

# Announcement

News on ICT in Education

## Highlight

### **UNESCO Bangkok releases ICT in Education Capacity Building Modules on CD-ROM**

UNESCO Bangkok with funding from Japanese-Funds-In-Trust (JFIT) recently published an e-learning CD-ROM containing two modules: Module 1; ICT in Education Essentials, and Module 2; ICT in Education Decision Making.

## News & Events

### **Call for Papers – Deadline 1 August 2009**

The 13th UNESCO-APEID International Conference, in conjunction with the World Bank-KERIS High Level Seminar on ICT in Education, emphasizes the powerful role ICT can play in changing the way we teach and learn. The conference, which will be held 15-17 November 2009, in Hangzhou China, will provide a forum to explore, identify and synergize innovative approaches for harnessing the potential of ICT to increase the reach and quality of education.

### **4th Deans Forum – The Next Generation of Teachers Project**

UNESCO Bangkok is continuing to support a network of teacher education institutions (TEIs) in the Asia-Pacific region to build their capacity to prepare the next generation of teachers that are confident to use technology. The key word here is “institutional capacity”, which is the reason why the heads of institutions, specifically deans, gathered from 29-30 June in Bangkok.

### **Networking the networks**

UNESCO Jakarta organized an Expert Meeting on the Utilization of ICT Research and Education Networks for Higher Education in Asia and the Pacific in June 2009 in Bali, Indonesia to facilitate the exchange of information about networks and explore how they can support collaborative research and enhance the development, sharing and delivery of content for e-learning programmes and courses.

### **Photo contest on promoting gender equality in education**

The contest aims to demonstrate “gender equality in action” through the medium of photography to contribute to a better understanding of what gender equality to education, in education, and through education may mean to all of us.

### **UN launches remote training on information communication technology for development**

UN hub for ICT human capacity building marks its third anniversary with an online training programme for policymakers.

### **Everyone must help eliminate cyber hatred, says UN Secretary-General**

According to the Secretary-General of the United Nations Ban Ki-Moon, parents, the Internet industry and policy makers all have a role to play in eliminating hate speech from cyberspace.

## Programmes & Projects

### **E-learning for kids**

E-learning for Kids is a global, non-profit foundation dedicated to fun and free

learning on the Internet for children ages five - 12. The learning is provided by short courses and they are available in the subject areas of Science, Mathematics, Language Arts, English language, Health and Life Skills, and Computer skills.

## **Resources**

### **Open Educational Resources: Conversations in Cyberspace**

This publication brings together the background papers and reports from the first three years of activities in the UNESCO and OER Community

### **The case of the occasionally cheap computer: Low-cost devices and classrooms in the developing regions**

This article examines the experiences of low-cost computing projects in developing regions and looks at some of the common entrepreneurial and technical problems faced by past and current initiatives.

### **The conditions and level of ICT integration in Malaysian Smart Schools**

The primary function of this qualitative study was to describe the conditions that facilitated the implementation of ICT integration in the Malaysian Smart School and the problems that emerge during the process of integration.

### **Theory Into Practice (TIP) database**

A website which contains descriptions of over 50 theories relevant to human learning and instruction.

### **The Chemistry Collective**

A collection of virtual labs, scenario-based learning activities, and concepts tests which can be incorporated into a variety of teaching approaches as pre-labs, alternatives to textbook homework, and in-class activities for individuals or teams.

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## **Highlight**

### **UNESCO Bangkok releases ICT in Education Capacity Building Modules CD-ROM**

Education. Technology. 21st Century. {still comprehensible} Wikis. Blogs. Twitter.

UNESCO Bangkok with funding support from Japanese-Funds-In-Trust (JFIT) has recently published an e-learning CD-ROM containing two modules.

- Module 1: ICT in Education Essentials: provides learners with essential information about ICT in education and aims to promote common understanding about the topic in the education sector.
- Module 2: ICT in Education Decision Making: helps learners to consider the different factors involved in choosing the appropriate technology to use in a particular education setting. The two modules were especially designed for policymakers, educational planners, school administrators, education specialist and educators, in general.

