Building national capacities to develop appropriate policies and plans for the integration of ICT into education

Studies conducted over the past few years have shown that unless a specific policy exists and decision-makers have a clear strategy in place, it is difficult to integrate information and communication technologies (ICT) effectively and bring about desired improvements in the reach and quality of education.

Developments in ICT in recent years have brought increasing pressure on decision-makers to acquire new technologies for use in educational settings. At the same time, there is an increasing array of ICT options for decision-makers to choose from when deciding on appropriate forms of ICT for use in teaching and learning. Without a clear strategy, this pressure to acquire ICT and the vast array of choices can lead to confusion and ad hoc decisions.

Recognizing the potential losses from uninformed, uncoordinated decisions, UNESCO seeks to assist policy makers in Member States to become aware of how ICT can enhance teaching and learning in their respective countries, as well as what the pitfalls are, and to support them in developing appropriate national strategies and policies for the integration of ICT into their education systems.

Project

ICT in Education Policy project

Goals

The ICT in Education Policy project began in 2003 and aims to build national capacities to develop appropriate ICT in Education plans and policies.

The project is divided into three phases:

- **Phase I:** Assessment of the needs of policy makers and education planners in the Asia-Pacific region (2003-2004).
- **Phase II:** Development of an ICT in Education Policy Toolkit (2004-2005).
- **Phase III:** Training of policy makers and educational planners to use the Toolkit effectively (2005-2008).

The project is currently implementing its third phase.
Partners

- Japanese Funds-in-Trust
- Knowledge Enterprise Inc.
- The Academy for Educational Development
- The World Bank Information for Development programme

Progress

Facilitation of exchange of ideas and networking

During the first phase of the ICT in Education Policy project, workshops and meetings (including on-line discussions) were held with policy makers from the Asia-Pacific region to share ideas and to determine the needs of policy makers with regard to integrating ICT into education in their countries.

The first meeting, titled the “High-level Seminar and Workshop for Decision-makers and Policy Makers in Asia and the Pacific”, was organized in four phases: two face-to-face meetings in Bangkok and two on-line sessions. Twenty-five Ministry of Education representatives, including several Ministers and Vice-Ministers of Education, from 10 Asia-Pacific Member States, participated in these events.

An important outcome of these meetings was a recommendation that a set of tools be developed to guide policy makers through the policy planning process and provide policy options regarding the use of ICT in education, thereby assisting them to integrate ICT effectively into their education systems. It was agreed that a “Toolkit”, which translated the expertise of key specialists and organizations into guiding principles, and also provided evidence, examples and guidance for the policy development process, would be a valuable resource.
Assessment of policy makers’ needs

In order to prepare the Toolkit, it was necessary to examine the specific requirements of policy makers. A series of questionnaires were delivered and interviews were held with policy makers and planners in the Ministries of Education of UNESCO Asia-Pacific Member States. The results of the survey were documented in a publication titled, *Needs Assessment of ICT in Education Policy Makers in Asia and the Pacific: Towards the Development of a Toolkit for Policy Makers*, published in 2004. The publication was widely disseminated and is also available through the ICT in Education elibrary.

Evaluation of impacts and publication of results

To determine whether the Policy project was on the right track, the impact (in the participating countries) of the initial workshops was assessed in an external evaluation. The results were documented in a publication titled, *Report of the South-East Asian ICT Advocacy and Planning Workshop for Policy Makers and National ICT Coordinators, 15 December 2003 and the Sub-Regional Meeting of National ICT Coordinators on Project Planning and Management, 16-18 December 2003*, published in 2004, disseminated to policy makers, experts and educators, and made available on-line.

Development of a Toolkit for policy makers

The second phase of the project concentrated on developing the Toolkit. A meeting, titled “Developing the ICT in Education Policy Makers Toolkit”, was held in March 2004 which brought together experts in the field to share their ideas and create a framework of the Toolkit.

In March 2005, the first version of the “Toolkit for Policy Makers, Planners and Practitioners” (version 1.1) was reviewed by over 30 participants, including ICT in Education specialists and policy makers from several Ministries of Education in the Asia-Pacific region. Based on the feedback received, Toolkit versions 1.2 and 1.3 came out in April and July 2005 respectively.

The Toolkit was further refined by UNESCO in co-operation with Knowledge Enterprise Inc. (KE), the Academy for Educational Development (AED), and the World Bank Information for Development programme (infoDev), with input from over 40 institutions and individuals worldwide, including the Commonwealth of Learning (CoL); Education Development Centre Inc; North Central Regional Education Laboratory (NCREL); Pacific Resources for Education and Learning Star Schools (PRELStar); the World Bank Institute; and policy makers and practitioners from countries across the Asia-Pacific region.

Based on feedback from policy makers and planners, version 2.0 of the Toolkit was released in April 2007. Version 2.0 features a number of new elements, including a process for planning multiple projects within a single country simultaneously, tools for conducting surveys, an expanded messaging system, tools to assign specific tasks to individual users or teams, additional user support documentation, a streamlined user interface and a variety of security enhancements. Downloadable versions for installation on Ministry of Education servers and a fully functional off-line version (on CD-ROM) will be available in 2008.
Policy makers and planners introduced to the Toolkit and trained in its use

The third phase of the project has involved introducing the Toolkit to education policy makers and planners, and providing training in how to utilize it effectively. During phase three, ongoing revision of the Toolkit will continue, based on feedback from the users.

The first training workshop, convened in September 2005 in Chiang Mai, Thailand, was held to test Toolkit version 1.3. Participants from three Asia-Pacific countries (Pakistan, Philippines and Thailand) attended the workshop.

The workshop participants gave feedback and suggestions for further revising the Toolkit and, following further changes, the Toolkit was introduced to representatives from the Thai Ministry of Education at the UNESCO “Workshop for Educational Planners”, held in Bangkok, Thailand, between 5 and 8 June 2006. The participating policy makers and education planners were introduced to the Toolkit and learned how to apply each tool. In addition, the participants learned how to utilize the Toolkit in revising their ICT in Education Action Plans, which form part of the Thailand National ICT in Education Plan (2007-2011). In their feedback to the workshop organizers, the participants remarked that as a result of the workshop they were in a better position to propose options regarding the integration of ICT into education in Thailand to the Minister of Education, thereby facilitating better-informed decision-making.

