TEACHING AND LEARNING FOR A SUSTAINABLE FUTURE:

UNESCO'S NEW MULTIMEDIA TEACHER EDUCATION PROGRAMME

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Education for a sustainable development places education at the heart of the quest to build a fairer, less troubled and more peaceful world. This makes education not just an end in itself – as important as the intrinsic goals of education are - but also one of the most powerful instruments for bringing about the changes required to achieve sustainable development. Teachers, of course, are vital actors in this process and teacher education a key mechanism for building capacity for a sustainable future.

Within its special work programme on education, the United Nations Commission on Sustainable Development invited UNESCO to make a significant effort to help teachers worldwide not only to understand sustainable development concepts and issues but also to learn how to cope with interdisciplinary, values-laden subjects in established curricula. As a result, the 1990s saw a great many UNESCO initiatives around the world to advance teacher education for sustainable development. These include a UNESCO chair and international network on teacher education for sustainable development, numerous publications of the UNESCO-UNEP International Environmental Education Programme, and many regional and sub-regional workshops.

The Asia-Pacific region has been a leader in recognising in this with significant work taking place in redefining education in an Asia-Pacific context, particularly to incorporate concepts of sustainable development. Much exploration of how teacher education can rise to the occasion of this great need has been on-going in the region.

There are a number of responses and developments in teacher education for sustainable development in the Asia/Pacific worth noting. The first is the Teaching for a Sustainable World manual which contained all the resources needed for 26 workshops on different sustainable development topics in teacher education courses. Second, UNESCO APEID facilitated a regional action research network across 20 countries in the region between 1993 and 1998 and, from this, published a set of competencies and guidelines on teacher education for sustainability (Fien and Tilbury 1996). Other capacity building initiatives in teacher education from this project included:

- the development of an action research network of over seventy teachers’ colleges operates in Karnataka state in India and which is presently being replicated in the neighbouring state of Kerala;
- the establishment of a national environmental education resource centre in Vietnam;
- revision of the teacher education degree curriculum in several participating institutions to include either a compulsory study of environmental education, issues of sustainable development, etc. or a specialised curriculum stream in environmental education;
shared course materials and joint degree programmes between institutions to promote postgraduate studies and research in environmental education in several countries, including international joint degrees;

the publication of a set of workshop modules, the action research guide and several sample action research case studies as a book called *Learning for a Sustainable Environment: A Professional Development Guide for Teacher Educators* (Fien, Heck and Ferreira, 1997) and as an Internet site (http://www.gu.edu.au/ciree/lse/index.html);

the revision of many of the modules into national training manuals and teacher education guides, eg in India, Fiji, Thailand and Vietnam (the latter two in national languages);

the adoption of ideas from the action research network process by the York University UNESCO Chair Network on Teacher Education for Sustainability in its work of facilitating professional development and curriculum change in colleges and universities in 34 countries; and

the development of research expertise of project members such that many went on to participate in a survey and focus group study of factors influencing youth environmental attitudes in the region (Yencken, Fien and Sykes, 2000).

The *Teaching for a Sustainable World* and *Learning for a Sustainable Environment* manuals were then used as a basis for the development of an on-line multimedia teacher education programme called *Teaching and Learning for a Sustainable Future*. This was first published in 2002 as a UNESCO contribution to the United Nations World Summit on Sustainable Development in Johannesburg. It has since been revised and updated for the UN Decade of Education for Sustainable Development. See http://www.unesco.org/education/tlsf.

**TEACHING AND LEARNING FOR A SUSTAINABLE FUTURE**

*Teaching and Learning for a Sustainable Future* is a multimedia teacher education programme published by UNESCO. Its 25 modules provide around 100 hours of highly interactive activities designed to enhance the teacher’s understanding of sustainable development and related themes. It also develops practical skills for integrating sustainable development themes into the school curriculum, and for using the teaching methods best suited to the knowledge, values and citizenship objectives of educating for a sustainable future. As such, it has been designed to enable teachers to plan learning experiences that empower their students to develop and evaluate alternative visions of a sustainable future and to work creatively with others to help bring their visions into effect.

The multimedia format of *Teaching and Learning for a Sustainable Future* means that it can be accessed and used in a great many ways by teachers, student teachers, teacher educators, curriculum developers, education policy makers and authors of educational materials.

**OBJECTIVES**

- To develop an appreciation of the scope and purpose of educating for a sustainable future.
- To clarify concepts and themes related to sustainable development and how they can be integrated in all subject areas across the school curriculum.
To enhance skills for integrating issues of sustainability into a range of school subjects and classroom topics.

To enhance skills for using a wide range of interactive and learner-centred teaching and learning strategies that underpin the knowledge, critical thinking, values and citizenship objectives implicit in reorienting education towards sustainable development.

