



## UNESCO INSTITUTE FOR INFORMATION TECHNOLOGIES IN EDUCATION

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### EDITORIAL

Dear readers,

The issue offered for your attention is devoted to the main events of IITE's programme activities during last three months.

The article of Dr Boris Kotsik *UNESCO IITE Supports Education Development in the Kingdom of Swaziland* tells about IITE contribution to the development of education in the Kingdom of Swaziland. In May 2004 the UNESCO Windhoek Office running the project on teacher training in the Kingdom of Swaziland addressed UNESCO IITE for technical support to the Ministry of Education of Swaziland implementing this project, which aims at the advance of ICT education in the country through ICT training of educational staff. To reach the goal it is necessary to conduct an in-depth national

assessment of the school curriculum to revise the teachers' training curriculum, to provide in-service training in the use of ICTs in education for teacher training colleges, and to procure reference materials for teachers' resource centres, teacher training colleges and In-service Education Division. IITE readily responded to the request. By December 2004 the survey of current education curricula used in Swaziland was conducted, and the training programme was worked out. According to this programme IITE is to carry out a series of training events in March–April 2005 to train teachers in basic ICT literacy and their applications in secondary education.

The article *IITE Training Programme for Tutors of Distance Education* presents an overview of training programme run at IITE and developed by its specialists in coope-



At the seminar for tutors of distance education

ration with the Institute of Development of Supplementary Vocational Education of Federal Education Agency of the Ministry of Education and Science of the Russian Federation under methodological support of leading distance education (DE) experts. Since February 2004 the unique training programme *Distance Education Tutor* based on IITE research and specialized courses *Information and Communication Technologies in*

*Distance Education* developed under the guidance of Prof. Michael Moore (USA), and *Distance Education Tutor* elaborated under the supervision of Dr Sergey Schennikov (Russian Federation), the best examples of DE international experience, being integrated at IITE. The programme is highly assessed by the specialists of secondary, vocational, and high schools, who have already taken part in it, and IITE believes that it will promote the

### IITE ONLINE NEWS

We are pleased to inform you that as a practical result of IITE sub-regional project for South-Eastern Europe three new focal points for cooperation with IITE have been established in the region. They are: National Institute of Education at the Ministry of Education and Science of Bulgaria, Center for Advanced Learning Services at University "Politehnica" of Bucharest, Romania, and

Faculty of Organization and Informatics at University of Zagreb, Croatia.

We are sure that it will allow the Institute to use its full potential in these countries for the accomplishment of its main task – to assist UNESCO Member States in the effective application of information and communication technologies in education.

development of education by means of ICTs more actively.

Dear readers, as you know IITE consecutively strives to increase a number of professionals interested in ICT usage in DE. The previous IITE Newsletter reported about the training seminar *Distance Education: Organization, Teacher Training, Technologies* held from 2 to 4 November 2004 for the specialists from Azerbaijan, Armenia, Belarus, Kazakhstan, Republic of Moldova, and Russian Federation. The seminar was organized in cooperation with the UNESCO Moscow Office. IITE invited Prof. Wayne Mackintosh, the well-known expert in the field of ICTs for DE, Director of Centre for

Flexible and Distance Learning, University of Auckland, New Zealand, as a main speaker. This IITE Newsletter presents the report *Charting the Future of Digital Learning: New Pedagogy or Distance Education Reinvented?* W. Mackintosh delivered at the training seminar.

The information prepared by Dr Yuri Zaparovanny acquaints the readers with two latest IITE publications in the field of ICT application in distance education: *Information and Communication Technologies for Higher Distance Education in Sub-Saharan Africa* – national and regional state-of-the-art and perspectives, and training materials *Information and Communica-*

*tion Technologies in Distance Education*. In the article *IITE Specialized Training Course: Digital Libraries in Education* Mr Azat Khannanov informs about the specialized training course *Digital Libraries in Education* recently accomplished by the authors from New Zealand, India, and South Africa in the frame of the cross-cutting theme project *Methodologies for Digital Libraries*. The course deals with the use of digital libraries in education, including emerging areas of application, current and future technologies to create and distribute digital libraries. It shows educators how to build digital library collections for the courses they teach. Though it touches on large-scale national and

international digital libraries for education, it is more oriented toward low-budget methods of building and maintaining digital libraries by creative individuals and self-organized communities of educators at the levels ranging from personal to institutional. The course is likely to be done both in face-to-face mode and via online instruction with the special IITE-developed WWW tool.

