TWG 1: Restructuring educational systems to move into the digital age

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Introduction

This brief paper has been commissioned to inform the policy and decision makers as well as leading educators attending the EduSummit11 at UNESCO in Paris 8-10th June 2011. The aim of this brief paper is to set the stage for discussions to identify the most effective policies and strategies to promote transformative and sustainable ICT-enabled changes in educational systems so as to help them meet the needs of digital age learners and the challenges of a rapidly changing knowledge and technology-based global society. The specific actions of EduSummit09 Call to Action covered in this paper are:

- To radically restructure schools to be able to use multiple technology-enhanced pedagogies to address individual needs of students
- To develop and use distributed leadership models for technology use in schools and teacher education programs

The international experts led by Niki Davis aim to promote change of networked educational organisations worldwide in line with UNESCO’s goal of Education for All.

Research update

The co-evolution of ICT and schooling lead to increased complexity for organisation and management within and beyond schools, including classes and projects engaged in by learners attending a range of schools. This co-evolution is extremely challenging and it involves many adjustments to educational practices and to resources, such that innovative schools may drop back from the embedding of ICT (Eickelmann 2011; Law et al. 2010). 21st century educational organisations are finding strategies including:

- Developing the wide range of students’ 21st century skills, including information literacy
- Improving evolution of ICT tools that are accessible to students (e.g. Derndorfer 2010)
- Organisational structures to encourage teachers to use ICT effectively with students and for cooperative professional development
- Individualized learning relevant to learners’ individual needs with trustworthy assessment
- Promoting use of student-owned mobile ICT devices for formal and informal learning in multiple locations.

The required organisational development depends on distributed leadership within and across schooling systems and those who support them, including the communities in which they are embedded (Davis, 2010; Eickelmann, 2011). The principal or CEO has to be involved in the implementation process along with complementary leadership roles distributed to other people who lead in formal or informal ways and embody the adoption of ICT. Leaders are recommended to take account supportive factors of sustainable ICT implementation to respond to the rapid development of ICT and education (Eickelmann, 2011; Dzvenbo & Kariuki 2006) including:
The leader of successful organisations used their power to promote ICT-use underpinned by a sound understanding of the potentials of ICT to enhance learning.

- Strategize to cope with new digital trends, e.g. staff development schemes, private-public partnerships, increase technical support staff.
- Closely link ICT-use to existing and prospective pedagogical aims, e.g. language support for student migrants to enhance compulsory curricula.
- Since 2009 significant restructuring has occurred with increased networking of organizations, e.g.:
  - **The One Laptop Per Child initiative** has instigated new systems for transforming access to child-friendly computers in many third world countries, while also stimulating other technical and educational developments. The OLPC ‘inoculation’ strategy is an early part of the systemic change in some countries (Derdorfer, 2010) and, with support from all levels in the educational systems.
  - Sustained symbiotic partnerships with technology companies to provide curriculum materials, workshop facilities, accreditation and related professional development for teachers and the organisations adopting the curriculum, e.g. **Cisco’s 10,000 Network Academies** currently operating in 165 countries that partnerships with secondary schools.
  - **Open Educational Resources** can enhance collaborative curriculum development for schools and teacher education, but it is challenging to enable adoption to fit local contexts as shown in a response to critical shortages in Sub Saharan teacher education (Wolfenden et al 2010)
  - A variety of networked schools and related services have emerged to complement the traditional educational system stimulated by state and federal initiatives and requirements (Davis, 2011). The **exponential growth of virtual schooling in North America** has confirmed the importance of preparing collaborating educators to facilitate students’ online learning. Mexico has its school curriculum in an online learning management system studied by migrant workers and their children in both Spanish and English at home and abroad, but this is not commonplace elsewhere, e.g. limited to foreign schools in Germany.
  - Ubiquitous access to cloud-based computing, although patchy, is emerging worldwide to blend formal and informal learning within and across age groups. Many first world countries have launched e-learning platforms for personalised and collaborative learning by students and teachers, e.g. Switzerland and New Zealand with evolving Open Source guidance for organisational and pedagogical change.

**Issues/Unresolved questions/concerns**

Essential professional and organisational developments are dependent upon the engagement of school leaders. However, many school leaders have little knowledge of ICT-enabled 21st century learning (see McLeod Blog ‘dangerously irrelevant’). Research and development of the preparation of leaders for ICT-enabled learning is scarce (Davis, 2010). Even recent guidance for building capacity for ICT in teacher education (Lim et al. 2010) omits leadership of networked organizations.

Synchronising systemic changes prompted by adoption of ICT requires coherent leadership at many levels. ICT is often missing within quality assurance and its integration into standards and procedures by relevant agencies has lagged (Eickelmann & Schulz-Zander, 2010), which may also be linked with lack of 21st century knowledge by senior staff. This applies to both schools and teacher education (Davis 2011). Group assessment and electronic portfolios are examples of challenging innovations for nationwide assessment.

Indigenous cultures and others with minority worldviews find it more challenging to promote transformative and sustainable ICT-enabled changes in educational systems that fit with their worldviews, which decreases equity in educational systems (Gorski, 2009). Although challenging, the philosophy of indigenous people could assist sustainability of such innovations while also working to increase equity (Greenwood et al in Leigh, 2011).
The gender divide is one of the most significant inequalities to be amplified by the digital revolution, and cuts across all social and income groups. Throughout the world, women face serious challenges that are not only economic but social as well as cultural – obstacles that limit or prevent their access to, use of, and benefits from ICTs. UNESCO believes that unless gender issues are fully integrated into technology analyses, policy development and programme design, women and men will not benefit equally from ICTs and their applications. Without such explicit references to gender issues in ICT policy, the chances that women and girls will reap developmental benefits from the digital age are slim. Experience so far has shown that even where policies have been gender-aware, women’s and girls’ needs are likely to be neglected or ignored when it comes to policy implementation. Both in the first phase (Geneva, 2003) and the second phase (Tunis, 2005) of the World Summit on the Information Society countries reaffirmed “that development of ICTs provides enormous opportunities for women, who should be an integral part of, and key actors, in the Information Society. We are committed to ensuring that the Information Society enables women's empowerment and their full participation on the basis on equality in all spheres of society and in all decision-making processes. To this end, we should mainstream a gender equality perspective and use ICTs as a tool to that end.” (http://www.itu.int/wsis/docs/geneva/official/dop.html; http://www.itu.int/wsis/docs2/tunis/off/7.html).

Brief bibliography


Note

N.B. This is a summary of a developing paper that we will work on available at: http://wikieducator.org/EduSummIT11Davis(2011) and you are invited to contribute.