Published in final edited form as:

Chem Biodivers. 2011 November ; 8(11): 2158–2161. doi:10.1002/cbdv.201100291.

Chemistry Students and Human Rights

Alexander Greer

Department of Chemistry, Brooklyn College of the City University of New York, 2900 Bedford Avenue, Brooklyn, NY 11210, USA (phone: + 1-718-951-5000 ext. 2830; fax: + 1-718-951-4607; agreer@brooklyn.cuny.edu)

Very few chemistry majors in the US are involved in human rights activities. Because science education should promote a responsibility to a given profession [1] [2], the purpose of this *Letter to the Editor* is to describe how human rights and chemical education are intricately wound together. The 1970s was a high point of the human rights movement, even among scientists, there used to be a great deal of activism, but this activism declined in recent years. To reverse the trend, I describe the need of involving students without necessarily introducing material to the curriculum.

Why do human rights matter in the context of chemical education? Education by itself cannot guarantee that graduating science students will make ethical decisions [3] [4]. The Second World War showed that education alone was not enough to prevent human rights violations [5]. One can shudder at the damage done when science and engineering were applied to exterminate people, whether it was the pseudo-science of physicians and their treatment of concentration camp prisoners [6], or the engineers who designed the gas chambers. My own personal motivation for becoming involved in scientific freedom and human rights has to do with the atrocities committed during this period of history, and survivors whose lives have touched mine [7 – 11].

How is *human rights* defined? Here, we favor a *specific* definition, including protection of academic freedom, helping the release of prisoners of conscience, freeing dissident scientists and preventing their executions. *General* concepts that are less tangibly connected to human rights include access to clean water, health care delivery, education opportunities, *etc.* The distinction between *specific* and *general* approaches to human rights is elaborated below; resemblance to the organic chemistry concept of specific and general acid catalysis is intentional, but it does not mean individual *vs.* collective as in self-determination.

The *specific* human rights' focus is distinct, it advocates directly individuals who have suffered human rights abuses. This specific action is meant to respond to late- breaking or immediate human rights violations. It is committed to protecting the rights of individuals. The *general* approach is different, it defines the human rights landscape broadly by focusing on the rights of members of a society as a whole, and can be a worthy but often long-range goal. Thus, specific *vs.* general approaches to human rights is one of the contents where opinions as to which to adopt differ among scientific organizations.

A number of human rights committees have been abolished in major scientific organizations [12]. For example, the American Association for the Advancement of Science (AAAS) has not focused on individual human rights cases for roughly five years. The future of the *New York Academy of Sciences (NYAS)* human rights committee is in question, and will probably dissolve. One desire is not to agitate over human rights improvements in countries with spotty records, and instead to promote general issues of international collaboration and cooperation [12] [13]. Recently, the American Chemical Society Subcommittee on Scientific Freedom and Human Rights – active for 26 years – was dissolved. The issue of

human rights is now spread over the *International Activities Committee* in the Society without input from a specialized and well-informed subcommittee.

Worthy but long-range human rights goals include the articulation of *Article 15* of the International Covenants on Economic, Social and Cultural Rights (ICESCR), adopted in 1966, which provides that everyone has a right to the benefits of science, including the protection of scientists and of international scientific cooperation. Patience is required in human rights work, which can be emphasized with chemistry students along with gaining diplomatic experience. The signs of improvement can be very slow. One can consider the decades-long perspective regarding the development of UN human rights machinery. In 1948, the *Universal Declaration of Human Rights* came into existence; in 1976, the fundamental international law documents (the two UN Covenants) became enforceable; in 2002, the *International Criminal Court* began under difficult circumstances to apply some aspects of international law [14]. Unfortunately, UN programs are not enforced by the *UN Human Rights Committee*. Instead, the committee deals only with States Parties on human rights implementation in the International Covenant on Civil and Political Rights (ICCPR).

While thousands of undergraduate chemistry programs are offered in the US, only a handful of programs specifically involve human rights as a part of the training of chemistry majors. Among these, *Jeffrey Toney's* at Kean University and ours at Brooklyn College are exceptions. *Toney* uses a clever strategy that can stimulate students' interest in human rights. For example, when discussing the chemistry of arsenic and its adverse health effects, an inquiry is made on whom in class is from Bangladesh to resonate aspects of students' life experience with human rights. In my sophomore organic and advanced organic chemistry classes at Brooklyn College, a solicitation for participation with the *Committee of Concerned Scientists (CCS)* is written on the classroom chalkboard, which draws the attention of some. The CCS is a nonprofit organization of scientists, scholars, and physicians who protect and advance human rights and scientific freedom, whose origins come from restrictions of mobility of scientists in the Soviet Union. Among the four Brooklyn College chemistry students that have participated, two can be mentioned: *Álvaro Castillo* assisted with electronic petitions as an integrative approach to compliment letter writing. *Maria Mercedes* used on-line resources and personal inquiries into cases of persecuted faculty in Colombia and Venezuela. Activities are focused on letter writing, in connection with the CCS, and on informing scientific societies of abuses to pool efforts, such as countering a proposed boycott of Israeli scientists from attending international scientific conferences, which my colleague *Zafra Lerman* and I raised concern about [15]. There are other potential ways to introduce human rights to students. A separate course may not be necessary, but every instructor could cite a single case study in the course of their lecture, so that students get recurring examples throughout their career. This strategy helps address the question of where to find time for it, but may not give students a comprehensive or compelling picture of the situation.