Both modules are lively, colorful and highly interactive. According to one person's feedback: "I only planned to see a few screens to see how it looks. Then I got

hooked and ended up completing the two modules which lasted for about an hour.” Another said: “This is very informative. Now I understand more about ICT in Education. I will recommend this to my other colleagues.” The rationale for producing this CD is pretty simple; UNESCO Bangkok wants to promote and raise awareness on ICT in Education but it is impossible to reach everyone and invite them to attend workshops. The only way to do this is to use ICT itself. Practice what you preach!

You can obtain copies of the CD (maximum of five CD-ROMs) by sending a request to: [ictinfo@unesco Bangkok.org](mailto:ictinfo@unesco Bangkok.org). After completing the course, you will be able to print a certificate, which you can send to UNESCO Bangkok and your name will be posted onto our website. By this, we hope to raise the level of awareness and build a network of people working in the education sector that have a common understanding of how technology can help education in the Asia-Pacific region and beyond.

**Further information:**

- [Capacity Building Project](#)

**Related links:**

- [UNESCO Bangkok ICT in Education Programme](#)
- [UNESCO-SALIS e-learning portal for awareness raising on information literacy for Southern Asia](#)
- [Education for a digital world](#)
- [The future of online learning: Ten years on](#)
- [An administrators' guide to interactive learning](#)

**Previous issues of the e-newsletter:**

- [UNESCO "ICT in Education" Announcement e-newsletter](#)

**What do you think about this topic?**

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**News & Events**

## **Call for Papers – Deadline 1 August 2009**

### **13th UNESCO-APEID International Conference** World Bank-KERIS High Level Seminar on ICT in Education ICT Transforming Education

15-17 November 2009  
Hangzhou, People's Republic of China

#### **Mark your calendar!**

Are you planning to submit an abstract for this conference? Do you want to take advantage of the early bird registration fees? If yes, remember these dates:

- Submission of abstract: 1 August 2009
- Payment of early bird registration fees: 31 August 2009

The 13th UNESCO-APEID International Conference, in conjunction with the World Bank-KERIS High Level Seminar on ICT in Education, provides a forum for participants to share experiences on how they can use ICT to transform educational systems and increase the reach and quality of education.

The organizers – the Asia-Pacific Programme of Educational Innovation for Development (APEID) of UNESCO in Bangkok, the National Commission of the People's Republic of China for UNESCO, the World Bank and the Korea Education and Research Information Service (KERIS) – invite papers on the following topics:

- Developing ICT in Education Policies and National Master Plans
- Promoting Effective Management and Applications of ICT in Schools
- Improving Quality and Efficiency of Higher Education through ICT
- Enhancing Innovations in Open and Distance Learning
- Preparing the Next Generation of Teachers
- Using ICT to Promote Literacy and Life-long Learning
- Monitoring and Measuring Impact of ICT in Education

Submit English abstracts, no longer than 200 words, on forms available from the conference website at <http://www.unescobkk.org/education/apeid/conference/china> by 1 August 2009.

#### Conference Fees

International participants	USD\$ 350
Early bird*	USD\$ 250
Group registration**	USD\$ 250 each

\* Payment for early bird must reach the Conference Secretariat by 31 August 2009

\*\* For five or more individuals from the same organization/institution

Send bank draft payable to “UNESCO”  
UNESCO-APEID International Conference Secretariat  
UNESCO Bangkok  
920 Sukhumvit Road  
Bangkok 10110, Thailand

For more information and to register for the conference, visit <http://www.unescobkk.org/education/apeid/conference/china>.

