICO academics as a paid informant of the US government. Schramm's seminal contribution remains *Mass Media and National Development: The Role of Information in Developing Countries* (1964). He held information flows to be essential to the development process, noting that mass media help the informational, political participation, and technical education tasks that are necessary for development. While radio does not require literacy, and is as a result easy to deploy, print media, argued Schramm, are particularly effective precisely because they offer an alternative reality. The book was deemed quite influential in planning the mass media programs in the developing world during the 1960s and was widely cited in UNESCO's multilateral science diplomacy.

UNESCO's lead in communication and international development linked eradication of poverty and ignorance as necessary conditions for world peace. Thus, communication development projects all over the world were used to provide distance education, and information on issues on issues such as health, nutrition, weather and farming. Information was often provided to affect particular goals; programs to induce child immunization, goading farmers to use better seeds or fertilizers and to provide adult education fell under this rubric. This led directly to examining the information imbalances within and beyond the developing world, especially between industrialized and developing countries. Later, this came to be known as the 'communication gap' (O'Brien, 1983).

In the social and human sciences (SHS) sector, UNESCO has fostered norms that have an empirical basis but also guide countries toward ethical conduct and respect for human rights. However, it is hard to gauge the influence of these norms at the national level. Unlike science policy organizations set up with natural sciences sector's help, there are not any significant institutions at the national level that have resulted from SHS sector's norms. In the human rights arena, adoption among member states, even of the 1945 Universal Declaration of Human rights, is weak. UNESCO has also leaned toward the notion of cultural rights, which reflects the passage of the International Covenant on Economic, Social and Cultural Rights (ICESCR) at the UN general Assembly on 16 December 1966.

UNESCO's social and human sciences sector has also been deeply engaged since the 1990s in deliberating the ethics of science and technology. It has produced mostly declarations that have a relatively weak legal status than conventions. Critics also argue that the term ethics is not defined and that different states have different notions of human rights. Nevertheless, the following chronology of normative instruments and deliberative bodies that UNESCO has founded in SHS does show that UNESCO has tried, at least, to tackle complex issues:

- Universal Declaration on the Human Genome and Human Rights, adopted by the General Conference on 11 November 1997.

- The 18-member World Commission on the Ethics of Scientific Knowledge and Technology (COMEST) came into being in 1998 and advises UNESCO on ethics issues in freshwater, outer space, energy, sustainable development, and information technologies.
- International Declaration on Human Genetic Data. Adopted by the General Conference on 16 October 2003.
- International Bioethics Committee created in 2003
- Universal Declaration on Bioethics and Human Rights, adopted by the General Conference on 19 October 2005.

More recently, UNESCO has begun a flagship program in 2005 to advance capacities for basic science policy and to further science education. The International Basic Science Program (IBSP) is one of the five major International Science Programs (ISPs) at UNESCO and cooperates with various nongovernmental networks in its activities. Officials tend to speak of basic sciences programs in UNESCO as providing the organization with a unique competency.

UNESCO's science diplomacy has been uncharacteristically successful at the level of international networks and influences. At the broadest level, UNESCO is foremost among global agencies linking science for diplomacy as an important condition for world peace. In doing so, UNESCO defined a vision for how scientific cooperation and methods can provide the basis for international cooperation and international development efforts. Nevertheless, in doing so, UNESCO was considerably less successful in marginalizing the East–West and, later, North–South politics that produced conditions opposite of peace.

UNESCO networks and programs

UNESCO's *diplomacy for science* (international science cooperation) and *science in diplomacy* (science to inform foreign policy and new problems) reveals itself best in the creation and the diffusion of UNESCO's norms through its transnational networks, even if intergovernmental actors try to dominate the process. The French proposal in the 1940s to model UNESCO, along the lines of the International Institute of Intellectual Cooperation (IIIC), a nongovernmental body, was reflected eventually in the explicit inclusion of INGOs and the formation of National Commissions in UNESCO's functioning. UNESCO itself has over the years created and funded dozens of transnational associations in various natural and social science disciplines.

