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Forum on the Impact of Open Courseware for Higher Education in Developing Countries

Final report

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Report

This forum was convened by UNESCO in association with the William and Flora Hewlett Foundation and WCET, the Western Cooperative for Educational Telecommunications. The seventeen participants, attending in their personal capacity, were selected on the basis of their involvement in the development and practice of higher education in their respective countries. Eight representatives of international and non-governmental organizations and one academic observer also participated. The list of participants is given in Annex 1.

The meeting opened with welcoming remarks by Mr Claude Ondobo, Deputy Assistant Director-General, Communication and Information Sector, UNESCO. Mr Ondobo, after acknowledging the contributions of the William and Flora Hewlett Foundation and WCET, noted that "Knowledge has become a principal force of global transformation." While praising the OpenCourseWare Initiative of the Massachusetts Institute of Technology - a principal point of interest in the forum - he stressed that ". . .access to knowledge will not be enough." Reminding participants that bridging the digital divide is a major effort for UNESCO, he urged the need to "place the individual at the centre of development objectives."

Mr Marshall S. Smith, Program Officer for Education, the William and Flora Hewlett Foundation, stressed that the opportunity for societies to have access to knowledge is critical, but that knowledge must be organized and in context to become useful. All who have a stake in the success of the transformational process must participate in bringing this about. Mr Saul Fisher, Program Officer, the Andrew W. Mellon Foundation, emphasized the importance of placing technical and scientific knowledge in a human context.

Ms Sally Johnstone was elected Chair of the meeting and Mr Mohammed Dahbi, Rapporteur. Ms Johnstone outlined the agenda (Annex 2), discussed briefly the concept of open courseware, then introduced the representatives of the Massachusetts Institute of Technology (MIT) to provide participants with further information about the MIT initiative.

Ms Anne Margulies, Executive Director of the OpenCourseWare Initiative, MIT, described the university's plan to make materials from approximately two thousand courses freely available for use by faculties and students everywhere. She stressed that this is neither an MIT education nor distance learning, but a publication of course content for use as a resource. The goals of the programme are to provide access to the material and to create an efficient standards-based model that can be used by other universities. To fulfil these goals, three pillars have been described: a professional organization at MIT; a reliable, scalable technical infrastructure; and sensible policies and efficient, user-friendly processes. At the foundation of programme planning is a process of continuous planning, evaluation, and feedback. She stated that the first course material would be available in Fall 2002.

MIT does not anticipate providing translation into other languages. Other entities have expressed interest in doing so. Similarly, it is anticipated that institutions will adapt material as appropriate for the local cultural and pedagogical context. For

example, Mr. Senteni, of the University of Mauritius, proposed that his university, through its virtual campus and repository facilities, actively participate in finding solutions to the following: content repurposing and (re)-contextualization of MIT contents for developing countries, and multilingual translation of MIT courses for French-speaking developing countries.

Mr Vijay Kumar, Assistant Provost and Director of Academic Computing, MIT, described the Open Knowledge Initiative (OKI) as a layered infrastructure design the purpose of which is to enhance the interoperability of many technological infrastructures. The end result of OKI will be to help institutions focus on content and pedagogy, not the idiosyncrasies of multiple technical systems.

Following the MIT presentation each participant provided a brief report concerning his/her national or institutional context, with emphasis on implications for use and development of open courseware. These reports supplemented or amplified the papers that participants submitted in advance of the forum, which are summarized in Annex 3.

Mr Joel Smith, of Carnegie Mellon University, U.S., described his university's programme, which will offer complete courses designed in accordance with principles of cognitive science.

Mr Abdoulaye Diakité, of the University of Conakry, Guinea, stated that new sources of learning, including open courseware, are needed, recognizing that there is an urgent need for help in building the infrastructure to make new services available.

Mr Alain Senteni, of the University of Mauritius, described a small island nation working to move from its traditional reliance on textiles to become a cyber island.