To encourage wider awareness of available Information and Communication Technologies (ICTs), of the potential of multimedia-based approaches to education and professional development and of the Internet as a rich source of educational materials.

To enhance skills in computer literacy and multimedia education.

**CONTENTS**

The programme contains 25 modules – each of which provides about 4-5 hours of professional development. The modules are grouped in four sections

*Curriculum Rationale*
1. Exploring global realities
2. Understanding sustainable development
3. A futures perspective in the curriculum
4. Reorienting education for a sustainable future
5. Accepting the challenge

*Teaching about Sustainability Across the Curriculum*
6. Sustainable futures across the curriculum
7. Citizenship education
8. Health education
9. Consumer education

*Interdisciplinary Curriculum Themes*
10. Culture and religion for a sustainable future
11. Indigenous knowledge and sustainability
12. Women and sustainable development
13. Population and development
14. Understanding world hunger
15. Sustainable agriculture
16. Sustainable tourism
17. Sustainable communities

*Teaching and Learning Strategies*
18. Experiential learning
19. Story-telling
20. Values education
21. Enquiry learning
22. Appropriate assessment
23. Future problem-solving
24. Learning outside the classroom
25. Community problem solving
THE MULTIMEDIA LEARNING EXPERIENCE

Multimedia-based learning is becoming increasingly popular. While it has limitations, and certainly should not be seen as a substitute for face to face interaction, it does have numerous advantages for teacher education. For example, the information contained on the Internet is unlimited and evolving. It is up to date, inexpensive to obtain, and searchable. It also reflects the views of many authors and sources of information.

Multimedia professional education can also be highly interactive and engaging through the use of animation, audio and video files, games and on-line discussions. All these can be undertaken at any time and at any place and without the need for an outside workshop facilitator.

*Teaching and Learning for a Sustainable Future* incorporates these benefits of multimedia education. It also demonstrates the principles of effective teaching and learning that are a necessary part of reorienting education towards a sustainable future. That is, the type of professional development experiences in *Teaching and Learning for a Sustainable Future* seeks to ensure that the ‘medium’ for learning is a part of the ‘message’.

*Teaching and Learning for a Sustainable Future* is also very easy to use as it has been designed with attention to the needs of people who may have basic computer skills only. In addition, the programme can be used in a very flexible way. Some of the key design features are:

**Relevant for diverse audiences**
The programme has been designed for both pre-service teacher education, i.e. for student teachers, and in the in-service-education of experienced teachers. At the same time, it has also been designed to suit the professional development needs of curriculum developers, education policy makers and authors of educational materials.

**Available in several formats**
The programme is available in two multimedia formats – on the Internet at [www.unesco.org/education/tlsf](http://www.unesco.org/education/tlsf) and as a CD-ROM. The CD-ROM contains the entire website, complete with over 500 Internet links that can be accessed directly from the CD-ROM (via an Internet connection). Separate PDF files of every module are also provided both on the web site and on the CD-ROM. The programme can therefore be printed and used in ‘hard copy’ format – although, of course, the multimedia interactions will not work in this format.

**Choice of topics**
*Teaching and Learning for a Sustainable Future* contains 25 topics (called modules) organised in 4 thematic sections. While the modules are cross-linked, they are designed to be self contained. The modules can be studied in any order to suit the interests and needs of users.

**Range of activities**
Each of the modules contains 5 to 7 ‘activities’, each one usually requiring between 30 and 40 minutes to complete. The personal Learning Journal integrated into the programme allows busy users to ‘save’ their work after one or two activities and come back to the module when they have more time. These activities provide a full multimedia learning experience. Passive reading is
minimal. Most time is spent answering questions, doing exercises, working through problems, games and other activities that encourage active learning.

*Easy to use*
User friendliness is reinforced by using a common presentation for all 25 modules. Each module is organized under the same headings - introduction, objectives, activities, references and credits, common design elements (e.g. navigation bars and icons). Simple and clear instructions are provided throughout.

*Simplicity of design*
*Teaching and Learning for a Sustainable Future* has a simple visual design, based on an attractive range of colours and icons. The programme is free of the large files and complex graphics that increase download time and cost of Internet access. The programme can operate on a computer with relatively simple hardware specifications. No prior knowledge or skills is required. The clear instructions guide users step by step through the programme.

*Learning styles*
The many different types of professional development activities integrated into *Teaching and Learning for a Sustainable Future* provide a rich variety of learning experiences that cater to many learning styles. Long passages have been kept to a minimum – and when they do appear – are mostly located in pop-up boxes and can even be printed and read when convenient. Great care has been given to providing information in a variety of forms (e.g. text, tables, diagrams, audio-files and linked Internet-sites). The activities require users to analyse and interpret this information and to apply the ideas learnt to local curriculum and teaching contexts. A Learning Journal allows users to summarise questions, answers and reflections and save them in a word processing programme.

