Highlight: Teachers’ Community of Practice

A community of practice for teachers in a networked society
A series of training workshops organized by UNESCO Bangkok with the same group made the participants form a community of practice. The main idea of the project was the application of project-based learning pedagogy and telecollaboration platforms to enable participants from different institutions and countries to design and implement projects together beyond the confines of their classrooms.

Regional seminar on ICT integration sees revitalized network of UNESCO Resource Centres
During a regional meeting of teachers and teacher educators held 9-11 October 2013 in Penang, Malaysia, UNESCO Bangkok and their partners revitalized an existing network of teacher education institutions from the Asia and Pacific region. The UNESCO Resource Centres will serve as national or regional focal points for distributing UNESCO ICT on Education resources, training teachers and teacher educators and advocate the effective integration of ICT in Education.

News & Events

Case studies on integrating ICT into teacher education curriculum in Asia
This new publication released by UNESCO Bangkok illustrates step-by-step processes of how a Teacher Education Institution developed and implemented its ICT-related curriculum. Each case study from across the region introduces diverse approaches to developing a new ICT curriculum or revising existing ones and addresses challenges and lessons learned from their first-hand experiences.

New European STEM teacher professional development project
A new project aims to develop and strengthen STEM (science, technology, engineering, and math) teaching at the secondary level by making greater use of inquiry-based learning and hand-held learning technologies, and space exploration as the ‘hook’ for enthusing youth to study STEM subjects. Supported by project staff, European teachers will build a community of practice of STEM subject teachers to cascade information about the project and the teaching methods and material developed.

Five new African countries receive funding from China for improving teacher education through ICT
The four-year UNESCO-China Funds-in-Trust (CFIT) project, launched in 2012, is starting its second year, enhancing the capacity of local Teacher Training/Education Institutions through information and communication technology (ICT) in eight African countries.

The ICT opportunity for a disability-inclusive development framework: New action-oriented report
A new framework, which was released last month at the High-level meeting of the General Assembly on Disability and Development (HLMDD 2013) in New York, contributes to a better
understanding of the extent to which ICTs enable and accelerate the social and economic inclusion of persons with disabilities.

Programmes & Projects

Helping educators thrive in a connected world

Connected Educators project helps educators thrive in a connected world, through seeking to understand and promote educators learning and collaborating through online communities of practice and social networks. This mission is pursued by conducting research, professional development and outreach to the communities.

Resources

Teacher educators as learners: Enabling learning while developing innovative practice in ICT-rich education

It’s time for teachers to consider themselves as learners in ICT-rich learning environments and to become more aware of factors that enable their learning in such environments. This research investigated the enablers that were identified by teacher educators as most significant in the development of their Technological Pedagogical Content Knowledge (TPACK) while transforming their teaching practice.

ICT education, survey on the use of information and communication technologies in Brazilian schools

Since 2010, the Brazilian Internet Steering Committee has carried out the ICT EDUCATION, Survey on the Use of Information and Communication Technologies in Brazilian Schools. One of the featured articles in the latest outcome publication is “A Systems Approach to Facilitating the Effective ICT-Pedagogy Integration”, contributed by UNESCO Bangkok ICT in Education Team.

Highlight: Teachers’ Community of Practice

A community of practice for teachers in a networked society

A search on the Internet readily provides this information: a petabyte is $10^{15}$ bytes of digital information. In simpler terms, 1 petabyte = 1 quadrillion bytes.

According to the International Telecommunication Union (ITU), global IP traffic skyrocketed from around one petabyte 20 years ago to 44,000 petabytes at the end of 2012. This is equivalent to the amount of data that would need 1,100 years to download over a 10 Mbps broadband link – or more than 200,000 years over a dial-up connection. This traffic volume is driven by an exponential growth of connected people and connectable devices, enabled by an abundance of
online content and materials. The number of people connected to the Internet is expected to surpass 2.7 billion in 2013, while the number of applications downloaded over all types of devices will exceed 50 billion (ITU, 2013).

One can view these megatrends with trepidation. It is becoming more challenging to protect one’s privacy, reinforcing the “Big Brother is watching you” paranoia. The widespread surveillance by the National Security Agency in the US is a good case in point.

Or, one can look at these developments positively embracing the potential and advantages that ICT and a connected society can bring to the realm of learning.

