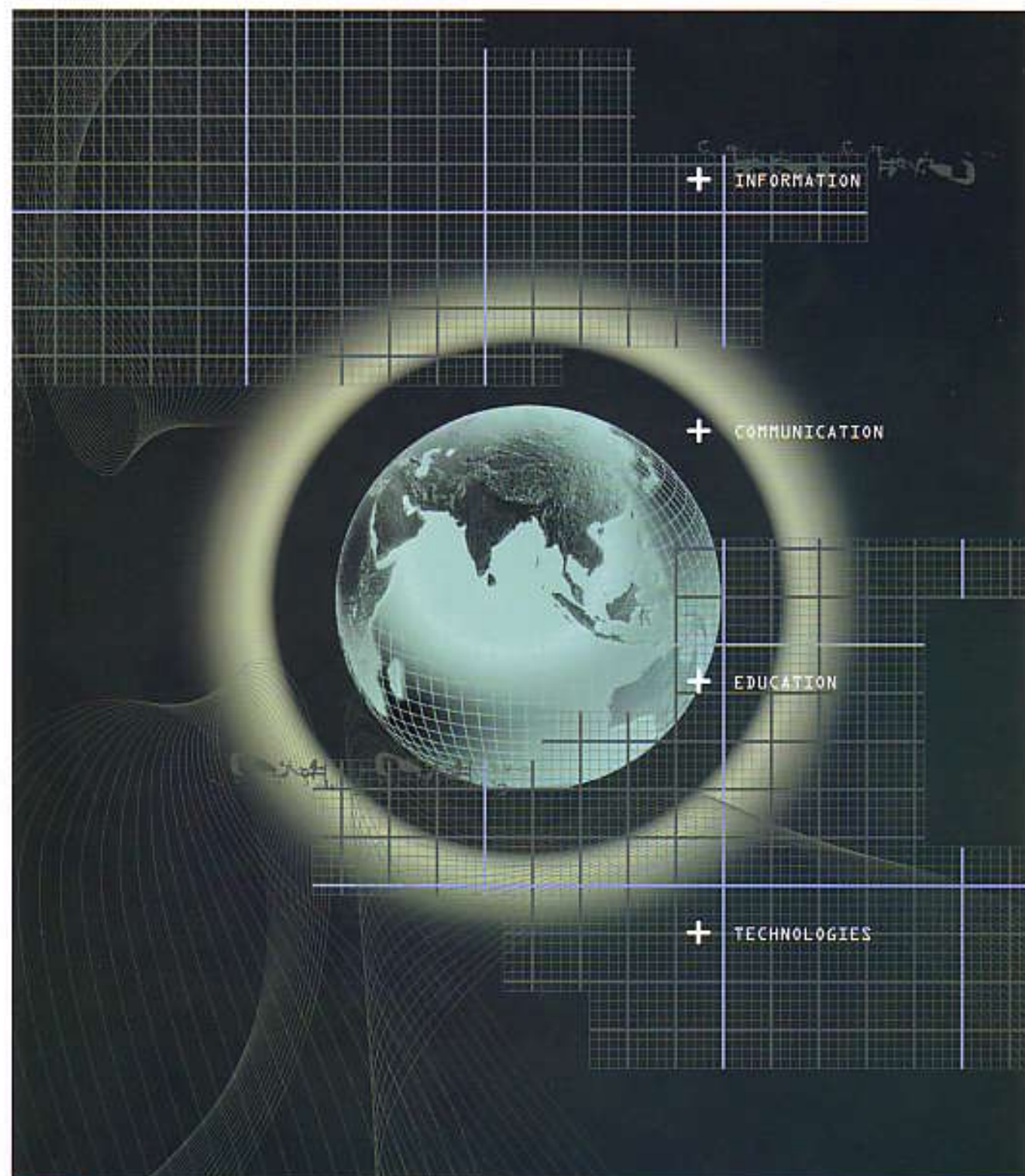








INFO SHARE

SOURCES AND RESOURCES BULLETIN





 Introduction	
▶ The 2004 Round-up	2
▶ Carmelita Villanueva – Lessons Learned	3-4
 Key Themes	
▼ Enriching the Capacities of Teachers and Other Educational Professionals	
▶ Intro	5
▶ Projects in Action	5
▶ Meta-Survey Digest	9
▶ Resources	11
▶ Extract 1: SchoolNet Toolkit: Integrating ICTs into Education Lessons Learned, Component 7 - Professional Development	12
▼ SchoolNets - Integrating ICTs in Education, from Policy to Classroom	
▶ Intro	14
▶ Projects in Action	14
▶ Resources	15
▶ Extract 2: SchoolNetworking: Lessons Learned – Component 5: Curriculum Integration, Content Development and Knowledge Management	16
▶ Extract 3: Integrating ICTs into the Curriculum: Analytical Catalogue of Key Publications	17
▶ Extract 4: SchoolNet Report	18
▼ Empowering Communities through Non-formal Learning	
▶ Intro	20
▶ Projects in Action	20
▶ Extract 5: ICT in Literacy Programmes	23
▼ Policies	
▶ Intro	26
▶ Projects in Action	26
▶ Extract 6: Needs Assessment	27
▼ Monitoring and Evaluation	28
▼ Creating, Managing and Applying Knowledge	29
 Website Focus	30
 Country Focus	
▼ The Philippines - Pilipinas SchoolNet	33
▼ Thailand - IT Princess: Empowering All Thais with IT	36
▼ Viet Nam - Education Network – EduNet in Viet Nam	40
 Tech News Digest	44
 The Team	47

INFOSHARE: Sources and Resources Bulletin is published by The ICT in Education Unit, UNESCO Bangkok, 920 Sukhumvit Road, Bangkok, 10110, Thailand. **Telephone:** (662) 391 0577 **Fax:** (662) 391 0866 **Email:** ICTinEd@unesco Bangkok.org **Website:** <http://www.unesco Bangkok.org/education/ict> **Production:** Clung Wicha Press

Editors: Caroline Haddad and Luisa Rennie **Writer:** Corin Golding **Artwork and Design:** Lowil fred Espada
Supervising Editor: Cédric Wachholz

The 2004 Round-up:

Infoshare magazine provides all the latest news from our Japanese Funds-in-Trust-supported ICT in Education programme, and also examines the latest trends in the region.

In our previous two editions of Infoshare, we introduced you to our ICT in Education programme and the many projects it comprises. Last year, we explored the background that provided the rationale for the projects, and described the challenges we are facing and some of the results achieved through the various projects. One year on, what further indications of progress can be identified? How are our projects beginning to seep into the fabric of the Member States' education systems to show real buds of change? Read all about it in our new section "Key Themes." Here, rather than looking at the projects one by one, we focus on key thematic areas relating to ICT use in education, so that you can find everything relating to your area of interest in one place.

Last year, the buzzwords of the many planning meetings, hands-on seminars and workshops were "access," "content" and "integration." This year, we have begun to see more results from that discussion: improved access, enriched content, and ICTs being integrated in the classroom. Teachers being trained, policy tools being formulated, and communities being supported with tools towards income generation.

With so many great publications coming out of our Bangkok office recently, throughout Key Themes, we have chosen to extract from these. This will give you a taste of the many, and varied, resources produced under our ICT in Education programme, all of which can be accessed in complete form on-line from webpage <http://www.unescobkk.org/education/ict/v2/info.asp?id=16441>. Alternatively, the hardcopies can be ordered by contacting the Information Knowledge Management Unit at UNESCO Bangkok, e-mail: ikm@unescobkk.org.

In Website Focus, we look at the revitalised ICT in Education Website, now widely accepted as the most comprehensive ICT in education website in Asia and the Pacific. Experts from the region have provided us with the content for our Country Focus section, where we delve into model ICT in Education projects from the Philippines, Thailand and Viet Nam.

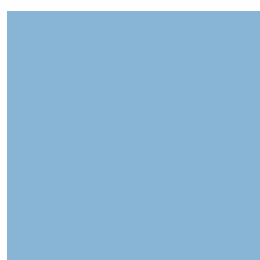
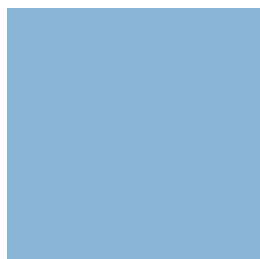
And finally, we round up with our yearly digest of ICT news stories, and an introduction to the people busy behind the scenes at UNESCO Bangkok's ICT in Education programme.

But first, a word with the recently retired - and sorely missed - Carmelita Villanueva...

Our Vision

The UNESCO vision is to empower learners, educators, managers, and leaders to use ICTs effectively for expanding learning opportunities, ensuring educational quality and relevance, and furthering the quest for equality.

This is no simple endeavour. While many nations lack infrastructure, all the bandwidth and computers in the world can not engender the kind of revolutionary transformation we require of our educational systems, and ultimately, of our societies. Experience has shown that without integrated policy development, sustainable professional development, curriculum integration and close monitoring and evaluation, programmes fail. For this reason, the UNESCO programme involves sustainable ICT integration at all levels of the educational process.



Carmelita Villanueva: Lessons Learned



One of UNESCO Bangkok's many roles is to serve as a clearing house for the dissemination and sharing of information and knowledge that stem from its involvement in a great many national and regional projects. Clearly, over the last few decades the world has seen significant changes in the ways we access, use and deliver information, and UNESCO is no exception. The

Unit for Information, Programmes and Services (IPS – now part of a larger unit called Information Knowledge Management) is at the heart of the UNESCO Asia and Pacific Regional Bureau for Education. In this edition of Infoshare, we talk to the person who has in recent years been the soul and leader of IPS, Ms Carmelita Villanueva. Carmelita, known to many as Lois, shares her “lessons learned” during a long and broad career involved in the creation, processing and delivery of information and knowledge with UNESCO.

In July 2004, Lois retired from her post as Chief of IPS – taking early retirement, she says, in order to enjoy “the personal side of life.” As Sheldon Shaeffer, the Director of UNESCO Bangkok, says: “Lois has been a dynamic, innovative, and delightful person to work with, and will be sorely missed by all her staff at IPS, by her colleagues throughout UNESCO Bangkok, and by professional partners around the region and the world. We can only commit ourselves to maintaining the high standards of energy, thoroughness, and innovativeness Lois brought to the job, and wish her the very best in her retirement.”

How did you start out at UNESCO?

I was working with the Population Center Foundation of the Philippines in 1979 when I was approached by a UNESCO staff member to apply for the position of Documentalist. The post was part of a UNFPA-funded project called Population Education for Formal and Non-formal Sectors. The project was operating a Clearing House on Population Education, and they needed a Documentalist to run it who required “library knowledge and skills.” I was not a librarian, but a communications and information person; but in the end, the new dimension and approach I introduced in a traditional library situation proved beneficial to UNESCO Bangkok.

What have the lessons learned been in running a modern information system and service?

From my 25 years' experience in developing and running an information system and service, as well as various clearing houses, I can suggest the following lessons learned:

1. Put an end to the practice of phasing out the Information Unit first, whenever budgets start to dwindle. Elevate the value of information services, and demonstrate clearly how they can increase the effectiveness of programmes and project planning and implementation. Information is the bloodline of any project or programme – its downsizing in terms of budget and staffing will undermine the success of any project it supports.
2. Information is not a one-way street where users wait passively for information to arrive. For information to be used effectively, active participation of the users should be promoted, from information generation, to collection, processing and utilization.
3. Linking information generation, processing and utilization to a community of practice will ensure that information is directly used for problem solving and programme implementation. The members should be encouraged to pose a concrete problem of common interest, where solutions are found through exchange of experiences, ideas, lessons learned and best practices by the community, itself.
4. Keep pace with the latest technologies, and use them in providing information support and services. Not only will ICTs provide better and more efficient information services, but they will also upgrade the credibility and acceptability of the information providers because computers are strongly associated with progress and competitive advantage.
5. Information that is not used is as useless as buried treasure. Undertake massive processing, synthesizing and repackaging of information to promote and ensure better utilization of information.
6. It is not enough that information is posted on the website – there is a need to bring information uploaded on the site to the users' attention through regular e-mailed announcements. These announcements have proven to increase website hits.
7. Disseminating information for its own sake will result in wasted money. Get to know your users' profiles and information needs deeply, and always tailor information according to their different needs.

8. The role of information systems and services is being reshaped by the emergence of the information society where vast numbers of users can now have direct access to information resources available online. Even then, users are too busy to find the time to navigate this overwhelming amount of information on the Internet, and may not even have the skills to search for the right kinds of information at the right time. The role of information providers is to pre-select and review what is needed and worth saving from this overwhelming amount of information, and to process them in easily usable forms and make them readily accessible to the users.
9. At the same time, countries should not be spoon-fed information. National capacity should also be developed or upgraded in accessing, retrieving, processing and, most importantly, applying information in decision-making and practice.
10. Thousands of publications are being circulated on the same topic and related subject areas. Many of these materials, if compared, synthesized and analysed together, can yield more information than if each one was read alone. This also saves the user time, omitting the need to unnecessarily plough through all the materials that exist on a particular topic. There is a need to synthesize scattered materials into one manageable document, in which contents can be viewed as part of a particular framework or in broader perspective.
11. There is a wide gap between the world of practice and the world of information. Too often, research data is presented in highly technical language, and does not show it can benefit policy makers and practitioners. Translating technical research into accessible language that explicitly shows how it can improve policies and practice will help ensure that data is put to better use.
12. The rapid increase in information results in a similarly rapid obsolescence of content. There is a need to quickly transmit to users current information that is directly and unambiguously relevant to their central work and interests, and to keep them updated on new developments.

As the coordinator of three ICT in Education projects, in your opinion, what do ICTs offer education?

In the field of education, technology promises many benefits and advantages. New information technologies are shaping education and training by providing new learning environments and new ways to learn. Young people of this generation must learn to capitalize on these ICT opportunities to survive in a world of rapid change. They will be expected not to just respond passively to change, but to participate actively to lead the

change. Educational institutions must strive to prepare young people for this big challenge by helping them acquire an inquiring, critical and creative mind; the ability and desire to continuously learn and seek new knowledge; and the necessary skills to cope with change. Technology has revolutionized education in many ways:

- ❁ First, it has made education as fully independent as possible from geographic constraints to make education deliverable anywhere (Vincent Mosco, 1999). Computer communication is opening up vast new sources of information and learning by enabling online access that frees schools from complete dependence on paper delivery.
- ❁ People want education to be individualized and flexible, suited to their specific needs. Standardized methods and classroom approaches will no longer be sufficient for individual needs, and ICTs can provide flexible learning.
- ❁ The hypermedia and multimedia characteristics of ICTs provide an array of approaches which have never been made possible in traditional teaching and learning. Teachers usually do not have the time or skills to prepare various kinds of teaching aids. And if they do get the time to develop audio-visual materials and teaching aids, they are not student-centred and interactive. The Internet and electronic media now put at one's disposal a ready wealth of teaching and learning materials that are interactive and participatory-oriented.
- ❁ It promotes an alternative type of 'learning by doing' where students are asked to undertake projects that are related to real life situations. Technology delivers information with more emphasis on the active creation and exploration of knowledge, rather than one-way information transfer, that allows the learner to make full use of his/her own multiple cognitive abilities.
- ❁ Schools need not continue to suffer from lack of library support and remain isolated from the wealth of learning resources readily available on the Internet. They can connect to one another and link to all learning institutions, whether libraries, colleges, universities, museums or galleries, true to the claim that the world today is a global village. Through Internet and electronic means, international collaboration is now possible in teaching, learning, publishing and resource sharing via various networks.
- ❁ Present educational facilities and services cannot cope with overpopulated classes and keep teachers' knowledge constantly updated. It is estimated that human knowledge doubles every eight to ten years, and educational systems do not provide in-service training that keeps teachers' knowledge adequately updated. ICTs promise to fill in this gap.
- ❁ Computers are now widely regarded as an essential component of most schools' profiles. In a world where the deployment of computer technology is strongly associated with progress and competitive advantage, the use of computers in schools provides them with the semblance of being modernized, technologized and contemporary.

Enriching the Capacities of Teachers and Other Educational Professionals



It goes without saying that without willing and knowledgeable teachers, students can not benefit from the educational opportunities afforded by technology.

Teacher education reform through the use of new technology is an urgent task considering the radical transformation of learning environments that is taking place. These changes have generated new types of learners, new processes of learning and new approaches to the evaluation of learning, which in turn have contributed to the changed roles of teachers. Meanwhile, professional development can not be seen in isolation, but should be considered in the context of broader educational reform, involving the development of supportive policy, infrastructure and curriculum.

For this reason, teacher training is at the core of our ICT in Education programme. Two projects focus primarily on developing the skills of teachers to integrate ICTs into the curriculum – an overall project for Asia and the Pacific, and a project targeting Cambodia. Meanwhile, the SchoolNet Project involves teacher training related to the integration of ICTs in the classroom towards setting up national SchoolNets and a regional SchoolNet. Further projects include teacher training in other areas, such as Technical Vocational Education (TVE), or they provide resources for teachers through the web-based Clearing House.