I sincerely hope that the Newsletter materials will help our readers benefit from IITE's experience for the progress of educational systems in their countries.

**Vladimir Kinelev**  
Director of IITE

## UNESCO IITE SUPPORTS EDUCATION DEVELOPMENT IN THE KINGDOM OF SWAZILAND

In May 2004 the UNESCO Windhoek Office implementing the Japanese Funds-of-Trust Project for capacity building in teacher education in the Kingdom of Swaziland addressed UNESCO IITE to provide technical support to the Ministry of Education of Swaziland in the implementation of this project with regard to training of teacher educators and relevant ministry staff in the area of information and communication technologies (ICTs) in education.

The main aims of the project are to conduct an in-depth national assessment of the school curriculum; on the basis of the assessment to revise the teacher education curriculum, provide in-service training in the use of ICTs in education for four teacher training colleges of Swaziland, namely: Swaziland College of Technologies

(SCOT), Nazarene Teacher Training College, William Pitcher College, and Ngwane Teacher Training College; to conduct in-service training in the use of ICTs for In-service Training Unit in the Ministry of Education; and to procure reference materials for eight Teachers Resource Centres, the four teacher training colleges and the In-service Education Unit.

IITE suggested Dr Boris Kotsik, Chief of Education Technologies Unit, take a role of an international consultant of this project. Responsibilities of an international consultant are to:

- i) advise the local consultant on the assessment of various ICT curricula currently in use at schools;
- ii) advise the local consultant on formulating a uniform ICT curriculum for schools

- and its assessment/examination instrument;
- iii) advise the local consultant on training needs' assessment for ICTs in colleges to introduce an ICT curriculum in colleges that is in harmony with the one for schools;
- iv) advise the local consultant on training needs assessment for ICTs in colleges, National Curriculum Centre (NCC) and In-

- service Training Unit (INSET) to strengthen computer skills of lecturers and personnel at the institutions to work efficiently and effectively;
- v) conduct a training needs' assessment at In-service Training Unit for school management systems to strengthen management skills meeting the demands of introducing ICTs in schools;



Meeting with specialists at In-service Training Unit

vi) Compile a report that includes recommendations on the undertaken activities.

To provide for balanced recommendations some external information sources were analyzed on the country profile, level of education and technology development, namely: reports of the World Bank, Human Development Report 2004 of UNDP, and Global Information Technology Report 2002–2003.

Mr Philemon Gumedze, local consultant for the project, presented the survey on ICT curricula currently used at schools. Supposedly, the next stage of the project was to analyze the current ICT status and syllabus at four colleges, In-service Training Unit and National Curriculum Centre. Based on the analysis the recommendations on ICT training of the staff of these institutions were to be developed.

In December 2004 Dr Kotsik visited Swaziland to meet Mr Dlomo, national project officer, Mr Gumedze, and representatives of the mentioned organizations. During the visit Dr Kotsik and Mr Gumedze made up a special questionnaire to assess the training needs. The principals and heads of departments were

interviewed. Based on the survey and results of the meetings the following conclusions were formulated:

1. There is a substantial interest and certain experience of ICT application in education.
2. Because of various resource limitations only basic ICT skills are introduced in the curriculum of some schools.
3. Level of ICT infrastructure development at schools is relatively low and unequal. Even at schools with more or less developed ICT infrastructure the issues of safety, maintenance and software support are often left unattended.
4. ICT literacy of educational personnel is not supported by programmes of vocational training and retraining.
5. There is neither uniform ICT curriculum, nor national programme for ICT development in education at present moment. The use of ICTs at schools is not legislated.
6. Rate of changes in ICT development in education is much slower than that of technology development around the world.

To provide for the development of education under such conditions, a balanced and systemic approach is needed

for the national policy to be elaborated. The approach should include clear definition of basic goals of education development in the country; specification of key issues to be addressed as well as would-be bottle-necks; stable provision of resources for the balanced development; long-term investments in human capacities and infrastructure, monitoring the results and undertaking necessary policy adjustment, thus providing for a mechanism for stable and self-sustained development; implementation of international experience and accounting the existing practice.