**Further information:**

- [13th UNESCO-APEID International Conference on Education and World Bank-KERIS High Level Seminar on ICT in Education](#)

**Related links:**

- [ICT in Education - UNESCO Bangkok](#)

**Previous issues of the e-newsletter:**

- [UNESCO "ICT in Education" Announcement e-newsletter](#)

**What do you think about this topic?**

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**Fourth Deans Forum – The Next Generation of Teachers Project**

UNESCO Bangkok, with funding support from the Japanese-Funds-in-Trust (JFIT), is continuing to support a network of Teacher Education Institutions (TEIs) in the Asia-Pacific region to build their capacity to prepare the next generation of teachers that are confident to use technology. The key word here is “institutional capacity”, which is the reason why the heads of institutions, specifically the deans are gathering for this meeting.

The Fourth Deans’ Forum, sponsored by Microsoft, welcomed back 15 TEIs that originally participated in the project from 2006-2008 and introduced 27 new members that are eager to join the Next Gen network. There was an increase in participation from 2006-2008 that attracted 30 institutions and 10 countries, to 42 institutions and 15 countries this year.

Given the international nature of the meeting, sharing of experiences topped the agenda. Presentations from 15 TEIs gave a special focus on institutional changes that have happened, or are still happening as a result of their participation in the Next Gen project. Many TEIs have introduced training seminars and follow-up activities to Microsoft’s Peer Coaching Programme. Other institutions systematized the offer of ICT courses either by integrating it in the various subjects, or making it a separate subject. A few were successful at achieving “institutionalization” by selling their ideas to top level decision makers in their institutions and making it a part of their institutional development plan. There were even innovative initiatives such as using the peer-coaching approach to interactive whiteboard training. In other words, it was a productive sharing exercise that left many deans and senior

representatives of TEIs from 15 countries reflecting on the state of their institutions compared to others.

The second major agenda was “planning together” with UNESCO Bangkok. UNESCO Bangkok and partners such as Microsoft and Intel presented various activities the TEIs can participate in. There was a curriculum development workshop, ICT-pedagogy integration workshops, Peer Coaching Programme, TEI toolkit development and Intel Teach Programme available. After each TEIs identified their needs or interests, each country was asked to come up with “country action plans” to help UNESCO Bangkok and partners plan the next two years in the most efficient way. However, given the high demand for activities/ assistance but with meagre resources, TEIs were also requested to identify complementary institutional resources, financial or otherwise, to show their commitment as a partner.

The Fourth Deans Forum took place at the Imperials Queens’ Park Hotel in Bangkok, Thailand 29-30 June 2009. For more information, such as minutes of the meeting, power point presentations, pictures and a list of participants, visit the project website.

**Further information:**

- [4th Deans’ Forum - Scaling Up of the Next Generation of Teachers Project](#)

**Related links:**

- [Next Generation of Teachers Project](#)
- [Developing ICT curriculum for the next generation of teachers](#)
- [Next generation of teachers from the Asia-Pacific successfully trained in integrating ICT into teaching](#)
- [Workshop on developing teachers' skills in integrating ICT into teaching to be held in Brunei](#)
- [Deans of Education meet in Perth to strengthen partnerships between teacher education institutions](#)
- [Forum to bring together Deans of Education from across the Asia-Pacific region](#)
- [Educators share experiences at China workshop on integrating ICT into teaching](#)

**Previous issues of the e-newsletter:**

- [UNESCO "ICT in Education" Announcement e-newsletter](#)

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### Networking the Networks

What does “network” mean to you?

For some it is about people communicating with people, interactions and building relationships. For others it is about technology linking people to people, connectivity and transmission through satellite, cables and gateways.

These two perspectives emerged at the Expert Meeting on Utilization of ICT Research and Education Networks for Higher Education in Asia and the Pacific in June 2009 in Bali, Indonesia. Organized by the UNESCO Regional Science Bureau for Asia and the Pacific in Jakarta, the meeting facilitated the exchange of information about networks and explored how they can support collaborative research and enhance the development, sharing and delivery of content for e-learning programmes and courses. The networks represented at this meeting included:

- INHERENT (Indonesian Higher Education and Research Network)
- MYREN (Malaysian Research Network)
- ThaiSARN and UniNet (Thai National Research and Education Network)
- PREGINET (Philippines National Research Network)
- APAN (Asia-Pacific Advanced Network)
- TEIN (Trans-Eurasia Information Network)
- GDLN (Global Distance Learning Network)
- SOI Asia (School of Internet Asia)
- AVIST (ASEAN Virtual Institute of Science and Technology)

About 20 participants attended the meeting. The agenda included (i) presentations from Philippines, Indonesia, Thailand and Malaysia about their national initiatives on science education and distance learning programmes; (ii) presentations from SOI Asia, TEIN3, INHERENT, MYREN, UNINET and PREGINET; and (iii) presentations from UNESCO Jakarta, UNESCO Bangkok and ASEAN.

One immediate outcome from the meeting was the establishment of a network that will accommodate the broad spectrum of networks and networking. The group is preparing a brief outline and a catchy name to capture the essence of this network which aims to create an effective channel for academics, researchers, technical professionals and network operators to contribute to, and support higher education and research as widely as possible.

If you are interested in joining this network, do send a message to [asia-rens@googlegroups.com](mailto:asia-rens@googlegroups.com).

For more information, contact Lay Cheng Tan [lc.tan@unesco-bkk.org](mailto:lc.tan@unesco-bkk.org)

**Further information:**

- [ICT for Accessible, Effective and Efficient Higher Education](#)

**Related links:**

- [UNESCO Jakarta](#)
- [First international symposium brings together major global networks for innovation in education](#)
- [International conference on knowledge networking concluded in India](#)
- [Great expectations of ICT: How higher education institutions are measuring up](#)
- [International Symposium on ICT in Education](#)

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- [UNESCO "ICT in Education" Announcement e-newsletter](#)

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**Photo contest on promoting gender equality in education**

UNESCO Bangkok, along with the United Nations Girls' Education Initiative (UNGEI) East Asia and Pacific (EAP) and South Asia (SA), are pleased to announce a photo contest under the theme of "Reversing Realities: Seeking Gender Equality in Education." The contest aims to highlight "gender equality in action" through the medium of photography to give a better understanding of what gender equality to education, in education and through education, may mean to us.

Photo entries, based on the criteria outlined in the attached brochure, must be sent to UNESCO Bangkok by 31 July 2009. Judging will take place at UNESCO Bangkok and 13 winning photos will be featured in the UNESCO Bangkok and UNGEI(EAP and SA) combined Gender in Education Calendar 2010, which will be widely distributed in the Asia-Pacific Region and beyond. The winning photos will also be featured on the organisers' respective websites. The winners will be



announced in September 2009. Each winner will receive an official certificate of merit.

**Further information:**

- [Photo Contest 2009 for Promoting Gender Equality in Education](#)

**Related links:**

- [Gender and ICT](#)
- [Technology-based vocational skills training for marginalized girls and young women](#)
- [Gender and ICTs for Development: A Global Source Book](#)
- [From veil to camera: Empowering women through skills training](#)

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**UN launches remote training on information communication technology for development**

In its continuing efforts to promote the use of information and communication technology (ICT) as a tool of development through human capacity building, a United Nations training centre has launched an online training programme designed to provide policymakers with the necessary tools to effectively embrace new technologies.

The United Nations Asian and Pacific Training Centre for Information and Communication Technology for Development ([APCICT](#)) celebrates its third anniversary with the launch of the APCICT Virtual Academy, an online distance learning platform for the “Academy of ICT Essentials for Government Leaders.” The Academy is APCICT’s flagship training curriculum that aims to provide a comprehensive understanding of the ways in which ICTs can be effectively used to develop societies and achieve the Millennium Development Goals.

In an increasingly digital and inter-connected global environment, it is more important than ever that policymakers are empowered to make timely and

appropriate decisions in the choice and adoption of relevant ICT tools for sustainable development.

“The APCICT Virtual Academy is designed to reach millions of decision makers that are not able to participate in face-to-face training due to resources or time constraints,” said Hyeun-Suk Rhee, Director of APCICT. “Our aim is to help nations embrace the opportunities available through the use of ICT for social and economic development, as well as promote continuous learning.”