Mr Emmanuel Tonye, of the University of Yaoundé, Cameroon, reported that the demand for higher education in his country is growing very rapidly, and that programmes like MIT's OpenCourseWare Initiative could multiply the number of students who could be accommodated - provided that material could be made available in local languages (in Cameroon there are fifteen widely used national languages in addition to French and English).

Mr Mohammed Dahbi, of the University of Mohammed V, Morocco, noted that educational reform is a major emphasis of this decade, and that one benefit of the MIT initiative could be to demonstrate to teachers and administrators models of course structure and pedagogy that are unfamiliar to many in Morocco.

Mr Mohamed-Nabil Sabry, of Mansoura University, Egypt, remarked that we must use resources as efficiently as we can, and that open courseware is "an opportunity we cannot afford missing . . ." if (and only if) we also preserve cultural diversity. To encourage further development of open courseware Mr Sabry proposed a set of prizes for individuals and institutions creating high-quality material.

Mr Wisanu Subsompon, of Chulalongkorn University, Thailand, stated that his university would welcome the opportunity to take part in the open courseware

community, perhaps both to exchange information about their experience and to produce courseware.

Mr V.S. Prasad, of Dr B.R. Ambedkar Open University, India, praised the MIT initiative as "very refreshing" for treating education as a social good. He suggested the need to be more specific about the vision and goals of this new movement, expressing interest in developing and contributing open courseware as well as using it. It is important to take cultural concerns, including language, local context, and local user sensitivities into account.

Mr René Teixeiro Barreira, of the Federal University of Ceará, Brazil reported substantial current use of information/communication technologies, seeking to educate teachers and conduct a programme to train doctors for work in remote areas. The university is interested in offering open courseware for other parts of Brazil.

Ms Andrea Hope, of the Commonwealth of Learning, based in Canada, described extensive collaborative work including both a Commonwealth Executive MBA/MPA programme just being launched, plus the development of the Commonwealth Virtual University (based largely on learning objects) for small states. As in many areas of the world, the digital divide is a reality in the Commonwealth, and one cannot assume that the Web is a universal delivery mechanism.

Mr Alex Louis Gabriel Corentin, representing the Institut des technologies de l'information et de la formation, contributed comments about Senegal, where educational resources have not been able to cope with the demand for higher education. A particular issue is the lack of library resources and documentation. The MIT OpenCourseWare Initiative is interesting because its documentation is available. However, the language issue for this French-speaking nation must be resolved.

Mr Paul Resta, of the University of Texas, U.S., described the World Lecture Hall, a variation on the open courseware concept consisting of courses and course elements from many sources, available for use. He described issues from validation to cultural context which must be taken into account in the use of such material.

Mr James Rutledge, of St. Petersburg College, U.S., focussed particularly on MERLOT (Multimedia Educational Resource for Learning and Online Teaching), an international effort to establish a digital library of college-level, peer-reviewed learning objects and materials that are available and accessible worldwide.

The final participant report came from Mr Alexei Semenov, of the Moscow Institute of Open Education, Russian Federation. He described the work of his organization in the training of Moscow's teachers. In discussing limitations as well as successes, he noted the psychological "non-readiness" of some to participate in programmes using advanced technologies. He also suggested, however, the potential that many of Russia's currently underused scientists and professors might offer for other counties.

The discussion following the participants' reports established the importance of defining the primary audience for the MIT programme (determined to be faculty, then students). There was preliminary examination of intellectual property issues; the

importance of concerns for culture and language; the value of learning objects as well as complete courses; and the continuing issues of technology, access, quality, costs, and the readiness of faculty members and their institutions to accept and make effective use of such a resource.

The Chair opened the second day of the forum with a review of progress to date and an introduction of issues to be addressed by working groups that will be defined by mid-day. She then invited brief comments from three representatives of international and non-governmental organizations.

Mr Bernard Loing, of the International Council for Distance Education, welcomed the advent of the MIT initiative, suggesting, however, that "a significant part" of the funding for OCW should be devoted to "adaptive projects in developing countries." He also urged an emphasis on training for teachers at primary and secondary levels in developing countries, with the involvement of UNESCO and a network of users.

