



NATO Science for Peace and Security Series - C:
Environmental Security

Addressing Global Environmental Security Through Innovative Educational Curricula

Edited by
Susan Allen-Gil
Lia Stelljes
Olena Borysova



Springer



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Addressing Global Environmental Security Through Innovative Educational Curricula

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Series C: Environmental Security

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PREFACE

At the NATO ARW workshop on Enhancing Environmental Security in Transition Countries (Sibiu, Romania, 2006), the assembled experts identified the inadequacy of the traditional Soviet/Eastern European approach to higher education as a major hurdle toward achieving environmental security in transition countries. While this system of education has excelled in promoting discipline-specific detailed investigations of basic science, especially natural history, and advanced engineering (nuclear physics), it has not approached education with an emphasis on applied science, interdisciplinary thinking and holistic problem solving. Thus, it is difficult, and sometimes impossible, for research teams to approach and solve issues of environmental security, such as resource conservation, water pollution, food production, and air quality in a manner that addresses the multifaceted nature of these issues. We will need a global community of educators adept at training young people to work cooperatively to solve local, regional and international environmental problems. NATO and its partner countries clearly recognize the importance of this area for research: environmental security is a priority research topic for NATO and for 11 of 15 partner countries.

The time is ripe for rethinking educational strategies, methods and goals. In 2005, the United Nations launched the Decade for Education on Sustainable Development. Universities in North America and Western Europe are responding to this call. Both University Leaders for a Sustainable Future and the American Association for Sustainability in Higher Education (AASHE) have grown exponentially in recent years: the AASHE annual conference saw a fourfold increase in the number of participants in two years. Likewise, the dialogue on curriculum innovations for promoting sustainability and environmental security is expanding. In transition countries and those of the former Soviet Union, universities are now stable enough in terms of finances and faculty to examine changes in curriculum and teaching approaches. Reforming higher education of transitional countries is a monstrous task, and there are several efforts currently underway, such as the Tempus Programme of the European Union. Another organization working in this area is the Alliance of Universities for Democracy, whose mission is “to enhance the role of education in promoting democratic institutions, economic development including technology transfer, decentralized decision making, human health, sustainable habitation of the earth, and common moral and social values”, and it holds an annual conference for academic exchange between professors and administrators from Central and Eastern European Countries with those of Western Europe and North America.

Given the importance of education in environmental security and sustainable development, we convened a NATO Advanced Research Workshop (ARW) on “Rethinking Higher Education to Meet the New Challenges of Environmental Security” in Kharkiv, Ukraine in May 2008. This meeting brought together 36 international scientists and practitioners from fourteen NATO Member, Partner and Mediterranean Dialogue countries to identify the key weaknesses in higher education for addressing issues of environmental security and sustainability challenges.

The workshop goals were to: (1) inform university professors how to adapt their curriculum and teaching strategies, (2) produce university graduates that are more capable of prioritizing, evaluating and managing environmental issues through exposure to a holistic approach to solving environmental problems, (3) strengthen ties among practicing environmental scientists, managers, and government officials, and (4) increase collaboration among faculty in higher education and between colleagues in NATO member, Partner and Mediterranean Dialogue countries.

The teaching of environmental studies is well developed in North America and Western Europe where the principles of sustainable development are taken into account in teaching environmental problem solving. The approach is interdisciplinary with a focus on integrating the physical and natural sciences with the social sciences. Yet, these countries face additional challenges to address issues of unsustainable resource use, which in the area of energy, for example, poses an enormous risk to environmental security. In transition countries, this teaching approach has yet to develop and mature. Most environmental teaching focuses heavily on the sciences with little integration with other disciplines, specifically the social sciences. This workshop initiated the development of a broader based approach to the teaching of environmental studies by identifying the most significant health and environmental issues; addressing environmental security and sustainability issues within the local socio-economic constraints; identifying and prioritizing the most cost-effective educational strategies; promoting effective decision-making; and, making the best use of limited resources to achieve the greatest net environmental benefit.

We hope that educators will be inspired to develop and implement new approaches to teaching that provide students with the interdisciplinary knowledge base and applied skills from workplace internships that they will need to ensure environmental security in the decades ahead.

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GLOBAL AND EUROPEAN TRENDS IN HIGHER EDUCATION: IMPLICATIONS FOR UNIVERSITY CURRICULA

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Abstract: This paper looks at the various effects of globalization on higher education, analyzing how the closer relationship between economy, the state and the university fit into the concepts and rhetoric of “knowledge society” and “mode 2 university”. The focus is on recent developments in the European higher education, particularly on the changes triggered by the signing of the Bologna declaration. In a somewhat narrower sense, the paper also discusses the ways in which the Bologna process – its values, principles, and objectives – should prompt not only structural, but also content related, changes in university curricula.

Keywords: university; higher education; global trends; knowledge society; curriculum; Bologna process

1. The Changing Role of Universities

There has never been a single definition of what a university is and what its role should be. Historically, universities have become independent of the church and the state, and their primary role has been that of carrying out research and offering teaching (Humboldtian model of university). Teaching and research remained core functions of the university. Recently, however, a third mission has been added, that of serving the needs of national/regional/global economies and offering public service to national states.

