

Centre for Educational Research and Innovation (CERI), OECD  
Alberta Education, Canada



## Innovative Learning Environments (ILE)

### International Conference on Innovative Learning Environments

Banff Conference Centre, Banff, Alberta, Canada

October 10<sup>th</sup> – 12<sup>th</sup> 2011

## SUMMARY CONFERENCE REPORT

### Conference Overview

The OECD/Alberta conference was the most ambitious event to date in the OECD work on Innovative Learning Environments. It drew on the earlier work on learning research and addressed in detail the on-going “innovative cases” analysis and the new work focused on the key issues of “implementation and change”. The participants reflected these ambitions as, in addition to the ILE system coordinators, experts and Secretariat, there were many different forms of expertise and interest represented: policy officials, system leaders, teacher educators, innovators, principals, foundations, and the social partners (BIAC and TUAC).

This international conference on Innovative Learning Environments (ILE) was co-organised by OECD’s Centre for Educational Research and Innovation (CERI) and Alberta Education, the Ministry of Education in the Canadian province of Alberta. The local hosts were the Canadian Rockies Public Schools, the Alberta school district in which the town of Banff is located. The Alberta Government is engaged in a widespread dialogue to create a long-term vision for transforming education, focusing on innovation, shared governance, inclusiveness, engagement, a shift towards building competencies, and shared responsibility and accountability for student-centred education.

The conference ran for 2 ½ days, beginning at 2pm on Monday 10<sup>th</sup> October 2011 and finishing at the end of Wednesday afternoon, 12<sup>th</sup> October. The discussion was led by Tony Mackay, Centre for Strategic Education, Melbourne, Australia.

The specific aims of the meeting were to:

- ***Examine inspiring forms of learning innovation*** being tried in different countries and contexts, addressing their innovative design and their aims and outcomes.
- ***Discuss strategies and priorities for expanding*** new forms of learning environments, both in particular localities and through wider clusters and networking, and the broader policy implications to facilitate this process.
- ***Consolidate the international network of systems, stakeholders and researchers*** building 21<sup>st</sup> century learning environments and exploring how these can be implemented at scale.
- Stemming from these, to ***provide substantial input to the OECD work on Innovative Learning Environments***, both in its analysis of “innovative cases” and in designing new work on “implementation and change”.

To meet these aims, the conference programme was in three main parts. The first part on October 10th was devoted to setting the challenge and issues for the conference seen from different perspectives and how the ILE work responds to these issues. There were introductions from Alberta Minister and Deputy Minister, Dave Hancock and Keray Henke, Director Barbara Ischinger and project leader David Istance, and a keynote from Nelson Gonzalez of the Stupski Foundation, USA (certain have changed post since the conference).

The second day up to the afternoon break was devoted to the innovations themselves and the issues that they give rise to in the different settings in which they have been implemented. It began with a presentation of the synthesis case study results (Mariana Martinez-Salgado, Vanessa Shadoian-Gersing, and Hanna Dumont) and then workshops on different innovation foci (the experience of learners and teachers; organisation and dynamics; redesigning the medium of learning; changing content). The afternoon ‘transversal’ workshops were on research-based innovation; learning leadership; teacher professionalism; and appropriate outcomes and evaluation. There were plenary sessions after each set of workshops.

The third main part of the conference addressed the issues of implementation and change more directly. It began with presentations based on innovation origins in the ILE cases (Anne Sliwka) and on the OECD/CERI work on the Innovation Strategy (Stephan Vincent-Lancrin), with (on October 12<sup>th</sup>) a keynote on systemic change (Valerie Hannon, Innovation Unit, England), workshops on governance, networks, resources, policies to shape positive conditions, a panel to gain different stakeholder insights, and discussion and summing up at the end.

There was also a visit to Olds Community Learning Campus in the Chinook’s Edge School Division on Thursday October 13<sup>th</sup>.

## **Challenges, Issues and Agendas**

The aim of the opening session was to lay out existing priorities and developments in learning and innovation as seen both from the host education system and from the international OECD viewpoints before moving to a keynote opening up the urgency of innovating learning systems in the 21<sup>st</sup> century, democratising deep learning across the whole generation of young people, rather than in isolated pockets, and engaging in the innovation that this implies.

### ***Reform and innovation in Alberta***

Dave Hancock, then Alberta Minister of Education, introduced reform and innovation in Alberta. Regardless of the many challenges being faced, (including global economic downturns, the movement of people across borders, and finding adequate resources for education), leaders in the education sector and business, government, parents and students should be the architects of the future as current educational initiatives will, in great part, determine the quality of life for decades to come. In addition to core skills, students will need to be innovative and creative; they will need to have highly developed analytical skills, be problem-solvers, and able to function as effective members of a team. They will need to be productive and engaged citizens who are active members in their local communities and as world citizens. As a result, education systems have had to take on a much broader social and educational mandate.

For the past few decades, Hancock maintained, systems have been tinkering - trying to adapt to current realities by sustaining things more or less as they are. However, sustaining innovation in education may well prove inadequate when the real need is truly to transform education systems because the world has changed and is continuing to change. Education systems must embrace change, respond to the diverse needs of students and provide high-quality, personalized and socially engaging learning opportunities. The future will be built on a foundation of ethical citizenship, engaged thinking and entrepreneurial spirit, with the goal of nurturing lifelong learning so that current and future generations can reach their full potential. The Alberta *Action Agenda* can be cast in the light of these aims, with six key themes: *First Nations, Métis and Inuit Success; Inclusion; Legislation; Teaching and Leadership; Research; and Curriculum.*

What transformation in education actually means and how it must evolve should be mutually understood by all stakeholders so that it can take root at the grassroots level. Teachers were proposed as the most significant change agents in the learning process and key to facilitating flexible, innovative and personalized approaches to learning by creating environments that engage students in compelling, relevant and authentic work. Hence, the teachers should not be seen as agents only of effective instruction but as displaying strong leadership to energize, excite and challenge students to learn. This depends too on creating innovative and authentic learning environments that engage and foster individual student passions, interests and abilities.

### ***Learning and skills – insights from the OECD***

Barbara Ischinger, OECD Director for Education, described how global drivers are pushing countries to give priority to generating high levels of knowledge and skills with attention increasingly turning to more demanding forms of “21<sup>st</sup> century competences” and yet traditional educational approaches are not adequately delivering on such demanding agendas. Hence, there is

need for major endeavours of innovation. And despite the high levels of educational investment (including in educational technology) and extensive educational reforms in our different countries, it remains very difficult to make an impact on the “black box” of teaching and learning.

Policy makers more than ever are concerned to achieve measurable improvements in students’ educational performance and skills and the OECD has developed an impressive battery of studies and surveys to address these priorities and concerns. There are the prominent *PISA surveys*: by testing approximately half a million high school students from over 70 countries, PISA provides the most comprehensive and rigorous international assessments of learning outcomes in education. Our *2008 Teaching and Learning International Survey* (TALIS) has provided the first internationally comparative perspective on the conditions of teaching and learning, based on data from over 70,000 lower-secondary teachers and school principals in the 24 countries that took part, with a new TALIS round in 2013. Also in 2013 there will be the first results of the *Programme for International Assessment of Adult Competencies* (PIAAC), permitting the comparison of skills levels and the opportunities that people have to use them, and how all of this translates into better economic and social outcomes.