The next workshop was a Pacific regional-level workshop, held in Lautoka, Fiji, between 26 and 30 September 2006. The “Capacity Building Workshop” introduced the Toolkit to policy makers and planners from 14 Pacific Island countries (Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, and Vanuatu).

Prior to the workshop, a one-day high-level forum was convened in Nadi, Fiji, which brought together the Ministers of Education from each of the 14 participating Pacific Island countries. This forum aimed to raise awareness among education ministers of the potential benefits of ICT for education and the need for national ICT in Education policies. The Ministers at the meeting agreed to add the issue of ICT in Education to the agenda of the 2006 Pacific Islands Forum meeting which was held in Nadi over the following two days.

Following the Pacific forum and workshop, a series of national-level workshops was begun with the “Capacity Building Workshop Using the ICT in Education Toolkit for Policy Makers, Planners and Practitioners”, held in the Philippines from 21 to 24 November 2006. In 2007, national workshops were held in Indonesia (2 to 6 April), Brunei Darussalam (4 to 7 June), Malaysia (25 to 29 June), India (6 to 9 August) and Vanuatu (27 to 30 August). Similar workshops are planned for other countries of the Asia-Pacific region, including China, Lao PDR, Mongolia and Viet Nam.
The Toolkit training workshops held so far, and the participating countries, are listed in the table below.

### Toolkit Training Workshops and Participating Countries

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Scope of the Workshop</th>
<th>Participating Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 2007</td>
<td>Port Vila, Vanuatu</td>
<td>National</td>
<td>Vanuatu</td>
</tr>
<tr>
<td>August 2007</td>
<td>New Delhi, India</td>
<td>National</td>
<td>India</td>
</tr>
<tr>
<td>June 2007</td>
<td>Penang, Malaysia</td>
<td>National</td>
<td>Malaysia</td>
</tr>
<tr>
<td>June 2007</td>
<td>Gadong, Brunei Darussalam</td>
<td>National</td>
<td>Brunei Darussalam</td>
</tr>
<tr>
<td>April 2007</td>
<td>Bogor, Indonesia</td>
<td>National</td>
<td>Indonesia</td>
</tr>
<tr>
<td>Nov. 2006</td>
<td>Manila, Philippines</td>
<td>National</td>
<td>Philippines</td>
</tr>
<tr>
<td>June 2006</td>
<td>Bangkok, Thailand</td>
<td>National</td>
<td>Thailand</td>
</tr>
<tr>
<td>September 2005</td>
<td>Chiang Mai, Thailand</td>
<td>Regional: Toolkit testing workshop</td>
<td>Pakistan, Philippines, Thailand</td>
</tr>
</tbody>
</table>

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### Greater awareness among decision-makers

Through participation in workshops and exposure to publications detailing the findings and lessons learned, many policy makers in the Asia-Pacific region have been provided with locally-relevant information about the ways in which ICT can contribute to enhancing the quality of teaching and learning in the region, as well as about the potential pitfalls of investing in ICT. Furthermore, through their involvement in the process of preparing and using the Toolkit the capacity of policy makers to develop appropriate ICT in Education policies and strategies has been enhanced. Ongoing activities will expand on these achievements and further build capacity.

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### Plans

- Further national-level training workshops for policy makers and education planners on how to use the Toolkit.
- Ongoing improvement and updating of the Toolkit.
- Development of a printed guide for easy reference by users of the Toolkit.
- Creation of a version of the Toolkit on CD-ROM, for distribution in those countries and areas without reliable internet connection.
- Facilitating of networking through the Toolkit Forum – so as to share knowledge about issues relating to integrating ICT into education in the Asia-Pacific region.

### Further Information

Basic information about the Toolkit can be viewed at the website: ictinedtoolkit.org (please note: full access is restricted to workshop participants). Further information about the Toolkit and requests for full access to the Toolkit website can be made to the Chief of the ICT in Education section. Email: ictinfo@unescobkk.org.

Further information about the project goals and activities is available on-line at www.unescobkk.org/education/ict/policy.

Publications can be accessed through the ICT in Education elibrary: www.unescobkk.org/education/ict/elibrary.
Teacher Education

Building the capacity of teachers to utilize ICT to improve teaching and learning

In recent years, rapid technological and economic developments have brought about significant changes in societies and their associated labour markets, leading to the emergence of knowledge societies and economies. As part of the changes we are experiencing, companies are increasingly seeking employees who have the ability to utilize information and communication technologies (ICT) effectively in their everyday work and who have the skills to maximize the potential of ICT to enhance productivity in the workplace. There is, consequently, an expectation for education systems to produce the appropriately-skilled graduates.

Teachers play a central role in every education system, and the level of preparedness of educators is a key factor determining the quality of education. Given the technological and economic changes taking place, teachers need to take on new roles and develop new abilities. Teachers today need to be equipped not only with subject-specific expertise and effective teaching methodologies, but with the capacity to assist students to develop the skills required to participate in the emerging knowledge-based societies, such as creative problem-solving approaches and new knowledge management strategies. Furthermore, teachers require familiarity with ICT and need to have the ability to use those technologies to enhance the quality of teaching and learning.

Many countries in the Asia-Pacific region have recognized the need to provide teachers with training in ICT and have launched professional development initiatives. Many of the training activities to date have been one-off crash courses, however, which focus on computer literacy and do not enable teachers to integrate ICT in their day-to-day teaching activities and master the use of ICT as an effective tool to improve teaching and learning.

The UNESCO ICT in Education programme has therefore implemented a range of projects with the goal of enabling teachers to use ICT to enhance the quality of teaching and learning. The progress of the two projects that are currently ongoing is described below.

Project A

Training and Professional Development of Teachers and Other Facilitators for Effective Use of ICT in Improving Teaching and Learning

Goals

This ICT in Education Teacher Training project began in 2003 and has involved the co-operation of 11 countries in the Asia-Pacific region, nine of which have had national-level training workshops.
The project involves providing training for teachers and teacher educators in a range of areas, including in how to create lesson plans utilizing ICT, how to utilize educational software to support teaching, and how to use learner-centred and other pedagogical approaches in ICT-integrated classrooms to develop higher-order thinking skills among learners. Sub-projects (of this project) involve producing digital materials for teachers and administrators.  

