



United Nations  
Educational, Scientific and  
Cultural Organization



UNESCO Institute  
for Information Technologies  
in Education

POLICY ADVOCACY  
AND RESEARCH

TECHNICAL ASSISTANCE

TEACHER  
PROFESSIONAL  
DEVELOPMENT

DIGITAL PEDAGOGY

OPEN EDUCATIONAL  
RESOURCES AND  
LEARNING MATERIALS

NETWORKING AND  
PARTNERSHIP



INTERNATIONAL FORUM ON ADOPTING of ICT PERSPECTIVE  
IN EDUCATION AND LEARNING

NEW DELHI - INDIA – October 31st to November 4<sup>th</sup> 2016

# Designing e-learning environment for education and social inclusion of students with disabilities

Dr Natalia Amelina, PhD

UNESCO IITE



United Nations  
Educational, Scientific and  
Cultural Organization



UNESCO Institute  
for Information Technologies  
in Education

## *UNESCO IITE. Focus Areas*

**POLICY, RESEARCH  
and TECHNICAL  
ASSISTANCE**

**TEACHER  
PROFESSIONAL  
DEVELOPMENT and  
NETWORKING**

**DIGITAL PEDAGOGY,  
OER and LEARNIG  
MATERIALS**





United Nations  
Educational, Scientific and  
Cultural Organization



UNESCO Institute  
for Information Technology  
in Education

# IITE. Policy advocacy and technical assistance based on research



- Research and Publications
- Workshops
- Conferences
- High Level Meetings



## Policy Brief

September 2010

### CLOUD COMPUTING IN EDUCATION

#### CONTENTS:

- Context and outline of the problem
- Types of cloud computing
- The difference between cloud computing and Web 2.0
- How is cloud computing being applied in education?
- Benefits of cloud computing for institutions and students
- Risks of cloud computing
- Guidelines for selection and deployment of cloud services
- Policy implications
- Future scenarios

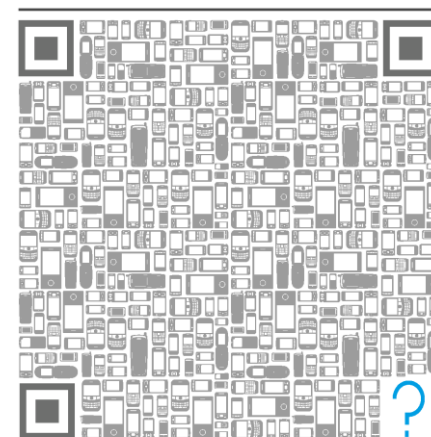
#### CONTEXT AND OUTLINE OF THE PROBLEM

Educational institutions throughout the World have become highly dependent on information technology to service their business requirements. Procuring and maintaining a wide range of hardware and software require substantial, ongoing investment and the skills to support them.

The economies of scale and other features of cloud computing are likely to mean an increasing shift away from institutionally-hosted services. These services are increasingly provided using Internet technologies to staff and students and accessed from web browsers. The services are offered cheaply or freely to education, often with much higher availability than can be provided by the educational institution.

Are we therefore facing a future where the majority of educational services will be hosted in the cloud and institutions no longer host their own data centres with expensive hardware, power bills, staff salaries and computing resources which are rarely fully utilized?

This policy brief has analyzed some of the emerging benefits and challenges of cloud computing for the educational sector.



Рекомендации  
по политике в области  
мобильного обучения





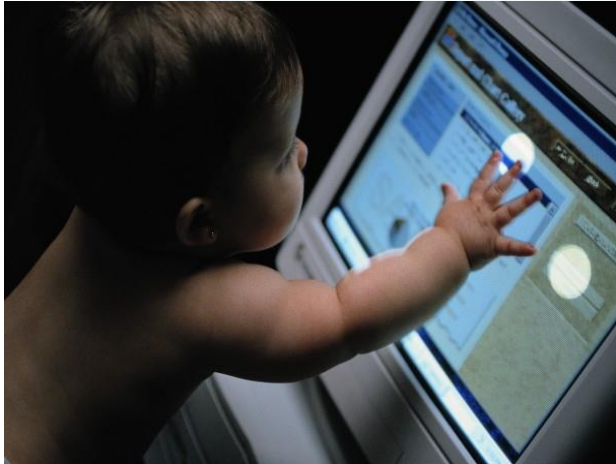


United Nations  
Educational, Scientific and  
Cultural Organization



UNESCO Institute  
for Information Technologies  
in Education

## ICT for inclusive education



# Main topics of the session

- Learning barriers and the role of ICTs in overcoming them and facilitating the inclusion education;
- Selection of ICTs for education of persons with disabilities;
- Key principles of design: ICT infrastructure for education of persons with disabilities;
- ICT policy for inclusive education.



