
REFLECTION AND ACTION: THE CHALLENGE OF THE MODERN UNIVERSITY*

Heitor Gurgulino de Souza
Rector United Nations University

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What we are essentially talking about here is a basic challenge that faces higher education: the pull between the commitment to fundamental learning -the traditional function of a university out of which has flowed so much of humankind's progress- and the responsibility toward the immediate pressing requirements of the societies within which they exist. In the developing world, this equation is frequently cast as the need to strike a balance between contributing to national development and maintaining intellectual freedom and autonomy.

However one defines it, this is a continuing tension in the world of higher learning. It is exacerbated particularly in today's world by the university's increasing complex responsibilities in the area of disseminating and making useful the fruits of modern science and technology. While science and technology are the natural province of universities the world over, they are of special concern for institutions in the developing world. For the third world, a failure to master science and technology can spell an even greater dependency. Day

by day, as new advances in information technology come out of the laboratories in the industrialized countries, our present world of "haves" and "have-nots" threatens to turn into something even more unjust and lastingly skewed: a world of "knows" and "know-nots". There are still many barriers to access to the "electronic highway" -the growing international networks of interconnected communication modes that characterize our age.

Increasingly, our modern society is coming to be undergirded by what Daniel Bell has called an "intellectual technology". If capital and labour were the major structural features of the industrial society, knowledge and information have become the primary building blocks of the post-industrial society which now characterizes much of the industrial world, and is already being felt elsewhere on the globe.

Science and Technology: Distinct and Complementary Binomium

While we tend to use the words "science and technology" together, they are, of course two very distinct entities. Advances in science, as a rule, tend to be judged, at least initially, by fellow scientists. We therefore think of science as being international and "open" to other

scientists around the world, and it claims legitimacy simply because knowledge itself is the goal. Technology, on the other hand, is accepted only when a wider population can make use of it. It is not necessarily international -too often these days it is locked into commercial production cycles, and available only to those who can afford to purchase it.

Science, thus, has become inextricably intertwined with both technology and with society's requirements. The time gap between the scientific discovery in a laboratory and the technological application of that discovery is constantly being reduced. Moreover, we cannot really define the directions that either science or technology should take without defining what kind of society it is that we want to live in. And that definition must be fashioned today on a global basis.

This near simultaneous working of science and technology has helped bring on a whole new generation of problems -due, along with scientific and technological advance, to the exponentially increasing rate of social change. All of this places a severe responsibility on our universities.

Economics of Science and Technology

Science and technology have become an economic factor that is increasingly predominant over other factors such as land and labour. They are thus certain to be major instruments in the distribution of the wealth of nations by the end of the century. As progress is made in the field of physics, chemistry and biology, new materials are becoming available to replace the traditional raw materials. The mastering of new technologies in the fields of microelectronics, robotics and informatics will be instrumental in replacing traditional manpower.

With the rapid development of new high technology materials, basic research is assum-

ing greater and greater importance. This has led, in turn, to the substantial growth in commercial interests in areas that were previously largely of academic concern. Universities themselves, as we are all aware, have felt the impact of this -and they are being called upon to more cost-effective and oriented towards commercial technological applications.

The increasing privatization of the results of basic research has gone hand-in-hand with the increasing commercialization of knowledge, particularly in fields with dynamic commercial applications such as biotechnology and information and new materials technologies. Some companies are now funding university research on the condition that they retain privileged access to the results. Others have established their own basic research programmes with substantial funding and very advanced facilities. These kinds of arrangements challenge the basic concept of a university- that is a place where knowledge is freely shared for the benefit of all. Many of the corporations now involved in their own basic research, moreover, are multinational in structure and thus can operate through their own worldwide networks. Such far-flung research endeavours are in sharp contrast to the highly individualized, department-based research efforts of traditional universities.