The International Council of Science, renamed from International Council of Scientific Union in 1998, though it still preserves the acronym ICSU, was one of the first organizations to receive UNESCO support. It was founded in 1931 and by 1945, at the time of its association with UNESCO, ICSU had 39 scientific bodies and seven international scientific unions. It remains important to UNESCO's aims and purposes and goals. Most of the important programs launched at UNESCO – on water, geosciences, biosphere, environment and others – either were started or advanced through ICSU. It includes scientific bodies from 117 member states, such as the National Academy of Sciences in the United States, and 30 international scientific unions.

Sixty Years of Science at UNESCO lists 34 organizations that UNESCO helped to get started (Petitjean et al., 2006). The World Conservation Union (ICUN) started in 1948 when it was known as The International Union for the Protection of Nature and Natural Resources (IUPN). It is now the world's largest NGO involved in conservation activities. Interestingly, CERN, the European Organization for Nuclear Research, known for the world's largest particle physics accelerator, also had its origins in UNESCO in 1953. A similar enterprise, modeled along CERN and with a cooperative agreement with it, is SESAME (Synchrotron-light for Experimental Science and Applications in the Middle East) set up in 2003 in Jordan, 30 km from Amman at the Al-Balqa' Applied University in Allan.

In social and human sciences, the use of the scientific method, defined broadly, was the impetus for UNESCO to create or link with organizations that would investigate the causes of conflict through studies of nationalism, racism and other types of work. These initially came to be known as 'tension studies.' Although the work of SHS was slower and more limited than other sectors, the sector helped to start associations in various social sciences, including comparative law and medicine, to name a few. The International Political Science Association was created with UNESCO's help. The International Social Science Journal was founded in 1949 at UNESCO and continues to publish in the six official UN languages.

The existence of various networks that conduct work in science and technology issue is not entirely a blessing for UNESCO. First, its agenda was not just overlapped but was overtaken by other agencies. A case to the point is the creation of the United Nation's Environmental Program in 1972 after the Stockholm UN Conference on the Environment. Until then UNESCO had taken the lead on environment and sustainability issue but after 1972, UNEP did so, especially in the 1980s and 1990s when the United States and United Kingdom exited from UNESCO. Similarly, although UNESCO tried to play a role in the World Summit on Information Society (WSIS) deliberations over information rights and the digital divide since 2003, it was overshadowed by the International Telecommunication Union. Second, UNESCO itself has not always known how best to utilize its networks. An important report in 2007 commissioned by UNESCO Director-General on the activities of the two sectors pointed to the lack of utilization of UNESCO intergovernmental and nongovernmental networks as a key finding (Executive Board, 2007). For example, the report pointed out that even in one of UNESCO's key competencies, namely water issues, there are at least 20 other United Nations agencies involved. The report not only recommends intensifying partnerships but goes on to mention specific associations. The following paragraph is instructive (Executive Board 2007, p. 7)

UNESCO needs to improve its outreach, through an innovative approach to partnerships with other organizations, both within and outside the United Nations, with the aim of increasing programme effectiveness, complementarity and

efficiency. At the international level, these include the International Council for Science (ICSU), the Academy of Sciences for the Developing World (TWAS), the International Social Science Council (ISSC), the International Council for Philosophy and Humanistic Sciences (ICPHS) and the World Academy of Young Scientists (WAYS), among many others. At the regional level, these include the Islamic Educational, Scientific and Cultural Organization (ISESCO), the Arab League Educational, Cultural and Scientific Organization (ALECSO) and the Organization of American States (OAS).

UNESCO's programs

UNESCO also has numerous programs in the sciences that address emergent problems (*science in diplomacy*) and further international cooperation (*diplomacy for science*). The broad scope underscores both the vitality of the two relevant sectors and ability of the organization to stretch its budget. The organization was the first, or the most prominent, to get involved in issues such as global interdisciplinary science projects, sustainability, and biosphere reserves. Nevertheless, this broad scope also dilutes focus and the organization is often critiqued for not working concertedly toward any one mission. The overview below provides a brief historical analysis of UNESCO's efforts.

