

Introduction - Preface

The process of editing and publication of the proceedings for the 5th Interdisciplinary Congress on

“Education, Research, Technology. From yesterday till tomorrow”

organized by N.T.U.A. and M.I.R.C. of the N.T.U.A. has taken longer than expected for very specific financial reasons due to which the grant promised by the Ministry of Environment was cancelled.

Following these facts we decided to upload on the M.I.R.C. site (<http://www.ntua.gr/MIRC/>) the:

- Opening session, proceedings
- Keynote speech
- Complete texts of papers presented at the conference
- Round-table and closure discussion

The publication of the conference proceedings was finally concluded by M.I.R.C. of the N.T.U.A. due to the generous scientific and technical support of the N.T.U.A. Metsovion Interdisciplinary Research Center (M.I.R.C.), M.I.R.C. Development Foundation and the Laboratory of Remote Sensing, the Cadastre Research Foundation and the financial support of National Technical University of Athens, on all levels.

The 5th Congress took place in the N.T.U.A. – M.I.R.C. premises in Metsovo on 27-30 September 2007 and was dedicated to the subject “Education, Research, Technology. From yesterday till tomorrow”.

This congress was planned in the framework of the N.T.U.A. institution involving among others triennial Interdisciplinary Interuniversity Conferences focused on protection and development of mountain environment and local European Cultures and stemming from N.T.U.A.’s decision to systematically reinforce its ties to the homeland of its founders and benefactors, as a way of paying back part of N.T.U.A.’s debt to them.

The goal of this conference was to contribute, on both theoretical and practical levels, to the analysis of the potential of multidimensional relations and interactions of Education, Research and Technology with economy, society, politics and culture considered as fundamental contributors to integrated development. This type of development will be worth living for, as it will respect man and his natural and cultural environment in the especially critical conditions of natural and socio – economic situation in the modern world and their dramatic changes.

In the framework of this triennial tradition of conferences of memory, honor and live contribution of the entire N.T.U.A. potential to the integrated interdisciplinary research, study and confrontation of basic factors of development and environment, this conference was organized on a methodology aiming at the following targets:

- to gather the whole community of the National Technical University of Athens as well as the other universities of this country, including their professors, students

and alumni, encouraging their contribution through individual or collective papers or even thesis and student work on the themes of the conference

- to continue the firm and creative collaboration with the University of Ioannina, involving the priceless initiative of Professors P. Noutsos and E. Kapsomenos towards this common goal and
- to constantly develop and strengthen systematically the necessary prerequisites for a constant communication and collaboration between N.T.U.A., the Prefecture of Ioannina and the Municipality of Metsovo as well as the other institutions of Metsovo and its inhabitants.

The subject matter specially covered in the 5th Congress of N.T.U.A. and M.I.R.C. in Metsovo, includes theoretical contributions as well as specific applications contributing to the development of methods, techniques, software and/or scientific or technological innovations in one or more of the following thematic fields:

1. Education, Research and Technology for a peaceful and better world. Goals, values, programs of study, research projects technological innovations, evaluation of results on economic, social cultural, political and environmental levels are included in this field
2. Critical evaluation of national and European policies on education, research and technology in globalization era.
3. The public character of education. Critical issues. Values, Problems and Proposals.
4. Competition, market, work relations and Universities. Can the “Executive University” be considered as a University?
5. Education, Research and Technology. Relations, interconnections, interdependencies, boundaries, potential, limitations and perspectives.
6. The unified European space of Universities - Positive and negative aspects. Can economy considered as “increase” become the main determining factor?
7. Education as culture and civilization as compared to its competitive commercial version. Short-term and long – term costs and benefits.
8. Towards a National Strategy on Education, Research and Technology. Problems, potential, limitations and perspectives.
9. Contribution of new technologies to the creation of new products and services useful for man and society, with special emphasis on mountain or island regions as well as on degraded urban areas.
10. Development of forms of housing, tourist settlements and energy that are suitable to people, especially in mountain and island regions.

11. Education, Research and Technology for an integrated (economic, social, political, cultural and technical/technological) and decentralized development, in dialectic harmony with the environment.

The papers presented and discussed during this Congress are published in these volumes, reflecting the results of our fifth effort, and they are open for review and criticism by any reader, depending on his background and interests.

These papers treating the subjects of Education, Research and Technology and their multidimensional relations and interconnections with politics, society, civilization, economy, mostly in reference to development and environment issues, can be grouped in the following four entities:

- Interdisciplinary theoretical essays, practices and policies (15 papers)
- Specialized analytical and applied studies (19 papers)
- Papers presented in the framework of the special interdisciplinary conference on the theme “Civilization and Development” which was organized by professor Kapsomenos under the auspices of M.I.R.C., M.I.R.C. Development Foundation, and the University of Ioannina (15 papers)
- Specialized research papers (19 papers)

Introductory remarks: The Nature, Role and Public character of the University in the recent past (1997).