On World Teachers’ Day this year, Ms. Irina Bokova, UNESCO Director-General, reiterated that teachers’ professional knowledge and skills are the most important factor for quality education, and called for greater support to tackle teacher shortages, barriers to better quality education and teachers’ role in developing globally-minded citizens. However the challenge lies not only in recruiting more teachers, but also in the provision of quality teachers through relevant training and continual professional development and support.

UNESCO Bangkok has developed several initiatives to address this need. Supported by the Japan Funds-in-Trust, the project on Reorienting Quality Teacher Education towards EFA and ESD aims to enhance the capacity of teacher educators and teachers in integrating the principles of Education for All (EFA) and Education for Sustainable Development (ESD) into their curriculum and teaching materials. An innovative approach in this project is the application of project-based learning pedagogy and telecollaboration platforms to enable participants from different institutions and countries to design and implement projects together beyond the confines of their classrooms.

At a training workshop held in October 2013, UNESCO Bangkok reunited participants from a previous event to report back on the outcomes of their collaboration. Using this workshop as an opportunity to raise the professional development of these “pioneers” to the next level, the workshop facilitators introduced the 21st Century Learning Designs Rubric as a tool for assessment of learning, as well as ICT resources such as the Microsoft Learning Suite and the MazikED Social – an interactive platform to connect teachers, students and parents. Based on the lessons learned from the first set of collaborative projects and the knowledge gained, the participants regrouped and came up with three new projects:

- **Go Green Community: Reduce, Recycle, Reuse (A Student-Driven Action)** to inform and persuade local communities in Indonesia, Malaysia, Nepal and the Philippines to be more responsible about protecting their environmental through reducing, reusing and recycling.

- **Intercultural e-Book on Local Knowledge in Asia** to promote intercultural understanding by developing a resource e-book on teaching Malaysian, Mongolian, Philippine and Thai local knowledge.
Technology for All: Nothing is Impossible to increase awareness about the needs and capacities of people with different disabilities through the use of educational technology for pre- and in-service teacher trainees in Australia, Cambodia, India, Nepal, the Philippines and Sri Lanka.

The projects are expected to be completed by mid-2014, but the three groups are aware of the challenges and hard work ahead. However, they have bonded and formed a Community of Practice (CoP). They have discovered the strengths and talents of each team member which could be put to good and appropriate use. They have resources and various platforms to support their collaboration.

Last but not least, they have access to more than 44,000 petabytes of information from the Internet!

In reality, no one can read all that information available online. There are massive amount of irrelevant, undesirable and unsavoury materials floating in cyberspace. A CoP of professionals with common interests and goals can learn and develop together as a group and as an individual to navigate through the flotsams of information to reach gems of data and knowledge.

Communications and interactions among CoP members have doubtlessly benefited extensively from the Internet, together with a multitude of software and online forums, instant messengers, video conferences and podcasts, Skype, Wikis, blogs, RSS feeds and social networking platforms (Mantas, undated). Similarly, UNESCO’s ICT e-newsletters and the Teacher Portal on its website have featured numerous examples of pedagogies and tools to support CoPs.

The three new projects that resulted from the recent telecollaboration workshop clearly reflect the key elements of a CoP as a network of like-minded teacher educators and teachers who:

- share experiences and learn from each other;
- collaborate to achieve common objectives;
- validate and build on existing knowledge and good practices;
- optimize opportunities to innovate and foster new ideas; and
- contribute to quality education.

The CoP may end in its current form when the projects are completed, but the journey of learning together which has started through the PBL and telecollaboration projects will surely continue.

References
Mantas, C. undated. Communities of Practice and Web 2.0 – Moving from the Classical Paradigm to Virtual Communities of Practice. University of Leicester. 
http://www.academia.edu/1658065/Virtual_communities_of_practice_and_WEB_2.0


For more information, contact apeid.bgk@unesco.org.

Further information:

- ESD-Net and Teacher Education

Related links:

- Harnessing ICT to enhance Education for Sustainable Development
- Making real world connections through project-based learning and telecollaboration
- Global Learning – expanding the boundaries of e-learning in the global TVET community
- Teachers learning about and with ICT as collaborative design
- Collaborative Learning 2.0 for Pakistan
- Collaboration in higher education and its benefits for ICT

Previous issues of the e-newsletter:

- UNESCO "ICT in Education" Announcement e-newsletter

What do you think about this topic?