The Virtual Academy facilitates learning by providing easy-to-follow virtual lectures with quick quizzes. Registered learners are rewarded APCICT’s certificate of participation upon successful completion of courses.

The Virtual Academy’s courses - developed and peer reviewed by prominent ICT for development experts - include: the linkages between ICT and the Millennium Development Goals; ICT policy and governance; e-government applications; ICT trends; Internet governance; network and information security and privacy; ICT project management in theory and practice; and options for funding ICT for development.

These courses are being regularly updated to ensure their relevance to policymakers, and new courses that focus on ICT for the 21st century will be added. A DVD version of the APCICT Virtual Academy is available for those with no, or limited Internet access.

**Further information:**

- [APCICT Virtual Academy](#)

**Related links:**

- [United Nations Asian and Pacific Training Centre for Information and Communication Technology for Development](#)
- [UN teams up with Indonesia to develop ICT training in the country: First four workshops in the national language to take place in Bali and Jakarta](#)
- [UN works with Mongolia to close the digital-divide](#)
- [UN ESCAP's ICT training centre launches three new initiatives to bridge the digital divide](#)
- [UN launches new training course to help Asian developing countries use ICT](#)

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- [UNESCO "ICT in Education" Announcement e-newsletter](#)

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### **Everyone must help eliminate cyber hatred, says UN Secretary-General**

According to the Secretary-General of the United Nations Ban Ki-moon, parents, the Internet industry and policy makers all have a role to play in eliminating hate speech from cyberspace.

“Some of the newest technologies are being used to peddle some of the oldest fears,” Mr Ban said at a seminar in New York entitled “Cyberhate” – the latest in an ongoing series on combating intolerance, organized by the UN Department of Public Information (DPI).

“We have seen it time and again,” he said, “targeting innocents because of their faith, their race, their ethnicity, their sexual orientation.”

The secretary-general said everyone has a role to play in eliminating cyber hate. Parents have a responsibility to teach their children to safely surf the net, he said. The Internet industry can help ensure that hate speech does not proliferate online, and policy makers must “take a hard look at this problem and work to safeguard people while balancing basic freedoms and human rights”.

Other speakers at the full-day gathering were Kiyo Akasaka, Under-Secretary-General for Communications and Public Information; Hemanshu Nigam, Chief Security Officer, News Corporation and MySpace; and Marta Santos Pais, the Special Representative of the Secretary-General on Violence against Children.

The UN began the “Unlearning Intolerance” series in 2004 with discussions of anti-Semitism and Islamophobia, and has continued the programme with lectures and seminars since then.

#### **Further information:**

- [Secretary-General's remarks at seminar on cyberhate](#)
- [UN News Centre](#)

#### **Related links:**

- [Internet safety technical task force releases final report on enhancing child safety and online technologies](#)
- [ITU launches initiative to protect children online](#)

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- [UNESCO "ICT in Education" Announcement e-newsletter](#)

### **What do you think about this topic?**

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### **Programmes & Projects**

#### **E-learning for kids**

E-learning for Kids is a global, non-profit foundation dedicated to fun and free learning on the Internet for children ages five-to-12. The learning is provided by short courses and are available in Science, Mathematics, Language arts, English language, Health and Life Skills, and Computer skills. Each course lasts between 20 to 30 minutes and most are available in Spanish, French, Portuguese and Chinese, in addition to English. The developers of the course are experts in the field including learning professionals, instructional designers, graphic artists, programmers, voice over specialists, and quality assurance personnel in order to provide best-in-class learning.

In order to reach children in areas with poor infrastructure, the courses are available not only online, but also offline with downloadable links, using CD Roms. As a result of the partnerships, last year more than one million children in 80 countries benefitted from one or more e-Learning for Kids courses.