At the present level of technology and in accordance with the goals of education development a uniform ICT curriculum for schools can focus on basic ICT literacy and office technologies covered in five modules:

1. Computers basics
2. Word processing
3. Spreadsheets
4. Presentations
5. Global networking and telecommunications

Existing syllabi for the modules could be used, including knowledge and skills standards on three different levels of proficiency. Existing UNESCO documents and Internet resources can be of help, for example, <http://www.learn-touse.com>. Standard assessment procedures based on multilevel knowledge and skill requirements are also available. Relevant suggestions and corresponding information were provided to the local consultant.

With the current level of ICTs penetrated in education and based on availability of ICT infrastructure and qualified teachers, ICT courses could be

integrated into school curricula as an optional subject, and in this case standard assessment and examination procedures can be worked out for school graduates nationwide.

The results of the training needs' assessment showed that to provide relevant ICT literacy courses for graduates of teacher training colleges, a corresponding training of teachers in these colleges on the basics of ICT literacy must be performed with the similar programme of basic ICT knowledge and office skills. The plan of training activities was made for April–September 2004 for several groups of teachers from the colleges, NCC and INSET; the training programme is being developed. IITE is developing training materials, which will be used during the workshop together with standard Office Applications manuals of leading international publishers, such as Microsoft Press.

Assessment of teacher trainers at INSET revealed the need in a special training programme for school administrators and head teachers aimed at strengthening of management skills to meet the demands of ICTs being introduced in schools. It was suggested that a programme for such training should be based on the IITE specialized training course *Information and Communication Technologies in Secondary Education* which is to introduce new managerial and didactic approaches of education development through ICTs. The international consultant is to deliver the training course for INSET specialists and school administrators in March–April 2005.

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Training needs' assessment

## IITE TRAINING PROGRAMME FOR TUTORS OF DISTANCE EDUCATION

Since February 2004 the UNESCO Institute for Information Technologies in Education (IITE) in cooperation with the Institute of Development of Supplementary Vocational Education of Federal Education Agency of the Ministry of Education and Science of the Russian Federation has carried out the training programme *Distance Education Tutor* for specialists of secondary, vocational, and high schools.

The goal of the programme is to provide effective functioning of educational institutions in the mode of distance education (DE).

The syllabus of the training programme includes the following units:

- DE didactics
- DE psychological issues
- DE tools
- DE technology
- Assessment technologies in DE
- Standards for DE means and technologies
- DE organization
- DE regulatory and legal aspects
- DE project management
- Copyright and intellectual property

- Training and retraining of DE staff

The IITE Education Technologies Unit with methodological support of the leading DE experts elaborated the programme curriculum. Highly skilled professionals from the DE Center of the Moscow State Open Pedagogical University named after M.A. Sholokhov, Institute of Basic Secondary Education of Russian Education Academy, Republican Multimedia Center, Russian State Institute of Open Education, DE Center of the Moscow State Institute of Electronics and Mathematics, Moscow Modern Academy of the Humanities, Branch Fund of Algorithms and Programs run the programme.

The unique aspect of the training programme is that it is based on the IITE research and best examples of DE experience worldwide. The IITE specialized training courses *Information and Communication Technologies in Distance Education* elaborated under supervision of Prof. M.G. Moore (USA), and *Distance Education Tutor* developed under guidance of Dr S. Schennikov (Russian Federation) are integrated in the programme.

The 72-hour training programme includes two face-to-face sessions and one online session where the DE technologies are used:

- 1st week – intensive training session (24 hours) at IITE, Moscow;
- 2nd-8th week – distance learning session and online interaction;
- 9th week – intensive training session (24 hours) and final assessment at IITE, Moscow.

Learning activities in distance mode are supported by the special information subsystem developed by IITE within IITE web site [www.tutors.iite.ru](http://www.tutors.iite.ru).

In 2004 six training groups (91 trainees) participated in the seminar, among them:

- Heads of units – 45%
- Teachers, teacher trainers – 39%
- Researchers – 4%
- Engineers and technicians – 12%

The participants represented 70 education institutions of the Russian Federation.

The acquired knowledge and skills are assessed by the results of analytical and creative tasks accomplished by

the participants. Trainees have to present the final individual project *Development of DE Course Unit*. The project has the form of a mini-conference, where alongside with sharing of experience, participants show the acquired knowledge and skills.

The participants, who successfully fulfill the programme, get a State Certificate and UNESCO IITE Certificate.