In response to a copyright-related question from Mr Loing, Ms Margulies stated that MIT does not consider OCW use by not-for-profit organizations as commercial.

Ms Eva Egron-Polak, of the International Association of Universities, supported Mr Loing's comments. With the Association's functions of indexing, accreditation, and legitimizing, she proposed working with UNESCO and the conveners of the forum to publish the forum results.

Mr Corentin, of the Institut des technologies de l'information et de la formation, emphasized that developing countries should not be just onlookers, but active participants. Noting the importance of freely available resources like Linux, he suggested a UNESCO role in advancing adaptation.

Preparatory to establishing working groups to consider key questions in detail, there was a broad discussion of issues concerning the development of open courseware as an ongoing, internationally collaborative part of academic life.

For faculty members considering creating or using open courseware, important issues were identified as aspects of intellectual property rights, assessments of quality, standards that make open courseware broadly accessible, both the availability and the acceptance of appropriate technology, language translation, cultural relevance of imported materials, and a strategy of acceptance that is based on participation and incentives, not mandated use.

Of immediate importance is making existing open courseware programmes - and the infrastructure to make them accessible - available for use in areas of great need.

Meanwhile, the evolution of open courseware can be aided by the development of models in addition to that of MIT, established in other areas of the world and perhaps involving multiple institutions; an international programme to provide evaluation and feedback on the MIT model; and a continuing north-south dialog concerning the creation and uses of open courseware.

A recurring theme in the discussion was a need for clear understanding of issues related to copyright, including the prospect that open courseware, freely available on the Web, could be misused by the unscrupulous preying on the unwary.

In preparing to establish the day's working groups the participants agreed on the following definition of open courseware (while acknowledging that the group may recommend a change in the term itself):

Open courseware:

1. Provides educational resources for college and university faculties to adapt in accordance with their curricular and pedagogical requirements.
2. Includes the technology to support open, meaningful access and use of the courseware.
3. Includes at a minimum the course description, syllabus, calendar, and at least one of the following:
    - lecture notes
    - demonstrations, simulations, illustrations, learning objects
    - reading materials
    - assessments
    - projects
4. Does not normally provide direct open learning support for students.

Working groups considered the following questions:

- What infrastructure requirements must be met in order to make open courseware globally viable?
- What policies - institutional, national, or regulatory - are necessary to remove barriers to the success of open courseware? What practical, feasible initial steps should be considered?
- What recommendations are needed to promote international cooperation in open courseware?

Their findings and recommendations are presented as Annex 4.

The Chair opened the final day of the forum with a review of the participants' accomplishments to date. Following final participant comments concerning the previous day's working group reports, she established the final day's working groups. The three groups considered:

- The appropriate name and definition for open courseware
- A programme to provide evaluation and usability improvement responses to open courseware programmes
- Development of an index or database to provide information about open courseware programmes

The findings and recommendations of these groups are presented as Annex 5.

As the forum drew to a close there were multiple expressions of thanks to the Chair, to UNESCO, and to the William and Flora Hewlett Foundation for making this exceptionally productive conversation possible.

In concluding the session Abdul Waheed Khan, Assistant Director-General for Communication and Information, UNESCO, expressed the commitment of UNESCO to advance the benefits of programmes like that under discussion here, with the hope that in the next biennium UNESCO will have a more important role than at present. "If we are truly a knowledge organization," he declared, "we need to see how to bring knowledge to people who need it so badly; we don't do that so well now." Mr Khan described organizational changes intended to advance that goal, and in closing expressed hope that "your deliberations will find expression in the way we provide services."

Participants then adopted a Final Declaration (Annex 6) in which they "express their satisfaction and their wish to develop together a universal educational resource available for the whole of humanity, to be referred to henceforth as Open Educational Resources."

