TWG1: Restructuring educational systems to move into the digital age

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Introduction

This paper specifically addresses the EDUsummIT 2009 Call to Action:

- 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

This paper is expanded based on the discussions in the Thematic Working Group 1 on restructuring educational systems to move into the digital age of the EDUsummIT, June 8-10 at UNESCO in Paris. Thematic Working Group 1 engaged 16 participants from Brazil, France, Germany, Israel, the Netherlands, New Zealand, Slovakia, UK, Uruguay, and the USA. Working group moderators were Niki Davis of New Zealand with Birgit Eickelmann and Renate Schulz-Zander from Germany. Rapporteurs were Miri Shonfeld of Israel, Jorge Grunberg of Uruguay and Elliot Soloway of the USA.

Research Update

The continuing 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 more than one school Davis (2010). 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). Some trends since 2009 are:

- Ubiquitous presence of ICT and learning resources in first world contexts, where student’s ICT experiences in informal settings surpass those in formal settings;
- School systems rapid change prompted by international comparative studies such as OECD-PISA, IEA-TIMSS, IEA-PIRLS etc. This is likely to be continued for the digital dimension with IEA-ICILS 2013 (International Computer and Information Literacy Study, 2010–2014)
- Initiatives to increase capacity through ICT and ICT capacity e.g. UNESCO’s holistic and comprehensive approach to promoting ICT in education.
Radical changes to schooling and teacher education have already emerged to respond to the changed ecologies within which they are embedded. Some are not related to ICT, such as elementary schools in the Netherlands that now offer year round schooling open from 7 a.m. to 7 p.m. with professional child care as well as education. Other examples are based on ubiquitous access to ICT-based learning including learning management systems and some have personalised collaborative learning by students and teachers, e.g. Switzerland and New Zealand with evolving guidance for organisational and pedagogical change. Although 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 useful example of intercultural online and collaborative education is provided by Hoter et al (2011). There is also a need to keep a balanced perspective on the newly-evolved symbiotic partnerships with commercial ventures that provide curriculum materials, workshop facilities, accreditation and related professional development for teachers and the organisations adopting their curriculum. The rapid growth of virtual schools in the USA is discussed later as an example of the complex challenges that are arising for leaders and networked schools.

In summary, 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. OLPC initiative;
- 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 (Bennet, Davis, Dexter, Rile & Becker in Voogt & Knezek 2008; Davis, 2010; Eickelmann, 2011; Fullan, 2011). The principal or chief executive 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) 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 in ways that fit with their educational vision.
- The need for a conceptual anchoring of teacher cooperation; it contributes to supporting teacher collaboration and fosters the implementation of new ICT developments. Cooperation has to be supported on all levels, such as the context, input and process levels, to become operational. (Schulz-Zander & Eickelmann, 2010)
- Closely link ICT-use to existing and prospective pedagogical aims, e.g. language support for student migrants to enhance compulsory curricula.
- Strategize to cope with new digital trends, e.g. staff development schemes, private-public partnerships, increase technical support staff, student as ICT mentors etc.

We agree with Fullan (2011): “The right drivers – capacity building, group work, instruction, and systemic solutions – are effective because they work directly on changing the culture of school systems (values, norms, skills, practices, relationships); by contrast the wrong drivers alter structure, procedures and other formal attributes of the system without reaching the internal substance of reform – and that is why they fail.”

**Issues/Unresolved Questions/Concerns**

The radical restructuring of schools and schooling gives rise to strong debates that revisit past issues in new ways. For example, while Derndorfer (2010) describes activities that appear to show early visions of greater equity coming true with the OLPC project, participants at the Edusummit had experience of less favourable outcomes from national inoculation of the OLPC that Warshauer and Ames (2010: 33) support with their theoretical critique of OLPC’s “technocentric vision… OLPC represents the latest in a long line of technologically utopian development schemes that have unsuccessfully attempted to solve complex social problems with overly simplistic solutions.” We note the need for professional development and initial teacher education as well as leadership preparation for a dramatic switch to one laptop per child nationwide. We also note that the risks of such radial restructuring to these nations, regions and individuals include loss of face when challenges become public and this is likely to reduce reliability of reports from such investments.

The evolution of virtual schools in the USA and other regions was also the subject of somewhat polarized views: a ‘supermarket’ of low quality courses versus a means to increase access to a first class education for students in rural locations. In any case the opening up of public education to profit making enterprises and changes in participation are bringing new challenges to governance and strategic leadership of the school sector for which many educational leaders are under prepared (Davis, 2010). 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 (McLeod & Richardson, 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 2010). Group assessment and electronic portfolios are examples of challenging innovations for nationwide assessment systems.