PROJECTS IN ACTION

The project **Training and Professional Development of Teachers and Other Facilitators for Effective Use of ICTs in Improving Teaching and Learning**, run by the UNESCO-Asia-Pacific Programme of Educational Innovation for Development (APEID), is working to help enrich the capacities of teachers on a region-wide scale, and includes the following key elements:

- 🔊 Improving the capabilities of teachers/facilitators, through both pre-service education and in-service training, to integrate/infuse ICTs as pedagogical tools and educational resources, and to facilitate interactive learning
- 🔊 Identifying, creating and disseminating country/locally-specific ICT pedagogies and models of ICT use in different learning environments along with teacher-developed e-lesson plans and educational software
- 🔊 Developing and putting into operation a regional online teacher resource base and off-line network of teacher training institutions to share teacher-developed education courseware and innovative practices

So far this project has:

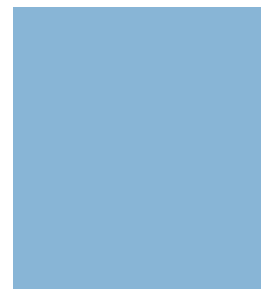
- 🔊 **Produced a conceptual and curriculum framework for the infusion of ICT in teacher education** – The “Experts Meeting on Teachers/Facilitators Training in Technology-Pedagogy Integration: Building Capacity of Teachers/Facilitators in Technology-Pedagogy Integration for Improved Teaching and Learning” was organized from 18-21 June 2003 in Bangkok, Thailand to initiate the development of this curriculum framework.

– The Workshop on the Development of a Guideline on Teacher Training in ICT Integration and Standards for Competency in ICT in September 2003 in Beijing, China, continued this development. During this latter meeting, regional guidelines were developed, and the conceptual curriculum framework for teachers was further enhanced to help teachers really integrate ICTs within education for improved teaching and learning. These guidelines will be published on- and off-line. Watch the project website for more information. (<http://www.unescobkk.org/education/ict/teachers>).

- 🔊 **Planned and contracted work for adaptation and development of teacher training modules** - This plan was developed at the 2003 September workshop in Beijing. The idea is that through a team approach, the modules will be adapted for capacity-building in technology-pedagogy integration through 'training of trainers' workshops at the national and regional levels. Contracts have been made for modules on such cross-cutting themes as “Four Pillars of Learning through ICT Application/integration.” The development of materials is to involve various stages, including analysis, design, development, implementation and evaluation.

The project **Establishing the Effective Use of Information and Communication Technologies in Education for All in Cambodia** has teacher training at its core, with a key objective being to:

Strengthen the training and professional development of teacher trainers, teachers and non-formal education facilitators in the integration of ICTs in education.



Latest Update from Phnom Penh:

As reported in Infoshare Volume 5, a total of 28 master teacher trainers from all teacher training colleges in the country were trained under the project as master trainers in February-May 2003. The course covered basic skills, use of ICT as a teaching and learning tool, and management of IT teaching and resources.

Since last year's project update, the Teacher Training Dept (TTD) of the Ministry of Education Youth and Sport (MoEYS) has continued its training of teacher trainers in ICT using project resources and master trainers trained by the project staff in 2003. By mid-August 2004, over 300 teacher trainers (or more than half of the total 600 teacher training staff) had received 96 hours of ICT training. The project provides technical support to the training, in the form of a scheme of work, training manuals, and a CD-ROM of resources. An outline curriculum for primary and lower secondary teacher training has been drafted, distributed to the colleges, and amended using their feedback.

In addition to the MoEYS training, a 45-hour training course on ICT in Education was given to 29 teacher trainers at the National Institute of Education, where teachers of upper secondary schools are trained. The training was very well received, with trainees keen to put into practice what they had learnt. Ethernet cable donated to UNESCO from a Japanese individual donor was used to network the computer room, and teacher trainers were able to use the Internet to download educational resources for the first time.

Meanwhile, a 5-day "Hands-on Training Course on Basic Website Design" in the Khmer language was held in late June 2004. Twenty-nine designated teacher trainers and MoEYS

staff were trained to design a very basic website for their respective institutions, and subsequently publish their work on the MoEYS's website. The course included the preparation of images for websites by using the graphics program Fireworks, a digital camera and scanner, and the setting-up of a simple website using the website design program Dreamweaver. A digital camera and scanner were distributed to each of 25 teacher training institutions and two departments working with teacher training and curriculum development. Webpages of these teacher training centres have been published on the Ministry of Education, Youth and Sport website at http://www.moeys.gov.kh/ttc_web.

A 5-day training workshop on building capacity in research and production of web-based educational resources and audio-visual learning resources in Khmer was organized in July. Thirteen teacher trainers from regional teacher training centres and the National Institute of Education attended. This course was aimed at enhancing participants' knowledge on producing a sample set of learning resources for various subject areas in Khmer (see the webpage of the Teacher Training Department at http://www.moeys.gov.kh/ttc_web) and encouraging MOEYS to take advantage of existing ICT potentials.

Content for training

As reported in last year's Infoshare, the project discovered early on that the major barriers to progress in training teachers to use ICTs to improve learning in Cambodia are unavailability of resources in Khmer and lack of hardware. For this reason, one of the main points of focus has been developing these resources. Training manuals on using ICT in teaching and learning, and a glossary of ICT terms for teachers were developed in Khmer. A training CD-ROM containing learning resources – software, templates etc. - was put together, and copies were given to all teacher training centres and colleges.

Additional improvements are being made before these are printed for distribution to various teacher training colleges.

Later, the project will develop a detailed scheme of work based on these training manuals. Project staff will liaise with the group of experts within MoEYS who have just begun work on curriculum reform. This is to ensure that the teacher training curriculum in ICT is developed in line with proposed national plans for school curriculum.

Related work to set up the National Clearing House Web server for educational resources is underway. Training on MoEYS website administration and management will be organized soon after the release of Phase II project funds. As part of their ICT courses, teacher trainers produced teaching resources in Khmer, and these will be uploaded on the clearing house website when it is ready. In the meantime, the local NGO "Open Forum of Cambodia" (see <http://www.cambodiacic.org> for more) is translating information about ICT from UNESCO into Khmer for inclusion on their website.

Computer donation

Rectifying the lack of hardware is the main point of this project's focus. Thusfar, a total of 161 second-hand computers donated by a Japanese individual donor (61 Macs) and the National Korean Commission for UNESCO (100 PCs) have been distributed to teacher training colleges.

Without these donations, the training of student teachers in ICTs would only have been possible in a handful of colleges. Now, all but a few colleges have enough computers to equip a computer room. Before they are sent to the colleges, all computers are checked and have suitable software and Khmer fonts installed.



Future plans

UNESCO is working in cooperation with MoEYS to modernize secondary school educational facilities in Cambodia. Towards this goal, UNESCO has teamed up with *pc4peace* and different international groups to find sources of educational equipment, including second-hand computers. Under this potential sub-project, *pc4peace* is responsible for collecting, refurbishing and shipping computers from Japan to Cambodia, while UNESCO can distribute those computers to secondary schools in close collaboration with Cambodian authorities, and train the teachers, accordingly.

Interestingly, a donor from Japan (www.pc4peace.org) is willing to send up to 300 computers if the transportation costs can be met by the project.

A core group of teacher trainers will be trained in computer repair and maintenance so that MoEYS has its own human resources to care for further donated computers in the future, and to ensure sustainability in the use of ICT in teaching and learning processes within teacher training colleges.

Bringing resources to the widest group possible, the project will equip libraries at the six regional teacher training colleges, the National Institute of Education, and curriculum developers at the Pedagogical Research Department with a computer and necessary sets of CD-ROMs.

Project staff will also assist MoEYS in: i) creating a National E-Learning Clearing House, ii) building the capacity of MoEYS's staff in website system administration, website mastering and website document preparation, and iii) identifying appropriate hardware for MoEYS to set up a National Clearing House. This will become an e-library after having uploaded teaching contents and teaching resources produced by teacher trainers.

The Teaching Training Department and MoEYS will also be assisted in: i) updating web-pages of all teacher training institutions and relevant departments, and ii) enriching learning contents in Khmer for MoEYS's National Clearing House by motivating teacher trainers to develop more web-based and electronic learning resources of various grades in secondary level for publishing in this virtual e-library.

One of the main objectives of the **Strengthening ICT in Schools and SchoolNet Project in ASEAN Setting** is the testing of innovative models of ICT-based teacher education. The SchoolNet Project has divided participating countries into two groups: Group 1 comprises the more advanced countries in terms of ICT in education integration, namely Indonesia, Malaysia, the Philippines and Thailand; Group 2 comprises countries that are just starting to use ICTs for education: Cambodia, Myanmar, Lao PDR and Viet Nam.

The teacher training under this project first began with two lots of training for the Group Two countries. Firstly, there were 10 days of “Sub-Regional Training on Basic ICT Literacy,” and then in July 2004, further training on “Lessons and Materials Development.” In the latter session, key resource experts trained the teachers on how to develop lessons. The five-day training included sessions and workshops on:

- 🔊 Examining compilations of good ICT-based lessons in science, mathematics, and language arts; identifying and evaluating strengths and weaknesses
- 🔊 Curriculum mapping – identifying entry points where ICT-based lessons can be integrated into science, mathematics, and language arts
- 🔊 Instructional methods for ICT– from low-level to higher-order thinking skills – and using these methods in developing ICT-based lessons
- 🔊 Examining educational software and resources on the Web that can be used for developing ICT-based lessons
- 🔊 Developing ICT-based lessons in science, mathematics and language arts
- 🔊 Group work in drafting lessons
- 🔊 Critique and review of the lessons drafted with the help of consultants
- 🔊 Revising the lessons with the help of consultants

The teachers were shown how to integrate ICTs more fully in their classroom teaching for better learning outcomes, as

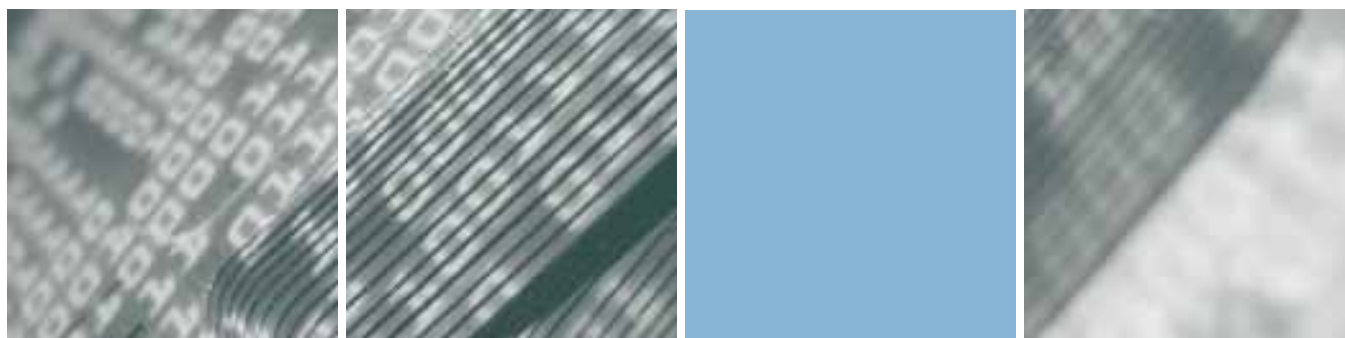
well as how to make the lessons more interactive and student-centred. A collection of the lessons developed by the teachers was placed onto a CD-ROM, along with examples, templates, guidelines, theories and principles to help them on return to the classroom.

The next round of training took place in Viet Nam and Malaysia in November, and involved both country groups for training on advanced ICT in Education integration. A final round of training will then focus on SchoolNets – how to telecollaborate, how to develop a website, how to set-up the supporting infrastructure, and how to manage student activities, etc.

A new project that was kicked off late last year is looking into using ICTs to improve the delivery of technical and vocational education (TVE). TVE is concerned with the preparation of learners for employment through the provision of knowledge, skills and attitudes desirable in the modern working environment. With our working world now being fully permeated with ICTs, it makes sense that TVE should include training in ICT applications as a matter of course.

The project, officially titled **Improving Management and Delivery of Technical and Vocational Education (TVE) through the Application of Information and Communication Technologies (ICTs)**, is focusing on capacity-building, providing training in the use of ICTs to directors, principals, curriculum developers and vocational teacher trainers. The project will also supply and equip departments or commissions of TVE, vocational education and training institutions, and curriculum development centres with suitable hardware, Internet access, and multimedia software, as well as expand access to teaching and learning materials and enrich the delivery of TVE.

(For more on TVE, please see <http://www.unescobkk.org/education/ict/tve>)



META-SURVEY TEACHER TRAINING DIGEST



To obtain an accurate picture of the current state of ICT use in education in Asia and the Pacific, UNESCO launched a meta-survey. The *Meta-survey of the Asia-Pacific Programme on Promoting the Effective Use of Information and Communications Technologies in Education* mapped and analyzed existing ICT initiatives in education, especially for disadvantaged groups, girls and women. It was the first survey of this kind that focuses exclusively on ICT in Education in an entire region, and paints a broad picture of the programmes and initiatives that are aiming to reform education through ICT in countries as diverse as Afghanistan and Australia, Thailand and Vanuatu. Independent experts wrote reports on the 44 UNESCO Member States in the region, which analyse how far these countries have progressed in formulating ICT in Education policies, and to what extent they have developed national ICT infrastructures in education. The reports also describe innovative models of ICT integration into school systems; local, national and regional initiatives in using ICTs for non-formal learning; and obstacles to increasing equality of access to ICTs for education.

For more on the Meta-survey, see webpage <http://www.unescobkk.org/education/ict/v2/info.asp?id=10960>

Equipping teachers with the necessary skills that will allow them to integrate ICTs effectively into classroom practice and adapt pedagogies accordingly is one of the most pressing tasks facing all the countries surveyed in the Meta-survey. The need for teacher training continues to inform policies and strategies among even the most ICT-savvy countries, such as Japan and Australia, and it will need to be a priority for those nations preparing to take their first tentative steps towards using ICT in their education systems, such as in Bhutan and Afghanistan.

Approaches to upgrading teachers' ICT skills vary widely, and are largely defined by the extent of ICT access and infrastructure available. For example, teachers in rural Nepal trying to make use of educational radio broadcasts clearly have very different needs and resources from teachers in New Zealand organizing online local school networks.

In terms of the delivery of teacher training, then, there are two main strands: pre-service and in-service. Research shows that, generally, in-service training is currently the more dominant trend; however, in many countries, teacher training colleges have begun to include computer studies courses to provide future teachers with practical ICT skills ahead of taking up a post. Many also go beyond basic ICT literacy and are aiming to ensure teachers have a firm understanding of pedagogical issues; are able to use ICT effectively to enhance students' learning experience; and, in some cases, are skilled in the development of educational software and teaching resources.

Pre-service training might also include ensuring students graduating from high school and tertiary institutions are already ICT literate. Of course, there is also the longer-term

hope that as teachers integrate ICTs into the curriculum more seamlessly, students will acquire greater competency in a range of ICT skills. As some of these students become teachers of the future, the cycle shall continue.

The most pressing issue, meanwhile, for the majority of countries in the region is an already existing pool of teachers whose skills must be developed to assist them to make sense, and then use, of newer ICTs. Interestingly, it is through access to the technologies themselves that both these needs can often be met. While learning basic computer skills that will help with, say, administration tasks, teachers also become familiar with the potential of computers as a teaching tool, and develop the general skills that will influence both pedagogy and lesson content. Ongoing professional development, including regular training in newer technologies, is emphasised in many schools and colleges.

In addition to the two strands identified above, teacher training programmes may vary in nature and scope according to the educational sector targeted, broadly speaking in terms of formal and non-formal education. The country reports in the Meta-survey make less mention of teacher training specifically for NFE, but there are some examples. The emphasis placed on open and distance learning in China includes teacher training in and by online teaching methods, while other regional projects include training teachers to run community learning centres.

With these divisions in mind, the following examples illustrate the kinds of teacher training programmes that are being coordinated in Asia and the Pacific, both region-wide and country-specific.

In-service

One of the most interesting models to emerge recently in ICT in Education is the SchoolNet, a local, national or regional network of schools connecting teachers, students, parents and local communities. In terms of teacher training, SchoolNets allow teachers from different schools, regions, even continents, to share resources and best practices on using ICTs in the curriculum, and to test models of ICT-based teaching among peers and colleagues.

Many countries have already established their own national SchoolNets, and many more are in the process of doing so. The UNESCO-led SchoolNet in ASEAN countries (<http://www.unescobkk.org/education/ict/v2/info.asp?id=10966>) is a good example of the development of a SchoolNet with a broad, region-wide scope, while EdNA (Education Network Australia) Online (<http://www.edna.edu.au/edna/page1.html>) is primarily geared towards Australian teachers, but takes in many areas of formal, non-formal, and technical and vocational education. Meanwhile, the Asia-Europe Classroom (http://www.aec.asef.org/index_flash.html), established in 1997, is one of the longer-running projects. One of its recent activities was the organizing of an inter-regional seminar for teachers to develop online collaborative projects.

SEAMEO INNOTECH has been very active in organizing teacher training programmes in the region, most notably with its series of 'Technology Applications in Education' courses, which have brought together educational professionals from many SEAMEO member countries; the "Using ICT for HIV/AIDS Preventive Education" project, targeting high-risk groups within Cambodia, Lao PDR, Thailand, Viet Nam and southern China; and participation in the BridgeIt (locally known as "text2teach") initiative, a pilot scheme in the Philippines that uses mobile technology to allow teachers to access interactive learning materials by cell phone. It also includes a training element.

Intel® Teach to the Future is a world-wide programme which has established a firm presence in India and Malaysia, and

aims to help teachers in formal education develop skills and experience in using ICTs to promote inquiry- and project-based learning. The project includes Web resources and digital, downloadable teaching materials, and follows a hands-on, face-to-face delivery model.

In the area of non-formal education, Coca-Cola has begun participating with governments, NGOs and education professionals across the region, establishing a range of learning centres that aim to widen access to ICTs and combat the growing digital divide. In Malaysia, the Philippines and Viet Nam, among other countries, 'hub' schools have been equipped with state-of-the-art computer centres, for use during and after school hours. The initiative includes teacher and peer training, who then train other schools in the hub area.