On 19 June 1946, the *New York Times* noted the following on its front page: 'The UN's Secretariat is ready to marshal the world's scientists for peace as they were for war' (quoted in Petitjean, 2006, p. 53). An early program was the International Arid Zones Program conceived in the late 1940s and which ended 1962. Interdisciplinary in nature, it considered the problems of arid zones around the world but also examined sources of renewable energy, which established the basis of other environmental initiatives that were to follow from UNESCO including those in hydrology, ecology, and geographic mapping. Emphasis has been given to cartography since the inception of UNESCO, and the Arid Zones Programme prepared detailed maps of these zones dealing with climatology and resources.

UNESCO subsequently became associated with a variety of maps projects, though the soil maps produced between 1961 and 1978 are the best known. Victor Kovda, the director of natural sciences, and a soil specialist, spearheaded the joint project with FAO to produce the soil maps of the world at a scale of 1:5,000,000. Other projects included the Geological Map of the World at a scale of 1:25,000,000.

Not coincidentally, the maps efforts overlapped not just the arid zones initiative in the 1950s but also the planning that led to the success of 1957–58 International Geophysical Year (IGY). In the 1950s, the UNESCO General Conference in Montevideo, Uruguay, passed a resolution that led in 1955 to the creation of the International Advisory Committee on Marine Science (IACOMS), which could boast of having leading oceanographic scientists. IACOMS not only facilitated the work of the IGY but would also bring together Western and Eastern scientists during the Cold War, and showed that scientific cooperation was possible despite political difficulties such as after the launch of Sputnik in 1957.

Many of UNESCO's International Science Programmes (ISPs), as they are known at present, can be traced back to the 1960s and to the projects outlined above. These include the International Hydrology Programme (IHP), the International Geosciences Programme (IGSP), the Man and the Biosphere (MAB) Programme, the International Oceanographic Commission (IOC) and the International Basic Sciences Programme (IBSP, mentioned above). The IGSP, known as the International Geological Correlation Programme until 2003, is a joint initiative with the International Union of Geological Scientists (IUGS) and came into being in 1972. It researches the earth sciences and boasts of 400 projects dealing with earth's resources, including water and with natural disasters. Specific projects range from studies of expansion and contraction of deserts to, more recently, those of climate change (Turner, 2006).

In 1961, UNESCO began work on raising awareness of water resources, which received the support of International Association of Hydrological Sciences (IAHS). The International Hydrological Decade (1965–74) established the IHP National Committees that exist to the present day. Since the 1990s, IHP has become more closely connected with sustainability and ethics issues. Cooperation with FAO, which began in 1955, led to the creation of the Intergovernmental Oceanographic Commission in 1960. IACOMS was involved in early planning.

A 1960 conference on oceanographic research in Copenhagen – organized in cooperation with other UN specialized agencies such FAO, IAEA, and WMO – recommended the formation of the Intergovernmental Oceanographic Commission. The IOC is now considered a flagship program within UNESCO. From the mid-1960s onwards, the IOC also benefited from moves in the UN, especially the General Assembly, to further international cooperation in the oceans. In 1973, the General Assembly convened the Third UN Conference on the Law of the Sea (UNCLOS) that led to negotiations on the use of ocean resources as a common heritage of humankind. A treaty on the law of the sea was signed by 1982 and came into force in 1994, signed by 158 countries and the European Union. IOC's technical expertise was well recognized in the UNCLOS negotiations especially for issues of marine pollution, scientific research, and technology transfer.

