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On

Theme III:

"Contributing to education for a sustainable future through the curriculum, by innovative methods of education and other means"

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Theme III: "Contributing to education for a sustainable future through the curriculum, by innovative methods of education and other means".

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Presentation Summary

Common agreement: "Educating for a sustainable future requires a change in approach in the teaching and learning process".

Questions: What change of curricula may promote better understanding and acceptance of the sustainable development concept? Will some changes in curricula be enough to promote the university participation in the implementation of sustainable development? Probably some innovative methods of education with participatory approaches, multidisciplinary and interdisciplinary or transdisciplinary approaches will help. However, if we really want to promote better understanding, acceptance and effective application of sustainability, as an intrinsic part of modern citizenship, we will have to improve the communication process among the university teachers of all courses and disciplines. What are the most important elements to be changed – the science paradigms followed by change in teaching methods? The pedagogical materials or the ethical behavior of all the university staff: directors, teachers and students? What else will have to be done in order to overcome the obstacles and the apathy? – How can we establish a dialogue between the experts in pedagogical research and those involved in shifting the science paradigm? How many university teachers really interact because they believe that it is time to join efforts in order to rescue the planet? Do they really know the significance of the sustainable development or the attributes of "education for a sustainable future"? What kind of tools will we need to promote friendly cooperation, joyful complicity and sharing of good practices among the university educators and the community?

Awakening actions: Some successful seminars involving national, state and city government representatives, plus the university high administrative board, education specialists and science researchers of six universities of the Paraná State – Brazil, were promoted in 2001 in order to motivate higher education awareness and the insertion of sustainable development strategies in the total university teaching and researching programs, as well as in the action plans for all courses. A partnership between the Federal University of Paraná and IPARDES – state institute for economic development, allowed an edition of 6.000 issues of Agenda 21 and each participant received one.

A summary of the strategies and the goals of these events will be presented.

Prof. Dr. Zióle Zanotto Malhadas: Contributing to education for a sustainable future through the curriculum, by innovative methods of education and other means.

"Educating for a sustainable future requires a change in approach in the teaching and learning process."

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Introduction: Arriving home after several hours of unsuccessful attempts to get a job, the unemployed man looks to his three starving children, and in despair, he shouts: *"I cannot bear this situation, my God! It's unsustainable !"*

This is the most trivial short story, which can be used as a strategy to introduce the theme – an illustration through the antithesis of sustainable development. And the first objective is to avoid the repetition of similar unsustainable situations and to reinforce the urgent need of social, economical, ecological and educational transformation.

Certainly, we all prefer to listen to happy-end stories. I intend to tell you later a story of some attempts we are making in Brazil to implement a program to "Re-orient Education for Sustainability" = project "The Agenda 21 Goes to School". However, the most important and daring story we hope to have a chance to go on writing, or to start a new chapter here, ought to be the basis of a solid partnership among the university representatives, with the aim to create another "task force" = an official committee of visitors, appointed to undertake a diplomatic mission to visit the government board of some countries, in order to invite them to join the Global Alliance and give support to the program "Education for a Sustainable Future", emphasizing the importance of the sustainable development implementation. Then, we will write another story about sustainability with a happy end.

From a Brazilian point of view, some aspects of the suggested theme will be discussed here: *"Contributing to education for a sustainable future through the curriculum, by innovative methods of education and other means* - and the basis for discussion are expressed by key words: curriculum, transformation, understanding, acceptance, receptivity, communication, diplomacy and cooperation to foster global sustainability and world peace.

Curriculum – A change in curricula is needed. The objective is to infuse the notion of citizenship by inserting in the curricula clear proposals and directions to improve the quality of life and preserve the environment, with social justice and economic opportunity, balance of natural resources consume, equity and education for all, promoting the sustainable development: a new orientation for innovative practices clearly defining *"why to be involved"*, *"what to do"* and *"how to do"*. But it will not be enough if we intend to promote clear understanding of the real objectives, the acceptance and the application of the

Sustainable Development principles; the educators need to change first. The human minds represent the most complex and difficult element to be changed. The priority is to motivate the educators to understand, to accept and to insert the sustainable development concepts and strategies in their teaching programs. In this way, we hope that, if they really trust that sustainability is a solution for ecological, economical and social problems, they will succeed in stimulating the students to adopt these new concepts and behavior, and together, they will build a sustainable future.