The public University is the focus of this congress and many participants serve and defend this institution, believing that Education and Culture are social assets belonging to all citizens and forming the basis of integrated development at all levels (political, social, cultural, economic and technical/technological), towards the creation of a peaceful and better world.

In 1997, exactly 10 years ago, in the framework of my introductory speech in the fifth Conference of Philosophy in Chania (29-31/8/1997) focusing on the theme: “The University in an emerging society”, I tried to answer the question:

“What is the **nature** and **destiny** of the University today and what is the meaning of its **Public Character**?”

And first, what is the meaning of **today**?

- Does this word include not only the “present” of all those who, like us live, work and study in our ivory, glass or paper microcosm, but also the general political, social and economic “present” of our country as an “independent” island of happiness or as a province of Brussels striving towards numismatic convergence?
- Does “today” refer to the actual one-dimensional world of globalization and its dramatic multi-level consequences?

I believe that our approach should refer to all these “presents” together. This means an integrated “today”, composed of a superposition of all the independent ones together.

■ At global level, this is defined by:

- a new order, dominated by the sole super-power, U.S.A.,

- the neo-liberalism which is finally the dominant ideology on a global level,
- the collapse of the communist states and their effort to be integrated in the capitalist “paradise”,
- the social humiliation of the other ex-super power and its partners,
- the absolute dominance of the market, the banks and the stock market and their pitiless competition,
- the on-going homogenization and globalization of civilizations,
- the selective sensibilities of superpowers as to the respect of human rights,
- the generalized multidimensional social economic and political crisis, mercilessly striking at least 1/3 of the citizens of “developed” countries and the majority of developing ones,
- the multiple dominance of the media in the society of markets, information and emerging knowledge.

As a consequence of the above there exists a general direction of substitution of education, as a process of formation of active and responsible citizens, by the mere acquisition of technical / technological dexterities useful to the human machines operating in the global market.

In Greece, “today” is also especially defined by:

- the extreme West-European tendencies of a large majority of the political world, who choose to see the economic and numismatic union as a safe refuge for our country, notwithstanding specific initiatives of many of its members who are far from the theoretical values of the European Union and International Justice.
- the mythical sanctity of the market, the economy, competitiveness and limitless adaptation to all European laws and policies, which emerge not from collective and democratic procedures but from the impersonal bureaucracy of the European Commission.

An inescapable consequence of the above is the increasing disappointment of Greek citizens, working people, university teachers and students and their gradual withdrawal from any creative collective political initiative and activity, which is replaced by growing individualism and exclusively profit pursuit.

The **Nature** of the University can be theoretically defined, in a reference to the “nature of things”, as “the substance and the whole of its properties” or, even better, as “its deeper and fundamental substance” which is influenced by the members of the university community. We can therefore use the terms “according to nature” or “contrary to nature” to describe rules, habits or behavior of members of the university community, depending on their agreement to the deeper nature and substance of the university.

And if we go back to the emergence, the ideology and the **Purpose** of the University, which are, in theory, “significant work to realize” or even “life dedication” according to the scriptures, we can then investigate, discuss and document their causal relation with the university’s public character.

The **Nature** as well as the **Purpose** and the **Public Character of the University today** can be assessed in a different way, depending on their position and point of view, as well as specific interests and ideologies, by the following **groups of interest**:

- Those who live in it and those who stay outside its boundaries,
- the professors, the students and their expressions,
- the “modernist” politicians vs the more traditionally minded ones,
- the European Union, and its competitors, USA and Japan which influence, in several ways, policies concerning universities around the world,
- the average social consciousness which insists in still bestowing a protagonistic role to the university in the evolution of Hellenic social formations.

And what is our particular point of view in this debate? What world do we prefer to keep as is and what would we like to change and how?

This “**today**” of 1997, our recent past, can contribute, I believe, as a basic introductory remark for the discussions that will follow during our Congress.

In the first part of our Conference, the following works are included:

- The introductory speech by the undersigned, on the subject “Education, Research, Technology. From yesterday to tomorrow”, striving to express the dialectic relations of those three concepts on the political, cultural, social, economic and environmental level from yesterday till tomorrow and formulating substantial questions as a basis of discussion throughout the conference, as well as the following theoretical contributions:

A. Andreopoulos, «The Role of Technical Universities in the Modern Developmental Planning»

D. Patelis, «Research, Technology and Education in the Dialectic of Humanity-Nature Interaction” and “The Logic of Free Research and the Subordination of Science and Education to Capital»