So, the OECD’s focus on education reaches far beyond the sector itself. Faced with the global challenge of unemployment, there is need for partnerships between the worlds of work and education and strategy to link skills and jobs effectively. Hence, the OECD Skills Strategy, which will promote mechanisms to match skills demand and skills supply and help countries identify investments in skills that will produce the greatest benefits.

### ***The importance of educational research***

Deputy Alberta Minister, Keray Henke, addressed the key role of educational research in informing educational transformation. It provides a context and a platform for identifying and debating competing ideas – a platform that will underpin the proposition that the intentional and systemic development of a culture that supports innovation, experimentation and creativity is essential. It is essential particularly as these are the qualities that we expect students to demonstrate.

Studies show that a research-based learning approach increases student engagement as well as students’ higher-order cognitive skills and personal competencies in all subject areas – from languages to science to fine arts. It brings new attitudes of objectivity, curiosity and critical outlook in students so providing them with skills to participate in an increasingly complex world. For teachers in training, the identification and analysis of new research findings equips them with new problem-solving and leadership skills. And for educators as a whole, educational research forms the basis for continuous professional growth essential to maintain the excellence of opportunity and achievement. To take this further; *knowledge transfer* must permeate all aspects of our education system.

The Alberta *Action on Research* agenda has co-developed an overarching Education Research Framework using a generative process with diverse partners - government, key education stakeholders, research organizations and post-secondary institutions. The Framework is designed to: enhance education research and innovation capacity for all stakeholders in a responsive and ethical manner; build upon the culture of research excellence in Alberta; support improvement of

student engagement and learning; and bridge education research in Alberta with educators, students, parents, academia, partners, and stakeholders. Embracing the research, and infusing innovative practices and teaching methodology into schools, is essential to changing educational opportunities and to enabling better evidence-based decision-making in educational policy and programming.

### *The learning innovation agenda*

Nelson Gonzalez, of the Stupski Foundation, USA, presented his keynote in terms of opportunities, approaches, principles, and implications. Among the *opportunities* are the pressures of the global context that call for innovation in learning through the demands and developments such as the Arab Spring movement. It includes growing consensus around new definitions of learning that provide a critical platform, definitions that include the importance of student agency, deeper learning, higher-order thinking, personalization, the important role of technology, and of flexibility in use of time/space. All argue for the need to develop *adaptive design capacity* at all levels of education systems.

As regards *approach*, scaling ILEs must tap into intrinsic motivation, passion, and desire – agency for students, teachers, administrators; it must balance accountability with capacity. The Partnership for Next Generation Learning in the US is a relevant model - a change mechanism with key design principles:

- *Empowered*: supportive policy environments that provide permission, conditions, resources, and incentives;
- *Practical*: student-centered, focused on concrete problems of practice, rapid feedback loops, and which are co-designed;
- *Systemic*: the student-to-state through-line to account for all enablers and barriers involved in going to scale; and
- *Unique governance arrangements*: the micro, meso, macro levels aligned through such mechanisms as memoranda of understanding, shared data and assessments, and common networks.

For the *principles* for learning environments, these will embrace deeper learning and learner agency and be based on the best research and evidence available. They will need to embrace the micro instructional core such as Learning Labs and appropriate R&D methods such as quick feedback, continuous improvement, design capacity, collective efficacy, collective team work, and the right culture. There will need to be innovation at all five levels – the *learner* (e.g. color/poverty), *resources* (especially technology), *content* (agency), *teachers* (e.g. through team collaborative work), *organization* (e.g. R&D networks). We should aim for scale through networks at the meso level (such as the Learning Lab Network); and appropriate State/federal policies at the macro level surfacing from practice in inversion of the traditional policy-making process.

On *implications*, Gonzalez recommended focusing on implementation in terms of substantive change (towards learning involving agency and the affective, assessment and accountability processes relevant to innovation); procedural change (R&D, building adaptive capacity, and improvement science, and network creation and management), and issues of moving to scale

(appropriate policy and movement-building). The major question he identified for the ILE work is: how to develop a “a network of networks” to help do this?

### **The OECD/CERI International “Innovative Learning Environments” (ILE) Project**

David Istance (OECD) made the first presentation of the CERI project “Innovative Learning Environments”, beginning with its aims and how the ILE work has been designed to respond to and illuminate them. He introduced the “Learning Research” conclusions and the frameworks underlying the “Innovative Cases” work. He dwelt particularly on the models and frameworks underlying the ILE approach to the micro and meso levels, and how these can be translated into an approach to grasping “Implementation and Change” – the next strand of the ILE project.

Mariana Martinez-Salgado (OECD) presented the criteria defining an innovative learning environment in ILE work and the countries, states, and organisations actively participating in it. She summarised the state of play in the “innovative cases” strand of the work, with a main pool of 120+ cases gathered so far, aiming eventually at 160+, and from among these, 35 case studies (the “Inventory”). The case studies are providing more detailed analysis in four main areas: the aims and history of the ILE; the structured patterns and characteristics of the learning environments; the nature of the learning taking place within them; and their impact and effectiveness. These will all be gathered into an on-line knowledge base together with various shorter tools and resources, as well as lead to a full OECD publication in 2012.

Vanessa Shadoian-Gersing (OECD) reminded the conference of the main dimensions underpinning the ILE concept of “learning environments” – Learners, Teachers, Content, Resources, and Organisation – and how this framework permits questions such as whether particular innovations are addressing mainly one, two, or all of the dimensions. She looked in more depth at one of these dimensions - teachers – and one dimension of innovation within it (team teaching). There are several approaches to team-teaching, ranging from the standard to the more innovative, wherein teachers use this approach to build flexibility (e.g., through different groupings and multidisciplinary approaches), engage learners, and foster pedagogical advantages in their classroom. Furthermore, different sub-dimensions do not exist in isolation but are intertwined, and their strength lies in how they are built upon one another. She illustrated this with ILE case study examples and argued how it will be important to capture this complexity.

Hanna Dumont, (Tuebingen University and OECD consultant) addressed the “*The Nature of Learning*” in the ILE Case Studies, taking the core principles identified from the 2010 ILE publication of that title in turn: learner-centredness, the social dimension of learning, recognising the importance of emotions, addressing individual differences, appropriate assessment, and horizontal connectedness. She found strong confirmation of these principles in the different ILE case studies, which she illustrated through examples and cases. Drawing the different insights together, she observed that most of the innovative practices address several of these principles at the same time, rather than specifically addressing only one of them. Many of the practices also go hand in hand with a more open and flexible use of space and time. And all the case studies report high levels of teacher collaboration and commitment to professional learning, i.e. the principles apply to the teachers and not only the students.