Innovative methods of education with participatory approaches, multidisciplinary and interdisciplinary or transdisciplinary methodologies will help indeed, mainly because they represent an improvement of the communication process among the university teachers of all courses and disciplines. There are several international publications with interesting proposals to curriculum changes, which can be adapted according to the local situation and cultural background. However, the change of curriculum is a long and exhausting process in some countries, due to conflict of interests and political interferences. Anyhow, it is important to reinforce here the proposals presented by UNESCO & the Government of Greece, during the Thessaloniki Conference (1997) ‘*Educating for a Sustainable Future – A Transdisciplinary Vision for Concerted Action*’:

“... a curriculum reoriented towards sustainability would place the notion of citizenship among its primary objectives... The traditional primacy of nature study, and often-apolitical contexts in which is taught, need to be balanced with the study of social sciences and humanities. Learning about the interactions of ecological processes would then be associated with market forces, cultural values, equitable decision-making, government action and environmental impacts of human activities in a holistic interdependent manner.”

Transformation means to facilitate the emergence of new partnerships and inter-institutional interactions devoted to change the higher education process and the society evolution from a complex culture to a simplified one, through cooperation and dynamic proposals capable of generating and multiplying productive results. How many university teachers really interact because they believe that it is time to join efforts in order to rescue the planet? Do they really know the significance of the concept of “sustainable development” or the attributes of “education for a sustainable future”?

Understanding of the real significance of sustainability and its enormous importance for the evolution of global cooperation directed to the world peace, ought to be part of the educational process, starting in the university and flowing in a “cascade effect” to motivate all the formal education levels, as well as the informal and continuing education systems

Acceptance means a certain degree of preparedness to implement sustainability in the higher education institutions, considering the possibility to cater for the training of educators and university staff, as well as to foster the preparation of “green groups” in order to transform the higher education campus into a “sustainable university”. According to Van Weenen (2000) p.28:

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“Concepts, paradigms and systems must be changed by making sustainable development a central objective of all university education, research, management and communication. Education, too, must be sustainable, from sustainable elementary schools through to sustainable universities. The input composition of society’s use of resources must be reformulated towards a more sustainable metabolism for industry, organizations and households. The uses of resources that contribute to depletion, high resource use level, pollution and environmental degradation, should be reduced with priority.”

Receptivity has a kind of dual path, it seems easy when the university educator and the government representative really care about the planet survival and improvement of the quality of life, but on the other hand there are some *decision-makers* who prefer to disregard sustainable development and try to discredit it, objecting that it is part of a doctrine of the developed country leaders trying to induce the less developed countries to preserve the natural resources for the benefit of the rich countries predatory actions. Thus, receptivity will have to deal with diplomacy and flexibility:

“While Agenda 21 clearly laid out critical issues which governments around the world need to address, the concept of sustainability is evolving and will continue to do so as societies change and our awareness and perceptions of Earth, humanity and human-environment interactions correspondingly change. The subtle changes, shift in focus, and emphasis will of course be regional in nature to reflect the conditions of local ecosystems and cultures. As a result of the maturing nature of issues of sustainability, those educating for sustainability should continually adapt the content, scope and methodology within geographic and temporal contexts. This constant adaptation will require flexibility on the part of educators as they work together on local and international projects.” (Hopkins, 1997)

Communication - How can we establish a dialogue between the experts in pedagogical research and those involved in shifting the science paradigm? How will teachers be trained to cope with these new directions of the teaching and learning process to address sustainability? Communication has to be fostered and improved in order to facilitate the educational process and to enable the teachers and society to share the good practices and productive results, to multiply the fundamental knowledge about concepts and practices for sustainable development and efficient methods for the implementation of sustainability everywhere, as well as to promote campaigns to allow developing countries to access technology to disseminate knowledge that will facilitate the application of SD in the most remote places.