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Regional seminar on ICT integration sees revitalized network of UNESCO Resource Centres

A regional meeting of teachers and teacher educators on ICT integration in teaching and learning was held 9-11 October 2013 in Penang Malaysia, jointly organized by UNESCO Bangkok and Universiti Sains Malaysia.

This regional seminar was indeed a big milestone for both UNESCO Bangkok and its existing network of teacher education institutions who gathered to officially launch its revitalized network. This network, called UNESCO Resource Centres for now, consists of teacher education institutions from the Asia and Pacific region and will serve as national or regional focal points
for distributing UNESCO ICT in Education resources, training teachers and teacher educators and advocating the effective integration of ICT in Education.

The UNESCO Resource Centre network was established in 2009. Since then, the network members had disseminated thousands of UNESCO resources to students, teachers and teacher educators in their region and provided training on the usage. Its re-conceptualization and transformation into an effective “training” network was therefore a logical step.

Under the new concept, the UNESCO Resource Centers will take the lead and will regularly conduct training on key ICT-related topics to pre-service, in-service teachers and educators. They will further work with selected master trainers whose expertise will be put into good use to facilitate replicated training workshops.

“UNESCO Bangkok is confident that this network of teacher education institutions can be a firm ground of professional learning community. Through this community, teacher educators share their passion towards harnessing the potential of ICT for education and deepen expertise and knowledge through healthy and active interaction. UNESCO hopes that this network or learning community becomes so strong and solid that it can self-sustain” stressed Jonghwi Park, UNESCO Programme Specialist for ICT in Education, during the Opening Ceremony.

The Regional Seminar, which was generously supported by Korean Funds-in-Trust and Microsoft, brought together 300 teachers from Malaysia and 50 teacher educators from more than 14 countries across the Asia-Pacific region. During the three days meeting, participants listened to keynote speeches on “The new Culture of Learning”, “Building Capacity through Innovative Teaching Practices” and “Teacher as Architects: Designing Blueprints for Successful Learning” as well participated in eight parallel workshops designed in particular for teachers.

Other than discussions regarding the status of ICT integration in their countries, and an in-depth planning session for the upcoming activities of the network, the members of the UNESCO Resource Centres received training on the 21st Century Learning Design (21 CLD) by Microsoft resource persons.

The 21 CLD, a global professional development programme by Microsoft Partners in Learning, has a great potential in helping teachers redesign their existing lessons and learning activities to build students’ 21st century skills. 21 CLD will consequently be the main theme for this years’ activities of the network. It is anticipated that this innovative approach will be incorporated in the training activities of the UNESCO Resource Centres.

Cynthia Grace Diaz, a professor of the University of the East, Manila, which was one of the founding members of the network, remarked after the event: “There is nothing more exciting than having such unique and distinct peoples come together and realize that despite our many differences. Once again, UNESCO Bangkok has proven the potential and promise of partnerships that truly transform”.

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The Regional Seminar, which built upon the first Regional Training Workshop for TEI-RDCs, held in Bangkok in 2012, will be organized in rotation by the Resource Centres in the future, as an annual event.

Further information:

- UNESCO Resource Centre Network

Related links:

- The Best R & R
- UNESCO Resource Distribution Centres (RDC) – Past, present, future
- UNESCO and Intel jointly train teacher educators on ICT integration
- Impact of the Regional Training Workshop on ICT in Education

Previous issues of the e-newsletter:

- UNESCO "ICT in Education" Announcement e-newsletter

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News & Events
Case studies on integrating ICT into teacher education curriculum in Asia

Information and Communication Technology (ICT) has become an integral part of our daily lives for the last decades. The dramatic adaptation of ICT has in turn called for education reforms at various levels with a view to creating an enabling educational environment for next generations to effectively function in the digital era. Therefore, teachers’ capacity of integrating ICT into their teaching practices plays a critical role in achieving the goals of the education reform. In this regard, teacher education institutions (TEIs) have made great efforts to develop a new ICT curriculum (or course) or incorporate ICT components into their existing curriculum.