Annex 1 - List of participants

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Annex 2 - Agenda

Monday, 1 July

9:30 - 10:00 Opening
UNESCO welcome
Presentation of the Hewlett Foundation - Dr. Marshall Smith
Nomination of Chair and Rapporteur

10:00 - 11:00 Discussion point 1: The nature of open courseware
Presentation of the discussion paper
Presentation of the MIT experience

11:00 - 11:15 Break

11:15 - 12:30 Participant presentations on their activities and experience as they relate to open courseware (15 minutes each)

12:30 - 14:00 Lunch

14:00 - 15:30 Participant presentations (continued)

15:30 - 15:45 Break

15:45 - 16:00 Participant presentations (continued)

16:00 - 17:00 Discussion point 2: Technological and human resources required and challenges to be met in open courseware participation

17:00 - 18:00 Informal discussions

18:30 Reception at UNESCO

Tuesday, 2 July

9:30 - 11:00 Discussion point 3: Faculty issues (concerns and opportunities) for open courseware participation

11:00 - 11:15 Break

11:15 - 12:30 Discussion point 4: Policy and cultural issues at institutional and national levels for open courseware participation

12:30 - 14:00 Lunch

14:00 - 15:30 Discussion point 5: Originating and collaborating in open courseware programmes from the perspective of developing countries

15:30 - 15:45 Break

15:45 - 16:30 Discussion point 5 continues

16:30 - 17:00 Formation of drafting groups on priority issues

17:00 - 18:00 Drafting groups begin work

Wednesday, 3 July

9:30 - 11:00 Drafting groups continue

11:00 - 11:15 Break

11:15 - 12:15 Reports of drafting groups
Adoption of recommendations

12:15 - 12:30 Closing

Annex 3 - Analysis of Participants' Contributions

By John P. Witherspoon
Senior Advisor, WCET

Introduction

This paper presents an analysis for discussion of the written contributions submitted by the participants of the Forum. It is organized according to the questions posed in the guidelines for contributions.

As Prof. V.S. Prasad observes in the paper he contributed to the Forum, "The Open Courseware concept is based on the philosophical view of knowledge as a collective social product and so it is also desirable to make it a social property."

The contribution guidelines were designed to provide a basis for discussions on the implications of that idea for developing countries. What national or institutional needs might open courseware address? What are the limitations - technical or otherwise - that must be overcome? How might the institutions of developing countries be producers and participants as well as users of open courseware material?

An important example of the concept will be presented during the Forum. It is the OpenCourseWare Initiative of the Massachusetts Institute of Technology (MIT), the result of which will be that the substance of nearly all MIT courses will be posted on the Web, available for use at no charge by any educational institution or individual learner, anywhere in the world. Only commercial applications will require licenses for use.

Variations on the open courseware principle are also outlined in the contributed papers, including the World Lecture Hall organized at the University of Texas, open courses offered by Brazil's Federal University of Ceará, and the programme of online courses being developed by Carnegie Mellon University. The papers are presented in full at http://www.wcet.info/UNESCO.

Using External Resources

Forum participants uniformly report that the use of external resources is hardly a new idea. Most institutions around the world have been doing it routinely for many years. Among the most common external resources cited are:

- Visiting lecturers and experts
- Twinning arrangements, providing for international exchanges of students and academic staff
- Imported courseware in a variety of media
- Externally developed sponsored programmes
- Interinstitutional programmes developed collaboratively
- Publications

Information resources of the Internet

Forum participants also report the need for other external resources, and prominent among these is the perennial problem of library resources. Subscriptions to academic journals and databases are a particular problem, compounded by the lack of computers, Internet access at key locations, and training for students and staff.

The Need for Open Courseware

Participants from developing countries report a wide range of areas in which open courseware can be valuable. A view of a widely developed theme is offered by Prof. Senteni, of the University of Mauritius:

> Presently, acute training and retraining needs in ICT are being felt . . .. The shift towards a knowledge society, with the service sector as its main pillar, creates training gaps in areas such as Management, eBusiness, eCommerce, eLearning, Human Resource Development, Information Systems, Finance, Banking, Marketing…. A coordinated Open Courseware initiative would therefore enable the University of Mauritius to build up networks, both local and international, and would be an opportunity for catching up and leapfrogging.