The comparative advantage of this e-learning website compared to other sources seems to be the involvement of a wide variety of experts and people with a passion for quality education for children. E-learning for Kids is a site where:

- Parents can get more engaged in their childrens' education;
- Educators and experts can champion e-learning and contribute their knowledge on how children can learn more efficiently;
- Commercial education and game developers can contribute to the next generation;
- Corporations and associations can channel their social responsibility efforts; and,
- People with a passion for childhood education can make a difference.

In addition, the concern for the holistic development of children is mirrored in the extensive courses available on health and life skills. The wide selection of topics includes cancer, depression, relationships, epilepsy, etc. Many of these are difficult topics to introduce to children because they are too technical or too sensitive, but the use of animation makes the courses child-friendly.

Meanwhile, a community for parents and educators to share innovations and insights into childhood education is being built through social networking (<http://elearningforkids.ning.com/>).

**Further information:**

- [e-Learning for Kids](#)

**Related links:**

- [A journey of hope ... A new way of learning through ICT in Education](#)
- [Learn English Kids](#)
- [Technology-enhanced learning in developing nations: A review](#)
- [Top 10 web 2.0 tools for young learners](#)
- [Education for a digital world](#)

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**Resources**

**Open Educational Resources: Conversations in Cyberspace**

UNESCO's first openly licensed publication: "Open Educational Resources: Conversations in Cyberspace" brings together the background papers and reports from the first three years of activities in the UNESCO OER Community. Access the online edition – or buy the book!

Education systems today face two major challenges: expanding the reach of education, and; improving its quality. Traditional solutions will not suffice, especially in the context of today's knowledge-intensive societies.

Open Educational Resources (OER) offers one solution for extending learning opportunities. The goal of the OER movement is to equalize access to knowledge worldwide through sharing online high quality content. Open Educational Resources are digitalized materials offered freely and openly for use and reuse in teaching, learning and research.

Since 2005, UNESCO has been at the forefront of building awareness about this movement by facilitating an extended conversation in cyberspace. A large and diverse international community has come together to discuss the concept and potential of OER in a series of online forums.

The background papers and reports from the first three years of discussions are now available in print. *Open Educational Resources: Conversations in Cyberspace* provides an overview of the first steps of this exciting new development: it captures the conversations between leaders of some of the first OER projects, and documents early debates on the issues that continue to challenge the movement. The publication will provide food for thought for all those intrigued by OER – its promise and its progress.

*Open Educational Resources: Conversations in Cyberspace* is UNESCO's first openly licensed publication – an indication of the commitment the organization has to sharing knowledge and the free flow of ideas.

**Read the publication:**

- [Open Educational Resources: Conversations in Cyberspace](#)

**Related links:**

- [Why give knowledge away for free? The case for open educational resources](#)
- [UNESCO, U.S. Library of Congress and partners launch World Digital Library](#)
- [Reflections on sustaining Open Educational Resources: an institutional case study](#)
- [UNESCO publishes a book on Open Access to Knowledge in South Asia](#)
- [UNESCO Open Training Platform turns one year old](#)
- [UNESCO report on advancing Open Educational Resources released](#)
- [Open University offers access to free online learning](#)
- [Technology alone will not bridge knowledge divides](#)

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- [UNESCO "ICT in Education" Announcement e-newsletter](#)

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### **The case of the occasionally cheap computer: Low-cost devices and classrooms in the developing regions**

The quest for the low-cost computer has been one of the most significant pursuits of ICTD since the 1990s. This article published by Joyojeet Pal et. Al. examines the experiences of low-cost computing projects in developing regions and looks at some of the common entrepreneurial and technical problems faced by past and current initiatives. Focusing specifically on the domain of education, we look at the quest for low-cost devices and consider their economic and socio-cultural appropriateness to the typical classroom in the developing world. Using field studies and interviews conducted in rural Indian classrooms, we show that shared rather than single-user devices constitute a more realistic and sustainable approach for low-cost computing projects targeting children's education.