**Partner**
Japanese Funds-in-Trust

**Progress**

Over 200 teacher educators trained in using ICT in the classroom

Training workshops have been conducted at the national level in nine countries participating in the project, namely in: China, India, Indonesia, Kazakhstan, Malaysia, Mongolia, Philippines, Thailand and Viet Nam.

Between 20 and 30 participants have attended each country workshop. These participants are teacher educators from universities and teacher training colleges. Following the workshops, the participants take what they have learned back to their institutions and schools where they conduct training activities for in-service teachers, resulting in a multiplier effect.

**Teacher guidelines developed for integrating ICT into teaching**

As part of the project, a series of workshops were held to develop guiding principles and models for integrating ICT into teaching, to design a curriculum framework for integrating the use of ICT into teacher education programmes; and to draft performance standards for teacher competencies. The results of the workshop were compiled in a publication titled *Regional Guidelines for Teacher Development for Pedagogy-Technology Integration*, which was widely disseminated to teacher education institutions in the Asia-Pacific region, and can be downloaded from the ICT in Education elibrary.

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1  Note: Please refer to the “Teaching and Learning” section for information about sub-projects related to this project.
Next Generation of Teachers project

Goals

The Next Generation of Teachers (Next Gen) project began in 2006. Ten countries in Asia are involved in the project, namely: Cambodia, India, Indonesia, Lao PDR, Malaysia, People’s Republic of China, Philippines, Sri Lanka, Thailand and Viet Nam. In each of these countries, three Teacher Education Institutes (TEIs) are participating in project activities, making a total of 30 participating TEIs.

The Next Gen project aims to:

- Build the capacity of teacher education institutions (TEIs) in preparing the next generation of teachers in the Asia-Pacific region to utilize ICT judiciously to enhance teaching and learning.
- Improve integration of ICT into education throughout the Asia-Pacific region.
- Encourage more learner-centred methods of instruction in schools.

The three-year project consists of four main phases:

**Phase I:** Project establishment and launching of the project.

**Phase II:** Situation and Needs Assessment of the participating TEIs.

**Phase III:** Development and implementation of activities to address the three key factors for successful integration of ICT into TEIs:

   (i) Leadership and management capacity (Activity: Deans’ forums).

   (ii) ICT-ready curriculum (Activity: curriculum-development workshops).

   (iii) Capacity of instructors to utilize ICT in the classroom and facilitate ICT-enhanced learning (Activity: capacity building workshops).

**Phase IV:** Evaluation of the project and sharing of success stories and problems faced during the implementation phase.

The project has three main target groups, Deans of Education at TEIs; developers of teacher education curricula; and instructors at TEIs.

Partners and Associates

- Microsoft
- Cisco Systems
- Japanese Funds-in-Trust
- SMART Technologies Inc.
- GTCO CalComp Peripherals

Progress

Survey conducted on ICT training for teachers in the Asia-Pacific region

As part of preparations for the Next Gen project, a survey was conducted in 2005 to examine the level of provision of ICT training for teachers, specifically in pre-service teacher education, in six countries...
of the Asia-Pacific region (Cambodia, Fiji, India, Kazakhstan, Mongolia, and the Republic of Korea). The survey examined training in all forms of ICT currently in use in education, including radio, television, video and computers. Aside from training received by teachers in teacher education institutions, the survey also examined whether distance-education programmes were provided. Six country-level case studies were prepared which provide an overview of the state of affairs in the six countries examined as regards pre-service teacher training in ICT. These case studies were published and disseminated via the UNESCO ICT in Education website.

**Consultative meeting to plan project implementation**

Phase I of the project aimed to establish a firm foundation for the Next Gen activities. With this goal in mind, a consultative meeting was held which brought together representatives from Ministries of Education and TEIs from the ten countries in the Asia-Pacific region participating in the project.

The meeting enabled the representatives from the participating countries to consider and discuss the project’s aims and objectives, and was an opportunity to compile information about the current situation in the TEIs in the participating countries regarding ICT integration and learner-centred methods of instruction. The three-day meeting also drew on the participants’ knowledge and experience to further develop and shape the project and its activities, as well as to refine needs analysis instruments. At the meeting, participants signed a Memorandum of Agreement with UNESCO regarding the implementation of the project.

**Additional partners joined the Next Gen project**

The Next Gen project was initiated by UNESCO and Microsoft. Microsoft provides funding, training for teacher educators and other project support. As the project has progressed, new project partners have joined the team. In 2006, Cisco Systems became a project partner. Cisco Systems provides funding and provides trainers to train teacher educators in the use of ICT. Also in 2006, SMART Technologies Inc. pledged to donate a SMART Board™ (interactive whiteboard) to each TEI participating in the project.

To consolidate partnerships and explore further opportunities, a meeting was held at the UNESCO office in Bangkok, in October 2006, which brought together the project partners and other interested organizations. During the meeting, all parties shared information about activities in the area of training teachers in the use of ICT and discussed how each could contribute to Phase II of the project.

In 2007, Japanese Funds-in-Trust (JFIT), the key supporter of UNESCO’s ICT in Education programme, became a partner of the Next Gen project, providing funds for project activities in, and relating to, Sri Lanka. Also in 2007, GTCO CalComp Peripherals pledged to donate an Interwrite™ Pad to all TEIs participating in the project.
A coaching workshop for Thai teacher educators was convened, in co-operation with Chiang Mai University, from 28 August to 1 September 2006. The 25 workshop participants came from the three TEIs in Thailand which are participating in the project: Chiang Mai University, Chulalongkorn University, and Surindra Rajabhat University.

The five-day workshop, which was held in Chiang Mai, Thailand, provided an opportunity for the participating teacher educators to learn to integrate ICT into teaching, and to share ideas on how ICT can be used to facilitate learner-centred instruction. The workshop also provided an opportunity for the project officers of the Next Gen project to gain greater insight into the training needs of teacher educators in Thailand, as part of a needs analysis activity being implemented across all 30 TEIs participating in the project. A resource CD-ROM was prepared for the workshop participants, containing digital materials to support learning.

Phase II of the project focused on assessing the needs of each TEI participating in the project. The results of the needs analysis process assisted UNESCO to make recommendations to the participating TEIs on implementing appropriate planning and human resources training, and will also help each participating TEI by providing a baseline against which to measure their progress.