Requirements in education include instructional design and course design, development and delivery. Also cited were learning objects for use in teacher training and for classroom use by teachers. Advanced areas in science and technology are also prominent, including biotechnologies, microelectronics, and the information technologies.

In Morocco there is underway "a sweeping education reform whose implementation should start in institutions of higher education as soon as Fall 2002." Therefore, "The most important benefit of open courseware for Moroccan institutions of higher education seems to be the generalized contact with alternative systems of education." Course structure and the pedagogy implied in such programmes as that of MIT provide needed perspective as faculty members recast their courses.

Courseware and Institutional Missions

Institutions of participants in the Forum are considering the prospect of open courseware from the perspectives of a variety of missions. Some examples follow:

- The Moscow Institute of Open Education is charged with training and support for Moscow's 100,000 teachers, including research and development in ICT, pupil health, curriculum development, quality monitoring, and programmes for gifted children.
- The African Virtual University and its partner universities in Sub-Saharan Africa, with 31 sites in 17 countries, has among its objectives: Increase access to tertiary and continuing education; improve the quality of education by tapping the best resources, in Africa and worldwide; improve connectivity in learning centres and host universities, providing training in engineering, computer science and IT and business; and serve as a catalyst

for new investments in economic development by offering skills training and upgrading of professionals.

- The University of Mauritius is a participant in the national project to transform Mauritius into a cyber island.

Institutional missions also suggest some cautions in the use of open courseware. It is important not to inhibit the creation and dissemination of knowledge by scholars in developing countries, and the unique roles and stature of local higher education institutions must not be diminished when open courseware is applied. Open courseware is intended to be shared, not imposed.

Web Access Limitations

Not surprisingly, the access limitations most commonly reported are lack of adequate bandwidth, a shortage of computers, and the need for training in ICT. Inadequate local telecommunication infrastructure, sometimes including regulatory policy that has the effect of keeping costs high and access limited, is also a recurring issue.

In some institutions computer access is limited to faculty and graduate students, and often it is inadequate even for this relatively small group of users.

Language can also be a constraint. Sometimes the language of instruction is not the language of the Web. And Professor M. Dahbi reports that in Morocco, "Multilingualism . . . functions as a limiting factor [since] institutions feel that it is inappropriate and improper to be present on the web only in French, so they spend a lot of energy and resources trying to have Arabic as well as French and sometimes English, which makes the whole effort much more costly or simply aborts the project."

For some, there is a reported "non-readiness" to use resources. Professor A. Semenov observes that "For example, a school can have a computer lab but it is locked when the computer science teacher is not in school. To place [computer facilities in] the library and to provide access to it for 12 hours a day you need to change mentality and regulations as well as to find additional funds for hardware, service, and personnel."

The good news, however, is that many countries, provincial authorities, and institutions are recognizing the vital role to be performed by ICT, and appropriate access is often increasingly available or imminent.

Concerns in Applying Open Courseware

The language issues noted above are particularly important when considering the adoption of open courseware. Closely related is the matter of cultural differences between originating and using institutions, not to mention differences between their respective societies. In planning its OpenCourseWare Initiative MIT has identified institutions interested in translating its work into other languages. With regard to cultural and political issues, the MIT response has been to maintain the traditional academic freedom of its faculty, relying on the users of open courseware to make necessary local adaptations.

For many, adapting open courseware to suit local requirements will require skills and technology that are in short supply. Clearly, however, many consider that a challenge worth addressing.

Institutions as Open Courseware Partners

Institutions represented at the Forum are prepared to collaborate in regional or international open courseware programmes. Among the suggestions:

- Materials for professional programmes such as Bachelor's and Master's degree programmes in library and information sciences.
- Production of a portal for the African educational community to share information, course content, and make accessible quality distance education learning products and services.
- Using existing resources, develop reusable learning objects as "cognitive Lego Bricks."
- Develop collections of science experiments and industrial processes, and the resources of art galleries and historical archives.
- Develop the international intellectual resource that is constituted by scientists and professors who are currently under-used in their present national infrastructure.
- Develop courses in the field of continuing education.
- Collaborate with other countries in the development of case studies in international business, for example in the transition from traditional to modern business structures.
- Provide a test/evaluation environment for open courseware programmes.
- Publish links to pages created by faculty worldwide who are using the Web to deliver course materials in different languages.