Diplomacy - What kind of tools will we need to promote friendly cooperation, joyful complicity and sharing of good practices among government representatives, university educators and the community?

“ Perhaps the greatest problem that advocates of SD face is to convince not only those who are opposed to their ideas, but also those who simply “don’t want to know”. An approach that emphasizes local issues, rather than global ones, is likely to be most effective in dealing with this constituency”.(UNESCO, 1997, p.16)

Therefore, due to all sorts of barriers and impediments, we need to activate “diplomacy” and prepare specific communication strategies. We dare to suggest a good Action Plan for a diplomatic mission to visit some countries: a committee of convincing visitors providing massive information on SD would open the doors of governments and of the social segment representatives to promote awareness and dialogue in order to create partnerships to allocate financial support to hasten the “education for a sustainable future” and to activate the sustainable development effectively.

Proposal: A diplomatic committee should be created with the mission to promote official visits to some countries, making appointments to talk directly to the Minister of Education and the Minister of the Environment, as well as to some university rectors, in order to present the “Education for a Sustainable Development” program, to offer bibliographical materials and invite them to start local projects to implement SD in all social segments (and to invite some universities to become members of the global alliance for ESD cooperation). Maybe such diplomatic mission should be formed soon, appointing a representative of each leading institution: UNESCO, IAU, Copernicus-Campus, ULSF and a local institution

Cooperation - If we really want to promote better understanding, acceptance and effective application of sustainability, as an intrinsic part of modern citizenship, we will have to foster a powerful process of cooperation among the university teachers of all courses and disciplines. The starting point should be a Seminar to introduce the theme and promote the meeting of the teachers of all courses, where a committee of volunteers should be formed, followed by other meetings. Then, they would identify the most important elements to be changed, according to the local situation – maybe the science paradigms followed by change in teaching methods? The pedagogical materials or the ethical behavior and attitudes of all the university staff: directors, clerks, teachers and students? What else will have to be done in order to overcome the obstacles and the apathy? Probably the most important strategy is to foster cooperation, which is essential to create new approaches and interaction directed to sustainability, motivating willingness and friendly sharing of efficient methodologies and solidarity actions to improve the quality of life of the local, national and international communities.

Then, while the change of curriculum is slowly moving ahead, we will have to look for alternative solutions in order to catch up with some higher education institutions that succeeded in becoming “sustainable universities”. The partnerships devoted to open new communication channels among universities are most welcome, because they will facilitate the exchange of good didactic materials, the translation of reference books, and the joint development of specialized methodologies enhancing participatory teaching and learning process, hands-on actions, problem-solving and interdisciplinary innovative practices, as well as efficient communication and interactions.

Note: In Brazil, to accommodate conflicts inherent to curriculum changes and finally get the new national curriculum approval, after a long process, another complementary book was

edited, in 1998, focusing “Transversal Themes”: Ethics, Cultural Plurality, Environment, Health, Sexual Orientation, Work and Consume. A definition of “sustainability” was inserted in the Environment chapter, with a footnote explaining that sustainability is the word chosen to avoid the ambiguities of the terminology “sustainable development”, which means “searching for constant expansion - unlimited development – a goal practically unattainable” (p.177). Agenda 21 is mentioned as a document resulting from an international pact set in the ECO-Rio-1992 conference (p.178), but the school libraries do not possess a single issue of it, because there are no financial resources available for dissemination.

Awakening Actions: SEMINARS TO Re-ORIENT EDUCATION FOR SUSTAINABILITY - A Brazilian Experience

Background: In 2000, most of the teachers that were interviewed to identify the ESD local status (for the UNESCO Chair reports) revealed that they had never seen Agenda 21. How would we recommend the insertion of the sustainable development strategies in their teaching programs, if they did not know its concepts and contents?

