

Journal of Computer Assisted Learning

Building a global community of policymakers, researchers and educators to move education systems into the digital age

J. Voogt* & G. Knezek†

*University of Twente, Enschede, The Netherlands

†University of North Texas, Denton, Texas, USA

Abstract

The EDUsummIT 2011 aimed to develop (a) recommendations for policy, practice and research that will help educational systems move into the digital age and (b) strategies to build a global community of researchers, policymakers and teachers in the field of Information and Communication Technology (ICT) in Education. Thematic working groups addressed these goals from different perspectives: the learner, the teacher, curriculum and assessment, the structure of schooling, essential conditions for ICT integration and researching IT in education. This special issue reflects the research evidence underpinning the discussions and recommendations of the EDUsummIT thematic working groups.

Keywords:

21st century skills, assessment, curriculum, digital age, educational systems, essential condition.

Introduction

Using research-informed strategies, the EDUsummIT as a global community of policymakers, researchers and educators, aims to move education into the digital age. The EDUsummIT community recognizes the need to respond to the challenges of a world transformed by globalization and economic transformation, caused to a large degree by the development of digital networked technologies. At the first EDUsummIT in 2009 in The Hague seventy researchers, policymakers and educators from six continents met to define action steps following the publication of the Handbook on Information Technology in Primary and Secondary Education (Voogt & Knezek, 2008) and resulted in a Call to

Action (Voogt, Knezek, Cox, Knezek, & Ten Brummelhuis, 2013). The second EDUsummIT was held at UNESCO's headquarters in Paris in 2011. This summit brought together an international group of 120 researchers, policymakers, educators, journal editors and private sector leaders. Based on the impact of the EDUsummIT 2009, the EDUsummIT 2011 aimed to develop (a) recommendations for policy, practice and research that will help educational systems move into the digital age and (b) strategies to build a global community of researchers, policymakers and practitioners in the field of Information and Communication Technology (ICT) in Education (Resta, Searson, Patru, Knezek, & Voogt, 2012). Thematic working groups were established in which researchers, practitioners and policymakers shared research findings and experiences from practice and policy. EDUsummIT 2011's participants worked to address core questions, define current problems and make recommendations that would help schools around the world move into the digital age of the 21st century. This special issue

Accepted: 3 June 2013

Correspondence: Joke Voogt, University of Twente, 7546 CW Enschede, The Netherlands. Email: J.M.Voogt@utwente.nl; Gerald Knezek, University of North Texas, Denton, TX 76207, USA. Email: gknezek@gmail.com

reflects the research evidence underpinning the discussions and recommendations of the EDUsummIT thematic working groups.

Conceptual framework

Many argue that our society is changing from an industrial to a knowledge society and that to be able to cope with these changes students need to acquire new skills that have come to be called 21st century skills (Anderson, 2008), life-long learning competencies (Organisation for Economic Development and Co-operation, 2004) or key competences (European Commission, 2002). There is emerging agreement on what these 21st century skills encompass. Next to competencies related to the use of information and communication technologies (ICT), collaborative skills, communication skills, creativity, critical thinking skills, problem solving skills and social and cultural skills are mentioned in a number of prominent frameworks that promote and discuss 21st century skills (Dede, 2010a; Voogt & Pareja Roblin, 2012). It is acknowledged by many that ICT is at the core of 21st century skills. It is regarded as both (a) a driving force behind the need for 21st century skills – hence influencing curriculum content, and (b) a tool that can support the acquisition and assessment of 21st century skills, thereby impacting the teaching and learning process (Dede, 2010b; Voogt, 2008; Voogt & Pareja Roblin, 2012). The poor uptake of ICT in educational practice in society (Law, Pelgrum, & Plomp, 2008) seems contrary to the ubiquitous presence of ICT in society and the push from society regarding the use of ICT in education.