Pre-service

Examples in the Meta-survey of pre-service teacher training tend to be limited to teacher training college and national pedagogical university references. In Mongolia, for example, there are separate curricula for informatics and non-informatics teachers; the Republic of Korea includes core ICT courses and has allocated considerable funding to equip teacher training colleges with hard- and software, many of which are certified distance education institutions; while in Australia, courses focusing on the use of computers in the classroom are obligatory for undergraduate student teachers, and post-graduate diplomas include courses in, for example, computer ethics, evaluation of curriculum software and robotics.

Some of the more advanced countries are also focusing on training teachers in developing educational software and course materials. China, for example, has various projects dedicated to developing educational resources, which include allocated universities setting up demonstration software colleges. Meanwhile, postgraduate teacher training courses in Australia prepare student teachers in multimedia educational software development.





RESOURCES

ICT Portal for Teachers

As part of the Clearing House project, we have also set up the "ICT Portal for Teachers." One of our most frequently visited sites at UNESCO Bangkok, this reworked portal provides a gateway to Internet resources and websites to help teachers utilize ICT to enhance their teaching. Having already undergone a complete overhaul in late 2003, the site is currently being enriched with fresh content developed by key experts for and during the SchoolNet project, "Lessons Development Workshop," to go online late 2004.
<http://www.unescobkk.org/ips/ict/ict.htm>

Teacher Training on ICT Use in Education in Asia and the Pacific: Overview from Selected Countries

To learn from the experiences of countries in our region and to benefit from existing training resources, through the Clearing House, UNESCO undertook an initial inventory of professional development and teacher training programmes

on ICT from selected countries in Asia and the Pacific. The inventory looked into the implementing bodies, sponsorship, objectives, recipients of training, geographical coverage, scope and level of training, curriculum course contents, modules and training materials developed, methodologies, and modes of delivery.

Webpage: <http://www.unescobkk.org/education/ict/v2/info.asp?id=11068>

Pdf: <http://www.unescobkk.org/ips/ebooks/documents/ICTteacher/ICTEDUfull.pdf>

Hardcopy: Write to ikm@unescobkk.org

ICTs in Teacher Education Web Feature

Without willing and knowledgeable teachers, students can not benefit from the educational opportunities afforded by technology. In one of a series of monthly Web features on our ICT in Education website, we featured training programmes for those at the heart of education – the teachers.

Webpage: <http://www.unescobkk.org/education/ict/v2/info.asp?id=16532>

EXTRACT 1

SchoolNet Toolkit: Integrating ICTs into Education Lessons Learned, Component 7 – Professional Development

Overview

The teacher has an important role to play in the teaching/learning paradigm shift, with ICT facilitating the development of a higher level of cognitive skills in evaluating arguments, analyzing problems and applying what is learnt. The teacher no longer monopolizes activities as the transmitter of subject matter since emphasis has shifted from lecture-oriented teaching and learning activities to activities that are governed more by the learning needs of individual students, including more situation-specific ad-hoc instruction, small group instruction, and one-to-one tutoring.

While teachers play a pivotal role in the learning environment, they are oftentimes not consulted concerning changes to teaching-learning procedures. The teachers’ needs under changing conditions have to be continuously assessed, and activities to satisfy these have to be developed. Very often, teacher training programmes focus more on basic literacy skills and less on the integrated use of ICT in teaching.

Teachers are more likely to integrate ICT into their courses when professional training in the use of ICT provides them time to practice with the technology, and to learn, share and collaborate with colleagues. Perkins (1993) argues that the best use of any physical support system, including

ICT, is an art; and it is necessary to acquaint the teachers with this art. This component examines professional development in the use of ICT to address the design of the learning environment, taking into account opportunities and limitations. The following issues are discussed: (i) policy and management of teacher training on ICT, (ii) teacher training modalities, (iii) teacher competencies and standards, (iv) mindset change of teachers, (v) content focus of capacity-building for teachers, (vi) capacity-building of all education personnel, and (vii) incentive system and motivational strategies for teachers.



This publication can be downloaded from webpage: <http://www.unescobkk.org/education/ict/v2/info.asp?id=16158>





Lessons learned

Based on the case studies, the following lessons learned have been identified with regard to seven issues:

1. Policy and Management of Teacher Training on ICT

- ☞ To ensure continuous training of teachers from pre-service teacher education to induction to in-service professional development, other training agencies should be mobilized and labour divided among them, with the MOE providing central coordination.
- ☞ Professional development is more likely to succeed if continuous training of teachers is a built-in process, and is offered as a benefit to them.
- ☞ A centralized training administration system for all teaching and non-teaching staff is crucial to document and monitor professional development.

2. Teacher Training Modalities

- ☞ Peer and school-based training of teachers by their more experienced peers from other schools or senior instructors from the MOE ensures that teachers are trained in the context of their workplace.
- ☞ Incorporating online learning into professional development on ICT enriches the teachers' experience and makes them comfortable with online learning.
- ☞ Needs-based just-in-time learning and peer coaching ensure further development of the teachers' ICT and pedagogical skills.

3. Teacher Competencies and Standards

- ☞ ICT competency standards serve as a benchmark for formulating and evaluating teacher training programmes and use of ICT in teaching.

- ☞ Customizing national-level ICT competency standards for each school, depending on its socio-cultural context, ensures ICT integration and acceptance.

4. Mindset Change of Teachers

- ☞ A buddy system approach where novice teachers work together with expert teachers in a classroom using ICT contributes towards changing prevailing mindsets.

5. Content Focus of Capacity-building for Teachers

- ☞ Training teachers on ICT-related skills within the context of classroom objectives and activities ensures development of skills in the integrated use of ICT in teaching.
- ☞ ICT professional development programmes for teachers should be planned, taking into account the vision of ICT in education policy.

6. Capacity-building for All Education Personnel

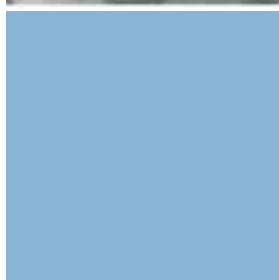
- ☞ Training education personnel at all levels ensures that all aspects of ICT use in schools are implemented in an efficient, coherent and complementary way.

7. Incentive System and Motivational Strategies for Teachers

- ☞ Having a recognition system for innovative and effective use of ICT integration in schools will motivate teachers to use ICT in teaching.
- ☞ Formal certification of in-service professional development that leads to diplomas or degrees could provide an incentive for teachers to upgrade and update their skills in, and knowledge of, ICT integration.
- ☞ Teachers' interest in using ICT after their training is more likely to grow if they are provided with computers, training materials, and software for classroom use.



SchoolNets - Integrating ICTs in Education, from Policy to Classroom



One major impediment to the successful use of ICTs to enhance education has been lack of integration: integration into the curriculum, into schools, into policies, and into educational systems as a whole. Early on in the needs analysis phase of our Programme, we found that lack of infrastructure was just the tip of the ice-berg. Much of the current use of ICT in the classroom still focuses on the drill and practice type of learning, where computers are seen as tutors, rather than as tools towards engaging students in critical and interactive learning. Though teachers had been trained in the use of ICT and SchoolNet (for some countries), the integration of ICT in the teaching of subjects has been weak due to a number of reasons: (a) absence of systematic management support; (b) lack of ownership by schools; (c) lack of integration into existing curriculum and textbooks; (d) teacher overload and lack of incentives and motivation; (d) lack of ICT-based materials that are truly interactive for teachers to use; and (e) shortage of personnel.

The project **Strengthening ICT in Schools and SchoolNet Project in ASEAN Setting** was set up to address these needs. SchoolNets have such transformative potential largely because they combine many different ICT integration elements. They can include nationwide or international networks of schools, teachers, parents and resources; forums; databases; teacher training; interaction among students and teachers; collaborative projects between schools and nations, and much more. Students can become engaged in exploration and simulation. Teachers can use ICTs for administrative and assessment purposes, as well as to enliven their teaching and share resources, inspiration and challenges with other teachers. SchoolNets have networked educators and

communities that otherwise have neither the tools nor the time and money to get together to connect for dynamic partnerships.

On a wider scale, SchoolNets have accelerated the technology-based modernization of education systems and schools. They have helped address the digital divide by mobilizing the telecommunication and IT sector to reduce telecommunications costs and offer free Internet connections through various arrangements. This has led to an expansion in the number of schools which can make telephone calls and connect to the Internet; lower student-computer and teacher-computer ratios; and better access for teachers and students to computers through more open access areas and local-area/wide-area networking.

PROJECT IN ACTION

Seeking to harness the transformative power of SchoolNets, UNESCO Bangkok is implementing the SchoolNet Project, focusing on integrating ICTs within schools, developing content, and facilitating greater knowledge sharing through the SchoolNet network. Co-funded by the ASEAN Foundation and JFIT, the Project is creating equal opportunities in education for the ASEAN countries by:

- 🔊 Exploring and demonstrating how ICTs can be used in schools to improve the quality of education for all, and better prepare youth for the demands of the knowledge society
- 🔊 Testing innovative models of ICT use and of ICT-based teacher education teaching-learning methods, and curriculum/materials development in schools and in other places of learning
- 🔊 Improving connectivity and access to the wealth of educational resources through the establishment of SchoolNet in ASEAN countries

The MOA for the pilot testing of the SchoolNet Project was signed on 15 December 2003 at the one-day "South East Asian ICT Advocacy and Planning Workshop for Policy Makers and National ICT Coordinators" by high officials of eight countries: Cambodia, Lao PDR, Indonesia, Myanmar, Malaysia, Philippines, Thailand, and Viet Nam. Thus far, National Coordination Teams have been established for each country, master-plans identifying entry points in three subjects have been developed, and workshops have been organized.

KEY RESOURCES

SchoolNet Toolkit

Laid out in four substantive guidebooks, the toolkit is aimed at policy and decision makers, school managers, practitioners, teachers and principals. Guidebook One provides a general overview, and discusses how ICTs can improve the quality of education. Guidebook Two looks at planning a SchoolNet programme, in terms of infrastructure, training, online content, and curriculum integration, etc, as well as how to integrate change management, how to sustain SchoolNet activities and how to better institutionalize programmes. Guidebook Three is more hands-on and practical. It targets people running the projects – focusing on creating online communities, technological components and professional development. Guidebook Four is for practitioners, setting out the typical processes which they may follow.

Webpage/pdf downloads: <http://www.unescobkk.org/education/ict/v2/info.asp?id=16282>

Hardcopy: Write to ikm@unescobkk.org

Integrating ICTs into Education: Lessons Learned

This practical guide synthesizes and analyses countries' efforts to integrate ICTs into their education systems in connection with specific lessons learned, based on the experiences of six Asian countries: Indonesia, Malaysia, Philippines, Singapore, The Republic of Korea and Thailand. Best practices are highlighted, along with the need for further improvements. This distilled knowledge is aimed at providing a key foundation and framework for setting up ICT for education programmes, with lessons grouped into eight thematic sections: (i) broader environmental context, (ii) policy and regulatory environment, (iii) management and financing, (iv) ICT in schools – policy, vision and strategy, (v) technology infrastructure and connectivity, (vi) curriculum, pedagogy and content development, (vii) professional development, and (viii) monitoring and evaluation. These components can provide the basis for the development of tools and blueprints to guide policy formation and programme improvements. The publication also serves as an advocacy tool to gain the support of policy makers and other stakeholders for the appropriate use of resources to support the integration of ICT in Education.

Webpage/pdf downloads: <http://www.unescobkk.org/education/ict/v2/info.asp?id=16158>

Hardcopy: Write to ikm@unescobkk.org



SchoolNetworking: Lessons Learned

This collection of lessons learned on the operations of SchoolNets provides a synthesis of the rapidly growing body of experiences and innovative strategies from countries in the Asia and Pacific region.

Webpage/pdf downloads: Currently at press. Watch <http://www.unescobkk.org/education/ict/schoolnet> for updates.

Hardcopy: Write to ikm@unescobkk.org

Integrating ICTs into Education: Analytical Catalogue of Key Publications

This catalogue contains detailed principles and strategies to help educators and other stakeholders use ICTs in ways that can transform their teaching practice, based on experts' experiences of what does, as well as what does not, make for successful integration of technology in education. The strategies and guidelines also extend to school administrators, local educational leaders and government stakeholders, with case studies describing educational policy reforms with explicit ICT components, as well as government bodies developing ICT-based resources and connecting their national curriculum to technology standards. This issue shares the best of both print and Web publications, as well as CD-ROMs, dealing with: General Principles and Strategies for Integrating Technology in Education and the Curriculum; Integrating Technology into the Classroom and Developing Lesson Plans that Integrate ICTs; Technology Integration into Specific Subjects; Requirements for and Barriers to Effective Technology Integration; Evaluating Effectiveness of Technology Integration; and Successful Case Studies of Technology Integration in Schools.

Webpage/pdf downloads: Currently at press. Watch <http://www.unescobkk.org/education/ict/resources> for updates.

Hardcopy: Write to ikm@unescobkk.org

Case studies

Case studies on the integrated use of ICT in Education and SchoolNet from six countries, namely Indonesia, Malaysia, Philippines, Thailand, Singapore and The Republic of Korea, describe many lessons learnt, and contain valuable tips and pointers for future projects.

Webpage: <http://www.unescobkk.org/education/ict/v2/info.asp?id=15939>

EXTRACT 2

SchoolNetworking: Lessons Learned

COMPONENT 5: Curriculum Integration, Content Development and Knowledge Management

Lessons learned

Based on the experiences of the six countries with respect to curriculum integration, content development and knowledge management under a SchoolNet programme, the following are the lessons learned:

1. Curriculum Integration

Curriculum integration is a complex facet of SchoolNet operations that requires experimentation and creativity on the part of teachers who, in the first place, should receive adequate theoretical and practical training in curriculum and courseware development, among other topics.

2. Pedagogy and ICT Integration

As the pedagogy shifts from being teacher-centred to being student-centred, there is a greater need for teachers to structure the learning experience and to provide guidance and supervision.

3. Contents of SchoolNet Website

The contents of SchoolNets can be rooted in the mandate of the national ICT policy of individual countries and/or the national curriculum.

To ensure the relevance and educational value of the contents, particularly material in the national language, curriculum development is assigned to professional content developers, or alternatively to subject specialists, qualified teachers, school administrators and students working as members of a team.

Issue: Curriculum Integration

The integration of teaching and learning materials used in the SchoolNet in the national or sub-national curriculum enhances the long-term value and viability of a SchoolNet, while also helping to strengthen the implementation of the national policy on ICT use in education. Typically, the subjects most involved are science, mathematics and

language. In effect, curriculum integration has made teaching and learning through SchoolNets more interesting and appealing.

Indonesia: The toughest task for teachers working on SchoolNets was to design and develop ICT-based lessons. To ease the problem, further training in interactive multimedia technology, in addition to training in computer technology and the Internet, was conducted for vocational secondary school teachers. The topics covered included graphic design, sound, video and storyboard, tools and peripherals for multimedia acquisition, and presentation.

Malaysia: Teachers, educators and MOE officials, collaborating as courseware development consultants, have been largely responsible for integrating teaching and learning materials used in the Smart School Network, in the national curriculum. During negotiations for the pilot project agreement, the MOE required a one-to-one matching of courseware with curriculum specifications in response to the teachers' assertion that anything that departed from the curriculum would not be of good use in the classroom. Courseware for Bahasa Melayu, English Language, Science and Mathematics was developed according to specifications in the national curriculum for these four subjects.

The Smart School Pilot Project also demonstrated that in order to foster greater use of SchoolNet materials by teachers and students, it is imperative that these materials be in line with the national curriculum.

Philippines: Through professional development workshops, teachers learn how to create structured lessons and projects in specific learning areas, such as Science, Mathematics, English, Pilipino (the national language) and Social Studies. They also learn how to integrate lessons across different learning areas in the curriculum, and how to design inquiry-based activities, such as online treasure hunts, Webquests, and telecollaborative projects. Starting in 2003, curriculum integration training for teachers and post-training pedagogical support have been intensified.

This publication can be downloaded from webpage: <http://www.unescobkk.org/education/ict/v2/info.asp?id=17377>

EXTRACT 3

Integrating ICTs into the Curriculum: Analytical Catalogue of Key Publications

This publication is the first in a new Catalogue Series that will come out twice a year on topical issues dealing with various aspects of ICT use in education. The purpose is to share the best of the wealth of materials available in our library collections, the Internet and other sources, and to alert readers to the contents and where they can be accessed. The series not only provides abstracts synthesizing the content of each resource, but also excerpts substantive and useful parts of the book or electronic document. Each entry provides a distillation of the content in order to give readers the essence of the information, without having to read the entire book, and includes bibliographic details, abstracts, excerpts, and key-words for easy referencing.

This first issue deals with integrating ICTs into schools. Many teachers have been using ICTs as productivity tools, but have never really authentically integrated these technologies into subject teaching. There is a need to learn from concepts, principles, strategies, and experiences as to what makes successful integration of ICTs, and what makes for unsuccessful integration. For this reason, the catalogue contains detailed principles and strategies to help educators and others use ICTs in ways that can transform their teaching practice, based on experts' experiences of what does, as well as what does not, make for successful integration of technology in education. The strategies and guidelines also extend to school administrators, local educational leaders, and government stakeholders, with case studies describing educational policy reforms with explicit ICT components, as well as government bodies developing ICT-based resources and connecting their national curriculum to technology standards. This issue shares the best of both print and Web publications, as well as CD-ROMs, dealing with: General Principles and Strategies for Integrating Technology in Education and the Curriculum; Integrating Technology into the Classroom and Developing Lesson Plans that Integrate ICTs; Technology Integration into Specific Subjects; Requirements for and Barriers to Effective Technology Integration; Evaluating Effectiveness of Technology Integration; and Successful Case Studies of Technology Integration in Schools.

