Why bioethics is needed and what bioethics is needed: Results of IUBS member survey

Darryl Macer, Ph.D.

SUMMARY

Surveys of public, scientists and teachers in many countries have found overwhelming support for the inclusion of bioethics in the school and university curriculums. The type of bioethics that is most needed will depend upon reasons why bioethics is taught. There is a need for better assessment of the impact of teaching bioethics upon the way people make decisions. Some experience from ten years of teaching bioethics to biology students will be shared.
Since the IUBS Bioethics Program was inaugurated in 1998, the activities have seen the creation of an International Bioethics Committee. The committee includes a range of disciplines within biology and bioethics, and covers a wide geographical range with the purpose of stimulating contacts in all regions of the world. In order to seek global comment a bioethics survey was conducted by Email, mail and on Internet http://www.biol.tsukuba.ac.jp/~macer/iubsethics.html. Most respondents stressed the need for education of bioethics, with several topics as will be presented. Currently we are making a dictionary of bioethics for biologists.

KEY WORDS

Bioethics, Bioethics education

Director, IUBS Bioethics Program
Institute of Biological Sciences, University of Tsukuba,
Tsukuba Science City 305-8572, Japan
Email: Macer@biol.tsukuba.ac.jp
Director, Eubios Ethics Institute http://www.biol.tsukuba.ac.jp/~macer/index.html

Introduction to Bioethics

Bioethics is both a word and a concept. The word comes to us only from 1970[i], yet the concept comes from human heritage thousands of years old.[ii] It is the concept of love, balancing benefits and risks of choices and decisions. This heritage can be seen in all cultures, religions, and in ancient writings from around the world. We in fact cannot trace the origin of bioethics back to their beginning, as the relationships between human beings within their society, within the biological community, and with nature and God, are formed at an earlier stage then our history would tell us. It is these relationships that generate the very concept of humanity.

In a broad sense I call bioethics the love of life.[iii] I think there are at least three ways to view bioethics:

1. **Descriptive bioethics** is the way people view life, their moral interactions and responsibilities with living organisms in their life. Everyone already has their own bioethic, and this evolves through our life and experience.
2. **Prescriptive bioethics** is to tell others what is ethically good or bad, or what principles are most important in making such decisions. It may also be to say something or someone has rights, and others have duties to them. We may re-examine our own bioethic and change, and also offer advice to our society on how to change.
3. **Interactive bioethics** is discussion and debate between people, groups within society, and communities about descriptive and prescriptive bioethics. In a global society the richness of interactive bioethics should improve, but it can only do so if we are tolerant of others.

Developing and clarifying prescriptive bioethics allows us to make better choices, and choices that we can live with, improving our life and society. The choices that need to be made in the modern biotechnological and genetic age are many, extending from before conception to after death - all of life. To consider the timing of reproduction, contraception, marriage choice, is not something new. In order to inform our prescriptive bioethics we need to describe the bioethics that people have been following.

There are a set of principles or ideals which people use as a common ground for bioethics. They include the autonomy of individuals to make choices, while respecting the choices of others, justice. In all things we do, the ideal is to avoiding doing harm, and trying to do good. I argue these can be summarized by concepts of love. The balancing of principles, self-love (autonomy), love of others (justice), loving life (do no harm) and loving good (beneficence) can provide us with a vehicle to express our values according to the desire to love life. I believe that even more than love of humanity, human beings love life – in all the possible connotations that can be taken.

International surveys suggest there is almost never a single ethically correct way for a person to resolve a dilemma that they face, and the diversity of decisions is similarly wide in all societies.[II] These surveys of public, scientists and teachers in many countries have found overwhelming support for the inclusion of bioethics in the school and university curriculums. The reasons for this fall into two main classes.[iv] Some teachers want to increase the respect

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[i] Van R. Potter *Bioethics, Bridge to the Future* (Englewood Cliffs, Prentice-Hall, 1971).
[ii] Darryl R. J. Macer, *Bioethics for the People by the People* (Christchurch, Eubios Ethics Institute, 1994).
[iii] Darryl R. J. Macer, *Bioethics is Love of Life* (Christchurch, Eubios Ethics Institute, 1998).

for life, and this type of reason is most common in Japan and India. Another common reason is to enable students to better face decisions that arise from the application of science and technology. This type of reason is more common in Australia, New Zealand and Singapore.[v]

Teaching bioethics at University of Tsukuba

The type of bioethics that is most needed will depend upon reasons why bioethics is taught. There is a need for better assessment of the impact of teaching bioethics upon the way people make decisions. To give some background I report on the way bioethics is taught at the University of Tsukuba. I refer readers to other work for the experiences of high school teachers in developing bioethics education in the class room over the past decade or earlier.[vi], [vii]

1) Undergraduate teaching of bioethics

- Two formal optional courses of ten lectures each. Taken by half the students as an elective (since 1992).