This new publication is a collection of such efforts that illustrates step-by-step processes of how a TEI developed and implemented its ICT-related curriculum. It contains seven case studies across the region, from Australia, China, Korea, the Philippines, Singapore, Thailand and Vietnam. Each case study introduces diverse approaches to developing a new ICT curriculum.
or revising existing ones and addresses challenges and lessons learned from their first-hand experiences.

With multiple cases from the Asia region, this publication is hoped to serve as a comprehensive and practical guideline for TEIs who seek a helpful reference for their curriculum reform to integrate ICT. Also, it shall be beneficial for professionals and curriculum developers who are willing to replicate, adopt, or customize the reported curriculum development processes into their own context, as well as governments, NGOs and INGOs who are interested in benchmarking teacher education programmes for ICT integrated teaching and learning.

Further information:

- Case studies on integrating ICT into teacher education curriculum in Asia

Related links:

- Integrating ICTs in vocational training: A pilot project step-by-step
- Innovative Teaching and Learning (ITL) research: A global look at pedagogies for 21st century skills
- Measures of Effective Teaching (MET) Project
- ICT and initial teacher education: National policies

Previous issues of the e-newsletter:

- UNESCO "ICT in Education" Announcement e-newsletter

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New European STEM teacher professional development project

A new World Education project, funded by the Verizon Foundation, aims to develop and strengthen STEM (science, technology, engineering, and math) teaching at the secondary level in the UK (Scotland), France, Germany and the Netherlands. The project addresses a growing awareness by education policy makers in Europe that student performance in STEM subjects needs considerable attention in order to better prepare youth for STEM careers.

World Education’s partner in the project is the International Partnership Network (IPN), through its secretariat in Scotland. The project builds on the IPN’s many years of work in promoting the use of space exploration in STEM teaching, particularly in Scotland, and World Education’s work in teacher professional development and inquiry-based learning.
The eight core teachers recruited for the project will make greater use of inquiry-based learning and hand-held learning technologies, and they will use space exploration as the ‘hook’ for enthusing youth to study STEM subjects. Supported by project staff, these teachers will build a community of practice of teachers of STEM subjects to cascade information about the project and the teaching methods and material developed.

Core teachers in the project, which is called BEST 21 (Bringing European STEM Education into the 21st Century), are expected to reach 800 additional teachers and 800 students. Two teachers from two secondary schools in each of the four countries will be recruited to form the core of a community of practice which will cascade inquiry-based teaching/learning methods; space-related educational resources; and ways of using hand-held/mobile devices to other teachers. At least half of the core teachers selected will be women, and the group will include teachers who work in urban and rural areas and whose students represent varying socio-economic levels. Recruitment of core teachers will be carried out in consultation with existing teacher professional development networks and other relevant organisations in each of the four countries.

In addition, the teachers will contribute to the planning of the first European SEEC, which will take place alongside IPN 2014. In the first year this will focus on the teachers involved in the project, but it will be expanded in subsequent years. These professional development opportunities will focus on new content for STEM teachers and increased use of Information Communications Technology ICT and hand-held/mobile technologies in their teaching practice.

The teachers will have access to a wide range of materials and expertise from Space Center Houston, NASA and the European Space Agency. These materials will form the basis of an online resource guide developed by the teachers and supported by the project team.

Participating teachers will have virtual and face-to-face access to project staff who will make site visits to all teachers. The evaluation plan includes both formative and summative evaluation activities.

Information on project activities will be disseminated on a regular basis through a range of media—blogs, SMS, tweets and videos. Project partners will feature the project on their respective websites as a means of reaching a larger population of educational practitioners interested in learning more about ways in which to create greater interest in STEM subject teaching and learning. In addition, Verizon’s awarding winning free online resource for educators called Thinkfinity.org, will share best practices from teachers in this project.

World Education and IPN will work closely with Verizon officials in each of the four countries to seek ways in which Verizon’s employees can contribute in terms of volunteering or mentoring to enhance the project.

Source: World Education
Further information:

- New European STEM teacher professional development project
- World Education

Related links:

- Enhancing teachers' ICT capacity for the 21st century learning environment: Three cases of teacher education in Korea
- Innovative Teaching and Learning (ITL) research: A global look at pedagogies for 21st century skills
- 1:1 in science education: teachers and pupils report positive impact on learning outcomes

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Five new African countries receive funding from China for improving teacher education through ICT

The four-year UNESCO-China Funds-in-Trust (CFIT) project, launched in 2012, is starting its second year, enhancing the capacity of local Teacher Training/Education Institutions through information and communication technology (ICT) in eight African countries.