SECTION 2

Integrating Technology into the Classroom and Developing Lesson Plans that Integrate ICTs

1. **Emans, Bruno. Guidelines for primary school teachers for integration of ICT in their lessons.**

Ecolenet. http://www.ecolenet.nl/projects/guidelines_primary.html (2 May 2004)

Type

Online article

Abstract

This article is aimed at the teacher confronted with emerging technologies but with no experience in using them in the classroom. The author emphasizes the correlation between learning new skills oneself and feeling comfortable enough to integrate them in student activities. For example, the teacher can become familiar with using e-mail, and then confidently devise language-based tasks for the students where they send each other e-mails. Starting with simple technologies and activities is encouraged, while the teacher should base his or her choice of ICT on its particular pedagogical function, rather than on the technical skills it may foster. Children's development of ICT skills will automatically follow as a result of using technology in the class, especially when working together on collaborative projects. In addition, working collectively with ICT on guided projects develops skills such as critical thinking, how to receive feedback, reading, writing and communication skills, and organization and planning strategies.

Finally, like so many discussions of the subject today, this article emphasizes the changing role of the teacher, as he or she moves from instructor to facilitator, while underlining that the teacher still has a vital, if re-oriented, role to play in student learning experiences.

Excerpt

Overview of 6 principles

1. **Do not be afraid.** Computers might look difficult, but anyone can learn to master them. All teachers can find ways to use ICT in the classroom, as long as they make sure they can cope with it.
2. **Make a simple start.** Start with very simple ICT-projects in your class. Only projects where you can solve the problems will be a success. Later on, with more experience, your projects can become more complex.
3. **Make combinations.** ICT projects are not necessarily extra lessons in your curriculum. Think about making combinations with your normal lessons. This will give you better control of the project, and thus it will increase the chance for success. Furthermore, you have a back-up plan. It might also save you time.

EXTRACT 4

ICT in Schools in Asia and the Pacific - SchoolNet Report

In Cambodia, while there is currently some multimedia and ICT in schools in educational offices, computers in the classroom have not yet been fully implemented. The number of computers is still very low, with just 1,000 computers in schools and education offices across the whole country. Until 1994, computers were virtually non-existent in schools. ICT started being used in 1997 through the private sector. The Government is trying to provide PCs to each school, but the 1,000 computers are used mostly for administration. The MOE is implementing ICTs in 24 offices, for the use of 3,000 managers, but will later extend to 183 districts and a further 2,000 staff. The nation is also using mobile resources to reach the more disadvantaged areas.

Lao PDR started implementing of ICT in Education with a variety of international funding agencies. Three ethnic minority boarding schools have been established with money donated by the Vietnamese Government. Each school has ten computers and textbooks for basic computer skills. As yet, these schools lack a connection to the Internet. In addition, two "Smart Schools" have been set up with money from the Malaysian Government. Each school has 20 computers, interactive learning software, courseware based on interactivity for self-paced learning, educational software in English, Internet access and one server. The project will shortly be extended to another secondary school. Four Internet Learning Centres were set up with support from the Jhai Foundation. Each centre has ten computers and a manual for basic computer skills in Lao language for students and for teacher training. Internet access is usually at 56KBPs, but is slower in some areas where they have to use dial-up. Grades 9-10 are taught computers. These services will later be extended to another secondary school with funds from World Links. Later the schools will earn their own income from the centres and become sustainable.

In Myanmar, multimedia has been integrated into schools since 1998. The term "multimedia" here includes audio systems using cassette and head-phones, though most have language labs, videos and VCDs, and computers. Almost all secondary schools are installed with multimedia

facilities and 100 high schools were connected to the Internet in 2002 thanks to state funding. The cost of connectivity is very high, but the connection is good. Some schools also have a local network. The Institute of Computer Science was established in 1998. In addition, 455 education e-learning centres have been set up, as well as three pilot smart schools, one of which the Malaysian Prime Minister opened in 2002. There is online learning for non-formal education (NFE). Apart from the audio language labs and video equipment available in all primary and secondary schools, computer-assisted instruction (CAI) is conducted in all subjects, though especially in science and maths. Video CDs and computer CDs for interactive learning have been produced and distributed by the Myanmar Educational Research Bureau (MERB), while various lectures are available on VCDs for high school students. Teachers have also tried to develop their own tools.

In Viet Nam, compulsory computer courses were conducted in senior secondary schools from 1993-1997, but these were stopped from 1998-2001 because of a change in policy. The courses were started up again in 2002 in primary and secondary schools. There is also an optional training course at the junior high level. The Government organises an ICT Olympia of Informatics. Other achievements in this area include the development of EMIS online, heralding a new generation of education management. It is hoped that the e-learning system will help move away from traditional education to a more advanced stage, making education available anywhere, anytime for anyone, and providing flexible, lifelong learning and open learning. Content authoring tools have been developed, and there has been training for content and course developers, administration, and technical staff. As for connectivity, some universities have leased lines, while a few schools have ADSL. By the end of 2005, the Government hopes to have connected half of all secondary schools, and is also setting up LAN in schools. With the target ratio of 20-30 pupils/PC, one million PCs will be needed for the next three years. In the future, each family will have at least one PC. In July 2003, an agreement was signed with an electricity company who wants to

provide fibre optic connectivity free of charge for all universities for the first year. Since the lines already exist, the cost to put in optic fibres is minimal.

Indonesia has also been busy of late improving infrastructure and connectivity. Rolling grants have been provided to vocational schools to build local area networks (LAN) and provide Internet connections for 50 schools. City-wide area networks have also been established in 18 cities, connecting schools in the cities into a network under the WANKota project. A block grant has been provided to 248 schools for the utilization of ICT in schools. The Associated Schools Project Network (ASPNet) connects 24 schools associated with the UNESCO Project through the Internet. Many schools have PCs and modems, and the majority of schools in urban areas also have computer lab facilities and computers connected to LAN and the Internet, most often using dial-up. Around 70% of schools have their own website. Awareness is being raised about the importance of integrating ICTs, but it is still limited.

The Malaysian Government believes that ICT should not only be regarded as another subject in the curriculum, but rather, as tools that teachers and students may use in the learning environment, as well as in their everyday lives. A pilot project was run in 87 schools using the Smart School management system and integrated components. The project ended in December 2002; by 2003, all schools were Smart Schools. The roll-out plan has its first phase from 2004-5: 100 million schools will become Smart Schools, and another 200 will become Smart Schools in 2005. Courseware was developed in four subjects, but the SchoolNet pilot will involve five subjects. The infrastructure for Smart Schools in the pilot project is implemented in three levels: 1) the lab model, of fast backbone with a leased line; 2) the limited classroom model; and 3) the classroom model, with three servers, more computers, etc. The plan is to achieve a ratio of 1:10 of computers to students for the roll-out. Each individual teacher who teaches science and maths in English is provided with a laptop for lesson planning and

actual teaching using the courseware provided. All schools are using the Government as their network provider.

In the Philippines, an education modernization programme is being undertaken to equip schools with facilities, equipment, materials and skills, and to introduce new learning/delivery systems that would capitalize on recent technological developments. Over 64% of high schools have a PC lab with 10-20 computers - some with servers, and some with Internet connections. There has been a shift from teaching about technology to teaching with technology. ICT is being integrated in all subjects to improve the overall quality of learning. Most teachers are using ICTs for teaching as well as for administration. Most students use ICTs for learning, yet the overwhelming majority of schools are not connected. Good practices in the Philippines include: the ICT in Basic Education Curriculum (BEC); the DepEd Computerization Programme; PCs for Public High Schools (PCPS); Outsourcing through the Adopt-A-School Programme; Intelligent Computer-Assisted Instruction (CAI) in English, Maths & Science; the Intel Teach to the Future Programme; Orientation of School Heads on Efficient & Effective Management of Technology Environment in the School; and Awards for Excellence on Best Practices in the Use of ICT in Teaching & Learning. As part of Pilipinas SchoolNet, teachers have been developing tele-collaborative projects, many of which are multi-disciplinary.

As for infrastructure and facilities in Thailand, all secondary schools have had computers at a ratio of 1:54 since August 2003. Seventy-one percent also have Internet access. By the end of 2005, all primary schools will be equipped with computers. Successes of note include the MOE-initiated One District, One Dreamed School Project (ODODS) since 2003. This project involves ICT implementation in 921 schools at all levels from administration to e-learning. The IPST project Handheld Technology for Teaching/Learning Science and Maths in 1999 involved seven pilot schools; sensors (probes); data loggers; computer interfaced lab for physics, chemistry, biology; and a graphic calculator for maths.

This publication can be downloaded from webpage: <http://www.unescobkk.org/education/ict/resources/JFIT/schoolnet/decreport/wholedoc.pdf>

Empowering Communities through Non-formal Learning

EXPANDING EQUITABLE ACCESS/ DEVELOPING CONTENT

INTRO/PROJECTS IN ACTION

As stipulated in the Dakar Framework of Action for Education for All (EFA), we must make specific provisions to reach those groups who are unable to access formal education, such as out-of-school youths and adults. The non-formal education project, officially titled **ICT Application for Non-formal Education (NFE) Programmes**, seeks to include this group to empower rural populations through the use of ICTs, particularly through the development of Community Learning Centres (CLCs).

The project aims to improve the quality of life and alleviate poverty among disadvantaged rural populations through greater access to context-specific education programmes using ICTs. Run by the UNESCO Bangkok based Asia-Pacific Programme of Education for All (APPEAL), the project has two components. One is to use the potential of ICT to explore more effective use and delivery of existing resources, to develop new resources that widen access to education, and to improve the relevance and quality of learning through CLCs and other community-based learning mechanisms. The other is to explore effective development and uses of ICT for NFE that would empower individual learners, and also assist in community development.

Empowering communities through capacity-building using ICT

Through the project, APPEAL is supporting five countries (Indonesia, Lao PDR, Thailand, Sri Lanka and Uzbekistan) which sought to empower local communities by providing suitable delivery mechanisms for ICT-based activities. Countries reported that ICT had proved useful in strengthening the effective planning and management of CLCs. In particular, ICT tools have mobilised the interest and participation of youths in CLC management, and initiated new activities such as Web-based marketing. Further examples of project activities include:

In Lao PDR, the project is focusing on improving village incomes amongst rural youth. The NFE Department is strengthening CLCs to serve as resource centres where ICT equipment is used to disseminate news and information in various areas, including life skills and income generation.

In Sri Lanka, the Sarvodaya Shramadana Movement is establishing multi-purpose community telecentres for



community development. These community telecentres will serve village banks as well as six CLCs. Community databases are being developed, and information is being disseminated to villagers and entrepreneurs through Sarvodaya's Mobile Multimedia Unit. There is also computer training for village bank staff, village volunteers and CLC officials.

In Thailand, under the Northern Regional NFE Centre, the project is developing inter-village connectivity and shared learning, as well as empowering the members of rural communities - particularly youth - to use ICT as a tool for community development. The project shares learning experiences between villages through ICT labs.

In Uzbekistan, the National Commission is helping to develop community databases and documentation for community planning and management. Other activities include establishing an ICT network among CLCs in the target areas, and providing training to all personnel and community members at the project sites. Also, ICT materials are being developed for community empowerment, poverty alleviation and improving quality of life.

In Indonesia, the Directorate General of NFE and Youth is planning to introduce an ICT-based learning model into CLCs. Planned activities include community data collection and a programme that uses the Internet to increase access to data and to improve information flow between local communities and the Government. Learning programmes relying on the Internet and cable TV access will also be set up under the project.

The results of this first phase of the project were later shared with five new countries (China, India, Iran, Philippines and Viet Nam) during the second regional workshop in June 2004 in Lao PDR.

Regional Workshop on ICT for Community Empowerment through NFE: 22-25th June 2004



For the last year, the Asia-Pacific Programme of Education for All (APPEAL) has been supporting five countries (Indonesia, Lao PDR, Sri Lanka, Thailand and Uzbekistan) to implement pilot projects that use ICT as a tool for community empowerment through non-formal education (NFE). Now moving into its second phase, the project will continue to support those countries for another year, and also take on five more countries, carrying out pilot projects for communities in China, India, Iran, the Philippines and Viet Nam.

This regional workshop provided a platform from which the first five countries shared experiences with the five new countries. The Workshop also served to identify needs and strategies for capacity-building of project personnel and community members in the new countries, as well as to further develop project implementation strategies and concrete action plans.

Results

- 🔊 Lessons learnt on the use of effective ICT tools for community empowerment from the first five countries were compiled, and the project proposal for the new five countries was revised.
- 🔊 The needs and strategies for the capacity-building of project personnel and community people were identified.
- 🔊 Strategies for effectively implementing the ICT project through NFE for community empowerment were developed.
- 🔊 Concrete action plans for participating countries were developed.

Presentations

(Can be accessed from webpage: <http://www.unescobkk.org/education/ict/v2/info.asp?id=16452>)

Country Presentations

India

Project in a nutshell: Computer Software Development for Literacy/Post-Literacy Learning and Training for Literacy Teachers Implemented by the State Resource Centre, Rajasthan Adult Education Association, Jaipur India

India

Learning Technology for a Better Life: Taking Literacy to the Threshold of ICT

Implemented by the State Resource Centre, Rajasthan Adult Education Association, Jaipur India (National Literacy Mission)

Indonesia

ICT Based Non-Formal Education

Implemented by the Ministry of National Education, Indonesia

Iran

Shahkooh and Gharnabad - The First and Second Internet Villages In Iran

Presented by Ali A. Jalali, Ph.D. - Iran University of Science and Technology

Lao PDR

ICT for Community Empowerment through NFE in Lao PDR

Implemented by NFE Department, Vientiane province, VangVieng District and Ban Phahome and Namone Neua

Philippines

Joint Project on Literacy Development through Computer Software and Training for Literacy Development

Sri Lanka

Multipurpose Community Telecentres for Community Empowerment

Thailand

ICT for Community Empowerment and Extending Connectivity of Rural People: Learning Experience from Thailand

Presented by Dr. Suchin Petcharugsa, Northern Region Non-formal Education, Lampang Office of Non-formal Education Commission Ministry of Education, Thailand

Uzbekistan

Project on ICT Application for Community Empowerment through Non-Formal Education in Uzbekistan

UNESCO Presentations

Community Empowerment

Monitoring and Evaluation

ICT Policy and Supporting Environment

Developing a NFE resource pack to improve the planning and management of CLC personnel through ICT

Following the recommendations of the Expert Meeting, APPEAL has compiled existing NFE and community development resource materials from UNESCO and other organizations. Based on these resource materials, APPEAL organized an expert workshop on the development of "Resource Pack on Literacy and Continuing Education" in Bangkok from 1 to 4 March 2004. As a result of the workshop, APPEAL's existing NFE resource materials were compiled, and a draft NFE Resource Pack was developed that included the following contents:

Part 1: Literacy and Continuing Education: Policy, Planning and Management; Curriculum and Materials Development; Training; Monitoring and Evaluation; and Research

Part 2: Further Reference Materials in Specific Content Areas: ICT, Gender, HIV/AIDS, Environment and Culture

The resource pack will be finalized in print, CD and on the Web in early 2005, and disseminated to planners, practitioners, researchers and other personnel working in literacy and continuing education. The pack is expected to be used as the basis for developing national resource materials in this area.

(For more, please see <http://www.unescobkk.org/education/ict/nfe>)

Under the Cambodia project, an e-learning bus delivers education right to the people that need it most. The bus has been on the road now for one year (since August 2003). Nearly 3,500 disadvantaged young and adult people -

especially orphans, street children and out-of-school youth - have had access to its facilities either by using laptops and digital cameras, or by watching educational videos. Eighteen out of 24 provinces have been visited, so far. We have now put together over 40 educational VCDs in Khmer on health and life skills. The videos on HIV/AIDS are among the most often requested. It is planned that this E-learning bus with multimedia equipment and trained personnel (NFE staff) will be handed over to MoEYS by the end of 2004.

Future plans include supplying two or three pilot NFE/ community learning centres with equipment, and training staff so that they can offer ICT literacy classes to their programme participants.

Using another, more traditional approach to reach large audiences in innovative and engaging ways, the **Silk Road Radio Project in Tajikistan-Uzbekistan** highlights contemporary issues and priorities through a twice-weekly radio drama series, produced and transmitted in both Uzbek and Tajik languages. Building on a centuries-old tradition of story-telling in the region, the themes dealt with in the radio dramas can be grouped into three categories in accordance with the priority areas of the main funding agencies: i) family and reproductive health, ii) agricultural themes, and iii) contemporary national issues, such as: humane and considerate treatment of displaced and underprivileged groups in society; ethnic harmony and tolerance in society; and the trafficking of women. New themes are constantly surfacing in light of ongoing needs assessments, consultations with stakeholders and audience research. The feedback is then incorporated into the radio drama storylines through existing and developing characters and scenarios. In this way, the Silk-Road Radio Project continues to be a medium for effective contemporary education, while also drawing attention to current, topical issues.



EXTRACT 5

ICT and Literacy

In this May's website feature, we explored the use of ICTs developing literacy, especially for the poorest segments of society.

What is literacy?

The nature of what it is to be literate and the opportunities offered by achieving literacy have radically altered with the dawn of our new information societies. Since those who are literate now have ever more access to resources to educate themselves and enrich their lives, the gap between the literate and the illiterate becomes wider than ever, and a problem all the more pressing to solve.