In Summary

The international discussion about open courseware - its potential and the issues to be addressed - is clearly both timely and pertinent. Thanks to a confluence of technology and imagination, it is now feasible to recognize that knowledge as a social product can indeed become an international social property, a concept that the Forum is invited to explore and advance.

Annex 4 - Working Group Reports

2 July 2002

I. Question for discussion: What infrastructure requirements must be met in order to make courseware globally viable?

These recommendations represent a broad framework, rather than specific technology and implementation details. They address infrastructure needs, which includes considerations of:

- Technology (hardware, software, connectivity, standards, etc.)
- Organization (technical competencies, training, standardization communities)
- Policy (openness, business model)

As a driving principle for infrastructure considerations, we recommend that any infrastructure decision promote a low threshold for participation of both producers and users of open courseware.

1. Technology

1.a. Software:

Software sustainability is an important issue, especially in regard to its ability to be reused for different platforms and to be easily upgraded for new technologies. Hence, to the extent possible, the core part of the software should be technology / implementation independent.

The technology should be designed to allow the use of a variety of appropriate tools, with a minimum of integration problems.

Care should be made for usability considerations, which means contents should be easy to edit or modify (formats, specifications) and should accommodate different kinds of access considerations.

Contextualization should be enabled, which includes support for multiple languages, a function that may be assisted by UNESCO.

1.b. Connectivity:

Connectivity is a key issue in this initiative. This entails special care in addressing bandwidth problems.

Web access (or a suitable common mode of access that is platform independent) is needed.

In addition, a whole range of delivery modes should be made available for cases where connectivity at sufficient bandwidth would cause a problem.

1.c Standards:

Reliance should be made on standards and specifications to the extent possible.

2. Organization

Mechanisms should be put in place for establishing agreements and enabling use of standards. UNESCO, together with relevant institutions for the development and support of standards (e.g., IMS and OKI), is expected to play this role.

Enabling infrastructure to deal with this initiative is not only a technology issue; it also includes training and developing technical competencies. Again, UNESCO, together with relevant institutions such as IMS and OKI is expected to play this role.

User groups are expected to form in order to guarantee a continuous assessment of tools, contents and the system in general.

3. Policy

It is important to set an adequate business model in order to guarantee sustainability of the initiative. Although this is a non-profit initiative, resources must be made available and sustained. Contributions may be solicited from contributing institutions, but in no way could they be compulsory.

To the extent possible reliance should be made on open framework and open-source tools (delivery platforms, authoring, etc.) for non-locally developed tools. Care should be made in order not to lead to unanticipated secondary reliance on commercial exploitation.

II. Question for discussion: What policies - institutional, national, or regulatory -- are necessary to remove barriers to the success of open courseware? What practical, feasible initial steps should be considered?

There are six basic subgroups of conclusions.

1. The concept of open courseware, based on the MIT initiative, is one that is highly appreciated for developing countries.

2. There are several core issues to consider:
   - Intellectual property considerations
   - Institutional commitment
   - Institutional policy structure
   - Cultural and educational exchange: policies and practices
   - Issues surrounding the export and import of educational material

3. The development of standards and norms -- the development of educational quality norms applicable to open courseware functions - is an important early step.

4. With the emergence of open courseware, new processes are required. Among the considerations are:
   - How to internationalize the MIT initiative
   - Defining the reciprocal responsibilities of participating parties
   - Establishing a structure involving MIT and 10 to 15 cooperating institutions in order to experience, apply, and evaluate a major early open courseware program

5. Criteria for the assessment of outcomes must be defined. Feedback mechanisms should be designed and implemented.

6. Recognizing the potential value of the open courseware concept applied to higher education in developing countries, there are important potential international roles for UNESCO and, perhaps, other international organizations. These include:
   - Disseminate information about the open courseware concept
   - Assist with the establishment of educational quality norms
   - Assist the processes of capacity building, particularly with needed competencies
   - Facilitate collaborative arrangements, acting as convener for determining modalities, mechanisms, etc.