## *Facets and Dimensions of Innovative Learning Environments - Workshops*

The aim of this set of workshops was to address the dimensions of innovation in learning environments through specific concrete approaches and examples, while in all cases exploring their implications for holistic reorganisation.

*Workshop 1: What different ILEs mean for the learner and for the learning professionals – changing the learning experience.*

This session heard a presentation by Judy Halbert and Linda Kaser, Network of Performance Based Schools, Vancouver Island University, British Columbia, Canada. It was chaired by Valerie Hannon, Innovation Unit, England. The questions guiding this session were :

- How important is it to involve learners in new ways of learning? What promising experiences can you report?
- What factors are critical in engaging learners in innovative forms of learning? Why?
- What about teachers and other learning professionals – how far is changing their professional experience of teaching and collaboration altering (and improving) their professional lives? What support do they need?

Judy Halbert of the Coalition of Effective Schools in British Columbia, focused on cases that encourage deeper forms of learning extending beyond the curriculum coverage.

Case 1: The initial issue was reading comprehension in a small primary school. The school used time and space in innovative ways: It made use of the Kieran Egan approach “learning in depth”. Kids pursue an area of passion for one year, they “own” their learning. The approach has a radical inquiry orientation.

Case 2: Three small schools in a very rural area have developed connected classrooms; the learners in the three settings engage in joint inquiry.

Case 3: This is about motivation and emotion, moving from a “fixed” to a “growth mindset”

Case 4: There are six key strategies applied for formative assessment. Learners take ownership of their own learning, there is sensitivity to individual differences and prior knowledge, and students serve as coaches for elementary school students. The motto is "We are all learners, we are all teachers".

Case 5: The “Energetic Learning” cluster is about providing the right degree of challenge for every learner.

Case 6: Horizontal connectedness: creating connections between different generations in a community garden project. A primary school is moved into a home for senior citizens. There are mutually beneficiary effects: the literacy rates of young learners are improving, the health of the elderly is improving

Discussion after the presentation focused around a number of questions. How, for instance, do we really know that the ownership for learning is shifting? It certainly seems that students are more engaged, more curious, more inquiry-minded. There is now a genuine involvement of students in real life questions. A challenge is still that there is not enough communication between the school and the parents and whether there is an overflow of engagement into the home.

Students' language about learning is critical. How do they talk about their own learning? Across the OECD systems, developments are not consistently in one direction. One participant, for example, described a system in which there are signs that teachers are moving away from open learning and going back to more structured and teacher-centered ways of teaching. Do constructivist approaches to learning work for all students? Some kids retreat from the learning and find these more open processes quite threatening. Success in open forms of learning depends on the students' mindsets, so more research on student mindsets is needed.

Networking provides time and space to overcome teacher isolation in the classroom. A strong governance focus on accountability might not always be supportive of desirable innovation (e.g., student ownership of their own learning).

Linda Kaser focused on the role of teachers and students in innovative learning environments. There is a substantial change in the identity of teachers from storytellers to co-inquirer. Teachers and students share cognitive tools and share a language about learning. Some trends consistent with this are:

- interdependent teams of professionals;
- connections between age ranges and levels;
- more engaged use of technology;
- use of community resources;
- focus on deeper forms of learning;
- inquiry mindset in teaching;
- embracing reform rather than seeing it as something done to teachers.

Developing an inquiry innovation is like a "boot camp for leadership development". Teacher preparation has moved to actual learning communities: "we are all learners, we are all teachers". Teachers ask: what is in it for me? What are the incentives to change?" The strongest incentive is that the innovations actually help students learn and therefore help the teachers to do effective work.

### *Workshop 2: Reorganising learning environments – organisation and dynamics*

This session heard a presentation by Anders Palm and Peter Skoglof, Swedish National Agency for Education, Stockholm, Sweden; and by Erich Ramseier, University of Teacher Education, Berne, Switzerland. (TBC); it was chaired by David Istance (OECD). The questions helping to guide this session were:

- What are some of the key examples you have where learning was significantly reorganised to positive effect?
- Is it possible to break with old organisational moulds and habits? How able are schools and other learning environments to sustain the change? What types of capacity building might be useful?
- How possible is it to refocus the organisation of learning while bringing along other stakeholders (such as parents) who may not be convinced?

Among the key insights from the Swedish case study is the importance of time as a crucial factor in reorganizing learning environments: it needs several years for change to happen and teachers need time reserved during the week to implement change and to talk to each other about their practices. The context of each learning environment (such as the labour market, the local industries, etc.) strongly influences how learning environments can be changed. Teachers are usually not linked across schools/municipalities to talk to each other about teaching. If one wants to make change happen it is not through a “top-down” process, but by starting out at the ground, one needs to have more flexibility on the ground.

The insights from the Swiss case study are interesting because it involves such a radically different organisation of learning. It is interesting and it “works” precisely because it has such strong design, including strong rules and rubrics. Hence, it is not based on libertarian lines that would allow it constantly to be shaped and re-shaped by the wishes of learners and others. Given that it is a fee-paying boarding school, this learning environment might seem an unrealistic model but many other public schools in the German-speaking context are applying the practices of Institut Beatenberg and the leader is involved in the teacher education of many public schools.

There needs to be an agreement between municipalities, school leaders and teachers on what the problem is and what needs to be done and that partnership may not be easy to maintain, as within the Swedish case study ILE, where the teachers found themselves alone after the initial enthusiasm. In the example of “Innovation Schools” in one US state in which schools can make proposals on how to change and become an “innovative school” and this is granted on a “tight-loose-principle” with a lot of freedom at the local school level and a good deal of teacher autonomy. An Alberta initiative was also described as working on the principle that change takes time, as a 5-year programme where teachers need to be given time to share new things and what they are doing among each other. An outside university expert works with the schools and every month, three schools are presented to the school boards so that the board continues to be responsible.

### *Workshop 3: Integrating technology’s potential for redesigning the medium of learning*

The session heard a presentation by Jennifer Groff, consultant, Cambridge, USA, and it was chaired by Dean Lindquist, Assistant Deputy Minister, Learning Supports & Information Management, Alberta Education, Canada. The questions guiding this session were:

- How many of you have positive examples of the integration of technology and digital media significantly changing the learning experience of a whole school/cluster of schools? What about non-school examples aimed at specific learners or communities?
- How best can the key stakeholders and players – including teachers and leaders – engage with the positive potential for technology to improve learning?
- Is a ‘tech-rich’ learning environment a costly option and unrealistic for all but the most affluent? Or can the innovative tech-rich examples be equally accessible to less privileged communities and schools? How?

Groff outlined the notion of stages of the integration of technology into schools – from emerging to applying to integrating and transforming. This can be used to address the questions: what is innovation? What is innovative enough? How do we move from where we are now to where we could be? These stages offer a lens through which to observe whether ICT has leveraged incremental or deep change in learning environments.