  Topics: (1) Introduction to ethics, autonomy, justice, bioethics; animal rights; environmental ethics; informed consent; euthanasia and terminal care; brain death and persistent vegetative state; organ transplants; human embryo status and abortion; fetal tissue transplants and reproduction; assisted reproductive technology; cross cultural bioethics (with visiting lecturers and attendance at conferences); (2) release of transgenic organisms and dangers of genetic engineering; Human Genome Project; Life and economics, and patenting of genetic material; Genetic diversity; Genetic screening; Genetic information and privacy; AIDS testing; Eugenics; Human gene therapy; Human genetic engineering and our future.

- One compulsory weekly class of 30 lectures where topics in biology, either emphasizing genetics or ecology (two teachers to chose from), are discussed with reference to recent scientific papers and news stories from *Nature*, *New Scientist* or *Science* journal (compulsory since 1994).

2) Postgraduate teaching of bioethics

- One formal optional courses of ten lectures for Master's in Science Students. Taken by 20% the students as an elective (since 1995).

  Looks at human relationships with the environment, and the lessons we can learn for a sustainable coexistence. We discuss the science, aesthetics, ethics and legal aspects from an international perspective. How can we make balanced decisions preserving the harmony of nature and life in a modern age dominated by economic forces? The lectures include:

  1. Introduction to bioethics and environmental ethics; 2. What can we learn from relationships with nature?; 3. Sustaining biodiversity, patents on life and genes,

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school teaching of bioethics in New Zealand, Australia, and Japan. *Journal of Moral Education* 25: 401-420.

[v] Darryl Macer & Chin Choon Ong (1999) "Bioethics education among Singapore high school science teachers", *Eubios Journal of Asian and International Bioethics* 9: 138-144.

[vi] Darryl R.J. Macer, Yukiko Asada, Miho Tsuzuki, Shiro Akiyama, & Nobuko Y. Macer, *Bioethics in high schools in Australia, New Zealand and Japan* (Christchurch: Eubios Ethics Institute, 1996).

[vii] Yukiko Asada& Darryl R.J. Macer (1998) "High school bioethics education network in Japan", pp. 152-166

economics; 4.Animal rights; 5. Dangers of genetic engineering; release of transgenic organisms. 6. Cross cultural bioethics and international regulation; 7. Science, technology and environmental risk assessment; 8. Pollution, disease and the environment. 9. A sustainable environment in the technological age; 10. Discussion. It is also open to Ph.D. students, but their seminar in bioethics is more informal.

- Weekly seminar for doctoral students as an elective.
- Special lectures in general studies courses.
- Research seminar for those doing fulltime research in bioethics.

IUBS Bioethics Program and Survey

Since the IUBS Bioethics Program was inaugurated in 1998, the activities have seen the creation of an International Bioethics Committee, and participation of some members of this committee in international conferences. The adoption of the bioethics program was in response to the perceived need for biologists to face the ethical, social and environmental issues raised by the development of our knowledge and application of technology. The committee includes a range of disciplines within biology and bioethics, and covers a wide geographical range with the purpose of stimulating contacts in all regions of the world.

In order to seek global comment a bioethics survey was conducted by Email, mail and on Internet http://www.biol.tsukuba.ac.jp/~macer/iubsethics.html. The answers included many detailed comments, which have given us some direction in what future activities may be most needed by, and relevant to, the international community of biologists. Most respondents stressed the need for education of bioethics. Some example comments from the 50 replies are included below for reference, and a full list can be found at the IUBS Bioethics website.

The first question was "1. Before you received this survey what came to your mind when you hear the word Bioethics?". All the questions were open, and the comments were placed into up to two categories per comment. The low response rate of approximately 10% to those mailed means the sample is not useful quantitatively, rather it is only useful for examination of the concerns that have been reflected in the literature and conferences. Few responses were obtained from the www survey.

About 40% mentioned something general about the ethics of biology,*e.g.*

- *One of the most important biological requirements now and in future. An awareness of the importance of bioethics should be developed as much as possible.#3*
- *Ethical behaviour in research, especially with animal experimentation, development of pharmaceutical products and crops, other uses of natural resources and local knowledge of these resources. This, of course, ties in with intellectual property rights and copyright in some cases. Personal ethics in a general sense in carrying out research (not plagiarizing; no shortcuts in procedures; accuracy in reporting results; etc.).#21*

Next, 17% mentioned ecological issues, reflecting the past strength of IUBS in ecological issues, *e.g.*

- *Destruction of habitats, biospheres, and tropical forests, in particular. Pollution of the environment. Extermination of species other than humans. Use of animals for experimental, medical and industrial purposes.#12*
- *I felt Bioethics as what values we should follow as individual / society to maintain ecological balance in the ecosystem.#23*

A further 12% mentioned animal experiments which is not dissimilar to high school teacher images found in surveys conducted to them (see note 5, 6), *e.g.*

- *Primarily the question of the attitude of scientists and medical practitioners to living beings, in particular animals that are sentient or possibly so: experimentation on living animals, the use of animals in experiments, collection and preservation of animal material.#16*