Recommendation: Under UNESCO auspices establish a cooperative agreement to define in more detail how to proceed in order to further examine, amplify, then implement the policies and strategies outlined above.

III. Question for discussion: What recommendations are needed to promote international cooperation in open courseware?

1. Recommendations concerning concept definition

- More clarity is needed concerning the elements necessary for open courseware.
- Recognize the faculty as the primary user of open courseware, which is a teaching resource. It is also a resource for learners.
- For each open courseware offering, potential users need to know:
  - What are the course objectives? What are the intended outcomes? What prerequisites are needed or assumed?
  - Where was the course originated?
  - When was it last offered?

2. Recommendations to assist dissemination, adaptation, evaluation, and use of open courseware materials

- Establish a Global Index System, the purpose of which is to help potential users to find courseware and then to make it easily accessible.
- The Index System would be based on vetting by a volunteer group acting as an editorial board.

3. Recommendations concerning procedures in using open courseware

There should be two levels of possible open courseware use:

- Free use, used locally
- Downloaded, adapted, and sent back to the system repository for vetting and potential use by others.
  - Note that translation is part of adaptation, not a separate function.
  - In order to effect these and other recommendations, an appropriate level of user registration may be indicated.

4. Recommendation to facilitate collaborative work by groups

An organization --perhaps conceptually an OCW.org - could provide a collaborative base for translation/adaptation projects.

5. Recommendation concerning validation of open courseware materials.

Courses should be labelled according to their origin and usage. Vetting should be conducted at the level of the institution; a course is assumed to be acceptable if it is originated by a validated institution.

6. Recommendation toward international validation.

A global forum, perhaps based on UNESCO, should be established for international accreditation and validation.

7. Recommendation toward sharing experience gained.

A feedback loop should be established for evaluation and distribution of lessons learned in the process of developing and using open courseware. Some considerations:

- Training, capacity building around faculty needs
- Sustainability: an open courseware program is likely to be sustainable if institutions can recognize value added.

8. Recommendation concerning the UNESCO mission.
UNESCO should assume an ongoing role to assure that valuable initiatives are appropriately developed and maintained.

Annex 5 - Working Group Reports

3 July 2002

Working groups were organized to make recommendations concerning the following critical areas:

- An appropriate name and definition for the service presently known as open courseware.
- A structure to provide interaction concerning evaluation and usability of the material.
- Design of the Index/Database for information concerning and access to the available resources.

The three respective reports are presented below:

I. Name and Definition

1. The recommended name is Open Educational Resources. Alternatives cited are open courseware, open learning resources, and open teaching/learning resources.

2. In defining Open Educational Resources, the elements to consider are:
   - The vision for the service: Open access to the resource, with provision for adaptation.
   - The method of provision: enabled by information/communication technologies.
   - The target group: a diverse community of users.
   - The purpose: to provide an educational, non-commercial resource

3. The recommended definition of Open Educational Resources is:

The open provision of educational resources, enabled by information and communication technologies, for consultation, use and adaptation by a community of users for non-commercial purposes.

II. Evaluation and Usability

Recommendation: Post open educational resource materials on the Web as soon as they are made available, and immediately start using and evaluating them. Solicit international assistance from UNESCO and others to make them widely available.

Recommendation: Organize the project for evaluation and usability improvement, the objectives of which are to gather, analyze, and synthesize:

- Faculty feedback
- Information concerning support needed from institutions
- Information about access and usability

In initiating this project, the planners will identify a specific set of courses, together with a specific set of institutions committed to thoroughly test and evaluate them. These courses would preferably be in the domain of science and technology, both because they are of prime importance to developing countries and to avoid cultural problems.

The group may address joint development of an open educational resource project in addition to sender-receiver evaluations and responses.

The project will establish a user group, mailing lists, etc., to provide continuous communication about this initiative.