But what, indeed, do we now mean by the term "literate." Looking into the roots of the word, we discover that "literate" is from the Latin *litteratus*, literally meaning "one who knows the letters," with the implied meaning of one being "educated, learned, and cultured." In our new information-rich environment, particularly with the vast potential of access to information that the Internet has opened up, what it means to be "literate" has since expanded largely. This shifted concept of literacy is expressed nicely in two quotes from the essay *Digital Literacy* by Richard A. Lanham:

"The word literacy - has gradually extended its grasp in the digital age to mean the ability to understand information, however presented." (Lanham 1995:160)

"To be deeply literate in the digital world means being skilled at deciphering complex images and sounds as well as the syntactical subtleties of words -- being at home in a shifting mixture of words, images and sounds." (Lanham 1995: 161)

Indeed, most dictionaries now include a third entry for "literate"; after "(a) educated/cultured," and "(b) well-versed in literature and creative writing," comes "(c) having knowledge or competence in a particular field," often citing "computer-literate" as an example.

From a development perspective, the term "literacy" becomes yet wider. The UN defines "literacy" as a basic

human right, a tool for empowering ourselves and our communities. Here, literacy is perceived as a ground-bed from which societies and individuals can grow strong, freeing them from many personal, economic and social constraints by helping to eradicate poverty, reduce child mortality, curb population growth, achieve gender equality, and ensure sustainable development, peace and democracy.

Curiously, while the word "literacy" first appeared in 1883, "illiteracy" dates back some 200 years prior, making its first appearance in 1660. We can glean from this that illiteracy is no modern problem, though the evidence proves that we are finding the most modern of solutions to this ancient impediment.

What are we up against?

The UN estimates that there are still about one billion illiterate adults in the world today, with nearly 2-3 times that number who would be considered "technologically illiterate." Recognising that systematic, powerful and sustained efforts are vital to reversing these trends and ensuring that we are on the right track towards "Literacy for All," and thus "Education for All," the UN proclaimed 2003-2012 as the United Nations Literacy Decade.

Meanwhile, the use of new information and communications technologies (ICTs) continues to expand exponentially, raising unprecedented opportunities for achieving greater educational access and success. Yet, what resources that are available for educational applications of technology are being primarily reserved for school-based programmes, with scant resources reaching poor, rural, youth and out-of-school populations. There is, thus, a danger that ICT programmes can actually widen the divide between the more privileged and the disadvantaged by investing in the top end, easier to reach parts of the disadvantaged population. If the UN Literacy Decade is to succeed, we must also try to reach the unreached, to reach those at the very bottom end of the literacy divide, and to pay attention to how ICTs can make a special contribution to this.

How can ICTs help?

Fortunately, the benefits of ICT are well-matched with the problems of both basic literacy and technological literacy, as noted by Bridges to the Future:

- 🔊 Poor people in developing countries tend to live in dispersed geographical contexts, and are comprised of diverse populations of youth and adult learners outside of formal educational programmes; ICTs facilitate distance education methods that can be tailored to diverse populations.
- 🔊 Qualified and trained teachers represent the key to quality teaching and learner motivation, and professional expertise is limited and thinly distributed for adult literacy; ICTs for teacher education have been found to be both very effective and less costly than other methods.
- 🔊 Access to appropriate linguistic and cultural content has been an impediment to the development of practical and effective materials for multi-ethnic populations, from which come the most disadvantaged youth and adults in many countries. Often, there are few teaching materials in the target groups' native languages, or devoted to transferring literacy skills into languages commonly used in a commercial context. However, with today's ICTs, it is relatively easy to adapt materials to other languages and use multimedia methods.
- 🔊 Finally, the use of ICT in literacy and basic education can leverage both information retrieval and dissemination, as well as context-dependent and learner-centered instruction. ICT use enables the development of "technological" or "digital" literacy skills - essential competencies in societies undergoing change in today's increasingly global economies.

On the micro level, you can see more practically and directly how ICTs aid by looking at recent projects in the region that harness these great tools to teach the most basic of lessons. Launched in February 2000 in the Beeramguda village in Medak district of Andhra Pradesh, the ground-breaking Tata Computer-based Functional Literacy Programme seeks to combat illiteracy with a new approach to learning, using multimedia and flashcards to fortify the learning experience. Another Indian project uses television for neo-literates, who watch songs on television and subconsciously follow the text and sing along, so strengthening their reading skills as they enjoy the music. Meanwhile, the many computer programs that can enrich reading skills may be well exemplified by Zac the Rat, free colourful reading tutorials for the most basic level of literacy.

Where do we go from here?

To bridge the technological and education gap – what some term “the global digital divide” – will certainly not be easy. In the developing world, disadvantaged in-school and out-of-school youth and adults are actually composed of many diverse groups, such as women, ethnic and linguistic minorities, migrants and refugees. This diversity is one of the most important features in understanding why one-size-fits-all education programmes, especially those where complex technology is introduced, have often met with poor results and wasted resources.

The recently organised International Roundtable on "ICT in Non-Formal and Adult Education: Supporting Out-of-School Youth and Adults," provided much valuable discussion in this area. Co-organized by the OECD and the USA National Center on Adult Literacy (NCAL) at the University of Pennsylvania (PENN), and held in Philadelphia, USA from 12-14 November 2003, this roundtable brought together policy makers, scholars, and senior educational administrators from around the world to share recent research, to discuss emerging policy issues, and to consider how educational and social systems can respond to the growing challenges of ICT in support of youth and adult learning.

The excellent opening paper for the meeting concluded with the following implications in the form of principles for action, as follows:

- a. Even in poorest population sectors and countries, ICT is now too cheap to ignore. New approaches can show cost-effective benefits when properly employed.
- b. Advanced ICT tools may be relatively more cost-effective for the poor than for the rich. The Grameen Bank effort in South Asia has shown that even the poorest people can find value and resources to support a system of cellular communications (World Bank, 1994).
- c. Learning technologies must have learning and content at their core. Projects within the digital divide must first and foremost be about learning, and about culturally appropriate content.
- d. ICT tools must be consumer-oriented and context/culture sensitive. Especially when focused on the poor, it is critical to pay very close attention to learner interests and values, which also means ethnic, language, gender, and other cultural and contextual features.

- e. Literacy and technology are becoming inter-dependent. Literacy and technology are "tools" that have much in common. Neither is an end in itself, but each can amplify human intelligence and human capability.
- f. ICT programmes will likely need to reinforce existing government structures (rather than replace them), and enhance as a priority mainly those areas of public education that are most in need of assistance (e.g., teacher training).
- g. Private sector involvement in digital divide efforts is essential in order to take advantage of the latest ICT tools (ahead of their release to the public marketplace), and more so than in other educational projects.
- h. In development work, there is much talk about 'sustainability,' which usually refers to the question of how recurrent costs will be covered. In today's environment, the concern over sustainability can bias projects in directions that are not necessarily most effective for the poorest learners.
- i. In order to achieve effective impact in using ICT for the poorest, a dedicated focus will be required on the bottom half of the digital divide population in poor developing countries, instead of assisting those that are easiest to reach. The challenge is to stay focused on the poor — otherwise, the digital gap will simply increase further.

In sum, the promise of information and communications technologies to enhance the basic education, literacy and livelihood of poor people is a tremendously challenging area of development work today, in both poor and wealthy nations. To be effective in this period of globalization is more difficult than it at first appears. With a set of good principles, a reasonable level of support, and an eye toward innovation, a great deal can be achieved to employ ICTs to help the poorest of the poor. Surely this fact provides one of the best reasons for putting both hope and support behind the UN Literacy Decade.

<http://www.unescobkk.org/education/ict/v2/info.asp?id=15925>



Working towards Integrated Policies

PROJECTS IN ACTION

ICT in Education programmes that are implemented without proper planning often increase, rather than reduce, disparities. The **ICT in Education Policies Project** assists countries in the development of relevant ICT in Education policies and strategies through capacity-building initiatives and the development of policy tools. The project aims at:

- ☛ Enhancing awareness, vision and commitment of decision-makers for the judicious use of ICT in education programming;
- ☛ Strengthening national capacities to develop appropriate ICT in Education visions, realistic policies, strategies and master plans;
- ☛ Facilitating the integration and implementation of other JFIT project components at a policy level, such as the professional development of teachers and educators in integrating ICT into teaching and learning; and,
- ☛ Ensuring UNESCO's involvement in international policy discussion, and the integration of this initiative into networks of policy planners.

So far, this project has:

Developed ICT in Education policy and strategy, raised awareness and built capacity

Some 50 people benefited from the High Level Policy-Makers Workshop, held from 18 February to 31 May 2003. Twenty-five Ministry of Education participants, including several Ministers and Vice Ministers of Education from 10 Member States, attended this event. It was organized in four phases, comprised of two face-to-face meetings in Bangkok, and two online phases. A clear result of this meeting was a recommendation that tools be developed to help policy makers integrate ICTs effectively in their education systems. It was agreed that a toolkit, which would not only translate the expertise of key specialists and organizations into guiding principles, but also provide evidence, examples and guidance for the development process, would be a valuable resource.

Produced an ICT in Education policy makers' toolkit content outline and blueprint

A 2003 seminar for high-level decision-makers on the integration of ICT in Education showed that a toolkit that provides support for decision- and policy-making would be a valuable resource. The toolkit content outline and blueprint were finalized in a workshop in March 2003, incorporating the inputs of fourteen experts from the Commonwealth of Learning, the Education Development Center, Knowledge

Enterprises, the North Central Regional Education Laboratory, PRELSTAR, the World Bank Institute, as well as policy makers and practitioners from Cambodia, Indonesia, Pakistan, Samoa and Thailand.

The toolkit will now have seven tools, instead of the three initially planned, as follows:

- ☛ The Decision Maker's Essentials
- ☛ Toolbox for Mapping of the Present Situation
- ☛ Tool for Identification and Analysis of Educational Areas for ICT Intervention
- ☛ Tool for Formulation of ICT Policy Intervention
- ☛ Toolbox for Planning for Implementation
- ☛ Tool for Evaluation of ICT Interventions
- ☛ Tool for Design of Master-Plan for Scaling up ICT Interventions

The toolkit is currently under development, and will be tested and used in 2005.

(For more, please see <http://www.unescobkk.org/education/ict/policy>)

Under the Cambodia project, an ICT policy working group, comprised of directors from various ministry education departments was formed in February 2004. The working group met twice to share updates on ICT developments in their departments and to discuss the draft ICT policy developed in February 2003. By early April 2004, an ICT Policy Workshop had been held to allow a wide range of stakeholders to provide input. Support was given by an ICT policy expert from UNESCO Bangkok. The workshop provided an opportunity for staff from different departments to liaise and discuss progress and future plans for using ICT. Input was collected from participants and used to amend the draft policy. The working group plan to meet for the fourth time in October to finalize an ICT educational policy.

In the future, the project will conduct a national survey on ICT for education in Cambodia to present a picture of existing ICT resources in formal and non-formal education at all levels in both the public and private sectors in the country; and to make recommendations to the Ministry of Education, Youth and Sport (MoEYS) on short-term and medium-term strategies to improve the quality of education through the use of ICT. In this way, the project will continue to assist MoEYS in refreshing its enabling environment and policy support.

EXTRACT 6

Needs Assessment

Methodology of the Study

Policy makers' information needs in the Asian region have been tracked by interviews with 14 policy makers from eight South-East Asian countries. Data from two additional questionnaires and from the UNESCO Bangkok Meta-survey on the Use of Technologies in Education (2003-4) have also been taken into account.

Results: State of the policies and policy-making process

State of the ICT in Education policies

According to the Meta-survey findings, twelve UNESCO Member States in the ASP region have no ICT policy at all, and 11 Member States are in the process of developing an ICT in Education policy or have a national IT policy that includes a section on human resource development/education. Twenty-one Member States have an ICT in Education policy; some of them are, however, of very poor quality. Most of the eight South-East Asian countries interviewed in the main study have an ICT (in education) policy or, at least, a draft version. In several of these countries, the use of ICT in education is already quite developed (notably Malaysia, Thailand, the Philippines and Indonesia). In contrast, four of the five respondents to an additional survey of Pacific Island countries do not yet have an established ICT in Education policy. Of these four, two are currently developing such a policy.

Policy development process

The process was described in most interviews as internal to the government or to the Ministry of Education, involving different departments with few outside stakeholders. The use of external resources was rarely mentioned. The complexity of the process leading to the ICT in Education policy varied greatly. In some cases, it was clearly a top-down procedure; in others, the first input stemmed from the needs of the different departments.

Access to information by the policy makers

The interviews showed that access to necessary and useful information was no problem. The high-level decision- and policy makers did not really seem to search for information by themselves due to lack of time, but rather they had their subordinates do the searching. For those mid-level policy makers who searched by themselves, finding what they were looking for seemed to be an easy task.

Results: Information needs

Interest in exemplary ICT policies from countries with similar profiles

The main concern of the participating policy makers was knowing more of the experiences and policies of other countries. In all cases, respondents were only concerned with other countries that have similar characteristics to their own country. The location of these countries did not appear to matter.

Policies or experiences from other countries

Interviewees from countries where ICTs were less developed (e.g. Cambodia, Laos and Viet Nam) seemed to be more interested in exemplary policies; whereas countries with more developed ICT infrastructures (e.g. Indonesia and Philippines) preferred to learn about the experiences of other countries.

Other issues

Other issues that emerged were, in order of importance, content development, evidence on the effectiveness of ICTs in education, teacher training, and ideas for fundraising.

Results: Possible roles of UNESCO

Technical assistance by UNESCO

One of the suggested roles of UNESCO is that of technical assistance in order to develop guidelines, policies and regulations related to ICT in Education. UNESCO has been considered an appropriate agent in this sector. Other suggested roles included assistance in the preparation of content based on the curriculum, or the assessment of the efficiency in the use of ICT in teaching and learning.

Compilation of information

Assessment results also showed that UNESCO could compile and give access to a database of experiences, policies and scientific knowledge from other countries. This would especially help the countries to avoid repeating others' mistakes.

Networking, evaluation and development

As an international organization, UNESCO was advised to network experience, compare systems of different countries, and...facilitate the development of contents which are common to every country, such as mathematics.

Recommendation

The principal recommendation was that the toolkit should contain exemplary ICT in Education policies. These might include links towards other contents, such as scientific evidence, evaluation, cost benefit analysis, etc.



Measuring the Impact of ICTs on Education

The project “Performance Indicators on ICT Use in Education” focuses on the development and use of appropriate performance indicators and monitoring procedures related to ICT use in education. Key elements of the project include:

- 🔗 Developing a structure of indicators to measure ICT use in education and provide a basis for policy planning and programme improvements, showing if and how ICTs are raising standards in education; serving as a catalyst for educational change; and empowering teachers and learners.
- 🔗 Undertaking a situational analysis to determine what indicators have been used to measure ICT use, and then developing a set of indicators that can be applied in the region.
- 🔗 Pilot testing the set of indicators in selected countries and then creating a database for country use and inter-country comparisons.
- 🔗 Promoting the institutionalization/mainstreaming of this indicators system into the national educational management information system, and ensuring that data are used for policy and programme improvements through research workshops.
- 🔗 Further disseminating information within the region through the Clearing House repackaging programme, which generates fact sheets, policy briefs and ICT tools for policy makers, administrators and implementers both in hard copy and in electronic versions.

To date, the project has developed a set of indicators and a manual for their pilot testing (see below). The Thai, Indian and Philippine Ministries of Education have already begun pilot testing the set of ICT indicators. The process of data collection is also underway, and national workshops for briefing data collectors have been held in these countries.



KEY RESOURCES

Consultative Workshop on Performance Indicators for ICT in Education

The Consultative Workshop for Developing Performance Indicators for ICT in Education, from 28 to 30 August 2002 in the Philippines, involved the development of a set of indicators to assess the impact of ICTs on education. The indicators cover the following areas: ICT-Based Policy and Strategy; ICT Infrastructure and Access; Curriculum/textbooks; Teaching Professionals Use and Teaching; and Student Use and Learning.

This report details the workings of that meeting, with sections that provide a synthesis of country experiences, a situational analysis and case studies from Australia, CIS and Baltic countries, the UK and Europe.

(Download from page: <http://www.unescobkk.org/ips/ebooks/documents/ICTindicators/index.htm>)

Manual for Pilot Testing the Use of Indicators to Assess Impact of ICT Use in Education

This manual provides information and guidelines to participants involved in pilot testing ICT indicators. Specifically, the manual provides the following:

- 🔗 Basic approaches and guidelines to developing indicators; criteria for assessing indicators; and methods for collecting indicators
- 🔗 A set of core ICT indicators to be included in the pilot testing based on the output of the consultative workshop conducted in August 2002 in the Philippines
- 🔗 Sample ICT Survey Questionnaire
- 🔗 Guidelines in the administration of the survey questionnaire
- 🔗 Guidelines in data analysis
- 🔗 Various software of database systems for storing indicators

(Download from page: <http://www.unescobkk.org/ips/ebooks/documents/ICTedu/index.htm>, or view in html at <http://www.unescobkk.org/education/ict/v2/info.asp?id=14278>)

(For more, please see <http://www.unescobkk.org/education/ict/indicators>)

Creating, Managing and Applying Knowledge

Regional Clearing House

One of the three supporting elements of our ICT in Education programme is the **Regional Clearing House on ICT in Education for Asia and the Pacific**. This clearing house promotes digital inclusion by creating, collecting, analysing, and providing fast, free and equitable access to information to support policy formulation, management and monitoring, teaching and learning, community outreach, networking, and programme implementation through a Web-based knowledge portal. The main result of this project is the ICT for Education in Asia and the Pacific website.