Around 15% mentioned medical ethics, cloning or reproductive technology, *e.g.*

- *Life and death. Genetic manipulations. Techniques of human reproduction.#20*
- *Medical experiments.#29*

Only 4% mentioned the concept of a code of conduct for biologists, *e.g.*

- *Code of conduct with respect to applications of research findings by biologists (e.g. in genetic engineering and risks of escape of new genomes into the wild). #2*

Over 80% of respondents said that they had faced ethical issues in your research. A range of issues were reported, for example:

- *Environment, ecosystem, habitat and biodiversity protection.#8*
- *Some researchers publish incomplete, partly or mostly incorrect information in haste to get academic promotion. I call this "littering (or polluting) the scientific literature"#9*
- *The question of "necessary" killing involved in the collection and preservation of animals. As the objects of my research have been small numerous planktonic invertebrates whose main life-cycle strategy appears to be "survival through abundance", my conscience has not been seriously troubled.#16*
- *Yes - use of wasp venom to raise antibodies in a dove because it might inflict pain on the bird. We removed the more pain inducing proteins before injecting the venom.#25*
- *Yes. Many times in experiments on humans.#26*
- *Firstly human dignity of handicapped children in 1970, then clinical application of human genetic knowledge "Genetic counselling services" and of human genome research and human genome diversity project.#28*
- *Yes. Issues related to selection of data to report or omit.#33*

Less than two thirds reported having discussed ethics at conferences, although many had faced the issues in their work. Two thirds said they had discussed ethical issues at some stage with research students, and some said frequently. Half had raised ethical issues in undergraduate classes, and less said students raised ethical issues in classes. For example, discussed in conferences include:

- *In meetings concerned with nature conservation, e.g. the apparent dilemma of culling stocks of "charismatic" species "for their own good" as one sometimes hears it said, which can sound reminiscent of "There's nane the waur for a guid hanging"! #16*
- *Yes,once in a few months usually concerning cloning.#17*
- *Yes. Often in laboratory and case conferences. #31*

For example, discussed with students or raised in classes include:

- *No, other than discussing the reasons one might have for fostering conservation biology.#7*
- *Yes. We discussed the need to collect animals for inventory purposes.#14*
- *Yes. Issues regarding bio-safety, and ethical scientific conduct.#18*
- *Yes. Every year, my first lecture is on Human destruction of habitats and environment, wasteful life style introduced first by Americans, and the importance of sustainable life style. Critique of ever-increasing economic growth rate and erroneous value idea of*

"progress".#12

- *I have told my undergraduates to have respect for the life in the ocean when I take them on field trips, don't collect or destroy, replace overturned rocks, and things like that.#15*
- *No, such issues were not relevant to the nature of the research they had conducted.#18*

The final question was "8. What issues do you think the IUBS Bioethics Program should consider?", and some responses include:

- *Decreasing of genetic diversity. #1*
- *Genetically modified organisms (not just humans). * priority setting in species and ecosystem conservation. #2*
- *All: Environment, ecosystem, habitat and organismic protection. Clear regulations and laws for genetic manipulations of all kinds of organisms.#3*
- *I think that IUBS should refer to both: the human aspect (genetic manipulation and the proper way to try new medicines on people) and the use of animals for scientific purposes.#14*
- *Genetic manipulations of all kinds. Euthanasia. Human interference with natural environment.#20*
- *Biodiversity, history of genetics and the eugenics movements, research ethics (honesty, plagiarism).#22*
- *Bio-diversity, conservation of natural resources, Natural farming, subsistence farming, use of traditional systems of farming, use of Herbal medicines, use of Natural food products, Green products in place of chemical products in daily use.#23*

Bioethics for Biology: A Dictionary

Currently we are making a dictionary of bioethics for biologists. The editors are Darryl Macer and other members of the IUBS Bioethics Committee. The idea is to have a list of words, terms, persons and ideas which are related to bioethics in a broad sense, in agricultural, environmental, medical, and general science and technology fields. Each entry will have a brief definition, the ethical issues that have been discussed, and where to seek further reference.

The idea was agreed at the meeting of some members of the IUBS Bioethics Committee at Tsukuba in November, 1999, in response to a general call for such a document by biology students and educators. The members of the committee are now in the process of refining the list of entries, and comparing previous notes that several members had (in particular Azariah, Leavitt, Macer, Pollard, Whittaker who have held courses on bioethics education for biology students in their respective countries).

We envisage three distribution routes:

- On-line for free access (by end of year 2000).
- Free hard copies (c.1000), especially to developing countries.
- Hard copies for sale, with publishers in different countries (e.g. including an Indian version from an Indian publisher), to make an affordable book for students.

Conclusion

We note to readers that the writing of entries is not limited to members of the committee, and comments on the draft dictionary are requested at this meeting. We also make a note that

the IUBS Bioethics Program welcomes input from all persons, and please do send your comments and suggestions so that we can expand to consider future issues of ethics as they relate to the work of IUBS. We are now trying to address some of the concerns that face biologists, and to contribute to the international debate on bioethics representing concerns of responsible biologists.