It is worth recalling, in this connection, the experience of the so-called Green Revolution - which came about largely because of breakthroughs developed by a number of international research institutes receiving most of their funding from philanthropic foundations. That information was free. Now we are entering what some have termed the "Gene Revolution", based on advances in biotechnology. But these benefits tend to be available only to those enterprises and countries who can afford to pay for it- unless they can somehow build up their own scientific capacities to do it themselves. We may be entering an era in which there is an ever widening gap between our dream that science could help build a better world and the harsh economic realities of commercial interests.

Leading educators and scientists in both the U.S. and Japan for example, have recently publicly expressed their concern over the impact of this trend toward privatization of science, which may limit their access to the results of academic research. As we also heard at the IAU Los Angeles Meeting in 1985, the President of Stanford University expressed his serious worry about restrictions on the wide publication and circulation of certain types of research results. The situation could be even more pernicious in the Third World. Clearly, we need to focus more attention on policies and innovative means that could enable individuals and nations to expand their access to knowledge in all its forms.

We need to know a good deal more about the consequences of the economic changes that all this is certain to bring about -not only the scenario of the world markets, but also on the setting of the division of labour within and among countries. We will have to pay particular heed to those areas where cultural values will be affected. The research we do here could help set the directions for a better distribution of wealth and for better access to technologies. At the same time, it could help undergird those precious cultural values and ethical standards which set apart and define the human being as a unique creature, Pascal's fragile but "thinking reed".

Next Intellectual Creativities

In the effort that is called for, it will be important to tap intellectual creativities at the level of the epistemological frontiers of all disciplines, in their pure and specific domains as well as in their essentially interdisciplinary nature. Some of the most stimulating and fertile work here could well lie at those junctures where the social sciences and the humanities - in anthropology or history -meet the nature sciences- as in ecology or the biological bases of behaviour.

We have before us a vast and tremendously challenging scientific horizon. Food production under extremely adverse conditions such as those observed in certain arid, humid and highland zones, for example, will require knowledge of basic genetics and chemistry. Life-support systems cannot be adequately understood without the contribution of basic research in the natural sciences. In many other areas, such as those of nutrition and health, energy and economy, and communications and electronics, fundamental research is necessary to understand the crucial connections.

We need, of course, to increase basic research in the social sciences and the humanities. Technological choice is, in the final analysis, a choice among values -about the kind of society in which we want to live, about the kind of world in which we want our grandchildren to live. Unless economic and technological progress is equally distributed within and among countries, and is evenly balanced with the promotion of social welfare, cultural values and human rights, existing problems will only be increased, and more stress put on the relations will not be adequately understood.

Although these are world wide needs, they are most starkly evident in the lesser developed parts of the global society. The impact of the technological revolution is sharpest, in human terms, in the Third World -where it could have particularly negative effects and create new dependencies. It is essential, therefore, that the developing countries must prepare themselves to play an active role in this revolution -and the front lines of the battle will be in their universities.

Universities: Seed Beds of Revolution

Universities, of course, have long been the seed beds of revolutions -cultural, intellectual and political- and very proudly so. They are

the place where new ideas are meant to be churned and tossed. It is for this reason that we of the universities hold so dear the principles of academic freedom, tenure and autonomy as safeguards of challenging and controversial thought. Out of this has developed the notion of the university acting as a sort of "critical conscience" of society. Historically, and appropriately, that role has been limited to a particular society and a particular set of national values.

Now, however, global interdependence demands that the university's vision extend beyond the frontiers of any one nation or state. Yet too often these days, it seems as if some kind of ethical and moral silence has descended on this international university responsibility. Why is it, for example, that with all our potential to do good with science and technology, we continue to accept a world riven with such violence and injustice -often, indeed, abetted by the forces of science and technology? How is it that we let widespread famine and starvation coexist on this planet with our modern high technology production capacity? Certain key components -philosophical and moral-are missing from the equation.