In evolving learning environments we may think of first-order and second-order innovations. The “first-order” innovations - blogs, wikis, social networking sites, virtual learning environments (VLE), laptops, netbooks and tablet PCs, interactive whiteboards, Web apps, digital cameras, scanners, projectors, e-Learning, digital portfolios - are prevalent among many technology-rich learning environments. They are being implemented with the notion that leveraging many of these tools together can produce a markedly different educational climate. Other technologies are more “disruptive” or “second order” innovations’ - augmented reality (AR), simulations, digital games, console games, remote-response systems, mobile/handheld computing, programming applications, pico projectors, and electronic books. They are appearing on the periphery of the educational landscape and only just beginning to see their full potential with possible increased development and application over the next decade.

For traditional learning environments and educational systems, these innovations offer powerful tools to improve teaching and learning within an existing structure, where other instructional elements (such as curriculum, assessment, etc.), may not have the freedom to be altered considerably. Many schools are selecting at least several of these technology innovations to keep their practice evolving in what might be described as the “à la carte” method. Other learning environments have latched on to one of these innovations and made it the key catalyst in changing practice, in what might be described as the “backbone” method.

Groff also presented a model of different obstacles to technology adoption and integration in learning environments enumerated under the different categories - research and policy, the school, the teacher, the learning project, students, and technology - when these are ill-adapted to technology use and vice versa. As these obstacles are addressed and overcome then there is the possibility for genuine transformation, with technology used as a lever to overhaul all parts of the school, using both first- and second-order technology, in flexible environments, with new teacher programs, digitally-rich pedagogies, and professional innovation cultures, opening possibilities for profound academic gains. Indeed, we might even imagine this going still further in terms of “re-

*inventing*” learning environments, in which all elements are [re]designed in synergy with innovation in all areas.

Some of the discussion in this session was focused on the digital divide. While participants agreed on the inspiring qualities of the tech-rich environments presented, some posited that there existed a digital divide in terms of access to educational technology—with learning environments in lower SES areas as well as rural areas often bearing the brunt of the divide. A parallel ‘divide’ emerged in terms of teachers’ access to professional development to encourage appropriate and effective use of technology in learning environments, which a number saw as a crucial element in using technology as a vehicle to promote learning. There was broad agreement on the need to define and build the pedagogy and desired learning processes before turning to technology as the vehicle through which to deliver them.

#### *Workshop 4: ILEs for new knowledge, competences and capacities – changing content*

The session heard a presentation from Ellen Hambrook, (Assistant Deputy Minister, Education Program Standards and Assessment, Alberta Education) on Framework for Student Learning: Competencies for Engaged Thinkers and Ethical Citizens with an Entrepreneurial Spirit. It was chaired by Gertraud Benke, University of Klagenfurt, Austria. Questions helping to guide the discussion were:

- What are some of the most exciting examples of innovative learning environments transforming the content of the learning? What inspires those transformations of content?
- What is involved in ensuring that deep-seated change in learning content takes place rather than just new rhetoric or cosmetics?
- How far are curriculum and evaluation policies a barrier or brake on such transformations or are they neutral or even positive towards them?

The presentation by Ms Hambrook began with the question of what an educated Albertan would look like in 20 years from now. The initiatives Inspiring Education and Inspiring Action were aimed at addressing this question by providing the vision – all students need to be *inspired*. It lays out core values and presents action needed on: inclusion, First Nations, Métis and Inuit Success, teaching and leadership, research, and legislation. It identifies three areas of implementation: curriculum standards and process redesign; strategic review of locally developed courses; and competencies.

These raise key issues for consideration. The issue of meaningful content and of rethinking schooling. Are the right subjects in the curriculum? Should there be new ways of grouping? And are there shifts needed to the curriculum to ensure greater depth, interdisciplinary learning, appropriate development of competencies, and the necessary flexibility for teachers to implement curriculum. There is also need to address engagement with different partners and stakeholders in education such as the education authorities, parents, publishers, and the private sector. Learners themselves are a foremost stakeholder and learners’ voice needs to be recognised. They need

competencies for critical thinking, leadership, literacy, and communication. And then there is the challenge of scale up, (or, it was asked, perhaps “spreading out” is a better term).

In the discussion, the importance of students’ engagement was underlined, and the value of assessments to find out “is this too easy and I need more challenge?”, “is this too hard?”, or “can I take a summer course on this?” The teacher role was discussed, including the teacher as designer – designing learning spaces, virtual spaces, educational work and collaboration, as designers of content not as transmitters of content. There is the challenge of appropriate content for aboriginal students. There is the question of getting the universities involved in what needs to be changed – are they being innovative? What do they expect from new students?

It was proposed how integral curriculum reform is to the other elements in education and should not be treated as a matter apart, because the context, content and the dynamics have to be brought together. An example of one of the featured ILE schools was given, where they have been able to proceed without classes but with students choosing where and when to work following their interests and passions. A variety of questions were raised. Are standards (in subjects) necessary? How does new knowledge get into the system? How to assess the effectiveness of the change? Are changes allowing greater flexibility?

### ***Key Transversal Issues arising for Innovative Learning Environments***

The aim of this session was to examine a number of the *transversal issues* that are critical to the implementation of 21<sup>st</sup> century learning environments, and which call for substantial clarification of concepts and aims as well as necessary organisational drive and political will. Consideration of options extended beyond specific cases prepared for the ILE project.

*Workshop 1: The ILE set of research-based principles by which to design and organise learning environments – an unattainable ideal or an unavoidable requirement?*

This workshop heard a presentation by Marlene Scardamalia, Institute for Knowledge Innovation & Technology (IKIT), University of Toronto, Canada; it was chaired by Hanna Dumont, University of Tuebingen, Germany. The questions helping to guide this session were:

- Is the ILE set of *research-based principles* by which to design and organise learning environments an unattainable ideal or an unavoidable requirement of 21<sup>st</sup> century education?
- How can these principles and similar other approaches be made most accessible to those who need them? What steps might be taken to operationalise these principles and approaches?
- What experiences do we already have and what more can be done to embed research-based innovation in practice? How can we encourage bi-directional learning and knowledge transfer (so that research informs innovation in practice and vice versa)? Is it possible for learners themselves to be full players in these processes?

The point of departure of the presentation was the observation that disparities in the productivity and growth of different countries have far less to do with their abundance (or lack) of natural resources than with the capacity to create new knowledge and ideas so that the need to innovate is growing stronger as innovation comes increasingly to being the sole means to survive and prosper in highly competitive and globalised economies. There is the common question “How to teach 21<sup>st</sup> century skills?” to which a common answer is to look to develop the skills themselves. An alternative is knowledge building. Not only innovative companies but also innovative teachers promote knowledge building. One needs first the basics; novices – students - have to learn how to create knowledge. The distinction between learning and knowledge building is understood in business contexts – what goes on in one’s head versus additions to the organization’s “knowledge capital.” Scardamalia presented characteristics of knowledge-creating organisations around development trajectories from “entry level” to “high level” characteristics in terms of a set of 21<sup>st</sup> century skills.