E. Panayotatos, «The Field of Research, Education and Development Planning in the New Era»

D. Kaliampakos, «Towards a new university, but which one?»

N. Aspragathos, «Commons-based Science and Research and the Privatization of the Results»

A. Kostaropoulos, «Historical and Social Effects in Developments of Education and Certain fundamental conditions for Improvements or Changes in it»

G. Liodakis, «The need for and the ways to broaden the Public Character of Education and Research»

H. Sianou-Kyrgiou, «Policies and Practices for the Reform of Greek University»

J. Hatzopoulos, «Education for a World of Virtue»

P. Noutsos, «Evaluating the Evaluation»

Th. Pakos, «University and Development»

Er. Kapsomenos, «Cultures de l'espace. Du passé au future»

P. Pavlidis, «Labour as Culture. On the Educative Dimension of the Social Ideal»

A. Lydaki, «Geometry and/or Art? Methods and Techniques in Social Research»

In the second part of our Conference the following more specialized works are included:

K.Theologou, «Knowledge Transfer as Social Interaction»

Ap. Trompoukis, «The New Technology as a Useful Tool in the Educational Process»

L. Siola, Ang. Siolas, «The Education and the Profession of the Architect in the Perspective of Free Mobility of Services»

Ev. Pappa, «Entrepreneurial Innovation and Regional Development»

Ath. Belegri-Roboli, M. Markaki, P. Michaelides, «Epirus Region: Production Technology, Employment and Professions»

El. Stamatiou, Chr. Ladias, «Connection of Higher Education Institutions and Production -University and Epirus's Local and Regional Development»

El. Stamatiou, R.-N. Lacroix, «The Creation of a Science and Technology Park and the Development of the Region of Epirus in Greece»

P. Zentelis, M. Fouka, A. Labropoulos, «Development of an Information System about the life and the sayings of the great men of Ancient Hellas»

M. Santorineos, St. Zoi, K. Tiligadis, N. Dimitriadi, «Art-Technology: Lessons for an International Language»

El. Soulti, «Cultural Centre at Syrrako»

G. Petraki, «How does ICT (Information and Communication Technology) influence work? »

C. Sofianopoulou, «Seeking Ways to Provide for Equality of Access to the Information and Knowledge Society in Remote Regions»

G. Panagiotou, T. Michalakopoulos, E. Tsiavos, «Examples of e-learning and e-conference Application: What we Learned during the Last decade»

P. Antoniou, A. Siskos, «Lifelong Learning, ICT and Web Based Distance Education: Participants' perceptions in the Online Learning Community of Physical Education Teachers»

P. Rouni, Th. Kokla, P. Katsakiori, M.Tsolaki, Yv. Pourrat, «Investigation of the Causes for the Low Attraction of Female Students in Technical Universities and for the Slow Development of Women in Engineering Careers»

Aik. Theodoraki, V. Delygianni- Kouimtzi, «Girls and Science: Elementary School Teachers' Attitudes of about Lessons and Jobs in Science and Gender»

G. Belogiannis, F. Kougioumoutzaki, A. Kalamatianou, «Gender Participation in Greek Education: A Social, Political and Cultural Issue»

Evr. Papadimitriou, «The Young and the Environment: Environmental Attitudes and Behavior of High School (Lyceum) and Technical School (TEE) Students in the Prefecture of Rodopi»

C. Chatziioannidis, Th. Filippakis, «Inquiring Activities in High School Science Education»

In the third part of the Conference the papers that were presented during a special meeting on “Culture and Civilisation» that was organised by MIRC, MIRC Development Foundation and University of Ioannina and co-ordinated by professor Er. Kapsomenos are presented:

Ap. Benatsis, «The homeland and the poets from Epirus»

V. Polyhronopoulos, «The Relation between Man and Technology in the Brave New World of Aldous Huxley»

D. Papaioannou, «The crisis of modern civilization in Miltos Sachtouris' poetic images»

V. Letsios, «Evaghelos Averoff-Tosizza's literary “land»

A. Giannikou, S. Baldzis, D. Papaioannou, V. Papastefanou, H. Petrotou, V. Rizou, «Modern Greek Writers' Record»

P. Gotsi, K.Chaliassou, A.Mantzios, Chr. Penitas, «Le poète Dionysios Solomos. La vie, l'oeuvre, sa poétique. Recherche pluridisciplinaire 1er partie: Étude littéraire (éd. imprimée), 2ème partie: Solomos en ordinateur (édition électronique)»

F. Kostakou, «Aggelos Sikelianos critic on the contemporary industrial and technical civilisation»

L. Benatsi, «Modern Artists from Epirus»

A. Mantzios, «Technology in the Visual Codes of Kiriakos Rokos. An Intertextual Approach»

An. Giannikou, «Theatrical Society of the University of Ioannina (THESPI): An example of Amateur Theater in the City of Ioannina»

Sp. Katsarapidis, «Ministry of Education and Education. Thoughts and Proposals Regarding Literature»

In the fourth part the following specialised research papers are presented.