This lacking was eloquently recognized by His Holiness Pope John Paul II in a UNU -sponsored lecture he delivered several years ago in Hiroshima- the city which, in a few days time, will again mark that tragic moment forty-three summers ago when the atomic bomb was first unleashed on humanity. His Holiness said:

"Science and technology are a wonderful product of a God-given human creativity, since they have provided us with wonderful possibilities... But we know that this potential is not a neutral one: it can be used either for man's progress or for his degradation... Surely the time has come for our society, and specially for the world of science, to realize that the future of humanity depends, as never before, on our collective moral choices".

This, I believe, has been the missing ingredient in our use of science and technology to

the modern world's problems -for the technical expertise we can supply from our university laboratories will be for naught unless it has these ethical and moral underpinnings of which Pope John Paul spoke.

Need for a Global Alert

One very useful and highly relevant task on which the universities of the world might embark co-operatively would be to provide a kind of global alert mechanism to help humankind cope with emerging problems. Here I believe that my own university -the United Nations University- might have a significant coordinating role to play. The lack of some such appropriate and internationally-monitored scientific "distant early warning" system has been all too apparent in recent years.

Who, for example, could have predicted the magnitude of the most recent global recession or the enormity of its impact on the Third world? Who could have warned all humankind of the potential world epidemic of AIDS since it was first spotted? Who might have expected that, in this supposedly secular age, religion would suddenly surge to the forefront of political and social change?

Developments such as these -which caught many on the international scene unaware- represent a challenge to conventional scholarship. They demand new insight and rapid responses that may go well beyond the traditional academic mainstream of any one culture or country. But, if confronted with flexibility and a willingness to innovate, such a challenge could be well within the mandate of the member institutions of the International Association of Universities.

Let me cite a few other concerns now on the horizon -the very near horizon I should emphasize- where a concerted and well-organized effort might provide valuable insight and direction:

- What is the true state of environmental change in the Himalayan-Ganges region, where some experts foresee the potential for human suffering on a scale which could dwarf that experienced in the Sahel? What specific ecological, economic and political policies are called for to cope with the situation?
- What might be the potential impact of the so-called "greenhouse effect" on the world's climates, crops and human societies? Scientists warn that the present severe drought in North America may already be providing a foretaste of warming climate patterns -with ominous implications for world food supplies and prices.
- What measures are necessary to deal with the destruction of the ozone layers -and its consequences for global health- which is apparently being triggered by the continuing use of fluorocarbons?
- How well have we developed our understanding of phenomena such as "El Niño" which seems to have strong correlations with droughts and other regional and global climatic changes?
- How can we curb the growing ravage of the world's tropical rain forests and the massive use of chemicals -and still accommodate legitimate development needs?

These are all potential problems where a co-ordinated effort by the international academic community might well point the directions for future research and training. Such an undertaking could help provide cross-cultural and cross-disciplinary guidelines and inter-university co-operation that are so sorely needed in today's complex and swiftly changing world.

Multilateralism Under Attack

Such a concerted effort moreover could be a heartening demonstration of the ability of

scientists and scholars to act in concert, in the service of the whole human society, at a time when the idea of multilateral co-operation is under such severe attack from various quarters. In his Oscar Iden Lecture at Georgetown University last October, my predecessor as Rector of the United Nations University, Soedjatmoko of Indonesia, warned of the dangers in spousing the mirror opposite of multilateralism -unilateralism. The latter, he said, was:

"An unrealistic belief that the problems confronting a country can and perhaps should be dealt with by the government of that country acting independently. This fosters an illusion at best future and at worst dangerous -that certain values which are in fact indivisible can be divided up into pieces corresponding to the size and shape of particular nation-states. Security, prosperity, the integrity of the environment are no longer within the grasp of any single state, even the most powerful".