The quickest route to a knowledge-building community is to get students committed to improving their theories in a community of students committed to advancing not only their own ideas but those of the community as a whole. It is important to take risks with new ideas and go beyond “best practice”. Practices that help to maximize work with ideas include: formulating authentic problems, problem analysis, theorizing, criticizing and improving theories, designing and carrying out empirical tests of theories, identifying information needed for idea improvement, making connections among ideas, “rising above” competing ideas, and assessing progress in knowledge building discourse. Scardamalia presented different practices and research results on these knowledge-building practices, social networks, and meta-cognition, building a culture in the classroom for enhancing ideas. Sustaining knowledge building calls for embedded, transformative and concurrent assessment.

There was discussion around different contrasts. One was knowledge building as compared with the kinds of “principles” identified through the OECD/ILE project, their differences and also the commonality of seeking to enhance learning efficiency and adaptability. It was proposed that the OECD/ILE principles, in their emphasis on catering to individual differences, may divert attention from shared goals and team working. There was discussion of innovation vs. structure – children may need or want structure to process knowledge. How to avoid fundamental conceptual misunderstanding? Teachers need to fill the gap of what the learner cannot learn by him/herself and parents need to be interested and involved. Skills vs. practices – the 21<sup>st</sup> century skills enterprise, it was said, has been based on the idea that assessments will drive change and promote the necessary skills, with every skill in turn broken down into sub-skills. It is necessary to open the eyes of achievement testers, it was said: instead of teaching skills or creativity directly, teachers should give learners problems that need creativity to be solved so that they are doing creative thinking in order to figure out the answer to a question they have set themselves.

There was much discussion around formulating authentic problems and addressing the disengagement of adolescents in high school by exploring their interests and passions. Authentic problems are those that interest learners, not teachers or learning professionals deciding what might be relevant or interesting for them, and this means talking a lot more to students. It was suggested that students really need to see the world through problems and hence become problem-solvers but, it was also said, students will still not be solving real-world problems. Instead they will be addressing meaningful and relevant learning tasks.

### *Workshop 2: Defining and building “learning leadership”*

The session heard a presentation by Jan Robertson, New Zealand and Adjunct Professor at Griffith University; it was chaired by Tony Mackay, Centre for Strategic Education (CSE), Melbourne, Australia. The questions helping to guide the discussion were:

- As we are focusing on reorganising learning environments rather than managing institutions in general, how useful is it to define “learning leadership” in more precise terms, and how might that be done?
- What are some of the key ingredients of such forms of leadership? What capacities are needed and how can they be fostered? What experience do workshop participants already have of well-developed ‘learning leadership’?
- What can be done to ensure that learning leadership and the wider management priorities and practices of institutions are enabled, so far as possible, to work together? Are there any special considerations when the learning takes place across more than one setting – e.g. partly in a school and partly outside in communities, enterprises or other settings?

Jan Robertson began with some of the core features of the “Boundary Breaking Model of Leadership Development” that she developed with Charles Webber of the University of Calgary. This model includes the following components: opportunities for the co-construction of meaning, provision of a forum for discussion, validation of personal knowledge, a generative approach to learning, formal and informal leadership, creation of a sense of community, growth of a counter culture, and interaction with international perspectives.

Public learning and teaching is especially relevant to the work of school leaders whose professional activities are largely public. Everyone in a learning community can be a teacher and everyone should be a learner. Therefore, leadership is required of all participants whether they are in formal or informal leadership roles. Not all communication should be channelled through teachers - students should be expected to play a large role in guiding one another. At the same time, there is need to recognize and validate the personal knowledge held by students and instructors. Finally, there is a great deal of leadership learning to be gained through international networks and it should be recognised that online communities have the potential to be as strong as or even stronger than conventional learning communities.

What sorts of outcomes can be expected from this approach to leadership development? Robertson focused on four: emotional engagement with learning; the development of a critical perspective, the outward-looking perspective to permit movement beyond self, and the development of agency. The latter is especially important – the self-efficacy and confidence required to move to believing that one *is* an educational leader who *can* make things happen.

If we want students who are creative, adaptive, collaborative, responsible and engaged – with strong moral purpose – then leaders should get these experiences in their own learning. Only by being involved in such learning themselves can teachers and leaders recognise the possibilities for the young people they work with. They have to become learners again, where broad understandings of “learning” are involved: learning for knowing, doing, and (often neglected)

being – which is about values, beliefs, biases, assumptions, and self-awareness. There should be inquiry-focused, reflective practice with double- or triple- feedback loops for flexible, anytime learning. Outside perspectives are essential in the learning process, bringing in coaches, mentors, students, family, and research. There should be validation of personal knowledge and the promotion of formal and informal leadership characterized by partnership and reciprocity. It should be transformational, and underpinned by equity, social justice, moral purpose, and cultural responsiveness. If we want leaders to design C21st learning environments then they need to be given those experiences, and develop meta-cognitive processes around their learning.

### *Workshop 3: Teacher professionalism for 21<sup>st</sup> century learning environments*

The session heard a presentation by John Bangs, representing the Trade Union Advisory Committee (TUAC); it was chaired by Carol McLean, Assistant Deputy Minister, People and Research, Alberta Education, Canada. The questions helping to guide the discussion were:

- What are the key characteristics of teacher professionalism appropriate for 21<sup>st</sup> century learning environments? Are the traditional vehicles for teacher professionalism sufficient for 21<sup>st</sup> century learning environments, or are other forms more appropriate?
- How well are these being developed at present and what more needs to be done? How?
- How much is this about developing individual teacher competences and expertise and how much is it about collective capacity building within learning environments or clusters? How well do these two objectives sit together?

John Bangs argued for a systemic approach to teacher quality - the system has to accept responsibility for the quality of its teachers. On innovation, collaboration has to be scaled up with the profession taking responsibility for fostering innovation. This represents a big opportunity for teachers and their unions. He addressed the question “Is teacher professionalism synonymous with teacher quality?” Professionals have theoretical knowledge and concomitant skills-high quality preparation, legal recognition, induction, professional association, codes of professional conduct, self regulation, a sense of public service, and altruism, and legitimacy and a body of knowledge which is relatively inaccessible to the uninitiated majority. Professionalism is consistent and continuous. He also argued for a definition of professionalism based on self-efficacy and by the ability of teachers to show leadership on professional issues, collectively and individually.

Professionalism should not be solely an individual responsibility, however. Governments should help to create the conditions to allow for a national community of teachers to be fostered. Teachers need to conceptualise themselves as members of a national professional community. It is the role of their professional bodies and unions to propose structures in which these communities can operate. There may be different routes into teaching but simply recruiting talented graduates is no substitute for developing teachers in-service with the necessary professional knowledge and emotional intelligence.

The evidence suggests strongly that outstanding education systems are dependent on strong self-confident teaching professions, including analyses from Ben Levin and Michael Fullan. It depends on collaborative continuing professional development involving peer coaching with experienced practitioners working with teacher trainees. Teachers ought to feel confident enough to discuss

their perceived weaknesses as well as strengths. There are four levels of evaluation which should be kept clearly distinct - pupil, teacher, school, and system – as they each have different purposes. The most effective teacher and school evaluation for Bangs is self-evaluation with additional mechanisms to ensure consistency of criteria and standards.