IITE evaluates the training programme by:

- entry questionnaire to assess knowledge and skills of the participants in the field and to inform them about the issues and topics of the programme;
- progress questionnaire to be completed by the participants after each session to assess teacher's performance and quality of the training, support and test materials;
- final questionnaire to be completed after the final assessment of trainees' achievements to evaluate the programme quality comprehensively.

The results of the evaluation demonstrate that the partici-



Training session at IITE



The certificates presentation

pants highly appreciate the training programme. More than 75% of participants intend to recommend the programme to their colleagues.

For further development of this training programme IITE plans to:

- compose specialized modules for various categories of trainees (course developers, tutors, DE managers);
  - offer training programmes of varied duration;
  - develop instruction modes and technologies;
  - establish a virtual community of teachers participated in the programme;
  - create a system of specialized centres for further development of the programme.
- Taking into account the previous experience IITE believes that this training programme

promotes active development of education by means of ICTs.

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## CHARTING THE FUTURE OF DIGITAL LEARNING: NEW PEDAGOGY OR DISTANCE EDUCATION REINVENTED?

UNESCO IITE consecutively increases a number of professionals interested in ICT usage in distance education. In the previous IITE Newsletter we wrote about the training seminar *Distance Education: Organization, Teacher Training, Technologies* held from 2 to 4 November 2004 for the specialists from Azerbaijan, Armenia, Belarus, Kazakhstan, Republic of Moldova, and Russian Federation. The seminar was organized in cooperation with UNESCO Moscow Office. IITE invited one of the leading experts in the field of ICTs for distance education (DE), Prof. Wayne G. Mackintosh (New Zealand) as a main speaker. Newsletter presents a report Prof. Mackintosh made at the seminar *Charting the Future of Digital Learning: New Pedagogy or Distance Education Reinvented?*

In 1965, the renowned distance education scholar Otto Peters observed that “[t]here are distance teaching universities only in South Africa and the USSR” (Peters, cited by Keegan 1993: 62<sup>1</sup>). In the 1960s, the former USSR had approximately 1,4 million students studying by distance methods. It is appropriate that IITE leads its initiatives in technology and distance education from Moscow, thus providing credence to the words of Karamzin: “Whoever has been to Moscow knows Russia”.

Clearly the depth of distance education experience in the former USSR has shaped the vision of IITE. Those of us involved with the adoption and implementation of digital ICTs in education are acutely aware that they can fundamentally change the way institutions view their missions and place within a society by challenging current aims and values. In response to these challenges, IITE continues to interrogate the meaning of distance education future, emphasizing the latent potential of contemporary advances in ICTs to respond meaningfully to the driving force of UNESCO, namely, Education for All.

The recent expert seminar drawing educational leaders and practitioners from CIS states is a prime example of globalization where the sharing of experiences across national boundaries and cultures can contribute to building sustainable and better futures in education. CIS states are challenged with vast distances and continue exploring ways to harness the enabling power of ICTs for education. I had the privilege of sharing some of my experiences with the group, at the same time enriching my own understanding of the challenges facing CIS states. I have contributed to the seminar in three ways:

1. Presenting a keynote address exploring the future of digital learning and its potential contribution in promoting Education for All. The central tenet of my argument is that the global knowledge society, challenges associated with the massification of higher education and pervasive advances in digital ICTs present fertile ground for establishing a new pedagogy that is capable of customized multi-modal learning experiences. However,

these futures need to be built on a sound understanding of the research, theory and practice of distance education.

2. Informing the group of our experiences with the pilot presentation of IITE specialized training course *Information and Communication Technologies in Distance Education*. This pilot offering of the course was an overwhelming success involving senior university managers and practitioners from eleven countries in Sub-Saharan Africa. We examined the potential for refining and presenting the course for CIS states and agreed that this was a high priority.
3. Explored the potential of the e-learning XML editor (eXe) project to support the objectives of CIS states (<http://eduforge.org/projects/exe>). eXe is an open source, web-based tool that will enable teachers and academics to create professional-looking web content specifically designed for online learning without any knowledge of HTML or XML mark-up technolo-

gies. Being an open source project, it provides for contextualisation in local languages, and we are hopeful to see a Russian language pack in the near future.

IITE’s work will continue to play a significant role in the evolution of new pedagogy, particularly for developing society contexts. The cornerstone of IITE’s success is founded, first and foremost, on the fact that a strategy should begin with a solid conceptual understanding of the world around us. Second, that it is important to listen and learn from the experiences of local experts and practitioners. Finally, IITE recognizes and builds on the latent power of networks and shared experiences. The success of this seminar is attributed to these guiding principles, and we are looking forward to ongoing global collaboration among CIS states in building the new pedagogy.

