



An Open Torun Vision - International Federation for Information Processing (IFIP) Technical Committee 3 (TC3) - 2013 to 2017

Educational stakeholders and purpose: who and what can be supported better by computers?

Arising from the wide experiences and outcomes of the World Conference on Computers in Education (WCCE) 2009 in Bento Gonzales, and the WCCE 2013 in Torun, Poland that focused on ‘*Learning while we are connected*’, this *Open Torun Vision* directs us towards the future WCCE 2017 in Dublin, Ireland.

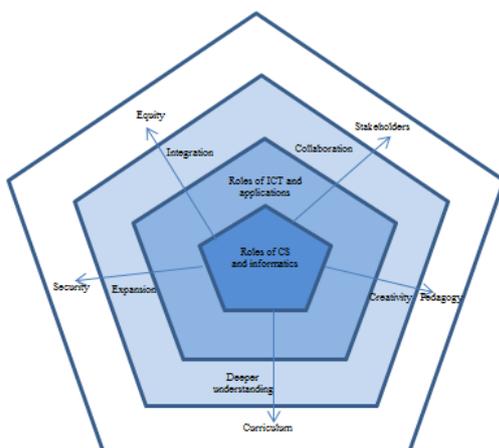
WCCE 2013 outcomes indicated the many widening concerns of those involved with information processing, whether it be either in computer science (CS) and informatics, or in information and communication technologies (ICT) in education. There is a clear need for a greater detailing and shared understanding of the terms and dimensions we use and how these relate – the focus on the subject, creation and programming behind digital technologies, computing, computer science, computing literacy, and informatics, as well as the focus on the applications of technological tools concerned with technology enhanced learning (TEL), ICT, ICT literacy, digital literacy, digital fluency, and media literacy, for example. This discussion is underway, and the *Open Torun Vision* includes the delivery of clarifying statements and practices through WCCE 2017.

To consider the futures of both CS and ICT in education, a four-year vision must accommodate possible major shifts and developments between now and 2017, as well as further integration of CS and ICT practices into respective elements of professional development and careers, education, teacher education, curricula, teaching, and learning.

Both CS and ICT offer important opportunities for all stakeholders in education – learners, parents, policymakers, educational advisors, managers, software developers, professional trainers, teachers, tutors, and counsellors. All learners have specific needs – whether they are professional, teacher, or student learners – but their needs are often concerned with developing greater personalisation, accommodating increasingly-found practices such as ‘bring your own devices’ (BYOD).

Stakeholders supporting learning can use both CS and ICT to benefit lifetime learners, including seniors, adopting lifelong and intergenerational practices. At the same time, differences in communities across the world are respected, accounting for language, cultural, and institutional values, including those that do not recognise a need for either CS or ICT as basic requirements; and in

this spirit, this vision promotes informing through robust concepts and knowledge rather than through shallow advocacy. The *Open Torun Vision* calls for a focus on five key elements – collaboration, creativity, deeper understanding, expansion, integration – which will be aided through the creation, working and reporting of taskforces – focusing on stakeholders and professional development, pedagogy, curriculum, security and other social implications, and equity.



The *Open Torun Vision* points to balance rather than dichotomy – the need to accommodate and explore how to integrate CS as well as ICT in education; to consider the world of work, informal,



formal and non-formal learning settings; the need to explore the integration of existing technologies as well as the application of future technologies; the need to develop producers as well as consumers.

This vision calls for opportunities for blended rather than divided approaches and practices; the need to understand ways that both CS and ICT in education can be blended, rather than arguing a 'one or the other' case. But elements of the vision need to be accommodated in the more specific contexts of working groups and national policies and plans.

The *Open Torun Vision* foresees key aspects of our knowledge and understanding being addressed, in two focal areas, with subsidiary elements under consideration. By 2017 we need to:

1. Move from consuming to innovating, creating, conceptualising, and producing using programming (CS) as well as ICT applications.
 - Identify the development of knowledge and creativity that has been widened beyond current levels, and how education and professional development has been enhanced through effective communication of CS and ICT practices and approaches.
 - Understand more the role of computers in positively supporting early child exposure to environment affecting subsequent development.
 - Have a wider consideration of educational theories relevant to the field, in a way to discover and develop digital pedagogies.
2. Deploy digital technologies to better support different interactions with different stakeholders, according to technologies selected and used (such as those with online or haptic features), accommodating institutional diversities, gender, cultural, native language, cognitive and social backgrounds.
 - Recognise the more developed roles of active, deep and authentic learning, involving self-expression, problem-solving, collaborative, co-operative and group and team working using digital technologies with a reflective attitude.
 - Understand more the roles of CS and ICT in effective learning occurring in informal and non-formal as well as formal and workplace settings.
 - Review and develop CS and ICT curricula at all levels (professional, pedagogical, organisational, adult, student, student teacher and trainer, for example).
 - Widen professional development for all those who support training and learning using CS and ICT (teachers, tutors, trainers, counsellors, advisors, and parents).
 - Explore hybrid education and blended models of learning, to consider flipped classrooms, MOOCs, serious games, direct instruction, video revision clips, mobile technologies, and information security.
 - Investigate emerging blended models of education, impacting learning and supported by digital technologies.
 - Link education to capacity building, training and employment, and the more ready identification of skill gaps in terms of CS and ICT.
 - Identify the application, agility and sustainability of emerging technologies for education and lifelong learning.
 - Match uses of computers to purpose (socio-cultural, democratic, or economic), to audience, intentions and outcomes (including assessment).
 - Provide the facility to enter the information society, understanding the roles of social media in learning, the ethical challenges, and how negative uses may reduce or lessen these.