There needs to be effective leadership, which the evidence suggests should be distributed so as to foster teacher leadership. On the controversial issues of differential rewards for teacher performance, Bangs suggested that the decisive question is whether rewards enhance teachers' self efficacy and capacity and, drawing on the example of Singapore, differential pay ought to be taken off the table as an issue. On working conditions, he suggested that traditional definitions should be enhanced by new ones centred on efficacy, e.g. are my conditions of work such that my professional voice is being heard and respected? And on standards, a self-regulating profession would define its own standards.

The question of who creates teacher policy was integral to much of the workshop discussion: John Bangs argued to move away from a “consumer/producer” paradigm with governments cast as “consumers” in hostile opposition to the “producers” (teachers) and that reforms could not be successful without teacher ownership. The debate about how teachers could express themselves effectively is a debate about vehicles for expression. Can teacher unions be those vehicles? Bangs argued that they could but the subsequent discussion was split between countries which have good relations with unions and those which do not. The workshop discussed the effective conditions for teacher policy and arrived at a broad understanding that there had to be an overarching systemic set of values for education which all political parties bought into.

There was also concern from some with the formulation in the OECD/ILE model of learning environments that teachers have been presented as ‘teachers’ in recognition of the number of different adults and actors who play teaching roles beyond the organised teacher profession. Many of the innovative learning environments brought together in ILE and in other compilations deliberately set out to question boundaries and legal definitions, including who should be thought of as “the teacher”. Nevertheless, it was recognised that the solution of introducing inverted commas to signal this variety may not be the most satisfactory.

#### *Workshop 4: How appropriately to judge the success of ILEs - outcomes?*

The workshop heard a presentation from Maria Langworthy, Microsoft Innovative Teaching and Learning (ITL), Partners in Learning Program, USA; it was chaired by Per Tronsmo, Norwegian Directorate for Education and Training, Oslo, Norway. The questions helping to guide the discussion were:

- What does “work” mean? What outcomes are appropriate by which to judge effectiveness or success in the case of innovative learning environments? What examples do we have?
- What methodologies are appropriate for clarifying and evaluating such outcomes? Will they be different from more conventional forms of evaluation?

- What specific means and knowledge do we have of how to foster deep learning and 21<sup>st</sup> century competences, and how can these be applied in assessing any new approach to learning?
- How might innovative learning environments usefully learn from these types of outcomes?

Maria Langworthy presented the ITL model as based on the assumption that innovation has to occur in an aligned way across the system in order to scale these innovative teaching practices. The program is collecting data at the school, classroom, and student development and achievement levels. It required the definition of 21<sup>st</sup> century skills and innovative teaching practices in measurable ways. Innovative teaching is understood as: student-centered pedagogy, extension of learning beyond the classroom, and ICT integration. There are a number of different research methods, with a pilot year in four countries.

It emerged that teachers tend not to have a clear definition and understanding of how to embed these innovative approaches in their teaching practices, which is a challenge for going to scale. She proposed four key levers:

- Clear definitions of new skills and examples of how to teach them;
- High levels of collaboration between teachers within schools;
- Professional development opportunities that require teachers to actively research teaching and learning;
- Teacher appraisals that emphasize innovative teaching.

As regards upcoming work from 2012, Langworthy argued that if we want to shift towards embedding these skills, teaching practices need to change. Many people talk about these vaguely and rhetorically. Instead, we should be conducting learning activity design and creating teacher professional development based on this method that measures and supports students' 21<sup>st</sup> century competences. She looked forward to significant change in teaching practice coming about by using the program platform.

There was then substantial discussion. It was asked with what confidence we can have that this particular model will serve well into the future. Any system must build in localized content and issues and the most powerful professional teacher learning is linked directly to the needs of the kids, which sounds obvious, but often it isn't done that way. How to identify the needs of kids in these areas? It was proposed that teachers who model and demonstrate inquiry and critical evaluation of their own work are the most innovative and progressive. So teachers must function as knowledge-workers and produce knowledge-based work products.

We often see innovative practices, but not innovative schools. And even in a given classroom, there might be one or two innovative practices but much of the rest is just done with technology but with no change in the pedagogy or the assessment. It is rare that it all gets pulled together in holistic redesign. One participant remarked about her system where there are several assessments but always linked to the learner, and hardly any observation of the teacher practices, and that by the inspector and then only to see that the curriculum is being applied.

It was remarked that we often see the innovative practices more with high-achieving students but what about those not working with high-achieving students? Yet it may be the opposite – innovation being more prevalent where low-performing students are involved. If, as some maintain, there is a log-jam associated with teacher unions, how in our various countries do we deal with this and do it in an environment of trust without an inspector sitting in the back of the classroom “evaluating”? The McKinsey research was referred to as identifying four stages of system change and showing that in better-performing systems, the locus of control shifts to the local level.

The ITL research shows that teacher collaboration in a given school is critical to moving the bar for the whole school and the early data suggest that there is very little variation amongst schools, and much larger disparity within schools. How to leverage the innovation of the most highly innovative teachers in each school so as to scale to whole-school change. One system reported how it seeks to promote innovative teaching by providing feedback to teachers - from both students and peers - and that all teachers have the right to that feedback. There is also a gap between self-report and classroom observation and ideally classroom observation should be built in so as to triangulate the data.

It was suggested that there are at least two sets of problems with innovative schools and initiatives: 1) how to assess and determine the outcomes? 2) how to communicate results to communities when many people don't know how to interpret such data? So, communication strategies are very important to determine what are the most effective messages and how to get them across. One participant suggested that there is a false hierarchy with teachers at the bottom, researchers above that, and policy-makers at the top. Yet, another suggested that their surveys show that teachers have credibility to parents while policy-makers often do not. It was also suggested that transformation will only happen in education when teachers really believe in it, which, for the most part, they do not.

## **Implementation and Change**

The session on *Making Innovations Happen – Insights from ILE Cases and Wider OECD Analysis* - formed the bridge between the issues discussed on Days 2 and 3 of the conference. It brought together the experiences reported in the case studies on how the ILEs began and were sustained over time and it presented key insights from the more general OECD innovation analysis.

In *Launching and Sustaining ILEs: the insights from the ILE case studies*, Anne Sliwka (Heidelberg University of Education) drew on examples and insights from the “Inventory” cases available at the time in terms of three main themes of escalating scale in terms of making and sustaining change: Starting the change, Transforming entire schools, and Going to scale. She looked at different kinds of drivers, leadership, and innovation models behind some of the ILE examples as they initiated the original innovations. She presented different partnership and stakeholder engagements in sustaining the innovations, and the networking and transformation processes in building on these. She stressed that the generalisability of her findings is constrained both by the cases being examined in the ILE project and by the state of completion of the reports. Already, however, it is clear that there are valuable insights emerging from the rich examples being compiled with the ILE work.