Therefore, in 2001, we started the Action Plan 1, looking for partnerships in order to get academic and financial support, contacting some university leaders and some state government secretaries. The general objective was to promote the presentation of Agenda 21 by linking it to a program for the Re-orientation of Education for Sustainability in the universities, through the promotion of dynamic seminars in six universities of Paraná State, where 6.000 copies of Agenda 21 (edited with the support of IPARDES: state institute for economics & social development) were delivered to the teachers in order to motivate the integration of sustainable development strategies in their teaching, researching and extension programs.

Most seminar participants were university teachers and the main target was to motivate them *“to develop actions directed to prepare the future professionals according to the new socio-environmental ethics, and to facilitate the implementation of sustainable development in all the constructive actions directed to the improvement of the quality of life and world peace”*.

At first, a diplomatic approach was planned and a personal letter, followed by a formal invitation, was sent to the home address of each teacher from the Universidade Federal do Paraná (*the first university created in Brazil-1912*). They were invited to attend the Seminar for the Re-orientation of Education for Sustainability, where they would receive a gift, i.e. a copy of Agenda 21. Each seminar was attended by an average of 400 teachers, who had received the gift during the event and several others requested their copy of the Agenda 21 a few days later. Some students, members of municipal and state institutions, and NGOs representatives also attended the event.

The relevance of this initiative can be evaluated by the massive presence of government representatives and academic authorities during the opening ceremony of the first seminar promoted at UFPR, in Curitiba, including the Minister for the Environment (who flew from Brasília to attend the event), whose lecture was really impressive, introducing some topics of the Brazilian Agenda 21, as well as Dr. Charles Hopkins keynote address, UNESCO Chair, coordinator of the International Network of Universities, UNITWIN-UNESCO, who presented the international plan for the Re-orientation of Teachers Education to Address Sustainability, offering some academic subsidies based on the ESD-UNESCO program.

A similar approach was planned in the main state universities of the State of Paraná, which accepted the initial proposal and set a local committee to organize the seminar, with the assistance of the coordinators of the general committee (UFPR + IPARDES), from June to September 2001. About 40% of the teachers attended the seminars in each institution.

The local committees agreed also to adopt the same main objectives, as follows:

- a) *To promote the dissemination and implementation of Agenda 21 recommendations for the sustainable development on the Teaching, Researching and Extension programs of the Higher Education Institutions of the Paraná State;*
- b) *To motivate the university teachers to include the concepts and strategies to foster the sustainable development in their educational programs in order to prepare their pupils for professional activities with a wider vision of the environment preservation and sustainability;*
- c) *To foster awareness and to enable the future professionals (of all areas) to cooperate for the environment preservation and the implementation of sustainable development*

The program of each seminar was officially opened by the Rector of the university, followed by a keynote speaker (*the Coordinator of the committee & author of this report*), introducing the objectives, the main target and the Action Plan for the Re-orientation of Education for Sustainability, according to the recommendations of the Agenda 21 and the International Network of Universities – UNITWIN-UNESCO. It also included a panel with brief lectures by the local university teachers who were already involved in environment & sustainable development projects, followed by a debate, and a cultural momentum was added with an artistic presentation of local folklore.

The main objective was to disseminate Agenda 21 among university educators and implement its principles in the undergraduate curricula, and the main focus was directed to in-service and pre-service teacher training in order to promote a wider understanding of the concepts and procedures for a new socio-environmental ethics, and to motivate development of environmental preservation and sustainability projects at elementary schools too. Therefore, besides the Agenda 21, each teacher got a complementary booklet, introducing a simplified proposal meant to facilitate their task to train the future teachers on “how” to start SD projects in the elementary schools, entitled “ *Double Action: Awareness and Environmental Education for Sustainability*” (*edited by Z.Z. Malhadas*)

The invitation folder presented the **Action Plan** for the seminar:

1. *To deliver an issue of the Agenda 21 with the aim to stimulate each teacher/professor and to facilitate his educational task and active participation in the Re-orientation of Education for Sustainability.*
2. *To motivate the dissemination of knowledge and the application of strategies to implement the “sustainable development” in all the social segments, to promote awareness among Education professionals, mainly in the higher education and elementary schools (in-service and pre-service training), to facilitate the dissemination of Agenda 21 in the schools. Thus, each university educator would also receive a booklet that was organized to facilitate the teachers performance: “Double Action: Awareness and Environmental Education for Sustainability” (Z.Z. Malhadas, 2001).*
3. *To promote the continuity of environmentally correct actions and the interdisciplinary and inter-institutional interactions among the universities devoted to sustainable development and to world peace.*

Each seminar had local profile and offered an opportunity for the teachers to present their ideas and beliefs, specially those who had already inserted environmental conservation issues in their teaching programs, and/or were developing some projects related to environmental education and sustainable development. Some proposals for the continuity of this program are presently in discussion among the university boards and among our partners in the community, as follows:

1. **Networking** – *to activate a dynamic network to foster interactions and partnerships among universities and society, not only in the State of Paraná, but all over the Brazilian institutions, for the exchange of experiences with project design and inter-institutional programs implementation to promote teaching, research and community activities for the sustainable development.*
2. **Continuity** - *to foster new approaches and dynamic interactions among new and existent projects in the universities and the local community in order to implement environmental preservation and sustainable development – e.g. the “ProAR” Project = Environmental Education and Air Quality Monitoring, which promotes, since 1995, efficient teaching, researching and extension actions, in a great integrative process with the cooperation of elementary school teachers and students*

The organizing committee, formed by specialists of the UFPR, with wide experience in studies and researches focusing environment issues, had to face some difficulties during the preparatory phase. They had to develop some diplomatic strategies to avoid eventual conflicts with some people who behaved as if they were “*the owners of the environment issues*” and tried to set impediments. Despite of that, we can say that the efforts to organize such events were really gratifying. They provided several opportunities to meet educators who have been devoting their creativity to solve some environmental problems, and were looking for other colleagues to join efforts and develop integrated projects.

Therefore, looking into the future, we envisage three other seminars that will take place in 3 private universities in the next two months, and we hope to succeed to form some efficient green groups among the University community and society – starting with the educators and pupils from higher education to elementary schools, and to foster friendly cooperation for the new programs. Thus, the ultimate goal will be to form a new generation of professionals guided by a solid social-environmental ethics, who will influence the *decision makers* and open the doors to implement an effective process for the sustainable development of Brazil.

References:

Brazil, SEF – **Parametros Curriculares Nacionais: Temas Transversais**, Brasília, MEC/SEF, 1998, 436 p. – p.177-178.

Hopkins, C.; Damlamian, J.; Lopez Ospina, G. - **Evolving towards education for sustainable development: An international perspective**, In: Nature & Resources, UNESCO, Paris, vol.32, n.3, 1996 - p.32/3.

Leal Filho, Walter - **Dealing with misconceptions on the concept of sustainability**. Association of University Leaders for a Sustainable Future. – In: *International Journal of Sustainability in Higher Education*, vol. 1, no. 1, p. 9-19, 2000

Malhadas, Z.Z. - **ESD Status Report of Universidade Federal do Paraná -Brazil**, for the International Network of Universities, UNITWIN-UNESCO Conference, York Univ., Toronto, Canadá, 2000, 6 p.

Double Action: Awareness and Environmental Education for Sustainability (didactic book), 2nd.ed., UFPR, Curitiba, Brazil, 2001, 40 p.

A Qualidade do AR: Saúde ou Poluição – A escolha é sua!, (didactic book), 2nd. ed., UFPR, Curitiba-PR, Brazil, 2001, 40 p.

A Qualidade do AR: Educação Ambiental para a Sustentabilidade (didactic book), UFPR, Curitiba, Brazil, 2002, 78 p.

UNESCO – **Educating for a sustainable future: a transdisciplinary vision for concerted action. Environment and Society: Education and Public Awareness for Sustainability**, UNESCO.– Paris, 1997. 42 p. (Meeting: International Conference. Thessaloniki, 1997).

VanWeenen, Hans. **Towards a vision of a sustainable university**. In *Sustainability in Higher Education* (international journal), vol.1, number 1, 2000, p.28.