United Nations  
Educational, Scientific and  
Cultural Organization



UNESCO Institute  
for Information Technologies  
in Education

## Links

The Salamanca Statement and Framework for Action on Special Needs education (1994). Online:

[http://www.unesco.org/education/pdf/SALAMA\\_E.pdf](http://www.unesco.org/education/pdf/SALAMA_E.pdf)

Convention on the Rights of Persons with Disabilities (2006)

<http://www.un.org/disabilities/default.asp?navid=13&pid=150>

48th session of the International Conference on Education,  
Geneva, 25-28 November 2008

<http://www.ibe.unesco.org/en/ice/48th-ice-2008.html>

Inclusive education resources at UNESCO

<http://www.unesco.org/en/inclusive-education/>



# INTERNATIONAL CONFERENCE ON ICT AND POST 2015 EDUCATION

*A journey towards inclusive and equitable quality education and lifelong learning*



**QINGDAO DECLARATION**

**International Conference on  
ICT AND POST-2015 EDUCATION**

*Seize digital opportunities. Lead education transformation.*

23-25 May 2015

Qingdao City, the People's Republic of China

*2015-2030: A journey towards inclusive and  
equitable quality education and lifelong learning*

### **Seize digital opportunities and educational transformation:**

Access and Inclusion, OER and Open Solutions,  
Quality Learning, Lifelong Learning Pathways, Online Learning Innovations,  
Quality Assurance and Recognition of Online Learning, Monitoring and Evaluation,  
Accountability and Partnership, International Cooperation



United Nations  
Educational, Scientific and  
Cultural Organization



UNESCO Institute  
for Information Technology  
in Education

## *ICT in inclusive education: equal opportunities for all*

The provision of inclusive ICTs for students with disabilities or learning difficulties is about removing barriers and enabling all students to access the same educational opportunities. Accessible learning opportunities respect diversity, encourage acceptance and inclusion and ultimately benefit all students, not just those with disabilities or learning difficulties.





United Nations  
Educational, Scientific and  
Cultural Organization



UNESCO Institute  
for Information Technology  
in Education

## *Learning barriers and the role of ICT*

**Learning barriers in education of persons with disabilities are caused by the following factors:**

- Physical
- Social
- Economic





United Nations  
Educational, Scientific and  
Cultural Organization



UNESCO Institute  
for Information Technology  
in Education

## *The role of ICT in inclusive education*

ICTs play 3 main roles in education:

- Compensation uses – technical assistance that enables the active participation in traditional educational activities such as reading or writing
- Didactic uses – the general process of using ICTs to transform approaches to education. Many ICTs that can be used as a didactical tool to enable a more inclusive learning environment
- Communication uses – technologies that can enable communication – often referred to as alternative and augmentative communication devices and strategies



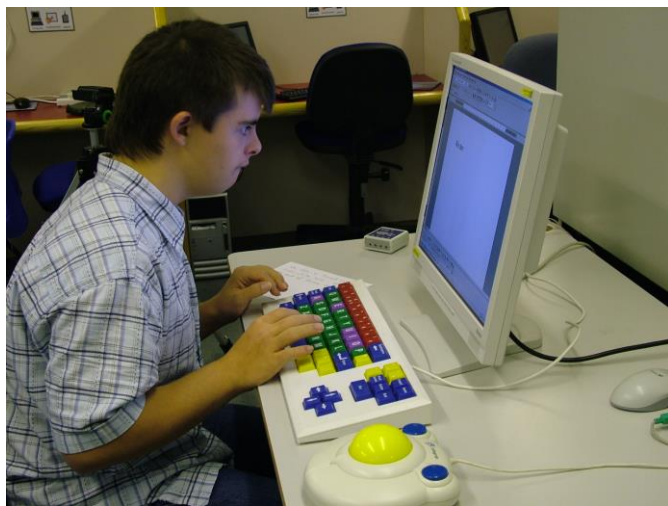
United Nations  
Educational, Scientific and  
Cultural Organization



UNESCO Institute  
for Information Technology  
in Education

## *Inclusive ICTs for education*

- Mainstream technologies such as computers, web browsers, word processors, whiteboards and mobile phones that contain in-built accessibility features etc.
- Assistive Technologies, such as hearing aids, screen readers, adaptive keyboards, augmentative communication devices etc.



- Compatibility between assistive technology products and mainstream technologies.
- Accessible media and formats, such as accessible HTML (Hypertext Markup Language), videos with captioning, DAISY (Digital Accessible Information System) books, etc.

# Typical Classroom Technologies



Software should work with ALL access devices.



Interactive Whiteboards



Touch monitors and tablets



Large key, high visibility or compact keyboards



Alternative pointing devices, switches, communication devices, magnifiers, symbols etc.



# Technologies for persons with motor impairments



# Technologies for persons with visual impairments



# Technologies for persons with hearing impairments





United Nations  
Educational, Scientific and  
Cultural Organization



UNESCO Institute  
for Information Technology  
in Education

## Selection of ICTs for education of persons with disabilities

- It should be a negotiation process, a constructive dialogue between one or more professionals and the end-user
- The different professionals (physicians, rehabilitation psychologists, physical and occupational therapists, etc.) generally make identification, assessment and evaluation of the impaired function, then they can propose and discuss with the user and his/her family the adoption of a kind of AT.
- In some countries (mostly in the North-West area) it is common to find services on choosing and training on application based on the AT centres.
- Peer counselling





United Nations  
Educational, Scientific and  
Cultural Organization



UNESCO Institute  
for Information Technology  
in Education

## *Key stages of ICT policy development in inclusive education*

The following four stages for policy development are recommended for the successful integration of accessible ICTs in an educational environment. These include the design and development of the accessible ICTs, their implementation and improvement and the assessment of their benefits





United Nations  
Educational, Scientific and  
Cultural Organization



UNESCO Institute  
for Information Technology  
in Education

## *Main areas for policy intervention*

### **Infrastructure**

This includes both the technical infrastructure required to support the use of ICTs and the wider AT infrastructure.

