

## Chapter VI

# Education of Ethics of Science and Technology Across Cultures

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### **ABSTRACT**

*This chapter examines some of the cultural variation in the ethical factors associated with the use of science and technology. The issues discussed include access to technology, social justice, professional ethics, and value systems. The appropriate implementation of international standards in ethics of science and technology and bioethics is considered. There is global agreement that persons should be taught the ethics of science and technology, and discussion of new materials and methods is made. The goals of ethics education as explained in the Action Plan for Bioethics Education developed at the 2006 UNESCO Asia-Pacific Conference on Bioethics Education include knowledge, skills and personal moral development. The International Bioethics Education Network was initiated in 2004, and the creation of networks linking research into policy is a cornerstone of efforts for education of ethics at all levels, from local to regional. In the future the use of principles as expressed in the UNESCO Universal Declaration on Bioethics and Human Rights (2005) will also be analyzed to broaden the description of bioethical reasoning. There needs to be extension of the evaluation methods and tools.*

### **ETHICS OF SCIENCE AND TECHNOLOGY**

At the beginning of this chapter we can ask, is there something unique about ethics of science and technology as opposed to ethics itself? All societies use technology, for clothing, housing, food, energy, health, and most other aspects of

life. The history and development of humankind is interwoven with the use of technology. Access to technology to advance quality of life is a long standing ethical issue, not distinct to social justice in general. The technical knowledge of a profession does however convey professional ethical duties upon the members of a profession and these are recognized such as medical ethics or engineering ethics.

Science, the quest for objective knowledge of our universe, and the method of intellectual inquiry, experimentation and falsification is a more recent phenomenon. Are there some types of knowledge that are dangerous for humankind to learn? The knowledge of gunpowder, dynamite or atomic weapons is not something that we would want everyone to apply, and all have been misused to kill and destroy people and the environment. The knowledge of psychiatry, physiology, chemistry or even educational methodology can also be misused. Therefore there are also scientific ethical issues in the use and consequences of choices regarding science. Thus ethics for scientists again can fall into the realm of professional ethics, and the way that professionals relate to those who lack that particular form of knowledge.

This chapter will not focus on the deeper questions that remain on whether humans should pursue knowledge about everything, but having a training in science ethics will make practitioners of science aware of some of these dilemmas to consider in their occupation. If we look at the way that societies have faced ethical dilemmas arising in medicine and technology we can see several important elements in their evolution. When many countries opened their doors (or their doors were involuntarily opened) to Western society in the 19th century, it led to the introduction of a newly emerging scientific paradigm, only part of the fabric of Western society. The ethical values of Western society were also imported in some aspects, including with Christian missionaries and democracies, however while there were different receptions to these value systems the pursuit of science and technology and economic growth were adopted. However, the ethics of use of science and technology are not intrinsically different to the ethics of use of technical knowledge that existed everywhere, in basic life support services such as housing, food, medicines and information sharing. Each country in the world today imports ideas and goods from other countries, and there is evolution of ethical reflection through the grow-

ing involvement of the public in discussion and development of the indigenous diversity of ethical traditions. As cultures evolve, it becomes impossible to separate which aspects were introduced from the different sources at what time.

## **GLOBAL CALLS FOR ETHICS EDUCATION**

In addition to the need for professional ethics, citizens of all ages need to make ethical decisions on how they use science and technology and its products. Opinion surveys in every country they have been conducted to show global agreement for the inclusion of more ethical and social issues associated with science and technology to be taught to students. Member states of UNESCO (the United Nations Educational, Scientific and Cultural Organization) in the Universal Declaration on the Protection of the Human Genome and Human Rights (1997) declared such an educational need, and every member country of the United Nations endorsed this in 1998. This call was repeated by all member states when adopting the 2005 Universal Declaration on Bioethics and Human Rights. These calls follow numerous academic works also calling for this (Reiss, 1999; Ratcliffe & Grace, 2003).

There is global agreement that persons should be taught the ethics of science and technology, but there are not global methods. UNESCO has taken up some of the challenges of how to translate this global call for bioethics debate and discussion in culturally appropriate manners. The appropriate implementation of international standards in ethics of science and technology and bioethics is important, and there have been a range of responses by states to the three International Declarations on Bioethics unanimously accepted by UNESCO General Conference (Universal Declaration on the Human Genome and Human Rights, 1997; International Declaration on Human Genetic Data, 2001; Universal Declaration on Bioethics

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