**Wayne Mackintosh**

*Centre for Flexible and Distance Learning University of Auckland New Zealand*

<sup>1</sup> Keegan, D.J. 1993. A Typology of Distance Teaching Systems. In Harry K., John M. & Keegan D. (eds.) *Distance Education: New perspectives*. London: Routledge.

## NEW IITE PUBLICATIONS ON DISTANCE EDUCATION

At the end of 2004 IITE published two new materials reflecting the international experience in the field of ICT application in distance education:

- *Information and Communication Technologies for Higher Distance Education in Sub-Saharan Africa*. National and regional state-of-the-art and perspectives.
- *Information and Communication Technologies in Distance Education*. Training Materials: Course Guide. *Developing a Business Plan for Presenting the UNESCO IITE Specialized Training Course*. User Guidelines. *Distance Education Platform*.

The publications are the results of the IITE extrabudgetary project *Information and Communication Technologies for Higher Distance Education in Sub-Saharan Africa* undertaken in 2003 for English-speaking participants from countries in Africa. Participants of the training session – highly qualified specialists from eleven SSA countries, namely: Botswana, Ethiopia, Ghana, Kenya, Mauritius, Namibia, Seychelles, South Africa, Swaziland, United Republic of Tanzania, and Uganda, and two representatives from the UNESCO International Institute for Capacity Building in Africa (IICBA) – took part in the project.

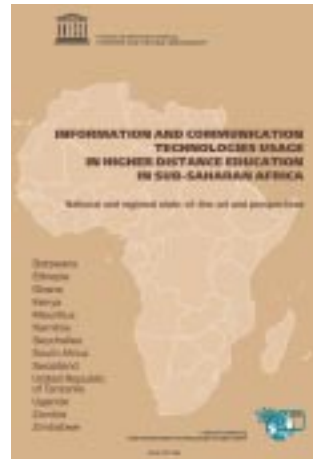
The representatives of each country prepared the projects (business plans) on ICT implementation in DE in their home countries and did some research.

Several works are presented in the first publication

*Information and Communication Technologies for Higher Distance Education in Sub-Saharan Africa*. National and regional state-of-the-art and perspectives. The publication opens with the article of Prof. V. Kinelev, IITE Director, *IITE Activities in Africa*. The article points out that it was a long way before the above-mentioned extrabudgetary project took place. Generally speaking, this way started with the cooperation with the countries in Africa in 1999, when a number of National Commissions for UNESCO established national focal points to cooperate with IITE, namely: Cape Verde, Ghana, Namibia, Seychelles, Senegal, and United Republic of Tanzania. IITE has successfully and consistently developed cooperation with the countries of Africa within the framework of the IITE project *Information and Communication Technologies in Distance Education*:

- Expert meeting *Distance Higher Education in Africa: Professional and Course Development* and workshop *ICTs in Distance Education*, 20–21 September 2001, Dar-es-Salaam, the United Republic of Tanzania;
- Seminar for high-level experts *Policy Formulation and Practical Usage of ICTs for Higher Distance Education in Countries in Africa*, 29 October – 1 November 2002, Nairobi, Kenya;
- Training session *Information and Communication Technologies for Higher Distance Education in Sub-Saharan Africa*, Pretoria, South Africa.

The profound investigation of Dr Bob Day and Mr Bob Jolliffe *Pan African Study of*



*“e-campus”* is worth noting. This study of “e-campus” in Africa included both study tours to a variety of higher education institutions in Ethiopia, Kenya, South Africa, Senegal and Uganda as well as desk-based investigations of Mozambique, Mauritius, Madagascar, South Africa, United Republic of Tanzania, and Zimbabwe. The study is divided into three main sections: first, overviews of relevant background information (Chapters 2, 3 and 4); second, the study tour and desk-based findings (Chapters 5 and 6); and finally the analysis of the findings and resultant recommendations to UNESCO (Chapters 7 and 8). Chapter 8 suggests a range of prioritized recommendations as a basis for UNESCO’s African “e-campus” policies and strategies. It emphasizes that “e-campus” needs to be driven as a major paradigm change beyond incremental efficiency and effectiveness measures. In conclusion, lists of viable, coherent, nested, short- and longer-term recommendations are presented at the continental, regional, national, provincial, organizational, communal, and individual levels.