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). In addition, 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. However, there is also a lack of research and leadership in this area as clearly recognized by UNESCO.

**Discussion and Recommendations of Technical Working Group 1**

Discussions in Technical Working Group 1 during the EduSummit 2011 built consensus that, although change is complex due to the highly interdependent educational systems with multiple stakeholders and interdependent systems, educational organizations and new networked structures are emerging in some countries. These were summarized as follows: Online Supermarket of Courses, Virtual Schools, Formal/Informal blends that emerge with inquiry based learning rather than highly timetabled didactic instruction. Therefore it was recommended that restructuring educational systems should take account of more aspects such as:

1. Restructuring school systems to 21st century skills and ICT enabled assessments
2. Ways that schooling must change when young people apply their own ICTs to learning at school and elsewhere
3. Governance and leadership development to enhance quality assurance with partnerships between public and profit making enterprises involved in education
4. Improving equity and cultural diversity while restructuring schooling with ICT
5. Finding new models for organizational development of networked schools that acknowledge the necessary distributed leadership and support.
6. Restructure initial teacher education and professional development alongside school restructuring, taking advantage of ICT for career-long professional development.

This starting point caused us to reflect on the purpose of education and the importance of maintaining an educational vision for schooling. There are clear contrasts between organizational change in some countries such as the USA vs. Germany, with more emerging structures and needs becoming apparent in the USA, where illiteracy is increasing with dropout from school, e.g. 80% in Detroit schools.

There was agreement that complexity was increasing worldwide and that, while some networked structures involving multiple schools and other partners could be important to improve cultural diversity and educational opportunities, there is a lack of research into the necessary leadership and governance. It was also clear that some newly emerging approaches did not appear to be informed by research into how people learn, e.g. ‘supermarket’ of online courses/resources marketed by for profit organizations.
Strategic planning to address these needs and considerations at the local, regional and global level was discussed. It included in the for a call to action policy and vision that recognizes that the focus has changed to recognize quality assurance must be incorporated in the redesign of educational organizations with governance to ensure an equitable multilingual and multicultural communication infrastructure within and across networked educational organizations, including schools, teacher education, professional development and related services including agencies responsible for quality assurance.

Topics in particular need of further research include mobile learning practices and related organisational structures and approaches to ensure indigenous success within their worldviews. Furthermore issues related to women's participation in technological development or use of ICT for professional development is top on the policy agenda of most of UNESCO's Member States. However, in practice girls and women are very often neglected or not supported to access and/or use technologies both in formal and informal learning. The ‘digital divide’ issue still has an important gender dimension which needs to be addressed on all levels, particularly in developing countries.

Furthermore ICT can be an indicator for quality assurance for teaching, school leadership and professional development (in terms of in-service professional development). ICT and its use to support learning must become part of quality tableaus, which necessitates professional development for those involved in policy making and inspection of schools.

Although school systems change slowly, looking back to school systems 20 years ago the evolution with ICT and society can be recognized. This will increase so it is important to use our expertise to steer this change using multidisciplinary and research from diverse cultures to monitor this change and gather empirical data in order to overcome inequality and digital gaps. Furthermore, visions how school could evolve in order to identify future needs and challenges for regions and globally are welcome, such as the current online expert consultation to inform a European perspective “The Future of Learning: New Ways to Learn New Skills for Future Jobs” and an emerging view of New Zealand tertiary education in 2016.

Recommendations from TWG 1

We further focused on plans that could be implemented to address these needs and considerations at the local, regional and global level that are required to ensure successful implementation.

- To help to agenda setting for policy and research a small repository identifying the emergence of new structures within a school and networked across schools and related services could help to start the conversation between relevant stakeholders about new approaches to schooling and the challenges that they bring for distributed leadership, quality assurance and governance. It should be made accessible at global, regional and local level.
- Additional actions are required to address equity issues for indigenous peoples and we recommend that the Edusummit and UNESCO work with indigenous peoples to identify
ways in which ICT can be restructured to serve indigenous peoples and build their capacity for self determination.

- A workshop adapted from the Edusummit for use within the e-Africa conference be proposed to enable that region to draw from the work in this event.
- A proposal is presented to a funding agency for research on these topics discussed in TGW1, including the restructuring with ICT of schooling services and teacher education programs and related distributed leadership models to contribute to both theory and practice.
- Future scenarios of education are developed further to expose the rapid co-evolution of ICT and education that include organizational dimensions to inform visions of leaders and policy makers, as well as the restructuring of space and time for schooling.

We also recognized that additional actions are required to address equity issues for indigenous peoples and women that have been recognized in work supported by UNESCO.

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Brief bibliography