Although many excellent materials now exist on the full range of the potential uses of ICTs in education, the lack of time of already overworked policy makers and others prevents them from surfing the Internet, or accessing libraries and other sources of information on their own in search of ideas and material support (usually in a second language). In the Asia-Pacific region, leaders, educational managers and teachers have the added challenge of trying to enrich education with technologies that are often a recent introduction to the country, or in many cases, are not yet present. This is one of the main reasons why we set up the "Regional Clearing House on ICT in Education for Asia and the Pacific Project" at UNESCO Bangkok.

The Clearing House acts as an intermediary between this wealth of information and the busy users - namely, anyone involved in planning, organizing, or implementing an ICT vision, policy or project - from high-level policy makers, educational managers and staff development teams to curriculum and educational content developers, teachers and non-formal educators, educational researchers, evaluators and development workers. The Clearing House collects, analyses, filters, repackages and disseminates information on ICT in Education in Asia and the Pacific in a variety of formats - be it our Web-based portal, CD-ROMs or publications.

KEY RESOURCES

ICT for Education in Asia and the Pacific Website

For details, see the Website Focus section on the next page.

Infoshare Bulletin

This yearly bulletin provides the latest trends and developments on the application of ICTs in education in the Asia-Pacific region.

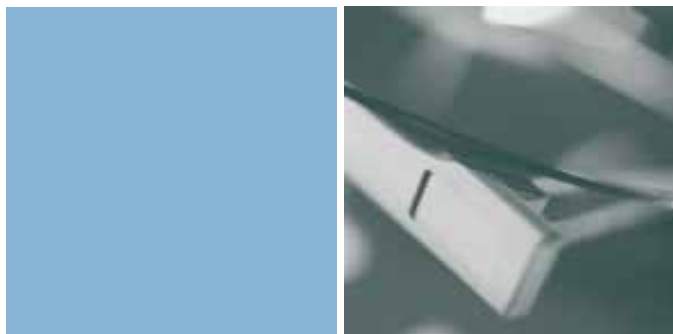
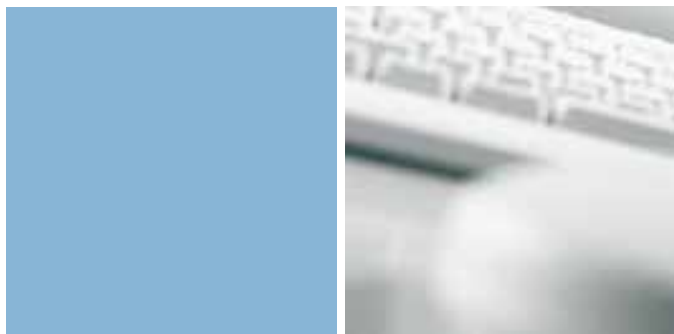
(Download from page: <http://www.unescobkk.org/ips/ebooks/subpages/infoshare.html>)



CD-ROMs of ICT in education resources

Information resources uploaded on the website have been transformed into five CD ROMs, which were used during JFIT project meetings.

For the contact details of the people behind the various UNESCO projects, please see "The Team" section on page 47.



Website Focus : www.unescobkk.org/education/ict

Most comprehensive ICT in Education website in Asia and the Pacific

- 🔊 Rich resource packs and tools for policy makers, teachers and educational planners, amongst others
- 🔊 Interactive features
- 🔊 New advisory board to ensure high quality content
- 🔊 Monthly features section

The ICT in Education in Asia and the Pacific Website continues to provide up-to-date information resources dealing with everything you need to know on the use of ICT in education in the region. Originally intended as an information services site for the UNESCO Japanese Funds-in-Trust supported programme, the website has since evolved into a portal to information and resources, latest news, organizations, projects and discussions on various dimensions of ICT use in education.

Relaunched in October 2003, the website has been entirely renovated, replacing the old site with more user-friendly, easy to search re-organized and restructured databases and Web-pages, up-to-date content and new interactivity. You will find two main ways into the dynamic new site: through the expansive databases, especially designed for those in a hurry, or through our thematic site sub-sites, which provide a deeper look into the key areas of ICT use in education.



SITE SECTIONS

ICT in Education : Bridging the educational divide

UNESCO Projects

<http://www.unescobkk.org/education/ict/v2/info.asp?id=10952>

This section provides details mostly of UNESCO Bangkok-based projects in ICT, including the latest developments of the many projects under the JFIT programme (<http://www.unescobkk.org/education/ict/v2/info.asp?id=10953>). Each project site includes various sub-sites for meetings, workshops and other activities under the projects, including the many resources and outputs of each meeting, such as presentations, meeting reports, toolkits, guidelines, online resource guides etc. This section also includes the Meta-survey of 45 countries dealing with ICT for education.



Policy

<http://www.unescobkk.org/education/ict/v2/info.asp?id=10934>

Chiefly aimed at and used by policy makers, our ICT policy site includes sections on:

- 🔊 Guidelines for developing policy on ICT in Education
- 🔊 ICT policies from Asia and the Pacific - summaries and links to actual policy papers
- 🔊 Resources for policy makers – developed for last year's Policy Maker's Workshop, these resources aim to provide a comprehensive selection of informative, relevant and up-to-date resources for policy makers and decision-makers on ICT in Education

The most popular and unique section of the policy site is our collection and summary of the ICT in Education policies for a number of countries in the region, with links to online versions of country strategy papers where they exist. This is an

invaluable starting point for those interested in official governmental policies and practices related to e-learning, ICT, and education in Asia. The section has recently been enriched with material collected from the Meta-Survey of ICT in Education in Asia and the Pacific, and now includes content on over 30 countries of the region.

A policy maker's toolkit developed under UNESCO Bangkok's Policy project will soon be added to the site.

Teaching and Learning

<http://www.unescobkk.org/education/ict/v2/info.asp?id=10935>

This section looks into the actual implementation of ICTs in the classroom. It presents successful models that demonstrate the appropriate use of ICT, and of relevant ICT-based curricula and teaching-learning materials in both formal and non-formal educational settings. The content includes:

- 🔊 Trends in the use of ICT for educational purposes
- 🔊 ICT in primary and secondary education – the richest subsection, with much practical content for educators, including tips, case studies and a vast range of resources related to ICTs in primary and secondary education and SchoolNets
- 🔊 ICT at the tertiary level – the pros and cons of distance education, the decisions in implementing tertiary distance education, guidelines, open universities and case studies
- 🔊 Sections on ICT in non-formal education, development programmes, ICT for special needs and the disadvantaged, and lessons learned



Training

<http://www.unescobkk.org/education/ict/v2/info.asp?id=10936>

This sub-site takes an overall look at the training of teachers and other educators, with highlights including sections on: Teachers' role and needs in the ICT environment; How technology helps teachers; Strategies and modalities in teacher training; Keys to effective training programmes; Teacher training programmes in Asia and the Pacific and resources; as well as links to our ICT portal for teachers: <http://www.unescobkk.org/ips/ict/ict.htm>

Indicators

<http://www.unescobkk.org/education/ict/v2/info.asp?id=10937>

Enriched with input from the "JFIT Performance Indicators on ICT Use in Education" project, this site includes substantive content, and links to a wide range of resources. Popular sections include the "Manual for Pilot Testing the Use of Indicators to Assess Impact of ICT Use in Education," "Standards for Evaluation, Assessment Tools for ICT in Education," "Assessing eReadiness" and "Achievements of ICT Use in Education." The site also links to a four-part survey that corresponds to the indicators developed under the JFIT project, which can be completed on- or off-line.

Technologies

<http://www.unescobkk.org/education/ict/v2/info.asp?id=13308>

Realising that many of those involved in education are not as conversant in techno-speak as others, last year we added a new section to the site that helps you find your way through the often-confusing maze of new tools, terms and systems to make decisions that best suit educational needs. Here we detail the tools themselves, from the satellites that link nations to the hands-on machines that students work on in the classroom, and different ways of linking them.

The rich content covered includes: Initial questions to be considered; Hardware – covers how to configure hardware in schools, how to network computers, used computers and the organizations from which they can be obtained, etc; Software and operating systems; Connectivity – covers everything from modes of connection and wireline technologies to selecting an Internet service provider; good practices and a dictionary of ICT terms.

INFORMATION RESOURCES	ORGANISATIONS
<ul style="list-style-type: none"> ▶ ICT4D - Connecting People for a Better World ▶ Measuring and monitoring the information and knowledge societies: a statistical challenge ▶ Research on ICT Innovations for Poverty Reduction ▶ A Wireless Tutorial ▶ ICT in the Hands of the Poor - Initiatives for Development and Research ▶ Cost of Internet Surfing Around the World <p style="text-align: right;">View all Search Add</p>	<ul style="list-style-type: none"> ▶ Center for Instructional Technology and Multimedia ▶ The Internet Education Foundation ▶ National Institute for Technology and Liberal Education ▶ The Shanghai Distance Education Group ▶ Australian ICT in Education Committee (AICTEC) ▶ Educational Computing Association of Western Australia (ECAWA) <p style="text-align: right;">View all Search Add</p>
PROGRAMMES & PROJECTS	OTHER DATABASES
<ul style="list-style-type: none"> ▶ Library Networking in Rural China ▶ Multifunction Information Appliance: PCtvt ▶ Sisu Samrakshak ▶ Radio Zohra - Independent Women's Radio (Afghanistan) ▶ Mentoring Across Distances: The Global Development Learning Network (GDLN) ▶ Strategy for National ICT Policy - Mongolia <p style="text-align: right;">View all Search Add</p>	<ul style="list-style-type: none"> ▶ Teacher training on ICT ▶ Evaluation of Educational Software ▶ Indicators ▶ Contributors profile

Databases

On the site, we now have five databases on ICTs in Education, which can be accessed from our home page. All of these are regularly updated by our full-time ICT researcher/writer and readers. Through our “rate this” options and our burgeoning advisory team, we do our best to ensure that all content is of the highest quality. All databases are easily accessed, either through our new multi-field search engines, or through the “View all” option.

Information Resources (<http://www.unescobkk.org/education/ict/v2/search.asp?id=3>) allows you to search through some over 500 documents, papers, articles, research reports, policy papers, speeches, databases, etc. on all aspects of ICT education, such as policy and strategy; programmes; use of ICT in primary, secondary and tertiary schools; curriculum development; professional development; and research and evaluation.

News and events (<http://www.unescobkk.org/education/ict/v2/search.asp?id=4>), as showcased on the home page, presents the latest developments on ICTs in Education, from newly designed software, conferences and new projects to the latest research findings and exhibitions from Asia-Pacific and beyond.

Projects and programmes (<http://www.unescobkk.org/education/ict/v2/search.asp?id=5>) contains descriptions and profiles of programmes and projects dealing with the use of ICT in various components of education in Asia and the Pacific, and other regions.

Organizations (<http://www.unescobkk.org/education/ict/v2/search.asp?id=6>) contains those groups engaged in

programmes/projects/activities dealing with the use of ICT in education and related areas.

The latest added database, **Teacher Training** (<http://www.unescobkk.org/education/ict/v2/search.asp?id=7>) contains profiles of programmes and courses to train teachers and other professionals on basic computer literacy, and the use of ICT as a tool for teaching.

New advisory board to review content

We now have a new expert group comprising specialists from World Bank, COL, SchoolNet SA and independent consultants who advise on content/navigational issues. These advisers will soon be giving advice to our users through monthly features – watch our site for “Ask the experts”...

New monthly features section

Since June 2004, features have focused on pertinent areas of ICTs in Education, such as ICT and Literacy (see page24), ICT and Professional Development, SchoolNets, and ICT Awards.

Statistics on Website Usage

- 📍 Top three most-visited webpages at UNESCO Bangkok are ICT in Education sites
- 📍 Our databases receive over 14,000 visits each month (information resources most popular)
- 📍 The main site content receives over 6,000 visits a month.

PHILIPPINES



Coca-Cola ed.Venture Pilot

Project Profile

Coca-Cola ed.Venture is the first pilot activity of the Pilipinas SchoolNet. It was launched in April 2001 to provide a means of bridging the widening “digital divide” throughout the country. Through the establishment of computer centres and the development of various training programmes for 15 pilot schools in Metro Manila and the Visayas, it aims: 1) to address the urgent need to develop ICT skills among the young, and 2) to integrate ICT in the Philippine education system, specifically by maximizing the use of technology in the teaching and learning of core subjects such as Maths, Science, Languages and Social Science.

Activity Updates

School Administrator Training

Two phases of the training programme have been completed for ed.Venture’s school administrators. “Optimizing the Use of ICTs in the School,” the first workshop conducted, combined topics on basic computer literacy, teaching and learning with ICTs, telecollaboration and

PILIPINAS SCHOOLNET

update from Victoria Tinio, Director of E-Learning Foundation for Information Technology Education and Development, Inc.



basic ICT management concepts. The following school year, a workshop on “Strategic ICT Planning” helped further prepare participating administrative staff to integrate ICTs into the curriculum, and encouraged them to seriously consider issues that will affect the long-term use of ICTs within their school. The planning workshop paved the way for each school to draft its own strategic ICT plan for the next three to five years.

Teacher Training Programme

Since the ed.Venture programme was launched in 2001, three rounds of workshops have been conducted for teachers. The first was a basic literacy training programme, which aimed to enhance the skills of subject teachers in the use of computers and the Internet. Almost 500 teachers from the 15 ed.Venture schools participated in this programme, which was conducted by the

University of the Philippines Open University.

The second workshop introduced the concept of telecollaboration, and was attended by 138 selected subject area teachers from the pilot schools. During the workshop, teachers from different schools were grouped together and given the task of drafting a project design that would use the Web as a resource, and the Internet as a tool for collaboration.

The third and most recent workshop, “Integrating Computers and the Internet into the Curriculum,” was held from August to September 2003, and was attended by teachers who were part of the e-Learning Club. The workshops were designed to guide the participants in implementing specific e-Learning Club projects, as well as to introduce them to several Web-based learning activities that will help them

develop and implement their own activities related to their subject areas.

Extension Training Programme

The extension training programme was conducted for non-ed.Venture school administrators and teachers nationwide. The schools chosen to participate in the workshops were beneficiaries of computer grants from both public and private organizations. The main objectives of the extension programme were to build on the ICT-related training sessions that the participants may have previously received on basic computer literacy, and to introduce them to the concept of telecollaboration to ensure more effective use of ICTs in teaching and learning.

It was the first Coca-Cola ed.Venture activity that included participants from Mindanao, which extended the reach of the programme nationwide. Over 200 teachers and more than 70 school administrators attended the workshops.

E-Learning Club Workshops

The e-Learning Clubs (ELCs) were established in all of the 15 ed.Venture schools to facilitate school-wide involvement of students in ICT-supported learning activities. The core membership of each Club comprises 10 students for each year level, one co-ordinator per year level (i.e., a total of four) and an overall co-ordinator. The Center Manager and Assistant Center Manager also support the overall co-ordinator in scheduling and facilitating Club activities.

An orientation and planning workshop was conducted for ELC members at the start of the 2003/04 school year. Students designed curriculum-based projects for the year under the supervision of their year-level co-ordinators.



Website Design Training for Students and Teachers

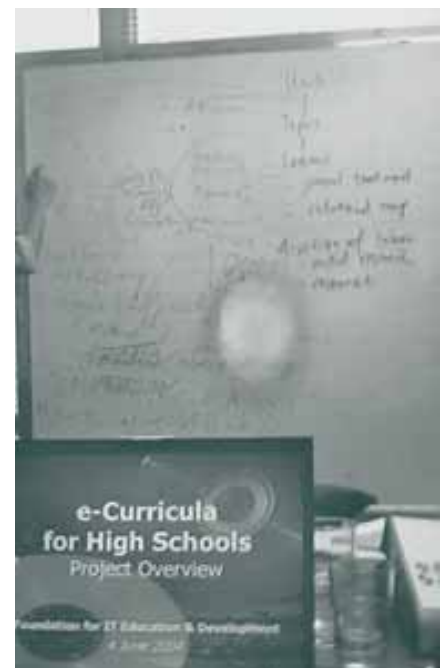
Selected ELC student members and teacher-co-ordinators in each of the 15 schools were trained in website design. The students served as Webmasters in charge of the online publication of their year-level projects.



Activities for 2004

This school year, FIT-ED is preparing to turn over the management of the programme to the schools themselves. Initially, this will take place in nine of the 15 schools, as assessment results indicate that these schools are prepared to independently plan and implement the programme with minimal supervision and support from FIT-ED. For the remaining schools, e-Learning Club workshops are scheduled to take place in August and September to continue to support ICT-based activities for the rest of the school year, and to prepare them to implement the programme on their own by the end of the 2004/05 school year.

A Sourcebook of WebQuest Projects and Online Treasure Hunts will also be published this year. This sourcebook is a collection of selected WebQuests and treasure hunts designed and implemented by teachers from the 15 ed.Venture schools during the 2003/04 school year.



E-Curricula for Public Schools

Project Description

The “e-Curricula for High Schools” programme of FIT-ED, officially launched in January this year, aims to develop interactive, multimedia courseware for Maths, Science, Filipino, English and Araling Panlipunan for use in the public secondary schools. The project, which is jointly sponsored by Mirant Philippines Foundation and the Coca-Cola Export Corporation, will be piloted in selected regions, divisions and schools in the Visayas and Metro Manila. The programme hopes to expand access to quality and up-to-date public secondary school teaching/learning materials.

part of the programme in order to ensure continuity beyond the four-year duration of the programme.