The publication *Information and Communication Techno-*



*logies for Higher Distance Education in Sub-Saharan Africa*. National and regional state-of-the-art and perspectives covers *Lead Facilitator’s Report* of Prof. W. Mackintosh: pilot offering of the IITE specialized training course *Information and Communication Technologies in Distance Education*. In this work W. Mackintosh looks through three stages of the IITE training session in South Africa and evaluates them.

The second IITE publication *Information and Communication Technologies in Distance Education*. Training Materials: Course Guide. *Developing a Business Plan for Presenting the UNESCO IITE Specialized Training Course*. User Guidelines. *Distance Education Platform* needs to be introduced in a few remarks. These training materials were developed as support resources for the pilot offering of IITE specialized training course *Information and Communication Technologies in Distance Education*, which was provided in the frame of the IITE extrabudgetary project *Information and Communication Technologies for Higher Distance Education in Sub-Saharan Africa*. Drawing on the experience of this

international project, the training materials of session were adapted for publication. They were designed to supplement the specialized IITE training course on ICTs in distance education and are divided into two parts:

- W. Mackintosh and C. Kell worked on the Business Plan section covering the components necessary to develop a sustainable business plan to deliver the specialized training course; and
- Dr Natalia Severova prepared the user guidelines for students who will employ the IITE Distance Education Platform (DEP) online. DEP was tested during the pilot offering of the course.

The training materials will serve specialists who plan to implement the specialized training course with DEP for delivery.

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## IITE SPECIALIZED TRAINING COURSE: DIGITAL LIBRARIES IN EDUCATION

Digital libraries are large, organized collections of information objects. Well-designed digital library software has the potential enabling non-specialists to conceive, assemble, build, and disseminate new information collections. This has great social effect because it democratizes the dissemination of information. In particular, it will revolutionize the way in which education is conducted and educational materials are prepared.

UNESCO intends to foster new forms of networking between teacher-training institutions and teachers using digital libraries (DL), as well as production and deployment of digital educational materials. At the same time, some experts believe there is lack of understanding how DL function, as well as suspicion that DL promote trade in higher education services, and fear that developing countries are used as new markets, along with concerns regarding quality assurance of education provided through DL. In addition, the policy, planning, development, and management of digital libraries for all levels of education differ from the traditional face-to-face offer in libraries. Decision-makers need access to information and capacity-building that will assist them in performing their tasks appropriately and efficiently.

Within this framework, UNESCO started the cross-cutting theme project *Methodologies for Digital Libraries*. The project aims to overview current and future technologies and applications of digital libraries, including ethical, social, pedagogical, organizational, and economic aspects as well as their impact on educational, cultural, and scientific activities. The achieved results will be used to develop methodologies of digital libraries to be established in UNESCO's fields of competence, and to elaborate specialized training courses on the use of digital libraries for educational authorities, teacher trainers, educators, researchers, and students. The specific objective is to provide capacity building for decision-makers and major regional DL developers in the target regions in forming a base for planning the forthcoming phases of future projects for DL development. The project will also address the multilingual usability of digital libraries.

One of the main results achieved in the project is the specialized training course *Digital Libraries in Education* prepared by the international (but mainly New Zealand-based) team of specialists in the study and practice of digital libraries and education, namely: David Bainbridge (New Zealand), Dave Nichols

(New Zealand), Wayne Macintosh (New Zealand), T.B. Rajashekar (India), and Ian Witten (Coordinating Editor, New Zealand).

The emergence of the World Wide Web is changing society's view of information by making unprecedented volumes of information freely available. Of course, it is an unreliable source of enlightenment, and indiscriminating use is dangerous but, unfortunately, widespread. Nevertheless, the Web abounds with accessible, high-quality information. Many educational establishments, international organizations, social groups, non-profit societies and charities make their business – the creation of sites on which they collect and organize information.

Viewed as an educational resource, however, the Web exhibits serious deficiencies: uneven and erratic coverage, transience and unpredictability (will this piece of information still be there tomorrow?), and manifest dangers (will my students encounter inappropriate information?). But a far greater tragedy is that whole segments of society become disenfranchised – for while most family homes in rich countries have some degree of access to the Internet, only a tiny minority of citizens in the developing world can tap this wealth of

information. Digital libraries address these problems by providing reliable sources of appropriate material. They empower educators to create collections specifically for their students, collections that mix information from different sources. They permit alternative means of distribution (e.g. CD-ROM/DVD, a very practical format in developing countries).