### **Curriculum design and modification**

National educational policy should require educational systems to adopt the use of ICT in all areas of curriculum development. ICTs can help transform static curriculum resources into flexible accessible digital media.

### **Teachers ICT professional standards**

Along with the adoption of the new ways of learning, teachers' role is doomed to change very deeply and rapidly: they will become managers and facilitators of learning; will design, adapt, manage and evaluate learning environments.



United Nations  
Educational, Scientific and  
Cultural Organization



UNESCO Institute  
for Information Technology  
in Education

## *ICT policy for inclusive education*

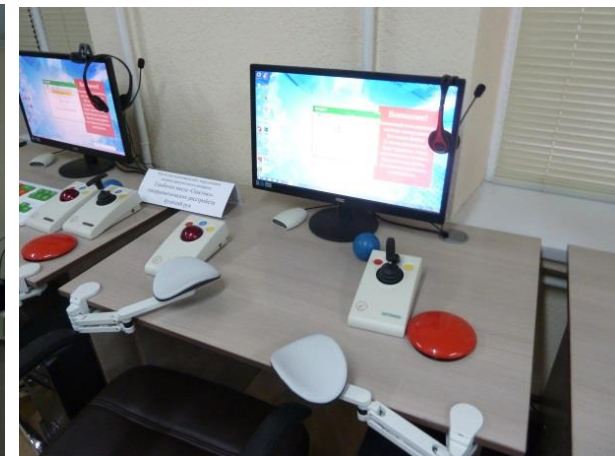
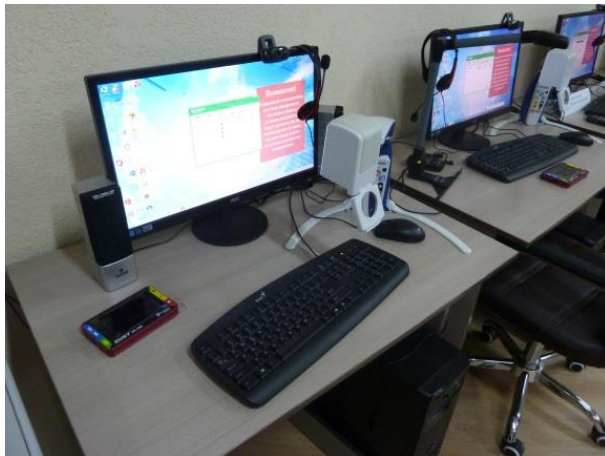
### Principles for development and implementation of ICT policy for inclusive education:

- A non-discriminatory approach encompassing human rights, gender equality and access to services will be taken at all levels of this policy's implementation.
- Access to inclusive education opportunities that provide inclusive curricula, as well as reasonable accommodations to meet individual needs, is every learner's right.
- Access to inclusive accessible and affordable educational ICTs that meet the individual needs of all students, is a right.
- The provision of inclusive ICTs for students with disabilities or learning difficulties must be applied across the continuum of educational opportunities within lifelong learning (anytime, anywhere)

## IT center for persons with visual impairments



## IT Center for persons with motor and speech disorders





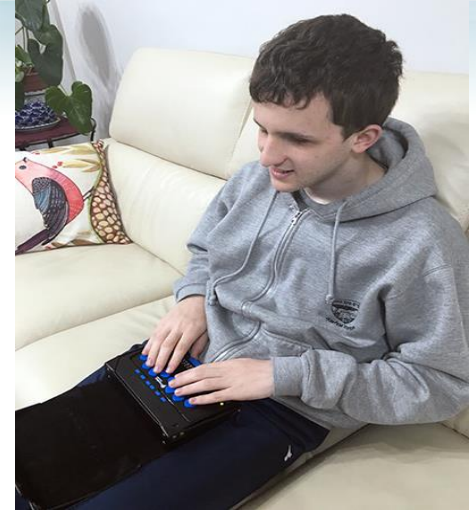


United Nations  
Educational, Scientific and  
Cultural Organization



UNESCO Institute  
for Information Technologies  
in Education

## Hard- and soft-ware for persons with disabilities





United Nations  
Educational, Scientific and  
Cultural Organization



UNESCO Institute  
for Information Technologies  
in Education



# UNESCO IITE invites you for cooperation in the field of ICT-integrated pedagogy to reach the targets of Education-2030

*Dr. Natalia Amelina, PhD,* UNESCO IITE

[n.amelina@unesco.org](mailto:n.amelina@unesco.org)

<http://iite.unesco.org>