The central theme of the EDUsummIT was framed in a conceptual framework, in which student learning processes are seen as the core activity in the enterprise that is called education. Ten Brummelhuis and Kuiper (2008) distinguish four key elements which are situated at the classroom level and affect learning processes directly: the learner; the teacher; the curriculum and the infrastructure. Learners and teachers are the key players in the learning process. The curriculum determines the content and focus of the learning process and the infrastructure deals with the physical (and/or virtual) learning environment, including tools and learning resources. Teaching and learning processes take place within an immediate social environment and

simultaneously within a wider social context. The school as the immediate environment provides the organizational structure for the learning process. In the wider social context of the society, perspectives on education are discussed and educational policies are being developed and implemented, which affect how teaching and learning takes place and is organized. Figure 1 presents a graphical representation of the key elements and the influencing factors affecting the learning process.

The EDUsummIT 2011 used this framework to organize its work in thematic working groups that addressed the central theme from different perspectives: the learner, the teacher, curriculum and assessment, the structure of schooling, essential conditions for ICT integration and researching ICT in education.

This special issue

The first contribution of this special issue by Voogt, Erstad, Dede and Mishra addresses challenges to learning and schooling in the digital networked world of the 21st century. The authors elaborate on the competencies, often referred to as 21st century competencies that are needed to be able to live in and contribute to our current (and future) society. Findings from international studies show that educational practices in educational systems worldwide have not implemented 21st century competences (Law, 2009). The authors discuss the need to examine 21st century competencies connected to core school subjects and assessment practices. The need for alternative assessment approaches designed on new understandings of the impact of technology on teaching and learning is addressed by Webb, Gibson and Forkosh-Baruch. The authors combine frameworks from two different perspectives: 1) a conceptual approach to assessment design for computerized assessment and 2) a framework for formative assessment. Technology allows for strategies that combine these two frameworks, so that student performance can be measured as an integral part of learning.

It is generally acknowledged that learning takes place across school, home and community spaces, and thus that 21st century competences are often also addressed in learning settings outside the school. In the third contribution, Lai, Khaddage and G. Knezek argue that student technology experiences outside school are disconnected from those inside school. The authors