Stéphan Vincent-Lancrin, (OECD) presented *Insights from the OECD “Innovation Strategy” analysis of education systems – motors and brakes*. He presented forms of stimulation of innovation through science-driven change and business-driven change (distinguishing tool builders, new knowledge generation, and the application or scaling up of evidence-based practices). He presented practitioner-driven and user-driven innovation [via such means as new school models, project developers, and inexpensive tool builders (OER, etc.)]. His analysis of inhibitors or brakes on innovation was in terms of insufficient supply of and demand for innovation, and inadequate knowledge management. The action points seen as holding the potential to unleash innovation were developed around a) the evaluation and measurement of innovation in education; b) fostering communities of practice across the sector and through organisational learning.

### ***Governance and System Challenges***

The aim of this substantial item – with keynote, plenary discussion, workshops, and conclusions – was to address the challenges of systemic growth of 21<sup>st</sup> century learning environments. It is to identify promising models and examples and to address outstanding inhibiting factors. It is asking how current reform priorities and approaches match the directions identified through the discussions.

*Designing Innovative Systems: is ‘moving to scale’ our challenge?* was the title of the keynote address by Valerie Hannon, (Innovation Unit, England). She argued that the words and concepts matter in the endeavour to innovate, and that the language of “implementation” and “going to scale/scaling up” are mechanistic, engineering metaphors that distort the essentially organic process of spreading new practice. At the same time, she argued that it should not be assumed that the case for transformation is well understood and accepted, and that there is a political imperative to continue to address the improvement agenda even when developing the conditions and strategies for transformation.

In this regards, she contrasted the views of two eminent Canadians on educational reform and innovation. Ben Levin is one arguing for improving existing school systems by focusing on better outcomes for more students within relatively traditional metrics, and that undue focus on innovation and transformation can distract from what is both possible and desirable. Michael Fullan, on the other hand, described many of the traditional reform instruments as the “wrong drivers” - accountability pressures, individual teacher and leadership quality approaches, technology, and fragmented strategies. Instead, the “right” drivers will include many of the approaches associated with innovation: the focus on the learning-instruction-assessment nexus; social capital to build the profession; pedagogy matching technology, and developing systemic synergies. The “S-shaped curves” of pathways under “raised goals” vs. “different goals” are helpful in understanding the issues at stake, though they present the dilemma of the initial drop in outcomes often associated with the initial jump from the first curved pathway to the second.

She presented and applied to real cases concepts, frameworks, and tools that had been developed through the Global Educational Leadership Programme. The overall approach is one of “confronting reality” and “awakening possibilities” feeding into creating a “living vision” that

then informs “emergent strategy” and applying a larger “roadmap” tool towards educational transformation. Within this tool is the 2 X 2 matrix for situating innovation and directions ahead that combines formal vs. non-formal and established vs. new learning providers; this leads to four quadrants - improving, supplementing, re-inventing and new paradigms. Superimposed on this are the two key threads of “learning ownership” and “digital technologies”.

In conclusion, Valerie Hannon suggested that the improvement agenda must continue even when the aim is transformation. However, multiplying examples of ILEs while helpful is insufficient. Planning for innovation will entail a range of skills and approaches – social, political, and educational – though it is an open question how far transformation can remain a planned process. In any case, this will not be down to governments alone – but they can provide the right platforms to expedite it.

*Workshop 1: Systems and modes of governance appropriate for fostering 21<sup>st</sup> century learning environments*

The workshop heard presentations from Kim Bater and Brian Callaghan, Canadian Rockies Public Schools District, Banff, Canada, and it was chaired by Rod Allen, Superintendent, British Columbia, Canada. Questions helping to guide the discussion were:

- Is a policy role of creating positive climates for innovative learning a meaningful and realistic task or is it too diffuse? Do we have any positive examples or is this more implicit than explicit?
- How well developed is the capacity already existing in your different systems and contexts to reorganise learning and to work across sites in clusters and groups? What can be done to foster this capacity and who are the principal players who can make this come about?
- How easily does this supportive policy role sit with other objectives and accountability requirements? Are more resources a prerequisite of influencing positive change?

Bater and Callaghan outlined how one cannot “direct” a district to become innovative but what happens is greatly influenced by teachers, families, and students. Following Fullan, there is an intense need for moral purpose. It is essential to create networks, which are highly enabling. They oblige one to address what other people are doing instead of seeing something as a problem that one had to deal with on one’s own. This is also part of the challenge of managing complexity in which student voice must be heard. Co-creation is at the core, ensuring that educational development is not done “to you” but “with you”. Reform-minded organizational leaders welcome the energy of such dialogue and co-creation despite the messiness it can bring. Stakeholders need to come together around a common purpose, while respecting each others’ views.

Who should be designing 21<sup>st</sup> century learning environments? It needs school communities to be given the chance to do the design work and to do the thinking behind the design work. There is need to think in terms of whole governance models that focus more on governance than on administration and that are based on collaboration and enable each player to see the larger picture

from the other side. It requires being in a safe place, where it is possible to take risks and to protect each other in doing so whereas excessive guidance by rules tends to result in regression to the mean and discourages risk taking. It requires to invite those into the picture who might otherwise not be heard, such as the 70% of taxpayers without children in the public school system or other community members.

The work presented has involved a lengthy process of human development, consultation and co-creation. There has been an evolution of governance in the Canadian Rockies Public Schools district, with a substantial reduction in the number of regulations and more involvement and coherence. It has called for generative thinking and new practices developed through collaborative engagement on broad issues. The community education network has been important in detecting signals, and social media has played its role here. It takes time - generative governance assumes constant engagement and reaching out and communicating with all stakeholders.

In the discussion, it was proposed that teachers need significant buy-in into their professionalism, with time earmarked for professional development with other teachers and with others in different positions in the education system. They need time for networking, as part of internal networks of support and with external networks, so that they realize that they are in a community, and are able to harness that energy. There needs to be a shift from the leader as “hero” to the leader as “host”. Ecosystem change happens through adaptation; it is therefore not about “going to scale”. Leadership capacity needs to be developed. There are tensions - some roles in the governance picture are more likely to be open to experimentation whereas others systematically are more inclined to see “school improvement” as the objective. This raises the wider question too of how to measure success – appropriate indicators and metrics. Education and politics work in cycles that often do not match up. In light of this, it was asked to create a “third space” – where there is agreement on common goals of learning which are then protected from the vagaries of politics while commanding the necessary political support.

#### *Workshop 2: Networks and clusters – going to scale through a well-developed “meso” level*

The workshop heard a presentation from Patricia Wastiau, European Schoolnet, Brussels and the session was chaired by Lone Lonne Christiansen, Norwegian Directorate for Education and Training, Oslo, Norway. Questions helping to guide the discussion were:

- How useful is it to think about the “meso” level—that is, the level of learning networks and communities of practice across environments?
- What are some of the most promising examples of networks, clusters and communities of practice that have led to the growth of innovative learning environments? How easily can these be sustained?
- How can the “meso” level be developed as the route to growing innovative learning environments? What does success depend on? What about policy strategies that allow the “meso” level to flourish and allow these to percolate across systems?