We are all too familiar with the signs -sadly most in evidence with some of the strongest and best endowed states- of a loss of faith and confidence in the capacity to improve the world's problems through international co-operation. And this at a moment when global interdependence demands that our vision extend beyond the frontiers of any one nation or state. The universities of the world must therefore demonstrate the urgency of embracing this notion -of a dramatically shrunken planet on which we all must be good neighbours, or we will probably all perish. This recognition has brought us at the ONU to consider whether we might not be able to provide the necessary umbrella for an internationally co-ordinated global alert function. Under it could be assembled researchers and institutions already engaged with urgent development concerns, but who are now often working in isolation.

The Dynamic of the University

What I am proposing here will, of course, require new institutional attitudes and flexi-

bilities. But the notion of a university is not something chiselled in granite. It has evolved dynamically down through history to meet changing needs -from a repository of knowledge to a generator of knowledge to a purveyor of public service. In our present time of ever more rapid transformation, universities above all should be in the vanguard.

In our efforts to change, I believe we cannot lay too much stress on the importance of our continuing to communicate with one another. We need to know more about what we are each doing about the kinds of problems I have mentioned. Here certainly we should take maximum advantage of the opportunities provided by new communications technology -such as computer networking, electronic mail and teleconferencing.

Rigour vs. Relevance

Scientific rigour must, of course, continue to be the hallmark of academic excellence. But excessive academic compartmentalization can fragment our perceptions of larger issues. As one -only slightly cynical- observer has remarked: too much rigour with too little relevance can result in rigour mortis and action.

In particular, we need to think about developing more interactive modes between the university and society, with special attention to those interfaces where synergism could occur. It is, of course, easy for me to preach the merits of the integrative, cross-disciplinary approach that such an effort implies. It is another thing to achieve mutually beneficial cooperation between academic disciplines -as this audience knows all too well. Interdisciplinarity has too often been the first victim of retrenching action. Traditional disciplines naturally have the stronger constituencies. I mean this in no way to demean the great advances in human progress for which the pursuit of rigorous single disciplinarity can claim very rightful credit.

A Role for the United Nations University

The United Nations University stands ready to co-operate as fully as possible with our colleague institutions of higher learning throughout the world in helping to organize more innovative and relevant approaches to the interwoven and complex concerns of the modern world. Compared to the great traditional universities of the world, we are very much a newcomer -but one which, I am firmly convinced, is well-positioned to take its rightful place in such an effort.

The UNU is committed to a world view that is consistent with the highest values of science and technology: to push back ignorance and use knowledge to relieve suffering. It has developed the flexibility to respond quickly and responsibly to the need for new scientific and scholarly insights. Thanks to our Charter guarantee of academic freedom and autonomy, we can be open to thinkers of all political and philosophical tendencies, a forum for fresh conceptual approaches to problems of all sort.

The essential concept perhaps is that of openness -one in which that old vision of the university as an ivory tower has little relevance. A tower, by definition, stands alone and aloof, and a brittle ivory is hardly an appropriate building material with which to construct the resilient and versatile instruments of learning which our world today so urgently requires. I prefer rather that vision which reportedly inspired the founders of Harvard University three and a half centuries ago -the vision of "a city on a hill". One could, I believe, redefine and renew such a city today as the "international community of scholars"; dedicated to the advancement of knowledge for the betterment of the human condition. We, of the International Association of Universities, have stewardship of that community and its uplifting dreams.

In the final analysis then, we can only make a difference by working together -all of us in the global university- to bring about

sorely needed improvement in the daily lives of so many millions of our fellow human beings. Together, we can reflect and act to better our world and that of our children.

When the late Burmese scholar U Thant first proposed the idea of a United Nations University to the General Assembly- now nearly two decades ago- he argued that the "price of human survival" was "a new quality

of planetary imagination". I ask your help in the achievement of that goal, for our world today is far too complex, too fragile, and too frightening to be the province of any one academic school or experience. A new sort of cooperative intellectual endeavour is needed, involving us all. I am sure that the UNU and IAU can work closer and closer together to achieve our common goals in facing these challenges.