As part of the needs assessment, three questionnaires were prepared. One questionnaire for principals; one for instructors (teacher educators); and one for students (pre-service teachers). The questionnaires were designed to identify the level of ICT skills, type of ICT use, and the specific needs of each TEI in terms of improving integration of ICT into teaching and learning.

The questionnaires were tested at a workshop in Indonesia in March 2006, and the instruments were further refined by seeking feedback from the participants at the Next Gen Consultative Meeting in May 2006. After the questionnaires were finalized, they were translated into five languages: Thai, Chinese, Bahasa Malaysia, Bahasa Indonesia and Vietnamese.

Between October 2006 and mid-2007 the questionnaires were distributed to the participating TEIs. At each TEI, questionnaires were distributed to the principal and to around 30 instructors and 60 students. Questionnaires were disseminated in three ways: via an interactive website, as a CD-ROM, and in hard copy form.

The responses to the questionnaires and the interviews were compiled and analysed. Needs Analysis reports were prepared for each participating TEI and for each participating country.
Innovative Teachers Conference convened in Cambodia

From 28 February to 2 March 2007, Next Gen project partner Microsoft convened the “Innovative Teachers Conference”, in co-operation with UNESCO. Held in Siem Reap, Cambodia, the conference brought together over 150 teachers and government officials from 22 countries. The Conference was a showcase for the creativity of primary and secondary teachers and aimed to build the capacity of teachers to use ICT to improve learning outcomes. Participants at the conference discussed innovative teaching practices and shared good examples of the use of ICT in classrooms. The teachers also produced ICT-based teaching materials in mixed country teams. The three-day conference was opened by His Excellency Sok An, Deputy Prime Minister, and His Excellency Dr Kol Pheng, Senior Minister for Education, Youth and Sports of the Royal Government of Cambodia.

Forums bring Deans together to plan for institutional change

Two forums have been convened for Deans of Education from the participating TEIs. The first forum was held in Bangkok, Thailand, in May 2007, bringing together Deans of Education from TEIs in Lao PDR, Malaysia, People’s Republic of China, Philippines, Thailand and Viet Nam. The second Deans’ Forum was held in Colombo, Sri Lanka, in June 2007, and included Deans of Education from TEIs in Sri Lanka, India, Cambodia and Indonesia. At these forums, Deans collectively explored the challenges of integrating ICT into teacher education and developed plans for bringing about institutional change in their TEIs.

The Sri Lanka forum was co-sponsored by JFIT, reflecting the Japanese Government’s commitment to building the capacity of Asia-Pacific educators to harness the potential of ICT for enhancing education.

Plans

Workshop for training peers to integrate ICT into education

As part of the Next Gen project, a workshop will be held in co-operation with Microsoft to train teacher educators to act as coaches for their colleagues. As coaches, teachers will assist their peers to develop the technological skills and instructional strategies needed to integrate technologies into teaching, and will enable colleagues to offer students engaging, technology-rich learning activities.
Training for developing an ICT-ready curriculum

A training workshop will bring together curriculum developers from the TEIs participating in the Next Gen project to examine how curricula can be amended to ensure better integration of ICT into teaching and learning. This conference will be a key mechanism for enabling the TEIs to prepare plans for making curricula “ICT-ready”.

In the long term, the 30 participating TEIs will become “Centres of Excellence” in the Asia-Pacific region. These TEIs will then play a key role in multiplying the benefits of the project by training other TEIs in their respective countries and across the region.

Professional development for teacher educators

The Next Gen project will match the needs of the participating TEIs with groups and organizations that have developed ICT training materials and courses for teachers and educators. In particular, the project will organize training sessions to build the capacity of teacher educators. Training will take place through existing programmes implemented by Next Gen project partners, Microsoft and Cisco Systems.

Further Information

Details about the projects are available on-line:

- ICT in Education Teacher Training project: www.unescobkk.org/education/ict/teachertraining/project
- Next Gen project: www.unescobkk.org/education/ict/teachertraining/next_gen

All publications can be accessed through the ICT in Education elibrary: www.unescobkk.org/education/ict/elibrary.

Useful information and links for teachers, trainees and learners can be found at the “Portal for Teachers”: www.unescobkk.org/education/ict/teachertraining/portal.
**Developing and delivering content using ICT**

ICT are more than just technical equipment that students can learn to operate; ICT can be valuable tools in enhancing the reach and quality of education. For example, the use of radio programmes in classrooms can provide interesting and up-to-date content in a range of subjects, including social studies and science; while computer simulations and graphic technologies can help students to learn complex concepts more easily.

An examination of countries in the Asia-Pacific region has shown that in this region ICT is not being used to its full potential in enhancing the quality of teaching and learning. Technical barriers such as lack of infrastructure, equipment and connectivity, along with budgetary limitations, are major factors in preventing many countries of the region from making use of ICT in their education systems. However, in countries where major technical and financial barriers have been overcome and ICT is present in classrooms, other kinds of barriers remain.

In these countries, ICT is often used simply as a supplement for existing pedagogical practices. But in order to fulfil the potential of ICT as a tool for enhancing teaching and learning, ICT must be fully integrated into pedagogical processes. This requires a cognitive shift on the part of educators, curriculum developers, administrators and policy makers.

With the aim of fully integrating ICT into education in the Asia-Pacific region, so as to improve the quality of teaching and enhance learning, the ICT in Education programme has implemented several cross-cutting projects which bring together teacher-training initiatives with schemes to develop locally-relevant content.
The UNESCO SchoolNet project: Strengthening the Use of ICT in Schools and SchoolNets in the ASEAN Context

Goals

The “Strengthening the Use of ICT in Schools and SchoolNets in the ASEAN Context” (UNESCO SchoolNet) project was launched in July 2003 and was implemented in 24 schools in eight participating Association of South-East Asian Nations (ASEAN) countries: Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Thailand, and Viet Nam. The project focuses on three subject areas: science, mathematics and language.

The overall aim of the UNESCO SchoolNet project was to support the development of local and national SchoolNets in the ASEAN region and to facilitate the creation of a regional (ASEAN) SchoolNet.

The project was initiated with the following objectives in mind:

- To explore and demonstrate how ICT could be used in schools to improve the quality and reach of education so as to better prepare youth for the demands of knowledge societies.
- To implement innovative models of ICT use in schools, and encourage better ICT-based teaching and materials development.
- To improve connectivity and access to on-line educational resources, and to encourage sharing of resources.