The IOC has also produced practical applications from its research and data activities. In 1965, it set up the Pacific Tsunami Warning System (PTWS). After the December 2004 Tsunami, IOC has been setting up the Indian Ocean Tsunami Warning System (IOTWS). IOC data and information are also important for the work of IGOSS (Integrated Global Ocean Stations System) for international exchange of data and information on the oceans. The IGOSS name was changed to Integrated Global Ocean Services System in the mid-1980s. In 1990, a Working Committee for ocean sea level measurements was set up called Global Sea Level Observing System (GLOSS). The work of IGOSS and GLOSS in the 1990s led to the creation of Global Ocean Observing System (GOOS), considered to be one of the premier information systems for oceanography. IOC's prominence within

UNESCO has not come without challenges. The IOC budget receives special consideration in the biennial budgetary documents and stands alone from the budget of other ISPs.

Another major initiative, the Man and the Biosphere (MAB) program, was launched in 1970 to outline relations between human beings and sustainable development, the term biosphere itself referring to the layers around earth within which biological life is possible. It followed the Intergovernmental Conference of Experts on the Scientific Basis for Rational Use and Conservation of the Resources of the Biosphere in Paris in September 1968. At present, MAB is most commonly associated with the World Network of Biosphere Reserves to either maintain or restore ecological reserves close to their natural state. Biospheres are named after recommendations from national governments. The first biosphere reserve was selected in 1976. As of April 2017, there were 669 sites in 129 countries.

The Management of Social Transformations (MOST) program, launched by the social and human sciences sector in 1994, despite its lofty title, only seeks to inform policy makers and stakeholders of the relevant research in the social sciences for managing large-scale social transformations. Scientific humanism may be taken to inform the program's philosophy (Pavone, 2008). The 'tensions studies' mentioned above, which UNESCO tried to undertake in the 1950s, were limited to national frontiers. The MOST program has a global governance focus. It acknowledges global complexity featuring the interconnectedness of peoples and territories and demanding global solutions. UNESCO does not shy away from calling MOST the think-tank of the world in speaking of global problems. From 1994–2003, MOST focused on broad topics of global governance, cultural and ethnic diversity, and democratic participation. In the 21st century, the MOST program has focused on specific projects and assessing ways of making a political impact with its research. These projects have assessed poverty in Latin America and the Caribbean, regional integration policies in Africa, the role of the state in developing social polices among the Arab states, human safety issues in Asia, ageing societies issues in Europe and sustainable development issues in small island states.

Conclusions

UNESCO's science diplomacy may be assessed in terms of the vertical and horizontal networks that Slaughter (2004) analyzes. An instance of vertical networks is UNESCO's *Sourcebook for Science* connecting the top-levels of UNESCO with science education in schools. The current International Science Programmes are horizontal network instances of inter-governmentalism, wherein sub-national organizations involved in science cooperate with one another. The norms literature in international relations has celebrated the proliferation of science policy organizations as UNESCO, which socialized governments to the importance of science. However, it is easier to cooperate in natural sciences, which may be viewed as neutral, while it is harder to do so for SHS with its highly complex and political issues such as human rights, bioethics and social transformations.

An account of UNESCO's *science for diplomacy* (vision and cooperation), diplomacy *for science* (networks and programs) and *science in diplomacy* (foreign policy problem-solving) seems like a vast mosaic of activities. The links to peace, ostensibly the goal of any diplomacy, are hard to discern unless we view them at an abstract level of studying structural causes of violence and social unrest through phenomena such as technical changes, earth's tectonic shifts or climate change. A scathing critique of UNESCO's science programs notes: 'UNESCO has over time lost its leadership credibility as an international spokesman for science, and its programmes are now seen by the scientific community as fragmented, over-ambitious, unfocused and lacking a clear vision and scientific strategy' (Nature, 2009, p. 447). Further, as seen above UNESCO, like other intergovernmental organizations, reflects the political prerogatives of member states. The East–West and North–South debates at UNESCO are instances. The AAAS/Royal Society (2010), that provides the typology for the three types of science diplomacy that informs this special issue, similarly warns extensively of both the danger of science being utilized for political goals and the inevitability of science being shut out of political processes where it could provide a counter-weight. Despite the setbacks and overreach, UNESCO's record for pushing science diplomacy for peace through its programs is undeniable for providing a scientific basis to multilateralism.

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