The Director of WCET has committed her organization to coordinate the development of the project.

University representatives present in the working group have committed their institutions to specific involvement as this project proceeds. Institutions, representatives, and proposed functions are as follows:

Massachusetts Institute of Technology, U.S.A.
Ms Anne Margulies
Function: Course content

Visual Centre for Innovative Learning Technologies
University of Mauritius, Mauritius
Mr Alain Senteni
Function: Propose content; testing; learning objects

University of Conakry, Guinea
Abdoulaye Diakité
Function: Using, testing, adaptation
Carnegie Mellon University, U.S.A.
Mr Joel Smith
Function: Full online courses; learning objects

Learning Technology Center, University of Texas, U.S.A.
Mr Paul Resta
Function: The World Lecture Hall

Ecole Nationale supérieure Polytechnique
Université de Yaoundé, Cameroon
Mr Emmanuel Tonye
Function: Using, testing, adapting, proposing

Moscow Institute of Open Education, Russian Republic
Mr Alexei Semenov
Function: Using, courses in mathematics and biology

Federal University of Ceará, Brazil
Mr Rene Teixeiro Barreira
Function: Provide material; test

Mansoura University, Egypt
Mr Mohamed-Nabil Sabry
Function: Testing, coordinate with OKI

Ecole Supérieure Polytechnique de Dakar
Université Cheikh Anta Diop, Senegal
Mr Alex Louis Gabriel Corentin
Function: Testing, adapting

Dr. B.R. Ambedkar Open University, India
Mr V.S. Prasad
Function: Proposing, testing

Others have been invited to indicate their interest.

III. Index/Database Design

The group identified as the principal purposes of an index/database system for Open Educational Resources: accessing the resources, information concerning quality assurance, and dissemination of information about the system. Accordingly, its findings and recommendations are as follows:

1. Accessing the resources

Resources should be stored in distributed databases. These may be institutionally based. They may be downloaded from there for adaptation/use. There will be one centrally maintained index of resources. The courseware is very dynamic; the index will represent a snapshot in time and will need to be regularly updated to ensure that it remains current. The index will include a full history of the provenance and use of the resources as well as users' feedback and comments. AIU (The Association of International Universities) based at UNESCO, Paris may be an appropriate host for the index.

The success of the index and databases will be dependent on the choice and maintenance of appropriate technology capable of managing material in dynamic form.

2. Quality Assurance

As a prelude to determining appropriate quality assurance processes, the group considered where on a continuum of openness it wished to situate the initiative, taking into account the costs involved in establishing an elaborate vetting procedure for either the users or providers of material within the system. It recommended that in order to preserve the openness of the system, requirements for access to the system as a provider should be determined on

the basis of institutional recognition within relevant national or international systems However, discipline based groups of peers (global intellectual interest groups) would be encouraged to use and evaluate the posted resources and all users would be encouraged to provide feedback on their usefulness, relevance and currency. As a repository of resources, the system should be conceived as a library which provides both an efficient indexing system to the content and pedagogical approaches used as well as useful advice and indicators of the quality of the materials it contains in the form of user commentary.

A template for required information about the resources, their provenance etc. as well as protocols for access that are sensitive to the needs of the user community will need to be developed. A role for UNESCO is suggested, particularly because of its work with user communities.

3. Dissemination of information about the system

Existing forums should be used to disseminate accurate information about the initiative as well as to encourage its use and devise appropriate protocols. The UNESCO Global Forum on International Quality Assurance, Accreditation and recognition of qualifications would be useful in this regard.

Annex 6 - Final Declaration

At the conclusion of the Forum on the Impact of Open Courseware for Higher Education in Developing Countries, organized by UNESCO, the participants express their satisfaction and their wish to develop together a universal educational resource available for the whole of humanity, to be referred to henceforth as Open Educational Resources.

Following the example of the World Heritage of Humanity, preserved by UNESCO, they hope that this open resource for the future mobilizes the whole of the worldwide community of educators.

They thank the donors who have made possible the organization and success of the meeting.