#### **Read the article :**

- [The case of the occasionally cheap computer: Low-cost devices and classrooms in the developing regions](#)

#### **Related links:**

- [Quick guide: Low-cost computing devices and initiatives for the developing world](#)
- [Desktop virtualization as means of providing low-cost computers for schools](#)
- [Pacific ICT Ministers set priorities to "connect the unconnected"](#)
- [Publication of practical guide to computer recycling](#)

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- [UNESCO "ICT in Education" Announcement e-newsletter](#)

### **What do you think about this topic?**

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## **The conditions and level of ICT integration in Malaysian Smart Schools**

This qualitative study attempts to describe the conditions that facilitated the implementation of Information Communication Technology (ICT) integration in the Malaysian Smart School and the problems that emerged during the process of integration. Twenty one people were interviewed and based on data analysis, two sets of conditions were revealed: the essential conditions; and the supporting conditions. The findings also revealed that teachers in the study employed four levels of approaches in integrating ICT in the schools. Time, course content and technical malfunction were found to be the main problems that teachers faced during this process.

### **Further information:**

- [The conditions and level of ICT integration in Malaysian Smart Schools](#)

### **Related links:**

- [Malaysian Smart schools shaping up well](#)
- [Malaysian Smart Schools Project](#)
- [Malaysia: ICT education for a “creative society”](#)

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- [UNESCO "ICT in Education" Announcement e-newsletter](#)

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## **Theory Into Practice (TIP) database**

The Theory Into Practice (TIP) database contains descriptions of over 50 theories relevant to human learning and instruction. Each description includes the following sections: overview, scope/application, example, principles, and references. Relationships between theories are identified by highlighted text within articles. These relationships can be connections between specific theories or concepts that underlie a number of theories. The theories are also indexed according to content domain and type of learning.

Theories were selected for inclusion in the database based upon their relevance to some aspect of human learning and instruction. All theories come from published literature (English language only). Theories that focus on animal learning,



neuropsychology, learning disabilities or teaching strategies are not included. The database also does not include theories of learning that have limited scientific support (see Druckman & Swets, 1988; Druckman & Bjork, 1991) or are primarily philosophical in nature (e.g., Dewey, Freire, Illich, Polanyi).

In cases where there are a number of researchers associated with a theoretical framework, the version associated with the originator or most prominent researcher is presented. The descriptions of theories provided in each article, including the examples and principles, were developed from the analysis of secondary sources as well as the primary works of the theorists. These secondary sources include: Bugelski (1971), Hilgard & Bower (1971), Klausmeier & Goodwin (1975), Lefrancois (1995), Reigeluth (1983), Richey (1986), Sahakian (1976), and Snelbecker (1974).

One important consideration to keep in mind when reading the articles is that theories evolve over time. The descriptions herein present theories at a particular stage of development (usually their most well-known form). Furthermore, almost all of the theories discussed are substantial; the brief summaries provided only outline basic ideas and implications. TIP is intended to be a guide that identifies theory relevant to particular instructional settings. Further examination of primary or secondary sources will be necessary to understand a given theory in detail. Online access to many of the original articles by theorists can be found at <http://psychclassics.yorku.ca/topic.htm>.

**Further information:**

- [Theory Into Practice \(TIP\) database](#)

**Related links:**

- [Learning Theories](#)
- [Technology alone will not bridge knowledge divides](#)
- [Bloom's Taxonomy and the digital world](#)

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**The Chemistry Collective**

The Chemistry Collective is a collection of virtual labs, scenario-based learning

activities, and concepts tests which can be incorporated into a variety of teaching approaches as pre-labs, alternatives to textbook homework, and in-class activities for individuals or teams. It is organized by a group of faculty and staff at Carnegie Mellon University for college and high school teachers who are interested in using, assessing, and/or creating engaging online activities for chemistry education.

**Further information:**

- [Chemistry Collective](#)

**Related links:**

- [neoK12 – educational videos and lessons for K-12 school kids](#)
- [How science works: Bringing the world of science into the classroom through innovative student-centred multimedia approaches](#)
- [Scratch - a programming language with learning and education in mind](#)

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