Pilot regions, divisions and schools are currently being prepared to pilot e-curricula, while the first set of courseware – for first year maths, science and social studies – is being developed. Strategic ICT planning workshops for all pilot participants are scheduled for August and September 2004.

National ICTs in Basic Education Congress Pilipinas SchoolNet and the Department of Education are co-organizing the 1st National ICTs in Basic Education Congress, which will be held on 6-7 December 2004 in Cebu City. The two-



ICTs in Basic Education Standards Formulation Working Group

FIT-ED will provide technical assistance to the Department of Education in formulating national policies and standards for the use of ICTs at both the elementary and secondary levels. A Technical Working Group composed of experts in the field will be convened.

The working group will assist DepED in drafting more comprehensive policy guidelines for the implementation of ICT integration, clearer assessment guidelines for ICT-supported efforts, and standards for ICT use and curriculum integration in basic education.



The programme will be implemented within a four-year period beginning in the 2004/05 school year. Aside from courseware development, training on ICTs and curriculum integration, ICT planning and management, and technical support will be conducted for appropriate staff from selected regions, divisions and pilot schools. Capacity-building for DepED regions and divisions is a crucial

day Congress of teachers, trainers, educators, education administrators, researchers, practitioners, and other stakeholders hopes to provide a venue for sharing and exchanging experiences, insights and best practices in implementing ICT-supported programmes in basic education nationwide. One thousand participants are expected to attend the event.



THAILAND



The second daughter of His Majesty King Bhumibol and Her Majesty Queen Sirikit, Her Royal Highness Princess Maha Chakri Sirindhorn, has contributed greatly to many facets of Thailand's development in the areas of education, health care, agriculture, arts and culture, and environmental conservation, among many others. In this Infoshare country feature, we focus on her work to promote the use of ICT in Education. This feature extracts from the book, *IT Princess*, which gathers together e-mails, interviews and other content on the Princess' work in the Thai language, and soon, for the first time, in English.

The Princess believes that IT, if applied appropriately, can be an effective instrument for research and development, and for enhancing the quality and reach of education. Since its inception in 1995, the Princess' IT Project has provided a model of how to apply technology to promote social development. Rather than seeing dissemination of IT as an end in itself, the project focuses on how to use the technology effectively and appropriately - particularly in rural areas - in order to achieve social and economic prosperity. Managed by an Executive Committee led by the Princess herself, the

IT PRINCESS: Empowering All Thais with IT

Adapted extracts from *IT Princess*



main areas the project concentrates on include introducing computer technologies to school students, bringing in computer technologies for the disabled, and offering teachers access to and training in good-quality, commercially-available computer-assisted instruction programs, all of which you can read about below.

The Princess is convinced that IT should be introduced into schools gradually, recognizing that it generally takes time to change the attitudes and perceptions of teachers and administrators, and to encourage them to become more accepting of IT. Many schools also still suffer from certain material constraints that make introducing IT difficult, if not virtually impossible. Uniquely then, the focus of the IT Project team is not on bringing in the latest technology, but on addressing the fundamental issues, which also includes the health and welfare of the students, before trying to install any new technologies.

For more (in Thai), visit the Project website at www.princess-it.org. The site contains information about the Project and its associated programmes and activities, visual archives, manuscripts, and interesting related websites. The page www.princess-it.org/donation.html gives details of how to make donations, either financial or in the form of computer equipment.

IT for Rural Schools and Educational Development for the Disabled

The IT for Rural Schools Programme was started in 1995, with the objective of minimizing educational inequality by providing rural school teachers, students, and children with disabilities access to computer technology. The project covers some 72 rural schools across Thailand. Once the first batch of donated computers is installed in a school,

progress is closely monitored, including determining whether the school is ready for more advanced technologies such as computer-assisted instruction (CAI) programmes and the Internet. If the school is deemed ready, it is granted free Internet connection through SchoolNet, and receives a donation of more advanced LAN-connected computers, as well as supporting literature.

The concept of “quality not quantity” lies at the heart of the IT for Rural Schools Programme. In its initial phase, the Programme’s focus was on introducing basic computer technology into schools, expanding coverage, and providing essential computer training. Now in its second phase, the focus has shifted to enhancing teacher and student IT competency so that they can utilize the technology more effectively and efficiently, and hence, be prepared to use more advanced equipment.

A “Basic Computer Maintenance and Repair” course is offered through a number of vocational schools around the country to help develop the skills necessary for the IT for Rural Schools Programme member schools to service computers and peripherals used in the Programme. This initiative later took a more permanent shape as the Basic Computer Maintenance and Repair Programme, with 17 participating vocational schools. These schools now provide maintenance and repair services, and offer basic maintenance and repair courses not only to IT for Rural Schools Programme member schools, but also to the general public.

Reaching into the community

ICT teachers from schools participating in the IT for Rural School Programme offer extra-curricular computer classes on weekends or during vacations to their students, and to fellow teachers. Some



schools also open these courses to teachers and students from nearby schools, administrative staff from regional government offices, and local residents. Some schools have even developed computer service teams capable of providing computer and network installation and repair services to other schools and organizations in their community. The provision of these services gives the students plenty of opportunity to practise and master their skills.

Impact

So far, the Programme has proved to be a success. After graduation, many of the students from the member schools have chosen to continue studies in computer-related topics at college level, and have gone on to find good careers in the IT field, both in Thailand and abroad.

Since its launch, the positive impact of the IT for Rural School Programme has spread beyond the member schools to the communities around them. The Programme has led to substantial educational, social, and economic improvements in many communities throughout Thailand. Today, many students from disadvantaged families in remote areas have opportunities to learn how to use computers, write programs, and surf the Internet.

In 1996, Kawila Anukul School in Chiang Mai Province became part of the IT for Rural Schools Programme. Since joining the Programme, the school has made continuous progress in the area of IT for educating children with disabilities. For example, computer courses are now a standard component of the school curriculum in all grades. In 2000, the school received 10 additional personal computers, one server, and CAI software from Her Royal Highness. In 2003, one additional computer workshop room was set up with a donation of 10 more computers from the Programme. In addition to this computer workshop facility, the Programme has also constructed an IT-assisted classroom at Kawila Anukul. In this classroom, computers are used as a teaching aid together with other technologies that make it possible for students with writing, speech, or learning difficulties to learn and develop necessary skills.

A student from Kawila Anukul School was recently able to compete with other students from regular schools in a computer competition, and won a silver medal.

IT Project at Srisangwan School for Disabled Children

Continuing efforts targeting the disabled that were started by her grandmother, the late HRH Princess Srinakharin (the Queen Mother), HRH Princess Sirindhorn has especially emphasized the importance of providing children with tools that meet their specific needs, and that can effectively improve their quality of life and accelerate their development. Many of the children who come to the Foundation for the Welfare of the Crippled and attend Srisangwan School for the Disabled need both physical assistance devices such as wheelchairs, crutches, and walkers, as well as learning



tools to enhance their writing, reading, and speaking skills.

The Princess' IT Project Executive Committee has worked with Srisangwan School at length to establish computer training programmes for both teachers and students. In 1998, the School became part of the IT for the Disabled Programme under the Princess' IT Project. As part of the Programme, computers were donated to the school and a computer room set up. However, the team soon realized that having a separate computer room for children with limited mobility was impractical, so computers were placed in the regular classrooms, 10 in each for grades 1 to 6.

Impact

Since the extra computers were added, the Programme has been a great success. The computer skills of the students at

Srisangwan School have been shown to be of the same standard as those of non-disabled students, and the teachers are capable of using computer-assisted instruction programmes to support their own teaching.

Special assistance has also been provided for the individual children at Srisangwan School, particularly those with cerebral palsy, who have difficulty in speaking, reading, and writing. At the prompting of the Princess, the National Electronic and Computer Technology Centre (NECTEC) has provided training for teachers at Srisangwan School on how to assess the capabilities of disabled children in order to identify the most appropriate assistance for them, and on how to effectively utilize IT tools for working with disabled children. The school also receives support from physical therapists, speech therapists, special educationists, and computer

instructors to create individual curricula to suit each child's special needs and physical abilities.

Learn and Have Fun with Computer Assisted Instruction (CAI) for Primary School Students

Launched in 1998, the CAI for Primary School Students Project has the main function of identifying quality CAI software from abroad for use in Thai primary schools, and integrating this software initially into three subject areas: maths, science, and English. The project also includes staff development to train teachers in the full and effective use of the CAI software in their classes.

Under this project, many award-winning and widely-recognized CAI software packages from abroad are reviewed. Those most appropriate for the context are then selected. The emphasis is especially on software that aims to enhance maths skills, scientific knowledge, English competency, creativity, and general knowledge. Instruction manuals are written for the software in Thai. After selection, the CAI programs are integrated into school curricula. The focus of the project is on integration, and training the teachers how to write lesson plans that infuse ICTs into the learning experience. Eventually, the teachers will be able to make well-informed decisions to choose quality software that is best suited to their classroom.

The project was piloted in Pratamnak Suankularb School, Bangkok, and progress was constantly monitored by a project team that held regular meetings with the school's teachers to discuss challenges and identify possible solutions. Lessons learned from the

pilot have enabled the development team to continuously modify and fine-tune the project, thus ensuring its effectiveness.

Impact

Judging by the overall improvement in performance of both students and schools, as well as in the computer competency of teachers, the introduction of CAI programs has definitely been a success. As a result, in 2000, the Princess donated 30 more computers to the school in addition to the original 10, enabling each student to have their own computer. Many senior teachers who used to suffer from “computer phobia” can now be described as “computer savvy”! Also, some of the previously least enthusiastic students are now very eager to come to computer classes, and their grades have markedly improved.

The successes at Pratamnak Suankularb School have attracted numerous visitors from both the public and private sectors; it has evidently become a model school in every sense. Currently, there are 15 schools around the country participating in the CAI for Primary School Students Programme. This will soon be expanded to schools in remote, impoverished areas of the North, North-East and South, in an attempt to bridge the digital divide by employing ICTs to help the poorest of the poor.

The Programme team is also currently expanding the reach of the Programme to take in other schools in rural areas in order to balance out educational inequalities between urban and rural children.

IT for the Inmates at Bangkok Central Women’s Prison

HRH Princess Maha Chakri Sirindhorn believes that if prison inmates are trained in skills that are of practical use and in high demand, such as computer

skills, they will have a better chance of finding a good job after their sentences are finished, and of becoming good citizens that can benefit society. Acting on this belief, Her Royal Highness launched the IT for Inmates Programme under the Princess’s IT Project. The Programme began at Bangkok Central Women’s Prison at Khlong Prem in 1997. The initial batch of equipment donated to the prison comprised 20 computers and three printers. The prison set up a computer centre, and offered a 126-hour computer training course, complying with Department of Non-Formal Education standards and employing personnel from the Department to conduct the course. The course was very well received by the prison inmates. Consequently, in 1999, the Programme was extended to the Central Correction Facility for Drug Addicts, and then in 2000, to Bangkok Special Prison.

To be accepted into the courses, the inmates must be between 18 and 35 years old, be able to type, have at least a primary school (or Grade 9) education, and must never have learned computers before. From 1997 to 2003, the Bangkok Women’s Prison conducted the course 18 times with 343 inmates successfully graduating.

In 2002, the Technical Information Access Center under the National Science and Technology Development Agency hired the prison inmates to type Thai and English journal indexes. This was the first typing job the inmates had received. This job assignment not only gave them an opportunity to practise their new skills, but also allowed them to earn money. At present, numerous organizations offer the inmates typing jobs. Between 2002 and 2003, the inmates earned a combined total of approximately 160,000 baht in this way.

Impact

By 2002, many of the computers Bangkok Women’s Prison had initially received from HRH Princess Sirindhorn’s IT Project had begun to wear out. At the same time, the prison wanted to offer more advanced computer training, such as use of graphics applications, which required computers with higher specifications. In response, HRH Princess Maha Chakri Sirindhorn donated a new batch of computers with the necessary capacity. With these, the inmates are able to undertake graphics-related jobs such as making cards and leaflets, and retouching images.

At present, the average accumulated income generated as a result of this Programme is about 50,000 baht per month. Moreover, because of the computer skills they have, many former inmates who took courses under the Programme are now employed in jobs that require computers.

In 2003, HRH Princess Maha Chakri Sirindhorn provided an opportunity for the inmates to contribute to society by taking part in the production of audio books for the blind. This project came about through collaboration among three bodies: the Princess’ IT Project, the Thai Blind Association and Bangkok Women’s Prison. HRH Princess Maha Chakri Sirindhorn provided financial support to buy four new computers and build two recording studios. The support also covered costs to bring in an expert from the Daisy Consortium in Japan to train all parties involved on how to make the recordings, as well as costs for a local expert to give training on appropriate reading techniques. Initially, some 47 inmates participated in the project - 35 of whom read, while the other 12 carried out audio editing using the computers. By the end of 2003, this group of inmates was expected to have produced a total of 1,000 hours of audio books.

VIET NAM



Background

For some time the world has been ushering in a new information age, often referred to as the “knowledge society,” in which intellectual capacity along with information generation and distribution are seen as the most important forces.

Information technology can not only be seen to have had a dramatic impact on the kinds of knowledge the younger generations are expected to acquire, but the ripples of the “informatization” process can be felt in every corner of our social and cultural lives. This informatization process holds the key to countries successfully making the transition to the knowledge society, as, if applied with appropriate guidelines, IT has the potential to bridge the divides – rural-urban, rich-poor, traditional-modern – between and within societies.

The IT revolution provides huge opportunities for less economically-developed nations, in terms of education (both formal and non-formal), human resource capacity-building, and productivity, among other areas. With this in mind, the Governmental Decree 49/CP identified goals for Viet Nam’s ICT

Education Network – EduNet in Viet Nam
 Update from Dr. Quach Tuan Ngoc, Director, Center of Information and Technology, MoET

development up to 2000 as follows: “To set up [a] solid foundation for ICT infrastructure in the society in order to meet basic needs on information in state management and in socio-economic activities; at the same time, to establish and actively develop ICT industry to be one of the leading industries of the country which shall contribute in the preparation of an adequate position of the country in the region to enter the 21st Century.”

The Central Political Bureau of the Vietnamese Party went further: “ICT human resource development is the key and decisive factor for application and development of ICT... Priority in using ODA must be given to applying and developing ICT...[with a f]ocus on computer network investment for education and training, connecting Internet to all educational and training facilities.”

[b] Market and scope

- 📍 81 universities
- 📍 121 colleges (including colleges of education in 61 provinces)
- 📍 268 vocational schools
- 📍 Schools: 25,805 (see below)

EduNet activities

1. Telecom infrastructure and connectivity

Telecom infrastructure is provided by VNPT (Vietnam Post and Telecom) a government company which accounts for 95% of the market.

In April 2004, the Ministry of Education and Training (MoET) and Ministry of Post and Telecom (MPT) signed an agreement to officially realize the EduNet project. Following this agreement, MPT has been working to motivate all telecom companies to assist the EduNet

Primary schools	14,163
Mixed primary + lower secondary schools	1,191
Lower secondary schools	8,396
Mixed lower + upper schools	523
Upper secondary schools	1,532
Total	25,805
School Level	Number of students
Kindergarten	2,305,400
Primary	8,534,700
Lower secondary	6,606,572
Upper secondary	2,604,694
Vocational	390,000
Colleges	178,000
Universities	838,400
Total (excluding Kindergarten)	19,152,366

its own website. Pupils as well as teachers are encouraged to participate in the design and content creation of their college's site.

EduNet activities in provinces

The offices of the Department of Education and Training (DoET) in the provinces have their own websites: www.bacgiang.edu.vn, www.thuathienhue.edu.vn, www.hoabinh.edu.vn, www.hanoi.edu.vn, www.tphcm.edu.vn, www.quangbinh.edu.vn, www.dongnai.edu.vn

E-Learning is seen as a vital part of the EduNet project, opening up education opportunities to a much wider audience. The different modes of delivery afforded by e-learning are particularly well-suited to the situation in Viet Nam, with online, off-line, CD ROM and desktop options available. However, to make the most of e-learning's potential, support is still needed in the following areas:

- 🔧 Content authoring tools
- 🔧 LMS: Learning Management Systems

There are a number of good quality, easy-to-use and free authoring tools, such as Course Builder. In terms of LMS, on the other hand, the high costs attached to the many quality products are still an obstacle. However, until relevant teaching and learning materials have been developed, LMS are of secondary importance, and for that reason the focus is on motivating teachers to develop quality and relevant course content.

4. Training

ICTs that are being introduced into teacher training programmes, for primary-level through to higher-education teachers, cover a range of functions, including hardware and software, networks, platforms, and content preparation tools. In distance- and self-learning, especially related to ICT education, it is necessary for trainees to become familiar with contents and materials in a lecture setting in order to raise their understanding of ICT's potential uses in the classroom. Content and material development also provides an opportunity to train the necessary cadre of high-quality ICT engineers

and technicians that must accompany the introduction of ICT into the education system.

5. Control and coordinator center

An overview of the EduNet Center is shown below.

As indicated in Figure 1, three sites – the EduNet Center and two universities – will be connected to realize group training and distance learning, mainly for teachers.

Facilities at the EduNet Center include one classroom for group training (maximum capacity of 100 participants), and another with studio facilities (maximum capacity of 50 participants) that will serve as the remote education centre, along with various databases containing educational resources and contents. At each university, a classroom to conduct remote education (maximum capacity of 50 participants) and one for self-learning (maximum capacity of 50 participants) will be constructed.