What is a SchoolNet?

Individual definitions and activities of SchoolNets vary but a SchoolNet can be described, in general, as a network which is set up to support effective use of the information and communication technologies (ICT), particularly the Internet, for enhancing education, and for encouraging greater communication and co-operation among a network of schools.

Partners

- Japanese Funds-in-Trust
- ASEAN Foundation

Progress

In-service teachers trained in integrating ICT into education

As part of the UNESCO SchoolNet project, teachers from the 24 schools participating in the project were trained in four main areas:

1. ICT operational skills and webpage development.
2. Materials development using ICT.
3. ICT-relevant pedagogy.
4. Telecollaboration and SchoolNet network management.
Initially, teachers received training in basic ICT skills and in how to create web pages. Later, as part of materials development training, teachers were assisted to create (in their own languages), plans for lessons that incorporate the use of ICT, and ICT-based materials for teaching language, mathematics and science in secondary schools. The best lessons and materials were translated into English and shared with other schools via the UNESCO ICT in Education website. In subsequent workshops, teachers received training in pedagogical methods, with an emphasis on learner-centred approaches, and received training on telecollaboration and management of SchoolNet networks.

**Teaching-Learning materials compiled and distributed**

Recognizing that educators often lack funds for acquiring good online resources and have little time to evaluate the quality of digital learning resources, the UNESCO SchoolNet project undertook to assess and select educational tools (lesson plans and computer programs) that would be useful for teachers in the Asia-Pacific region. In particular, the project identified digital resources that would be applicable to the science, mathematics and language curricula of the ASEAN countries participating in the SchoolNet project.

Compiled by consultants and reviewed by teachers and curriculum developers, the types of educational software selected included simulations, video clips, quizzes, and animated educational games. In general, the software selected were those which could be used without need for an Internet connection, and which were permitted to be distributed for educational use. The materials were also evaluated by teachers and were tested in schools. When the final selection had been made, the materials were distributed on a CD-ROM titled *ICT Resources for Teaching and Learning of Science, Mathematics and Language*. Accompanying the CD-ROM was a catalogue and guide for teachers which gives a brief explanation of each of the resources on the CD-ROM.

**Telecollaboration activities initiated**

As well as providing teachers with training in how to initiate and participate in telecollaboration activities, the SchoolNet project officers initiated rounds of “Learning Circle” telecollaboration among the 24 participating schools, through the use of the Learning Circle model.

Teachers who participated in the UNESCO SchoolNet Learning Circles telecollaboration activities were generally very positive and saw it as being beneficial for enhancing learning in their schools. These teachers also found telecollaboration to be an effective way of communicating with peers at the national level and strengthening co-operation.
Further lessons-learned compiled, analysed, summarized and published

Following the publication of two books in the "Lessons Learned" series, and the production of a “SchoolNet Toolkit”, a third Lessons Learned volume was compiled which identifies and describes the key processes involved in initiating and managing SchoolNets, drawing on the experiences of the UNESCO SchoolNet project.

This publication, titled *Initiating and Managing SchoolNets*, is aimed at policy makers, educators, inter-governmental organizations, non-governmental organizations, training institutes and educational technology providers which are in a position to initiate, implement and maintain SchoolNets. The examples and information this book contains will also be useful for those interested in learning more about the successes and challenges of ICT use in education in the Asia-Pacific region.

Project B

Sub-projects of the “Training and Professional Development of Teachers and Other Facilitators for Effective Use of ICT in Improving Teaching and Learning” (ICT in Education Teacher Training) project:

- **Resources for educators**
- **Case studies: Using ICT in teacher education.**

Goals

These sub-projects of the ICT in Education Teacher Training project were designed to provide useful resources (relating to ICT use in education) for teachers and other educators.

In recognition of teachers’ need for relevant software and digital teaching resources, the "Resources for educators" sub-project aimed to compile useful resources and distribute them to educators, schools and training institutions.

The "Case studies: Using ICT in teacher education" sub-project aims to compile examples of good practice to serve as inspiration and models for future initiatives in integrating ICT into teacher education, and promote innovative approaches to the use of ICT in teacher education.
Partner
Japanese Funds-in-Trust

Progress

Free resources for teachers and teacher educators developed and distributed

Three CD-ROMs have been developed as part of the “Resources for educators” sub-project. The first CD-ROM contains a selection of free multimedia resources, including clip art, presentation backgrounds and audio clips. Such resources are useful for teachers and teacher educators when creating teaching and learning materials.

The second CD-ROM created as part of the sub-project contains a selection of Free and Open Source Software (FOSS) tools, useful for a variety of contexts. The software on the CD-ROM are divided into the following categories: audio and video; games; graphics; internet; learning; office; and utilities. Each software application has been thoroughly tested and verified by the project officers to ensure its effectiveness and safety. The software have also been checked to make sure that they do not include any viruses, adware, malware or spyware. This CD-ROM may be used and copied freely, and distributed among educators, students, and any others who would like to use it.

The third CD-ROM, titled “Web-tools for Educators”, features a selection of web-based tools that can be used by teachers to enhance teaching and learning, and can be used by educators and administrators to improve productivity and efficiency. This CD-ROM was developed in recognition of the fact that many teachers and administrators are not yet aware of the educational and administrative applications of web-based tools such as on-line forums and picture management software. Such tools are made easily accessible to teachers and administrators via this CD-ROM. Each of the tools or applications contained in this CD-ROM, including blogging, mailing list, and project management software, is described via a short introductory tutorial, followed by a tutorial on the educational and efficiency advantages and uses of the tool. In addition, clear instructions are provided as to how to download and install the tools, making these tools easily usable.

Case studies of teacher education practices compiled

The second sub-project of the “Training and Professional Development of Teachers and Other Facilitators” project involved compiling a collection of case studies describing practices which could serve as inspiration or be replicated elsewhere. Ten case studies have been compiled and have been published on the UNESCO ICT in Education website and in print.

Further Information

For detailed information about these initiatives visit: www.unescobkk.org/education/ict/teachinglearning.

Details about the SchoolNet project can be obtained from: www.unescobkk.org/education/ict/schoolnet.