E. Dimopoulou, Th. Avagianou, P. Zentelis, «Development of a Geographic Information System for Coastal Zone Management»

A. Damati, D. Theoharopoulos, D. Matthopoulos, «Mountainous Areas Development utilizing Natural Resources. The case study of Metsovo Municipality»

M. Mataragas, P. Soutrzi, C. Garagounis, V. Karagounis, M. Paleologos, «Development of Sustainable forms of Tourism for Metsovo and Zagorochoria»

O. Arabatzi, D. -D. Balodimos, G. Piniotis, D. Tsini, D. Tsinis, «Determination of movements at the Metsovo Vertical Control Network»

D. Maranti, Ang.-V. Sideri, «Remodelling of Four Public Spaces in the Suburban Region of Ioannina»

I. Koletsis, I. Pnevmatikos, «Wind Energy Potential at Ioannina Prefecture, Greece»

E. Lagkari, K. Moraitis, V. Tsouras, «Intervention on the Lakeshore of Ioannina: Landscape Design and Ecological Education»

E. Papalioura, «The Degraded Civic Landscape and its Reconquest. Case Study: The City of Thessaloniki»

A. Gourgiotis, Ev. Kyriazopoulos, «Electrical Energy Production from Wind Turbine Parks: The “Finistère Wind Turbines Chart» (France) and the Greek Spatial Planning Experience»

K. Daflos, «Interactive Installations («**Bizarre Spectacles**» in Public Spaces)»

A. Kavadia, D. Vayenas, S. Pavlou, G. Aggelis, «Dynamics of Free-living Nitrogen-fixing Bacterial Populations in Antagonistic and Predation Conditions»

P. Milas, «Reductions of Geometric Heights of Instant Sea Level into Geometric Heights of Mean Sea Surface: A Case Study of the Ionian Sea and the Corinthian Gulf»

S. Rhizopoulou, D. Anglos, A. Argiropoulos, D. Gikas, S. Oikonomou, E. Antipa, A. Galouka, K. Letsios, F. Kolisis, K. Fotakis, K. Methenitis, S. Koinis, S. Meletiου-Christou, «Biosensors of Colour: An Interdisciplinary Approach to Flower Signal»

V. Rokou, «La collection des vêtements de Metsovo au Musée Universitaire d' Ioannina. Présentation et analyse des tissus en soie»

Th. Dasoulas, «The Application of Hydraulic drive in the Woodwork Handcraft of Pindos. The handcraft's past and a proposal for a Museum Exhibition»

P. Karanikolas, M. Vassalos, N. Martinos, K. Tsiboukas, «Economic Viability and Multifunctionality of Agriculture: The case of North Amorgos»

Evg. Tousi, «Research on social and spatial transformation processes. Nikaia from yesterday to tomorrow»

K. Mpoulogiannis, I. Sotiropoulou, S. Tsoukantas, «Ecological Building and its Application in a Prefabricated Structure»

L. Tatsis, «The Management and Protection of Lake Pamvotida: A Means for the Integrated Development of the Municipality of Pamvotida»

Since an institution such as our triennial Conferences, must protect its fundamental principles, values and philosophy as well as its strategic choices, our fifth Congress kept the tradition of integrating dialectically the theoretical papers with the necessary action on the conference themes. This is something that we will strive to do again in the Conferences that will follow.

Finally on behalf of the M.I.R.C. Scientific Committee, I would like to thank the N.T.U.A. Rectors for supporting our efforts in many ways and also the members of the scientific and organizing committee of the Conference, N.T.U.A. Professors N. Markatos, E. Galanis, K. Koutsopoulos, D. Balodimos, D. Kaliambakos, and P.Zentelis, University of Ioannina Professors E. Kapsomenos, and P. Noutsos the Ass. Prof. of Panteion University A. Lydakis, the N.T.U.A. lecturer E. Dimopoulou, the Dr. Eng. E. Trianti, the Rural and Surveying Engineers A. Papayiannis and K. Vassili-Vassiliou the Prefect of Ioannina A. Kachrimanis, the Mayor of Metsovo K. Tzafeas, the President of the Cultural Council of Metsovites in Athens Ap. Bissas, the Vice – president of the N.T.U.A. M.I.R.C. Development Foundation H. Zouvias, and finally my permanent collaborators M. Adepli, E. Michailidou, P. Kolokousis and V. Andronis for their invaluable help and support throughout the preparation, and conduct of our Fifth Congress on Metsovo.

Athens, March 2010

D. Rokos
Professor N.T.U.A.
N.T.U.A. M.I.R.C.'s Scientific Responsible