Tackling Educational Challenges in a Digitally Networked World: Strategies developed from the EDUSummIT 2013

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1 Background

EDUSummIT (Education Summit on ICT in Education) is a global community of researchers, policy-makers, and educators committed to support the effective integration of ICT in education by promoting active dissemination and use of research. Supported by SITE, ISTE, Kennisnet, IFIP, ATE, and UNESCO, EDUSummIT has been held three times in the past, in The Hague (2009), Paris

(2011), and Washington D.C. (2013). These Summits have generated a large number of position papers, conference presentations, and journal articles. Information about the EDUSummIT is available at www.edusummit.nl.

The last EDUsummIT was held in Washington D.C. on Oct 1–2, 2013. Over 100 leading researchers, policy makers, and practitioners spent two days discussing educational challenges and strategies to address these challenges in eight working groups.

1. Towards new systems of schooling in the digital age
2. Advancing mobile learning across formal and informal contexts
3. Professional development for policy-makers, school leaders and teachers
4. Digital equity and intercultural education
5. Assessment as, for and of 21st century learning
6. Advancing computational thinking in 21st century learning
7. Observatories for researching the impact of IT in education
8. Placing Global Digital Citizenship and Literacy

A briefing paper for each group was published prior to the Summit and recommendations made by each working group to researcher, policy makers, and practitioners were published as summary reports and an action agenda (http://www.edusummit.nl/resources/results-edusummit-2013/) after the Summit.

In this workshop we will have four presentations to discuss major recommendations of the EDUSummIT 2013 by four working group leaders and members. We will also report on research conducted by the working groups subsequent to the EDUSummIT 2013, to be published in a special issue titled Research-Informed Strategies to address Educational Challenges in a Digitally Networked World, by the IFIP journal Education and Information Technologies in 2015. The next EDUSummIT will be held in Asia in 2015. During this workshop suggestions will also be sought with regard to the themes and format of this upcoming Summit. The presenters will make short presentations (10–15 minutes each) during the first part of the workshop, followed by at least 30 minutes of discussion with the audience.

2   Abstracts

2.1   Towards New Systems for Schooling in the Digital Age

B. Eickelmann, N. Davis and O. Erstad
The aim of this EDUSummIT 2013 Thematic Working Group was to identify the most effective policies and strategies to promote transformative and sustainable ICT-enabled changes in educational systems. Different perspectives on new systems of schooling in the digital age could be identified as relevant approaches. These perspectives are related to institutions, actors, and practices. Aiming for an expedient approach, Davis, Eickelmann & Zaka (2013) indicate the relevance of considering the co-evolution of pedagogy and technology. Because both education and digital technologies are evolving rapidly, the term co-evolution is adopted to describe the changing ICT applications and services as well as the changing scenarios leading to new systems and forms of schooling. Examples of new technology developments that could have an influence on new systems of schooling include OER (Open Educational Resources), MOOCs (Massive Open Online Courses), video-based learning settings, or flipped classrooms illustrate how the use of new technologies enables more flexible forms of teaching and learning as well as new systems of schooling. Furthermore, a need has been identified to move beyond traditional conceptions of formal vs. informal learning, online vs. offline activities, and to develop new conceptions of what defines learning spaces across different locations and contexts (Erstad, Sefton-Green, 2013; Fullan, 2012).

2.2   Towards a framework of criteria for identifying best practices and models of mobile learning

K.-W. Lai, F. Khaddage and G. Knezek
In this presentation we will discuss some of the key challenges and issues that teachers and students are facing today when using mobile devices in their classes, while high-lighting the urgency of identifying best practices, design guidelines, and models of mobile learning as a resource to support the design, development, and implementation of mobile learning in education. We will then propose a set of criteria as a framework for identifying best practices and design guidelines for integrating mobile technologies in learning. These criteria will include being evidence-based, culturally sensitive, curriculum centred, flexible and scalable, allowing adaptable pedagogy, student directed, and ap-

plicable in formal and informal contexts. Examples of best practices and design guidelines will be provided to illustrate how this framework can be used.