All publications can be downloaded from the ICT in Education elibrary: www.unescobkk.org/education/ict/elibrary.
Supporting the use of ICT for bringing quality education to out-of-school youth and adults

In many countries of the Asia-Pacific region there is a lack of co-ordination and support for the education of children who drop out of school, and little provision of literacy and continuing education for youth and adults. In view of this situation, UNESCO’s Asia-Pacific Programme of Education for All (APPEAL) supports Member States in their efforts to systematize non-formal education (NFE), and assists them through training personnel and developing learning materials for NFE.

Since the late 1990s, APPEAL has also been promoting the concept of Community Learning Centres (CLCs) for generating grassroots-based interest and participation in literacy, basic education and continuing education activities for disadvantaged people.

Recognizing the potential of ICT to transform the teaching-learning process, as well as its potential in changing the way educators and learners gain access to knowledge and information, APPEAL has developed, through the ICT in Education programme, a project which focuses on using ICT to enhance the reach and quality of teaching and learning in the NFE context.

Project

ICT for Community Empowerment through Non-formal Education

This project began in mid-2003 with pilot activities in five countries: Indonesia, Lao PDR, Sri Lanka, Thailand and Uzbekistan. In 2004, the programme expanded to include pilot projects in the People’s Republic of China, India, Iran, Philippines and Viet Nam. The project ended in mid 2007.
Goal

The project aimed to assist learners in expanding their livelihood opportunities, and improve the quality of life and alleviate poverty among disadvantaged rural population groups through the provision of greater access to NFE programmes and higher quality non-formal education, through the use of ICT tools.

The project made use of a range of ICT tools to improve the quality of teaching and learning in NFE, empower communities, facilitate the sharing of experiences, and enhance policy dialogues. These tools included audio-tapes, CD-ROMs, computers, digital cameras, the internet, radio, mobile vans, television and videotapes.

Partner

Japanese Funds-in-Trust

Progress

Country-level action plans developed and implemented

Participating countries in the “ICT for Community Empowerment through NFE” project gathered together in 2003 to develop specific action plans for their country in terms of using ICT to enhancing non-formal education. These action plans were based on the results of a needs-assessment survey conducted prior to the meeting. The action plans were implemented over the following three years through national-level activities.

Built capacity of non-formal education practitioners

The project built the capacity of NFE practitioners, facilitators, department personnel, and CLC committee members on designing and carrying-out ICT-based NFE programmes through experience-sharing and activity implementation.

Community learning centres supported and enhanced

In Lao PDR, the “ICT for Community Empowerment through NFE” project focused on improving the capacity of CLCs to serve as resource centres for enabling rural youth in Namon Nuea and Chahom villages in Vientiane province to improve their livelihood options and increase their incomes.

The project has provided CLC staff with training in planning and management and in the skills needed to use ICT for such activities as accounting, maintaining a community database, and the marketing of community products, as well as with the capacity to provide local youth and other community members with ICT equipment for accessing news and information about how to improve their life skills and generate income.
CLCs were provided with computers, digital cameras and other ICT equipment to be used for NFE programmes. Similarly, community and government agencies also provided buildings and other materials for the smooth operation of the ICT-based NFE programmes.

Community telecentres established

In Sri Lanka, the "ICT for Community Empowerment through NFE" project has assisted the Sarvodaya Shramadana Movement in establishing telecentres, with the aim of facilitating community development in Rathnapura, Gampaha and Kuliaputiy districts. These community telecentres will serve the Sarvodaya’s village banks as well as six CLCs operated under the NFE Unit of the Ministry of Education.

Other project activities in Sri Lanka include the development of community databases and the dissemination of useful information to villagers and entrepreneurs through Sarvodaya’s Mobile Multimedia Unit, as well as provision of computer training for village bank staff, village volunteers and CLC officials.

Rural communities empowered through provision of ICT skills

In Thailand, under the Northern Regional NFE Centre, the "ICT for Community Empowerment through NFE" project is empowering the members of rural communities who want to use ICT, in particular, computer programs, for facilitating better accounting processes and financial management (both for families and community stores).

The project was initially implemented in Ban Samkha, and was extended to three other villages in Mae Ta district, Lampang province: Ban Tung, Ban Gom and Ban Don Fai. The training was extended by means of ICT laboratories, through which project staff have co-ordinated the sharing of the ICT skills among all residents of the targeted villages.

Various forms of ICT promoted for use in non-formal education

This project promoted and utilized various types of ICT, including radio, television and audio technology, depending on the context and local needs. In the case of activities in Lao PDR, for example, radio technology was used to make educational broadcasts in local languages. In addition, loudspeakers were used in villages to make radio programmes accessible to those who do not own radios.

In India, computers and digital cameras were utilized to improve educational materials development and to enhance education in CLCs. These technologies enabled community members to develop locally relevant and culturally suitable materials more easily and cost-effectively.
CLCs in several countries (Lao PDR, Indonesia and China), use computers and CD-ROMs for some training programmes. At some CLCs skills training is offered using VCDs. The use of visual presentations attracted learners and provided concrete illustrations of the skills to be acquired. VCDs were also useful for self-learning, enabling users to learn at the times and places that suited them. In the case of the Lao PDR and Sri Lanka, mobile training activities, a laptop computer and VCDs were used to provide training on a range of topics. As well as benefiting learners, the adoption of VCD and CD technology has benefited the staff of some CLCs by enabling them to store training and other written materials securely and without needing much space.

- **Databases and networks developed**

Under the project, the National Commission for UNESCO of Uzbekistan is using ICT to assist in developing community databases and documentation for community planning and management. Other activities have included establishing an ICT network among CLCs in the target areas: Samarkand, Andijon and Bukhara, and providing ICT training to all personnel and community people at the project sites. In addition, the project has involved the development of NFE teaching-learning materials using ICT.

- **Workshops convened to share experiences in the use of ICT in CLCs and CMCs**

As part of the ICT for Community Empowerment through NFE project, the APPEAL unit of UNESCO Bangkok convened two workshops to enable representatives from CLCs and Community Multimedia Centres (CMCs) to share their experiences in the use of ICT for non-formal education.

The first workshop was held in Chennai, India, in October 2005, and the second was held in Solo, Indonesia in November 2006. The workshops were organized by APPEAL in co-operation with the Communication and Information section of UNESCO Delhi.