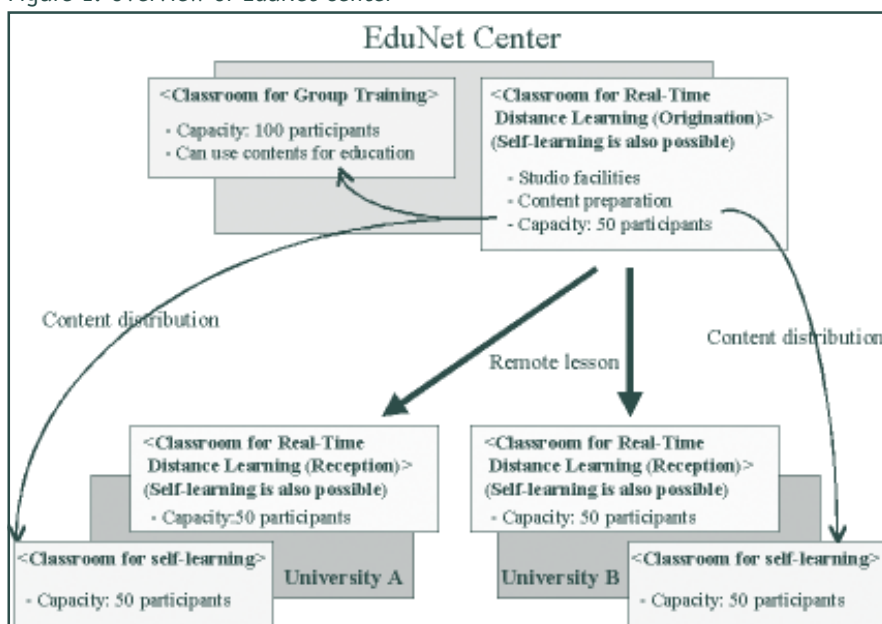
These facilities will permit group training and remote education (real-time distance learning and self-learning) for between 50 and 150 teachers at the EduNet Center, and 50 to 100 teachers at each university.

Expansion of these facilities, such as lifetime education and business partnerships through linkages with higher educational institutes and private enterprises, will also be considered at some point in the future.

The roles of the EduNet Center are outlined below:

1. Efficiently providing skills-improvement opportunities to many teachers by consolidating lectures and training programmes conducted by highly skilled instructors at the ICT centre.

Figure 1: Overview of EduNet Center



2. Creating advanced training opportunities by utilizing EduNet Center facilities.
3. Enabling self-learning by utilizing EduNet Center databases.

The following advantages are expected to be derived from the EduNet Center:

1. Improved education quality through raising the capabilities of teachers
2. Greater student performances will lead to stronger pool of human resources
3. Enhancement of education opportunities
 - From the standpoint of instructors, education opportunities can be improved by participating in group training and remote education programmes undertaken at the EduNet Center
 - From the standpoint of students, education opportunities can be improved through the ripple effect, as each instructor who participates in the training programme at the EduNet Center will contribute to both the

development of the system as a whole and the networking of educational tools, as well as the preparation of quality educational materials at each school

4. ICT skills (information literacy) of instructors and students improved by utilizing education systems consisting of PCs and the Internet

As stated above, the narrowing of the digital divide within Viet Nam, and the creation of a human resource pool with ICT skills, will be realized through effectively utilizing this newly established environment, which is exemplified by the EduNet Center. This increased capacity of the workforce is, in turn, expected to lead to further national development in all sectors.

Outline of EduNet Center Functions

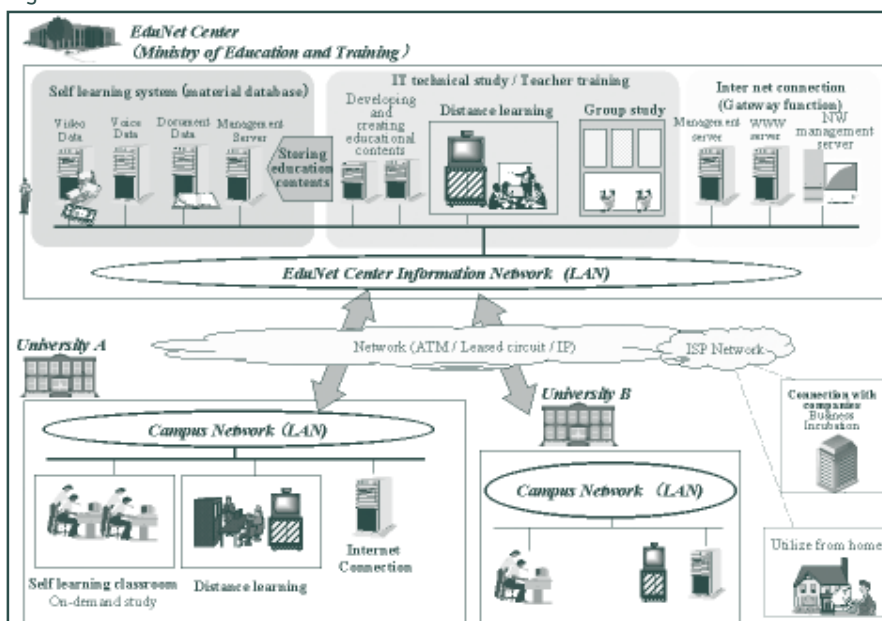
The main purpose behind the EduNet Center project is to introduce advanced ICTs at all universities, campuses, and lower level educational institutions by establishing Internet connections along with the necessary infrastructure. At the same time, the project is aiming to

establish levels of education at regional universities that match those at urban campuses. The most important steps are to develop education in ICT and other related fields, to create meaningful educational courseware, and to broaden access to the high-quality databases created under this project.

The functions of EduNet are as stated below:

- Creation of group study facilities by utilizing multimedia teaching materials in LL applications
- Establishment of real-time distance learning through the Internet and video teleconferencing systems
- Development of tools to create and store teaching materials, including lecture contents, voice data, picture data, and video data
- Development of tools to store and access academic theses and research papers owned by each educational institution
- Strengthening of self-learning functions through “education-on-demand”
- Creation of an Internet gateway that will support this education platform

Figure 2: EduNet Center Outline



During the first stage, this project will be carried out by the EduNet Center and two other universities. In the near future, project coverage will be extended to higher education organizations and other educational institutions. Moreover, in developing the centre, consideration will be given to expansion projects that focus on cooperative efforts with various enterprises to realize business linkages, exchanges with overseas universities, and access to residential areas.

6. International cooperation

UNESCO SchoolNet project.
AEN (Asian e-Learning Network) project.

These are just a few of the year's news stories taken from our fully searchable News and Events Database. For more, pay us a visit at www.unescobkk.org/education/ict.

Community ICT Centre for women celebrates first anniversary

23rd April 2004

The Seelampur Community ICT Centre, an ICT learning centre for girls and women located in a high-density, low-income area in India's capital New Delhi, recently celebrated its first anniversary. The UNESCO/Datamation Foundation supported project uses interactive multimedia tools to support vocational and life-skills training to poor girls and women, including awareness building on health issues and food preservation and support to professional activities such as tailoring and quilt-making. The Centre is equipped with a server, four computers with Internet access, a scanner and a printer. In addition, the local community needs based browser "EnRICH" links the community to information, including 40 different income generation specialties and health care modules that will enable the youth and women



to lead healthier lives apart from earning sustainable incomes.

To celebrate the anniversary, the Centre hosted the women and community members who have been associated with Seelampur. It was an emotional moment for many women who not only acquired basic knowledge of ICT but also enhanced their innate design skills. They said they had acquired self-confidence,

developed communication skills and improved their understanding of health, empowerment and education.

The Seelampur Centre is one of nine project sites covering a range of poor individuals and communities with the use of a variety of technology blends.

[Source: UNESCO HQ]

Indian street children broadcast from their turf

15th April 2004

A dozen 7- to 18-year old street and working children in New Delhi called 'Bal Mazdoor' have organised a children's rights radio initiative intended to enable children who might otherwise be ignored by society to directly share their views and experiences, while also raising awareness of social justice issues. The half-hour radio programme features both local and international news, popular music, and interviews. In order to conduct interviews, the group has its own portable recorders (digital and analogue) with professional microphones and other equipment. The programmes are broadcast from a two-in-one cassette recorder placed on a rickshaw with loud speakers attached to it. At the designated time, the rickshaw is peddled to a marketplace so that the cassette can be played.



covered information gathering, team work, accuracy in communication, time management, and the use of mini-discs and walkmans. Since that session, the children have met twice per month to record and edit the radio programme. Recent training from the Jamia Millia Islamia's Mass Communication

Research Centre covered further post-production and pre-production duties, as well as non-linear sound editing on a computer. Future training will also be conducted by the other BBC, the British Broadcasting Corporation.

Why do the children work so enthusiastically on the project, even without any pay? One BBC radio journalist called Pappu said: "I do this for the sake of myself, for dignity, for children who might go through what I underwent."

[Source: Digital Opportunity Channel]

New ADB project brings ICT-enabled education to rural Mongolia

14th July 2004

The Asian Development Bank (ADB) announced their support of an ICT project in Mongolia to boost access to high-quality education for disadvantaged and remote populations in Mongolia, through a grant assistance of US\$1 million. The ICT for Innovating Rural Education project, which is also being backed by the Japan Fund for Information and Communication Technology, aims to boost creativity in classrooms, build an efficient school management system and create non-formal learning opportunities, through CD-ROMs and an e-mail based bulletin board system.

“At present, ICT in Mongolian education tends to be largely

confined to wealthy urban areas and to informatics classes in upper grades. The project will help address the growing internal digital divide and poverty of information in rural areas,” says Christopher Spohr, an ADB Project Economist.

Under the project, in-school training, content development, peer network building, and careful monitoring and evaluation will help to ensure that ICT tools promote the adoption of modern pedagogy and creative classroom techniques. About 10,000 students in 36 schools will benefit from the initiative.

[Source: ADB]

UNDP launch FOSS education primer

13th October 2004



A new primer is now online which covers the use of Free/Open Source Software (FOSS) from schools to universities. It provides a brief overview

of setting up the relevant IT infrastructure and administration, and considers software (mainly proprietary) which is now used as the basis for IT curricula along with the FOSS equivalent. In the true spirit of open source, the primer is intended to be a living document, with constant updates from all users to reflect the latest information.

“Developing countries in the Asia-Pacific Region can achieve rapid and sustained economic and social development by using affordable yet effective Free/Open Source Software (FOSS) ICT solutions to bridge the digital divide.” say the International Open Source Network (IOSN) who developed the primer. IOSN is an initiative of the Asia-Pacific Information Development Programme (APDIP), which has been supporting the strategic and effective use of Information Communication Technology (ICT) for poverty alleviation and sustainable human development in the Asia-Pacific region since 1997.

[Source: UNESCO CI]

Refreshed multimedia training kit now available

13th October 2004

The Multimedia Training Kit (MMTK) for staff of Community Multimedia Centres has now been expanded with new modules and units. The latest additions to the kit, which is available from UNESCO on CD-ROM or can be downloaded from the Internet, have been funded by the UK Department for International Development (DFID) and developed by the Association for Progressive Communication (APC).

The MMTK's comprehensive suite of open-access, interactive, learning modules covers organizational, management, content production and issue-based training for staff of Community Multimedia Centres, community radio stations and telecentres. The kit is produced in a collaborative process led by UNESCO involving key stakeholders in the field of ICTs for Development.

The latest materials added to the MMTK curriculum are mainly on ICT policy and include 14 topics, ranging from the ICT policy process and international and regional influences on ICT policy, to gender and ICTs policy and advocacy journalism. Other new units currently under preparation and funded by UNESCO include an introduction to research methods, radio formats, strategic technology planning, producing content for exchange and audio archiving.

A French-language version will also be available before the end of the year.

[Source: UNESCO CI]



Delhi: MoU signed for massive ICT-enriched teacher training programme

21st October 2004



The Municipal Corporation of Delhi (MCD) has signed an MoU with Microsoft Corporation India Pvt Ltd as part of the company's India Education programme "Project Shiksha." Under the six-year programme, beginning on November 8th 2004, MCD will provide training in technology literacy and

technology curriculum integration to as many as 12,000 primary school teachers. Both training and software will be provided free of charge.

"We are setting up six training centres, which will train the teachers in a phase-wise manner over the next five years," MCD commissioner Rakesh Mehta said after the signing of the MoU.

MCD had earlier launched "Project Sharda" to provide computer-aided learning in its schools, and aims at setting up computer labs in 1,000 schools by the end of this year. There are 900,000 children studying in more than 1,800 MCD primary schools in the capital.

[Source: I4D and The Economic Times]

Intel-UNESCO to develop guidelines for worldwide teacher technology training

9th November 2004

Intel Corporation and UNESCO agreed today to collaborate on the development of a model curriculum or syllabus to improve the use of information and communications technology (ICT) in classrooms worldwide.

"Cooperation with the private sector is indispensable if we are to bridge the digital divide. We particularly welcome the opportunity to share know-how and experience with Intel, a leader in IT training for teachers in so many countries," the Director-General of UNESCO, KoŌchiro Matsuura said. "This work is at the core of our mission in the fields of education and communication; it was also endorsed by the international community at last year's World Summit on the Information Society, which also recognized the role of the private sector in the intergovernmental drive to develop inclusive knowledge societies all over the world."

The Memorandum of Understanding stipulates that UNESCO and Intel will work together on a multi-stakeholder initiative to set standards to improve the quality of ICT teacher training programmes. To this end, UNESCO, in cooperation with Intel, will develop a syllabus that sets the standards of ICT knowledge and skills in this area. The syllabus could then be used to design training content that would be



delivered to teachers in a multitude of ways, by different providers. Both organizations will also collaborate on the development of a mechanism by which course providers, educational policy makers and teachers can refer to the syllabus to ascertain that course content and training programmes meet the requisite standard.

Having trained 2 million teachers around the world, Intel has extensive experience in training teachers in the use of technology, and on helping them to integrate the technology into lesson plans.

"The challenge is to find the best use of technology for improving the quality of teaching and learning, while introducing a high degree of flexibility to respond to the regional needs," said Wendy Hawkins, Intel director of education. "Intel will work with UNESCO to meet this challenge, and develop a syllabus that is suitable for use by countries and organizations worldwide. This syllabus will allow more teachers to receive training and, ultimately, will provide more students with the skills and desire to harness technology to solve complex problems."

[Source: UNESCO HQ CI]

The ICT in Education Team

Hameed Hakeem

Chief, Asia-Pacific Programme of Education for All (APPEAL)
Hameed directly oversees and coordinates the project, "ICT Application for Non-formal Education Programmes."

E-mail: a.hakeem@unescoykk.org



Jon Kapp

Assistant Programme Manager, Assessment, Information Systems, Monitoring and Statistics Unit (AIMS).
Jon assists Ko-Chih Tung with the project, "Performance Indicators on ICT Use in Education."

E-mail: j.kapp@unescoykk.org



Molly Lee

Chief, Asia-Pacific Programme of Educational Innovation for Development (APEID)
Molly directly oversees and coordinates the project, "Training and Professional Development of Teachers and Other Facilitators for Effective Use of ICT in Teaching and Learning."

Email: m.lee@unescoykk.org



Leonard Efison Munjanganja

Programme Specialist in TVE, Asia-Pacific Programme of Educational Innovation for Development (APEID)
Efison coordinates the project, "Improving Management and Delivery of Technical and Vocational Education (TVE) Through the Application of Information and Communication Technologies (ICTs)."

E-mail: e.munjanganja@unescoykk.org



Kiichi Oyasu

Programme Specialist in Literacy, Asia-Pacific Programme of Education for All (APPEAL)
Kiichi coordinates the project, "ICT Application for Non-formal Education Programmes" with Darunee Riewpituk.

E-mail: k.oyasu@unescoykk.org



Luisa Rennie

ICT in Education Editor/Project Assistant
Luisa assists Cădric Wachholz with the Clearing House Project, especially with monitoring, updating, and improving the content, appearance and usability of the ICT in Education Website.

E-mail: l.rennie@unescoykk.org



Darunee Riewpituk

Programme Specialist in Continuing Education, Asia-Pacific Programme of Education for All (APPEAL)
Darunee coordinates the project, "ICT Application for Non-formal Education Programmes."

E-mail: r.darunee@unescoykk.org



Sheldon Shaeffer

Director of UNESCO Bangkok
Sheldon leads the ICT in Education team, directly coordinating and overseeing the various project components.

E-mail: s.shaeffer@unescoykk.org



Tinsiri Siribodhi

ICT Project Assistant

Tinsiri has over ten years of experience in ICT integration both in the US and in Thailand, as well as a Ph.D. in Educational Technology. Tinsiri assists in the implementation of "Strengthening ICT in Schools and SchoolNet Project in the ASEAN Setting."

E-mail: s.tinsiri@unescoykk.org



Ko-Chih Tung

Asia Pacific Regional Advisor for the UNESCO Institute for Statistics, Coordinator for the Assessment, Information Systems, Monitoring and Statistics Unit (AIMS)
Ko-Chih coordinates the project, "Performance Indicators on ICT Use in Education."

E-mail: kc.tung@unescoykk.org



Cédric Wachholz

Chief, ICT in Education Unit

Cédric plans and co-ordinates the implementation, monitoring and evaluation of projects and activities related to the introduction and use of ICTs in educational programmes throughout the region. He is responsible for the projects: "The Meta-Survey on Effective Use of ICT in Education"; "Strengthening ICT in Schools and Schoolnet in the ASEAN Setting"; "ICT in Education Policies"; and "The Regional Clearing House on ICT in Education for Asia and the Pacific."

E-mail: c.wachholz@unescoykk.org



Maneerat Woramunee

Administrative Assistant

Maneerat is working with Cédric Wachholz and Tinsiri Siribodhi on the ICT in Education projects.

E-mail: w.maneerat@unescoykk.org