*Adaptable*
An ‘open architecture’ (i.e. technical structure) was used to create the computer files in *Teaching and Learning for a Sustainable Future*. For this reason, the programme can be easily translated or adapted with a minimum of technical expertise and a basic webpage creation application. See following sections for some suggestions for adapting *Teaching and Learning for a Sustainable Future* to different educational and cultural contexts.

**USING TEACHING AND LEARNING FOR A SUSTAINABLE FUTURE**

*Independent Learning*
The multimedia format of *Teaching and Learning for a Sustainable Future* encourages independent learning for individual and small group professional development. Teachers, curriculum developers, education policy makers, authors and designers of educational materials and teacher educators can all use *Teaching and Learning for a Sustainable Future* either from the Internet or CD-ROM and can study modules and activities whenever they want, either at work or at home.

Through personalised Learning Journals, different users can work from a single CD-ROM or Internet-linked computer. Since each user has a personalised Learning Journal, work remains confidential. This is because the Learning Journal, when opened, is automatically downloaded
onto the hard drive of the computer or onto a floppy disk, and saved as a word processing file. Learning Journal files can also be printed out, completed by hand, and stored as a set of paper files in a folder.

Because of the multimedia format of *Teaching and Learning for a Sustainable Future*, teachers no longer have to wait for a workshop or training seminar to be organised in their schools or districts. This is often a problem for some teachers, especially for those in remote locations. Furthermore, the modules and activities can be studied in any order - either alone or in small staff room or study groups. The resulting sense of independence and responsibility can bring a new professionalism to teaching and thus help raise the status of teachers.

**Opportunities in Teacher Education Courses**

Professors, lecturers and others responsible for developing teacher education curricula will find many opportunities for using *Teaching and Learning for a Sustainable Future* in their courses. For example as:

- A stand-alone course on Teaching and Learning for a Sustainable Future
- A selection of modules integrated into a stand-alone course on a specific education topic
- A selection of modules integrated into other courses on specific education topics as enrichment material.

In all of these cases, *Teaching and Learning for a Sustainable Future* can be studied on-line or from the CD-ROM – in class-time, as pre- or post-class activities, or as a full e-learning experience.

Each module in *Teaching and Learning for a Sustainable Future* takes approximately 4 hours to complete. This provides 100 hours on learning, the amount of time students could generally be expected to study in a 10-14 week term or semester course. However, selections and groupings of modules can be made to suit local decisions about term/semester length, the balance of in-class contact versus independent study in a course, assessment requirements, etc.

Moreover, the programme is available free of charge. Teacher education institutions can load a copy of *Teaching and Learning for a Sustainable Future* on a local server (to reduce access and download time for staff and students) and duplicate copies of the CD-ROM for free distribution to their students. All that is required is a request for permission from UNESCO, acknowledgment of UNESCO as the source, and using the copies for non-profit educational purposes only.

National and regional adaptations and translations of *Teaching and Learning for a Sustainable Future* are encouraged. Teacher education institutions are invited to work collaboratively and with relevant Ministries of Education to help facilitate these changes.

Some of the ways in which *Teaching and Learning for a Sustainable Future* can be used are illustrated in five sample course designs in the ‘Getting Started’ section of the programme.

**ADAPTING AND TRANSLATING THE PROGRAMME**
As a demonstration project, *Teaching and Learning for a Sustainable Future* has been designed and developed so as to facilitate translation into other languages as well as adaptation (i.e. changing the programme) to respond to regional, national, or local needs.

UNESCO is ready to work with government ministries, regional organisations, teacher education institutions and others responsible for the professional development of teachers to help facilitate these changes.

Once an adaptation and/or translation of the programme has been done, the 'open architecture' used to create the files in Teaching and Learning for a Sustainable Future allows it to be reprogrammed with basic webpage creation and graphic design applications. The Technical Guidelines (below) provide multimedia programmers with the information they need to introduce the desired changes to the files in the programme.

**DISSEMINATION AND TRAINING TOOLBOX**

With the support of funds from the government of the USA and Education International, UNESCO has developed a multimedia-based Dissemination and Training Toolbox for the programme to assist with dissemination. The Toolbox contains:

- an overview of *Teaching and Learning for a Sustainable Future*;
- four half-day sample workshops (including facilitator’s instructions, workshop activities, Powerpoint presentations and Resource Sheets);
- generic guidelines for using adult education processes in workshop facilitation;
- an interactive Workshop Planner; and
- guidelines for adaptation (including the South African case study) and for translation.

**AVAILABILITY**

Copies of the programme are available on the internet at or as a CDROM from UNESCO: Educating for a Sustainable Future, UNESCO, Education for Sustainable Development, 7 Place de Fontenoy, 75352 Paris 07 SP, France.