Participants generally agreed that CLCs and CMCs should work closely together in implementing NFE programmes and should make more effective use of ICT tools – not only computers, but also radios, loudspeakers, VCDs, and digital cameras. The workshops mobilized further interest in ICT and fostered collaboration between CLCs and CMCs.
Meeting held to develop a regional ICT pack for non-formal education

From 19 to 23 March 2007, a meeting was held at UNESCO in Bangkok, Thailand, to bring together experts in the field of ICT and non-formal education to prepare a regional ICT pack for use in non-formal education.

Booklet, Resource Pack and Video produced

The outputs of the project include a publication about the use of ICT for community empowerment, a Resource Pack on Literacy and Continuing Education, and a CLC Video.

The experiences and knowledge that each participating country gained as a result of the implementation of the project activities were shared at a regional workshop held in Vientiane, Lao PDR in June 2004. The results were compiled and published in a report titled Information and Communication Technologies for Community Empowerment through Non-formal Education: Experiences from Lao PDR, Sri Lanka, Thailand and Uzbekistan. The report is divided into two parts: the first part contains the country experiences and the second part deals with experiences and findings from the regional level. The report was disseminated to educators, Community-Learning Centres, and Education ministries across the region.

A draft regional ICT Resource Pack was prepared based on the project experiences and various documents of other organizations. In addition, a video was created about the experiences, projects and activities of CLCs in eight countries in the Asia-Pacific region, namely, Bangladesh, Bhutan, Cambodia, India, Mongolia, Myanmar, Philippines and Uzbekistan. The video has been distributed to CLCs and other stakeholders in participating countries in the region.

Further Information

Information about NFE projects, as well as useful resources on ICT and NFE are available through the following website: www.unescobkk.org/education/ict/nfe

Publications on ICT for Non-formal Education can be accessed via the ICT in Education elibrary: www.unescobkk.org/education/ict/elibrary.
Developing performance indicators to monitor and measure the impact of using ICT in education

It is often stated that the use of ICT in education can increase the reach of education, serve as catalysts for change, and empower teachers and learners for better educational outcomes. However, data to support such statements are limited and the data that exist are often unreliable.

Likewise, while it is often noted that ICT can only have educational benefits in certain situations and under certain conditions, there is insufficient empirical evidence to demonstrate how, where and when ICT can bring benefits to education.

Furthermore, projects implemented to integrate ICT into education are often initiated in the absence of internationally accepted standards, methodologies and indicators, making it difficult to subsequently monitor and assess the impact of the use of ICT in education, or to demonstrate its effectiveness to policy makers.

The lack of good quality data and absence of guidelines for collecting data makes it difficult to assess the impact of ICT on education, and therefore hinders the ability of policy makers to make detailed plans for better integration of ICT into education.

In response to this situation, the UNESCO ICT in Education programme initiated a project to develop performance indicators which can be used to monitor and assess the impact of using ICT in education.

Project

Performance Indicators on ICT Use in Education

Goal

This project was initiated in 2002 with the long-term objective being to develop a set of indicators to measure ICT use in education and provide a basis for policy planning and programme improvements. Such indicators would specifically demonstrate if and how the use of ICT is: extending the reach of education, improving education quality, serving as a catalyst for educational change, and empowering teachers and learners. The project ended in December 2006.
Results published and disseminated

The project reports were published and disseminated to other countries, enabling them to develop performance indicators to assess the impact of using ICT in education in their countries. The indicators developed through the project are now referred to as the "Bangkok Indicators" and are being used in several countries in the Asia-Pacific region.

A manual on using the ICT performance indicators in assessing the impact of using ICT in education will be published in due course.
**Plans**

This project ended in December 2006, however in the project’s final report a number of recommendations were made in terms of further refining the performance indicators and ensuring that they are used effectively to monitor and evaluate the use of ICT in education.

- **Design of an analytical scheme**
  Analysis schemes must be designed, starting with the fundamental questions and variables amenable to policy influence. Thereafter, appropriate data collection and processing must be developed.

- **Develop a regional database**
  Such a database would enable access to data and facilitate data analysis by Member States of the Asia-Pacific region.

- **Produce guidelines and templates**
  Guidelines and templates on developing monitoring and evaluation action plans to assess the impact of ICT in education would assist in ensuring that monitoring and evaluation takes place in a systematic and effective manner.

**Further Information**

For more information about these projects please refer to our website: [www.unescobkk.org/education/ict/indicators](http://www.unescobkk.org/education/ict/indicators).

Publications can be accessed through the ICT in Education elibrary: [www.unescobkk.org/education/ict/elibrary](http://www.unescobkk.org/education/ict/elibrary).
**Collecting, creating and disseminating information about the use of ICT in education**

ICT can be a useful tool for achieving the Education for All goals and increasing the quality of education. Investment in ICT can divert scarce resources, however, and even waste resources, if the costs and benefits of using ICT in education are not fully understood and if the type of ICT is not appropriate for local circumstances or is not integrated into education effectively.

For investment in ICT to be worthwhile, decision-makers (including teachers and other staff of schools and colleges; policy makers and planners from Ministries of Education; and officers from organizations implementing projects relating to the use of ICT in education) need to be aware of the experiences of others and be well-informed about “ICT in Education” issues, potential pitfalls and successful strategies.

Much information exists, and more is produced every day, about the issues involved in utilizing ICT in education. Generally, however, policy makers, teachers and managers lack the time required to sort through the vast quantity of information to find what they need in order to come to decisions regarding the use of ICT in their local context. And while problems and success stories exist, many have not been documented and analyzed. Also, there is relatively little information that is relevant to the Asia-Pacific region.

Faced with this situation, the UNESCO ICT in Education programme has implemented projects which ensure that useful information about the use of ICT in education in the Asia-Pacific region is collected, analyzed and is made widely accessible.

**Project A**

**Regional Clearinghouse in Support of the ICT in Education Programme**

**Goals**

Launched in 2003, this project provides research and analytical support for the UNESCO ICT in Education programme, and also serves as a means by which to systematically collect, create and disseminate information about the use of ICT in education in the Asia-Pacific region.

**Partner**

Japanese Funds-in-Trust

**Progress**

- Website maintained and expanded

The ICT in Education website not only describes the UNESCO ICT in Education programme activities, but also provides a means of sharing and disseminating information about other programmes and projects in the region that relate to ICT in Education, and about the issues and lessons-learned.
These databases are a source of reference material for researchers and for those involved in fields such as professional development and training; policy development; educational materials development; and monitoring and assessment of the impact of ICT in improving the quality of teaching and learning.