2.3 Technology enhanced assessment of collaborative learning

M. Webb and D. Gibson

This presentation examines the challenges and opportunities for improving assessment of collaborative learning through the use of technology. Our previous analysis of challenges for information technology supporting assessment (Webb, Gibson, Forkosh-Baruch, 2013), following discussions at EDUSummIT 2011, identified student involvement in assessment and digitally-enhanced assessment as critical for 21st century learning. Digitally-enhanced assessments were defined by the Working Group at EDUsummIT 2011 as those that integrate: 1) an authentic learning experience involving digital media with 2) embedded continuous unobtrusive measures of performance, learning and knowledge, which 3) creates a highly detailed (high resolution) data record which can be computationally analyzed and displayed so that 4) learners and teachers can immediately utilize the information to improve learning. This unobtrusive measuring approach provided a vision of "quiet assessment" whose volume can be turned up by learners and teachers whenever they wish in order to check their progress. There are now a number of projects working on developing a new generation of assessments including the OECD PISA Project which is planning to assess collaborative problem-solving skills in 2015 through computer-based assessment (see: http://atc21s.org/index.php/ oecd-conceptual-framework-for-2015-pisa-assessment-of-problem-solving/). We will review recent developments in assessments and focusing particularly on approaches and challenges for assessing collaborative learning in order to identify:

1. Which current examples of computerised assessments embody our vision fully or partially?
2. For what purposes are computerised assessments particularly useful and where should other (non-computerised) approaches be retained or developed?
3. How can digitally enhanced assessments be designed to be transparent for teachers and learners?

2.4   Computational Thinking: A Conceptual Framework for Research, Teaching and Teacher Education

(Presenter: P. Fisser)

Computational Thinking has been receiving a great deal of attention lately – as being a particularly important skill that all students need to have to be successful in the future. Despite this there is much that we still do not know regarding the specifics of what the core concepts/attributes of CT are; how CT can be learned/taught; how CT can be integrated in the curriculum; and how the development of CT can be assessed/evaluated. In this presentation we offer an extended review of the idea of computational thinking, connect it to previous and current digital technology based educational initiatives (as well as point what differentiates it from the others). Most importantly through this we seek to develop a conceptual framework that would allow researchers, educators and policy makers to work together with a shared vocabulary. We end by identifying opportunities for both future research and practice.

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Biographies

Kwok-Wing Lai is Professor of Education and Director of the Centre for Distance Education and Learning Technologies at the University of Otago College of Education in Dunedin, New Zealand. He is also the editor of *Computers in New Zealand Schools*. His current research focuses on the fields of knowledge building and mobile learning.

Niki Davis is the University of Canterbury Professor of e-Learning, IFIP outstanding service award; current member of WG 3.3 for research and WG3.6 for distance education. She recently developed a postgraduate course in Computer Science Education with Tim Bell, leading author of CS Unplugged and the CS Field Guide.

Birgit Eickelmann is professor for educational science with a focus on ICT in teaching and learning contexts, especially in schools and teacher education. She is IFIP member of WG 3.3.

Ola Erstad is professor at the Department of Education, University of Oslo, Norway. He has been working both within the fields of media and educational research, especially on the implementation and use of ICT inside and outside of schools.

Petra Fisser is involved in research and curriculum design at the National Institute for Curriculum Development in the Netherlands with a focus on technology integration in education.

David Gibson, Associate Professor of Teaching and Learning and Director of Learning Engagement at Curtin University in Perth, Australia. His research focuses on complex systems analysis, design and improvement of cyberlearning applications, games and simulations in education, and the use of technology to personalize learning via cognitive.

Ferial Khaddage is a Lecturer of Mobile Apps at Deakin University/MIBT Melbourne Australia. Holds a Ph.D. degree in I.T. (Mobile Technology) from Deakin University, her research interest is in mobile technologies and apps in education and has published widely in the area, and has presented her research findings locally and internationally.

Gerald Knezek is Regents Professor of Learning Technologies at the University of North Texas, in Denton, Texas, USA.

Mary Webb is Senior Lecturer in Information Technology in Education at King's College London and Chair of IFIP Working Group 3.3 on Research. Mary has developed and researched computing and the use of digital technologies in learning and teaching since computers first appeared in schools. She has taught Computer Science in secondary schools and runs a PGCE Programme for new Computer Science teachers.

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