A rhetorical question is: What are the barriers to integrating human rights with chemical education? The obvious objections will be a lack of time to commit to it, faculty that are uninterested in the subject and are neither knowledgeable nor willing to educate themselves. Also, the current polarized political climate in the US is often hostile to certain ideas. Fortunately, there are recurrent themes, even symmetry or patterns in how organizations approach human rights problems. The *Welfare of Scientists Working Group* at AAAS advocates the importance of coalition building and provides a list of science organizations with active human rights committees. The ACS has *Network Alerts* and a *Network for Education and Academic Rights* with calls for individual letters on behalf of scientists. The *Committee of Concerned Scientists* [16] and *Scholars at Risk* [17] maintain websites with information on recent cases. The chemical education/human rights interface is unique, its

future could provide continuity and opportunities for those students graduating and seeking roles as life-long activists defending human rights. An ACS human rights subcommittee could assist in such opportunities for chemistry majors.

The arguments made above can apply to all natural sciences, including chemistry. The incorporation of *specific* human rights problem solving can help diminish unchecked violations as a growing condition, which can advance to a larger-scale end problem. That is, early intervention can serve to enhance security now, whereas instability and even war can be ‘viewed’ as a later stage of human rights problems [18]. Such specificity could fit chemists’ research approach, which often favors specialization and reductionism rather than Systems Thinking.

Acknowledgments

I am grateful for the comments and suggestions of *Joseph Birman*, *Uldis Blukis*, and *Mark Kobrak*, and for the support from the *National Institutes of Health* (Grant No. SC1GM093830). I thank *Leda Lee* for the artwork in the Table of Contents graphic.

REFERENCES

- [1]. Breslow, R. *Envisioning the Future of Doctoral Education: Preparing Stewards of the Discipline*. Golde, CM.; Walker, GE., editors. Jossey-Bass; San Francisco, CA: 2006. p. 167
- [2]. Birman JL, Lebowitz JL. *Phys. Today*. Feb.1996 :77.
- [3]. Toney JH, Kaplowitz H, Pu R, Qi F, Chang G. *Hum. Rights Q*. 2010; 32:1008.
- [4]. Toney JH. *Science*. 2009; 324:176. [PubMed: 19359563]
- [5]. Claude, RP. *Science in the Service of Human Rights*. University of Pennsylvania Press; 2002.
- [6]. Annas, GJ.; Grodin, MA., editors. *The Nazi Doctors and the Nuremberg Code, Human Rights in Human Experimentation*. Oxford University Press; New York: 1992.
- [7]. Lebowitz JL. *Phys. Blätter*. 2000; 56:1.
- [8]. Salsitz, N.; Kaish, S. *Three Homelands: Memories of a Jewish Life in Poland, Israel, and America*. Syracuse University Press; New York: 2002. (with a Forward by W. Reich)
- [9]. Cook, S. *The Voyage of the Bluebird: A Family in the Shadow of the Holocaust*. 2010. (unpublished memoirs)
- [10]. Hargittai, I. *Our Lives: Encounters of a Scientist*. Akadémiai Kiadó; Budapest: 2004.
- [11]. Hoffmann, R. *Mariana Cook, Faces of Science*. Norton; New York: 2005. Surmiak-Domanska K. *Gazeta Wyborcza*. 2006; 695:2.
- [12]. Butler D. *Nature*. 2011; 475:431. [PubMed: 21796174]
- [13]. Zare RN. *Angew. Chem., Int. Ed*. 2011; 50:8202.
- [14]. *Human Security Report 2005 and 2009, part II*.
- [15]. *Chem. Eng. News*. Apr 27.2009 :2.
- [16]. Committee of Concerned Scientists. <http://www.concernedscientists.org>
- [17]. Scholars at Risk. <http://www.scholarsatrisk.nyu.edu>
- [18]. Steinhardt, R. *Encyclopedia of Human Rights*. Forsythe, DP., editor. Oxford University Press; Oxford: 2008. p. 103