Much of the twentieth-century rhetoric on universities talks about a segregation between the university, the market and the state. University’s autonomy, however, is considered to be relative, as higher education remained strongly connected to the society, particularly through the knowledge that it produces, or rather is expected to produce. Authors like Ronald Barnett talk about a triangle of forces (Barnett 1993), whereby society, knowledge and higher education act upon each other as separate forces, while Gerard Delanty considers the university as a key institution of modernity where knowledge, culture and society interconnect (Delanty 2001). Other scholars argue that modern knowledge production is characterized by a new mode, “mode 2 of knowledge production” (Gibbons et al. 1994).

In this new mode of knowledge production, research and enquiry are driven by the interests of the society and the economy, rather than by the ones of the academic world. Much emphasis is placed on who will be the user of the produced new knowledge and how knowledge will be used, and less on “why, where and how” knowledge has been produced. Research problems are often shaped by non-academic agencies that commission the research, provide funding for it, and use the results for a specific purpose rather than by purely academic curiosity. In earlier times, as Steve Fuller argues, the very term “knowledge management” would have been considered an oxymoron, as knowledge has been viewed worth pursuing for its own sake, regardless of its costs or benefits (Fuller 2005).

The transition to a “mode 2 society” (through the emergence of the knowledge economy and knowledge societies) is also leading to the development of a “mode 2 university”, whose mission and functioning, as described by Harloe and Perry, are closer to the policies of national governments and the market and is more directly responsive to national and regional needs (Harloe and Perry 2004).

2. The Effect of Global Trends

With the process of globalization, these economic and social needs have become increasingly complex. Problems of societies and the environment are “multidisciplinary”, only rarely approachable from the perspective of a single discipline or branch of science. Therefore, “mode 2 universities” are carrying out research in cooperation with other institutions in an interdisciplinary fashion, often using teams of experts coming from a variety of disciplines and sectors of the economy and society. In this context, besides producing new knowledge through research, universities become institutions where knowledge produced elsewhere in the society is transformed and validated; it is conceptualized, categorized, and introduced into the curriculum. The university, as Delanty puts it, is now “an institution that mediates, or interconnects, several discourses in society”.

Such a large scale cooperation with various stakeholders also requires universities to look for new funding schemes. International organizations, institutions and funding agencies, such as the European Commission, World Bank, etc., are becoming important funders of knowledge production. Their role in shaping higher education policy worldwide is becoming more and more important, particularly when contrasted with the declining public funding of universities (Bassett 2007). The process is slowly but steadily leading to a stage when higher education becomes “an object of world trade” (Nunn 2002).

The development of the global knowledge economy can also be situated within a broader process, which Nowotny et al. (2001) describe as the “contextualization of science” in which “science and society have invaded each other’s domain”. The unity of teaching and research, as once assigned to the Humboldtian university, has taken a new shape – the knowledge society universities are engaged in the creative destruction of social capital. Research is the generator of social capital, as those involved in its production are the primary beneficiaries, while teaching reduces this “market advantage” by making research findings available to students

and to the larger public by dissemination and publications (Fuller 2003). The often mutually exclusive expectations towards universities' contribution to the shaping of knowledge societies and the global economy raise a series of concerns about the fundamental principles of functioning and the structure of the classical university. Should institutional walls built between academia and non-academia be maintained, or should they be demolished? Can disciplinary-based sciences be expected to realistically contribute to economic performance (Gibbons 2001)? Should degree programs that are unresponsive to market conditions be closed, and should university departments be converted into temporary interdisciplinary units that can be re-shaped according to global and local market demands (Fuller 2008)? As there is a demand from the side of the economy and society for new skills, should universities focus their curricula on developing employability by focusing on skills relevant in the labor-market rather than on knowledge and values? Should students be encouraged and taught to be market-oriented and "flock to courses which offer a passport to employment in the dynamic sectors of the economy" (Harloe and Perry 2004)?

3. European Developments

The ideas of university autonomy and academic freedom, as well as the relationship between politics, economy, and higher education, have been issues of serious discussions in recent years, particularly in Europe. The re-writing of universities' mission has often followed what Pavel Zgaga called the logic of a pendulum: a total dependence on political and economic activities gave way to an "autistic" position, one that lost sight of the public mission of the university (Zgaga 2003).

Indeed, the European higher education went through very significant changes during the last 15 years of the twentieth century. The "pendulum" first moved into the direction of recognizing universities' autonomy and the freedom of research and teaching. Rectors of European universities, gathered in Bologna on 18 September 1988, signed the Magna Charta Universitatum, whose first fundamental principle reads as follows: "*The University is an autonomous institution at the heart of societies differently organized because of geography and historical heritage; it produces, examines, appraises, and hands down culture by research and training. To meet the needs of the world around it, its research and teaching must be morally and intellectually independent of all political authority and economic power*".

Some years later, in June 1999, the pendulum seemed to move in the opposite direction: higher education stakeholders of a totally different kind – ministers and government representatives, have formulated and signed the Bologna declaration, the principles of which contradict the idea of independence of all political authority and economic power from the university. The purpose of the process that started with the signing of the Bologna declaration is to create a European Higher Education Area in order to increase employability of graduates, and the international competitiveness of European universities, by creating a common architecture of degrees and set of values. Signatories of the declaration hoped that