Côte d’Ivoire, Ethiopia, and Namibia were the first to join the project. They finished their needs assessment and project planning phase, and are now starting to implement. The Democratic Republic of Congo, Congo, Liberia, Tanzania, and Uganda are joining the project in October 2013, and will start their needs assessment and project planning very soon.

For the first time since the commencement of the CFIT, representatives from the eight countries gathered in Paris and met with international experts, UNESCO staff, permanent delegates of the eight countries and China. This meeting, which took place between 9 and 11 October 2013, marked the first anniversary of the project. During the meeting, participants took stock of achievements, reviewed the lessons learnt, and more importantly, paved the way ahead for the eight target countries.
Further information:

- CFIT webpage

Related links:

- UNESCO Global ICT in Education website

Previous issues of the e-newsletter:

- UNESCO "ICT in Education" Announcement e-newsletter

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The ICT opportunity for a disability-inclusive development framework: New action-oriented report

The estimated 1 billion people worldwide who live with disabilities are still denied equitable access to education, information, health care, job opportunities and civil engagement as technological solutions and their benefits are not fully explored. As a result persons with disabilities experience disproportionally high rates of poverty, according to a report just published by the ITU, UNESCO and other partners: “The ICT Opportunity for a Disability-Inclusive Development Framework.”

The report was produced with collaborative input from the Broadband Commission for Digital Development, the Global Initiative for Inclusive ICTs (G3ICT), the International Disability Alliance (IDA), the International Telecommunication Union (ITU), UNESCO, Microsoft, and the Telecentre.org Foundation.

As the international community prepares to adopt new development goals to address global poverty, ahead of the 2015 deadline for the Millennium Development Goals (MDGs), it is worth noting that the report can be signals that the current MDGs failed to address the needs of persons with disabilities.

In spite of the adoption of the Convention on the Rights of Persons with Disabilities in 2006, disability remains largely sidelined in most mainstream development processes. The High-
Level Meeting on Disability and Development (HLMDD) of the 68th session of the United Nations General Assembly, taking place in New York, provides a historic opportunity to “support dignity, rights and well-being as essential conditions for equality and justice of persons with disabilities. Disability is a development issue that we must address to achieve all internationally-agreed goals,” states Irina Bokova, Director-General of UNESCO.

“The ICT Opportunity for a Disability-Inclusive Development Framework” contributes to a better understanding of the extent to which ICTs enable and accelerate the social and economic inclusion of persons with disabilities. It lists challenges that are still to be addressed while outlining concrete actions to be undertaken by each group of stakeholders and a set of indicators to help measure progress towards the achievement of a disability-inclusive development agenda.

The content is based on the information gathered during a global consultation on ICT, Disability and Development. The consultation gathered over 150 expert inputs from relevant organizations and key individuals from over 55 countries and representing multiple categories of stakeholders, including governments, academic institutions, organizations of persons with disabilities, civil society organizations, and the private sector, as well as regional and international organizations.

The report highlights that

- When ICT are available, affordable and accessible, they significantly improve the inclusion of persons with disabilities in all aspects of society, particularly Web services, mobile devices and services, and television.
- Regarding the challenges to overcome, some barriers are universal while others affect specific areas of development such as cost, accessibility of and access to ICT.
- Overcoming these barriers requires the collaboration of stakeholders in every sector, as well as concrete actions by each group of stakeholders while relevant indicators to monitor progress need to be developed.
- Governments need to play a key role in stimulating the introduction of ICT-enabled solutions adapted to the needs of persons with disabilities, increasing the availability of accessible ICTs and promoting the affordability of assistive technologies in social and educational programmes, business, and other areas.
- The UN system and other international organizations should continue implementing operational activities to meet disability-inclusive development goals, complemented by the monitoring and evaluation of development efforts at the global, regional and national levels.
- Private sector organizations need to contribute by increasing research and development efforts, incorporating universal design principles at the earliest stage possible and recruit persons with disabilities in product development departments to develop
accessible ICT. The private sector can further remove attitudinal barriers towards hiring persons with disabilities and promote accessible workplaces. Through these contributions, employers help create societies where persons with disabilities can lead productive and independent lives.