Key information analysed, repackaged and disseminated via an e-newsletter

Key news and information about policies, projects and resources relating to the use of ICT in the Asia-Pacific region is shared via a regular e-newsletter.

The e-newsletter is sent to a list of over 4,000 subscribers worldwide. Subscribers include educators, principals, administrators, ministry of education officials, and researchers. Distribution of the e-newsletter continues to expand, with new subscribers signing up on-line every day.

Publications developed and disseminated

The Clearinghouse project works in co-operation with other ICT in Education projects to edit and publish books and other materials about project activities and outcomes, and about issues surrounding the use of ICT in education. Recent publications include: *Initiating and Managing SchoolNets* (produced in co-operation with the SchoolNet project) and *Using ICT to Develop Literacy*.

Research results compiled in on-line databases

Through ongoing research and information-gathering, several databases have been established which contain information relating to UNESCO project activities, results and experiences, and also about other ICT in Education activities in the Asia-Pacific region.
Website made available off-line

The content of the ICT in Education website is regularly transferred onto CD-ROMs, so as to make the information available off-line. The CD-ROMs are distributed to schools, teacher-training institutions and other organizations in regions that lack access to the internet (or which have unreliable internet connection).

Plans

Update and expand mailing lists so as to improve distribution networks and ensure that publications and materials are reaching target groups.

Maintain and update web-site and services, including newsletters, data-bases, portal and e-forum.

Produce and disseminate publications relating to project activities and key issues in the use of ICT in education.

Project B

ICT in Education Capacity Building

Goals

This project was initiated in 2007 and aims to gather together and transmit key aspects of the knowledge gained since the start of the UNESCO ICT in Education programme and enable UNESCO to share what has been learned.

The project will produce a series of e-learning modules on the subject of “ICT in Education”. Initially, two “basic” modules will be produced, followed by a series of “intermediate” and “advanced” modules.

The initial modules will establish a common understanding of the main issues and create a basis for discussion and planning among the various actors in the field. Later modules will go into more depth on broad subject-areas (intermediate modules) or will provide detailed information for particular target groups (advanced modules).

Partner

Japanese Funds-in-Trust

Progress

Advice sourced from experts from the ICT in Education field

A meeting was held in March 2007 which brought together 11 practitioners and experts to provide their advice and ideas regarding the project and the planned modules, so as to ensure that the modules are appropriate and effective.
Project C

Innovative Practices in the Use of ICT in Education

Goals

This project, initiated in 2007, aims to identify and reward outstanding examples of the innovative use of ICT in education. The project also aims to disseminate information about these innovative practices and to assist others to benefit from them by conducting training workshops based on selected examples.

Partner

Japanese Funds-in-Trust

Progress

Innovative Practices Awards Announced

In August 2007, UNESCO announced the launch of the UNESCO ICT in Education Innovative Practices Awards.

The Award programme aims to acknowledge and reward innovators who are using ICT to change the way we teach and learn.

Three categories of awards were announced:

- Teachers and teacher educators (in formal education)
- Education planners and administrators
- Non-formal educators

Content for two initial modules prepared

The first two learning modules will introduce the facts and issues relating to the use of ICT in education. The first module will explain the key principles regarding the use of ICT in teaching and learning. The second module will explain the technologies that can be used in education.

The content of the initial two modules was delineated at a meeting in July 2007. The meeting was attended by content experts and representatives from design firms who had submitted proposals to develop the modules. In addition, the outlines for another five modules, on more detailed topics, were prepared.

Plans

Further consultation will be conducted with content experts and design experts to finalize the modules. The initial two modules are due to be released in 2008.

When completed, the modules will be disseminated to Ministries of Education and to international organizations involved in promoting the effective use of ICT in education.

Proposals sourced from software design companies

In May 2007, UNESCO announced that it was seeking proposals from professional courseware developers to prepare a computer-based learning program (on CD-ROM), complete with audio, graphics and video. The response was enthusiastic, with 15 companies submitting proposals for developing the modules. A courseware development company was chosen and the preparation of the course will begin once the content of the modules is finalized.
In early 2008, one winner will be selected from each category by a panel of judges. Each of the three winners will receive a certificate and an award. All entries demonstrating unique use of ICT will receive a commendation and all entries of merit, winners and non-winners alike, will be posted on UNESCO Bangkok website. Winners will be invited to an Awards Ceremony, to be held in Bangkok, Thailand.

**Plans**

- Identification and documentation of exemplary innovations and case studies.
- Dissemination of case studies via website and print publications.
- In 2008, training workshops will be conducted to showcase selected innovative practices and enable others to learn about and benefit from these innovations.

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**Project D**

**ICT in Education Knowledge Communities Project**

**Goals**

Initiated in 2006, this project aims to maintain an on-line ICT in Education community, an interactive forum where educators, teachers, administrators and policy makers can share their opinions and discuss topics relating to the integration of ICT into teaching and learning.

**Progress**

- **Technical preparations made and forum topics chosen**

  In early 2007, preparations were made to set up the on-line forum. First, an appropriate and affordable web-based tool was identified. This was then modified and formatted to suit the requirements of the on-line forum. Once the tool had been set up, a forum moderator was appointed and forum topics were chosen.

**On-line forum launched**

In July 2007, the on-line forum was officially launched and opened to the public. Members of the on-line community have the opportunity to share their knowledge about the use of ICT in education, to discuss recent developments, and to announce events and conferences. They are also able to review and exchange teaching materials, such as lesson plans, training guidelines, and toolkits with other participants. Participants also benefit from the possibilities of expanding their networks, meeting interesting people and building partnerships through the forum.

**Plans**

- The on-line forum will branch into new subject areas and themes as more participants join and contribute.
- As the knowledge community expands, opportunities will be provided for members to communicate on-line in languages other than English, so as to facilitate national-level networking and knowledge sharing.

**Further Information**

Please refer to the ICT in Education website for information about the projects and activities: [www.unescobkk.org/education/ict](http://www.unescobkk.org/education/ict).

Publications can be accessed through the ICT in Education elibrary: [www.unescobkk.org/education/ict/elibrary](http://www.unescobkk.org/education/ict/elibrary).