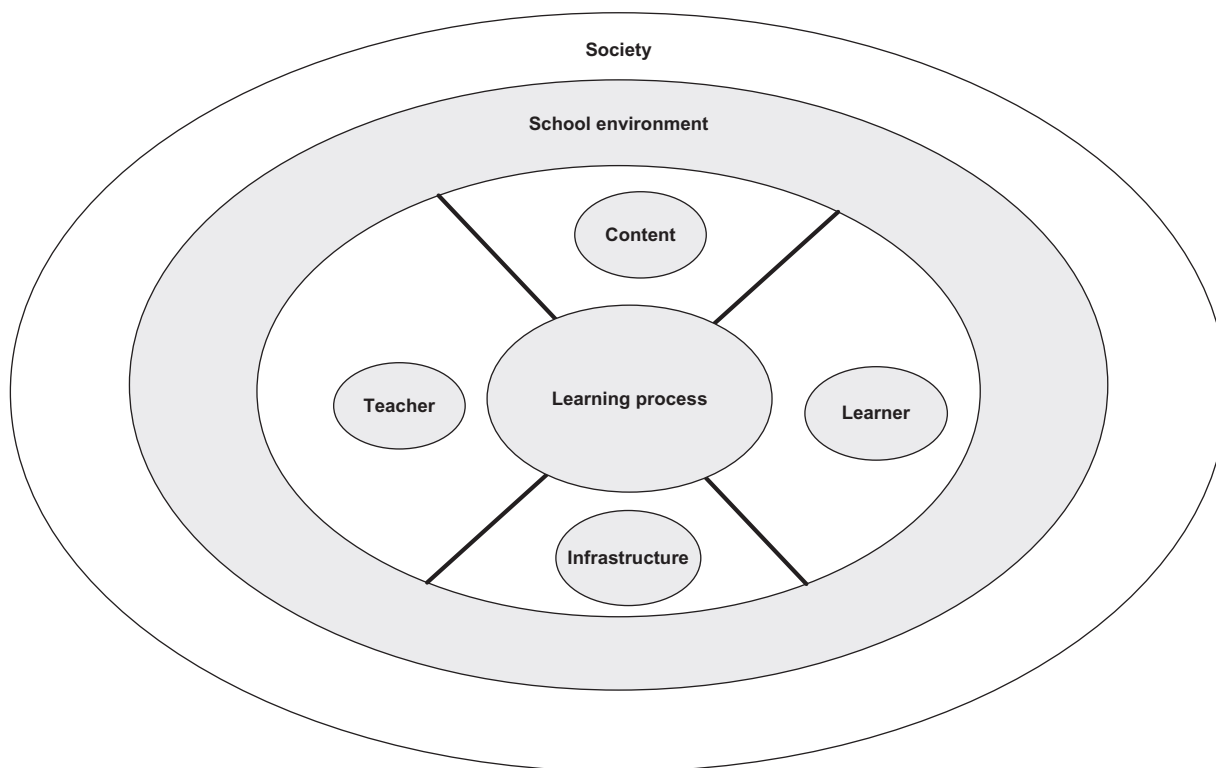


Figure 1 Driving Forces of ICT in the Learning Process (ten Brummelhuis & Kuiper, 2008)

discuss the importance of recognizing students' technology-enhanced informal learning experiences and contend there is a need to develop pedagogies to connect students' formal and informal learning experiences. They propose the Mobile Blended Collaborative Learning model as a framework for developing learning environments to blend formal and informal learning through technology. The uptake of technology in education depends, to a large extent, on the competences teachers have in integrating technology for teaching and learning (Tondeur *et al.*, 2012). For this reason teacher professional development is crucial in ensuring that teachers are prepared to use technology for 21st century learning. Based on a review of literature on teachers' professional development Twining, Raffaghelli, Albion and D. Knezek conclude that effective models for professional development require changes at several levels of the educational system (political, institutional and individual), and hence they advocate a systemic approach to ensure teacher professional learning in the use of technologies. Twining and colleagues argue that technology itself should be seen as an opportunity for introducing new goals, structures

and roles that support these changes. Their contribution results in research-based and experience-based imperatives for action. The need for a systemic approach is also acknowledged by Davis, Eickelmann and Zaka in their contribution about the need for restructuring of schooling to take advantage of technologies in education. In order to sustain innovative uses of technologies in schools several factors need to be in place such as leadership, technology integrated into the pedagogical vision of the school and cooperation with external partners (including public-private partnerships). This contribution recognizes an increase in different ways schooling is arranged, from complete virtual schools to schools organized as networked organizations with face-to-face and web-based services. Laferrière, Hamel and Searson begin their contribution with the question of whether there is a universal set of essential conditions, which act as a prerequisite for education to benefit from technology investments. Based on Engeström's activity theory framework (Engeström, 1987) the authors used International Society for Technology in Education's (ISTE) essential conditions (International Society for Technology in Education,

2009) to evaluate barriers encountered in the Remote Networked School Initiative, a large scale project in Quebec, Canada, aimed at preventing closure of remote rural schools. Although the study cannot prove whether ISTE's essential conditions have universal meaning, the relevance of ISTE's essential conditions was confirmed. The study also shows that successful implementation of technology integration is a learning process for those involved in eliminating both structural and cultural barriers.

The actions and recommendations (see Resta *et al.*, 2012) of the EDUsummIT community are research-informed. It is therefore imperative to reflect on developments concerning researching technology in education. Cox and colleagues argue that research on IT in education has an interdisciplinary nature and is affected by many stakeholders with differing interests. This situation often prevents the development of a lucid and comprehensive strategy for researching technology in education. Cox and colleagues advocate the need to establish e-learning observatories, in which experts and disciplines are brought together to warrant knowledge sharing and development. In addition, reciprocal relationships in which practice informs research and research informs practice need to be in place to inform research programs and set implementation strategies that contribute to the relevance and impact of research on technology in education.

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