- Civil society organizations have a key role in raising policymakers’ awareness of the remaining accessibility barriers, and should become more active in the work conducted by international standards organizations. Furthermore, they can bring about social progress and economic growth awareness-raising and capacity-building among persons with disabilities and their relatives regarding the use ICT to facilitate their own economic and social inclusion. Finally, advocating for the mainstreaming of the use of the universal design principle in all development efforts is crucial to ensure that the international development framework is disability-inclusive.
- International standards organizations can also play a special role in enabling a disability-inclusive development agenda by providing a neutral platform from which to develop and harmonize international standards and provide recommendations related to accessible ICT and their applications.

The report was released during the High-Level side-event to the High-level meeting of the General Assembly on Disability and Development (HLMDD 2013) “The UN delivering as one in enabling a disability-inclusive development agenda towards 2015 and beyond”, which took place on 23 September, at the United Nations Headquarters in New York.

Read the report:
- The ICT opportunity for a disability-inclusive development framework

Related links:
- Digital talking books: An alternative way of educating children with disabilities of their rights
- ICT for Inclusion project
- Preparing special education frontline professionals for a new teaching experience
- R-learning = improved learning results?
- Information and communication technology related needs of college and university students with disabilities

Previous issues of the e-newsletter:
- UNESCO "ICT in Education" Announcement e-newsletter
Programmes & Projects
Helping educators thrive in a connected world
Connected Educators project is an initiative of the Office of Educational Technology at the US Department of Education and is conducted by the American Institutes for Research in collaboration with several partner organizations and a technical working group. The project is designed to help educators thrive in a connected world, through seeking to understand and promote educators learning and collaboration through online communities of practice and social networks. This mission is pursued by conducting research, professional development and outreach to the communities.

In doing research, the project focuses on studying existing communities and networks, especially analysing the following issues: What benefits can school districts or individuals reap from online communities; How can participants add value to the online communities; What facilitation strategies can educators use in order to maximize the learning outcomes. Results of the research are disseminated through academic publications and briefs intended for community managers, -moderators, -designers, and researchers.

Secondly, Connected Educators is committed to provide professional development for teachers. Funded by the National Science Foundation, the CS10K community project was launched, which seeks to have 10,000 well-trained computer science teachers in 10,000 high schools across the United States to broaden participation in computing careers. With the support of professional facilitators, teachers of Exploring Computer Science (ECS) and Computer Science Principles (CSP) subjects work together in developing materials as well as the necessary pedagogical approaches to get students engaged with exciting technologies and to make a case to school leaders on the importance of computer science as an integral part of education.

Lastly, through Connected Educator Month (CEM) and publications, the project raises awareness of and engagement in learning and collaboration through communities and networks reaching hundreds of organizations and a high number of educators. The first CEM conveyed in August 2012 by the US Department of Education was a month-long exploration and celebration of online communities and networks. In total, there were more than 450 events and activities provided to educators, dedicating to broadening and deepening educator participation in learning and sharing, and bringing online community and education leaders together to move towards a more fully connected and collaborative profession.
The major outcomes of the event were summarized in the Connected Educator Month Report. This report highlights results and insights from CEM and offers recommendations for connecting and inspiring more educators in powerful and engaging online interactions.

The second CEM is currently being held until end of October 2013. This year’s event has a special emphasis on helping districts to promote and integrate online social learning in their formal professional development. It is estimated that nearly 200 educational organizations are participating in Connected Educator Month 2013. These organizations will provide a variety of interactive activities, such as webinars, live chats, contests or online projects for connected educators to learn.

Further information:

- Connected Educators

Related links:

- Making real world connections through project-based learning and telecollaboration
- Global Learning – expanding the boundaries of e-learning in the global TVET community
- Teachers learning about and with ICT as collaborative design
- Collaborative Learning 2.0 for Pakistan
- Collaboration in higher education and its benefits for ICT

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Resources
Teacher educators as learners: Enabling learning while developing innovative practice in ICT-rich education

It’s time for teachers to consider themselves as learners in ICT-rich learning environments and to become more aware of factors that enable their learning in such environments. The notion of teachers as learners in ICT-rich environments is not new but the focus is usually on school
teachers and formal professional development, rather than teachers in universities learning as part of the change-of-practice process.