The course *Digital Libraries in Education* is about the use of digital libraries in education, including emerging areas of application and current and future technologies to create and distribute digital libraries. It shows educators how to build their own digital library collections for use in the courses they teach. It touches national and international digital libraries for education on the large scale, but is more oriented toward low-budget methods of building and maintaining digital libraries by creative individuals and self-organized communities of educators, at the levels ranging from personal to institutional.

Free, open-source software is a key component of this strategy, and high-quality open-source digital library software is already available. This course includes the Greenstone digital library software, and an educator will learn how to use

Greenstone to create his/her own information collections from available material, incorporating the one from other digital libraries and the Web, if he/she desires, and distribute among the students in the form of a web site or a self-installing CD-ROM – or both. Widely adopted international standards are vital, ensuring that the user can incorporate documents in different forms and from different sources. They enable individual libraries to share information by communicating with each other, and provide the basis for coordinated regional, national, and international strategies of creating and disseminating educational material.

The target audience of the course embraces two main groups:

1. Educators, including:
  - teachers
  - teacher trainers
  - tutors
2. Information professionals in the field of education:
  - librarians
  - digital library developers
  - information system managers
  - educational authorities

The course has a secondary audience comprising students and researchers.

The focus of the course is on education at the secondary and higher levels.

It is based on two external resources, apart from this study guide and the associated material. The first is the textbook *How to Build a Digital*

*Library*, by Ian H. Witten and David Bainbridge, published by Morgan Kaufmann, San Francisco, California, in 2003; the students taking the course must acquire or borrow this book. The second is the interactive CD-ROM entitled *Digitisation and Digital Libraries*, which is a module of the Information Management Resource Kit produced by the Food and Agriculture Organization of the United Nation (FAO), Rome, in 2005: this is distributed with the course. Between them these two resources provide the primary reading material for the course. The interactive CD-ROM requires a Windows computer. The Greenstone digital library software that is used for the practical component of the course runs on Windows, Linux, or Macintosh OS/10.

The course will tell the students:

- what digital libraries are;
- how they are being used in education;
- what metadata is and how it helps in organizing digital libraries;
- different formats in which electronic documents are represented;
- how multimedia can be used in digital libraries;
- how to build and manage digital library collections;
- what standards exist for digital libraries and educational metadata;
- what systems are available for constructing institutional document repositories.

This course has been designed on the assumption that the students have some experience in organizing course material for conventional classroom teaching environments, and they have some practical hands-on experience of using a computer for such tasks as word processing. The authors also believe that the student is a library user.

The authors suppose that the future students will give approximately 40 hours of study time to this course, which is organized in five modules, each of which has two or three study units, each requiring about three hours.

A trainee will need:

- Study guide: IITE course *Digital Libraries in Education*.
- Accompanying book of readings for *Digital Libraries in Education*.
- Accompanying CD-ROM containing auxiliary material for *Digital Libraries in Education*.
- Textbook *How to Build a Digital Library*, Ian H. Witten and David Bainbridge. Morgan Kaufmann, CA, 2003.
- Interactive CD-ROM: Information Management Resource Kit (IMARK), Module *Digitisation and Digital Libraries*, FAO, Rome, 2004.
- Access to a computer (Windows 98 or higher).

Internet access is not required for the course, but certain aspects may be enhanced by it.

Each module comprises several assignments, some of which take the form of a series of questions. The primary intent of the assignments is to lead the student through the course material. They also give an opportunity for a student to test himself/herself. If the user is taking this course in an educational workshop, the trainers may use the assignment questions to evaluate his/her performance. If the student is an independent distance learner, he/she may be asked to submit answers by mail or e-mail to the institution that has organized the course.

It is planned, that the authors of the course will form “core team” for carrying out a set of training sessions and online seminars in Moscow, Bangkok, and Cairo in 2005 for European, Asia and Pacific, and Arabian regions. IITE will employ both face-to-face mode and online instruction using WWW information system for the online training and workshops, which has been elaborated in the frame of the project for the course by IITE. During the training sessions “the core team” with the set of instructional materials and resources developed for this project will discuss with target decision-makers the methodologies for digital libraries to develop DL meeting regional needs and context.

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(on the basis of training course materials)