This research conducted by Chris Reading and Helen Doyle of the University of New England, Australia, investigated the enablers that were identified by teacher educators as most significant in the development of their Technological Pedagogical Content Knowledge (TPACK) while transforming their teaching practice.

As part of the evaluation of the effectiveness of strategies implemented to improve graduating pre-service teacher ability to demonstrate innovative use of ICT in education, Most Significant Change Stories were compiled from focus group discussions with teacher educators in four curriculum areas, English, Mathematics, Science and History.

The teacher educators were provided with support, an ICT Pedagogy Officer, as they planned, implemented and evaluated innovative ICT-rich learning experiences. The enablers identified by the teacher educators as contributing most significantly to their learning are explained. Findings show that there are common themes across these enablers and that not all enablers are factors over which the teacher educator has control.

Read the full paper:

- [Teacher educators as learners: Enabling learning while developing innovative practice in ICT-rich education](#)

Related links:

- [Making real world connections through project-based learning and telecollaboration](#)
- [Global Learning – expanding the boundaries of e-learning in the global TVET community](#)
- [Teachers learning about and with ICT as collaborative design](#)
- [Collaborative Learning 2.0 for Pakistan](#)
- [Collaboration in higher education and its benefits for ICT](#)

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ICT education, survey on the use of information and communication technologies in Brazilian schools

Facts of ICT Education in Brazil

- **ICT infrastructures in school**: Almost all schools in urban areas have computers (99%) and internet access (92%). The IT lab still is most used the location for ICT access by students.
- **Teachers and ICT**: 67% of teachers sought class plan examples via computers and the internet, and almost 40% participate in teachers’ discussion groups.
- **Students and ICT**: 91% of students in public school have already used the internet. In private schools, the internet was used by almost all students. 94% of private school students have computers at home while 62% of public school student have computers at home.
- **Public and private schools**: 7% of public schools have computers installed in the classroom while 26% of private schools had them in the classroom. In addition, 52% private school teachers had used computers or internet to find educational content while there are 38% in public school teachers.

Access to Information and Communication Technologies (ICTs) and their proficient use by citizens are essential conditions for the development of information knowledge society. Moreover, the initiatives for deploying ICTs throughout educational institutions are to meet the expectations and needs on the new approaches to teaching and learning and help students develop skills and knowledge required in a digitally connected world. However, whether and to what extent the deployed ICTs are being used in innovative and pedagogical way, instead of reinforcing the traditional teaching is still largely unknown in many nations due to difficulties in rigorous measurement.

Since 2010, the Brazilian Internet Steering Committee ([CGI.br](http://www.cgi.br)) has carried out the ICT EDUCATION, Survey on the Use of Information and Communication Technologies in Brazilian Schools, evaluating following aspects: 1) ICT infrastructure available in schools, 2) integration of ICT in education processes, 3) teacher and student competence for using technology, 4) main preventing actors in the educational system from using ICTs, and 5) motivating factors which is leading many teachers to integrate ICT into their pedagogical practices.

In addition, this publication offers improvements which have been implemented in terms of school sample design and field data collection procedures. This publication is structured as follows:

- **Part1**: Articles from experts in academies, government, international organization.
- **Part2**: Methodological report and analysis of results
- **Part3**: ICT education survey tables
Part 4: Appendix: the glossary of terms used in the survey to simplify reading

One of the featured articles in Part 1 is “A Systems Approach to Facilitating the Effective ICT-Pedagogy Integration” written by UNESCO Bangkok ICT in Education Team. In this article, UNESCO Bangkok introduces one of its successful ICT projects, “Facilitating ICT-Pedagogy Integration”, which was carried out for the last three years (2010-2013).

The articles and survey results will be informative resources and references for teachers, researchers, or policy makers who are interested in learning opportunities and challenges in integrating ICT in their educational practices.

Further information:

- [2012 ICT in Education Survey](#)
- [2012 ICT Households](#)
- [Center of Studies on Information and Communication Technologies – CETIC.br](#)

Related links:

- [Facilitating Effective ICT-Pedagogy Integration Project](#)

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