*eTwinning* is a teacher community of practice for innovative teaching and learning with nearly 150,000 users (teachers) and approximately 2 million pupils and students in principle participating. It might be characterised as a “Facebook for teachers”, a space where you can collaborate on projects and a desktop of tools such as wikis in order to create projects. The initial concept was

very basic, with the goal of at least two schools from different countries creating a project using ICT as the vehicle for carrying out the work - project-based learning taking place within schools and connected to the curriculum. It has evolved: from a project-based programme to a professional learning community to an informal social network (one can register on the platform without engaging formally in a project).

Teacher demands have led the development of the community, such as a pupil space where students can collaborate. The platforms focus on two areas. First, communication/collaboration – desktop elements to support instruction, and twinspace elements with tools that support specific instruction. Second, professional development – learning lab, short intense online events designed to stimulate interest in topics, and eTwinning groups which are communities of practice based on a topic or subject.

Governance of the platform and participation is aligned at all levels:

- The European Commission and education ministries invented and promote it;
- European Schoolnet is the central support service and national support services are engaged to support it as well with regional and local authorities offering promotion and teacher training;
- Schools support it by encouraging teacher participation;
- It has empowered change in teachers, enriched professional identity and increased competence.

Nevertheless, two levels that still need further development are the regional/local authority and the school principal.

From the work to date, some key insights emerge. For students, there are different learning styles and a single approach does not work for everybody. Students can learn *with* teachers and teachers can engage with students in a community of teachers/learners: in project after project, students have demonstrated they are increasingly comfortable with active learning and will start to design projects with the teachers. The content has shifted toward more problem-solving, project management, and a sense of responsibility. Resources are now in and out of school, and created by both teachers and students. On organization, learners decide about their learning and are able to manage complex group dynamics; teachers advise, with peer learning a common theme, in and out of school time.

What are some of the critical success factors?

- Invention has been steering this in developing quality teaching and learning services.
- The importance of social/collective learning - specific teacher training modules to support action leading to effective professional development and new professional practice.
- The value of a safe and trusted environment for teachers to test, analyse mistakes and problems, share expertise and experience, discuss controversies, etc.
- It is about process but supported by concrete objects and mechanisms.
- There needs to be sufficient time available for the teachers.
- Visibility – the projects' achievements can be show-cased to the whole school, parents, local community, etc.

The top-down has to be open and flexible, it has to bring in new people, and it should be a springboard for teachers to do something else like further professional development. Although it was not explicitly formed to promote innovation, the processes and channels were in place to support it.

One participant described a US “networks of networks” - the “networks” are researchers and by feeding the larger goal of the broader network it allows discovery and knowledge to be advanced. Time is critical to permit the social interactivity to affect learning. The network level is critical, because top-down does not work yet schools left to themselves cannot advance. “Scaling up” is not an appropriate term. Can we find or install networks to support innovative learning environments? It would be important to have knowledge of all these networks that we might be able to leverage.

Experience with the European networks shows that one gains traction with teachers in goals like promoting innovation when they are engaged with the problems they struggle with daily and can sink their teeth into—like student learning and pedagogy. Experience with user-centered design methodology suggests that one often cannot design exactly for what is intended but rather a mechanism of engagement is needed that will induce outcomes further down the line. What about networks that are not just horizontal but vertical too - what could they accomplish? Networks are needed at all levels and especially at the level of change—in this case, such as between teachers/students and administrators—but this must be structurally supported at the macro level. There is need for better understanding of the interactions between the layers and how they can be better supported; to maintain progress there is need to constantly achieve agreement on aims and value.

*Workshop 3: Resource challenges – in times and contexts of limited resources, how to ensure that quality 21<sup>st</sup> century learning environments do not depend on high resourcing?*

The workshop heard a presentation from José Carlos Rocha Silva and Isidro Sánchez Ulloa, National Council for Educational Development (CONAFE), Mexico and by Susanne Owen, Department of Education and Children’s Services, South Australia, who also chaired the session. Questions helping to guide the discussion were:

- What types of resources are required for effective, innovative learning environments? Are there various combinations of resources (beyond funding) that can help to enable these? What about sharing of different types of resources, including through community and business partnerships, etc?
- Can a climate of limited resources be a good breeding ground for new innovations in learning? What interesting example do we have? How to ensure that innovation continues, even when there is less of a “necessity”?
- How can we be more resourceful in innovating at the micro and meso levels in times of limited resources, while also communicating to the macro level that increased funding resources may be necessary to sustain and/or diffuse innovation? Are there any examples of this?

The Mexico presentation was around two cases: “Community education” and “Itinerant Pedagogical Advisers”. They were presented in terms of features and benefits that the additional support brings: enhancing coherence to educational organisations, motivating learners and parents, providing advice and work in collaboration with the teachers, enriching content by widening the approaches available for students, and advising teachers in the creative use of limited resources and materials. Building community partnerships is essential. One of the South Australia cases was also from a rural area, involving learning stations, itinerant (fully qualified) teachers, technology, and families. The itinerant teacher may be at a school every 3 to 4 months and stays for 2 or 3 days. Retired teachers are an important source of volunteers for this South Australian project. Parents are key in helping their children learn and there is a certificate course for parents (education support course), and substantial supervisors’ support for parents.

Another South Australian case placed substantial emphasis on the physical environment with flexible spaces which the students themselves are able to change, to make the furniture and decorate the space. The students have considerable autonomy, deciding many issues about where, when, for how long and with whom they want to work. The curriculum includes optional master classes and creative pathways. A third South Australian case was technology-intensive, giving a laptop to every child from 9 – 12 years. A remark was made on how technology needs to be used along *with* pedagogy. It needs to be brought to the most needed, such as in rural areas or for young mothers, etc. Teachers also need the time to develop and work out how to use technology in the most relevant way.

One of the key questions is how to innovate and improve learning without large amounts of resources. Some of the answers revolve around giving the students autonomy and teaching them to be self-regulated learners, micro teaching with groups who need most help, optional master classes with only one teacher, using volunteer teachers, students doing different jobs such as IT support, or building furniture or maintaining the learning space – which calls for student ownership. The community may be very helpful in bringing technology in.

Time was discussed, partly the time that change takes and partly the frequent lack of time for the school to implement partnerships properly. One participant suggested that it takes at least five years to see tangible outcomes. The context changes all the time, raising the question of how to know if an innovation will be useful when the work is finished. Funding is another time-sensitive issue – projects get funded but then agendas change and the funds go to new things. It was suggested that a strong focus is needed on pedagogy as the centre of change: if the initiative comes from school itself it is easier than if it comes from higher up.

*Workshop 4: Influencing climates, building capacities, and creating conducive conditions – appropriate policies?*

The workshop heard presentations on educational transformation by Don Napier, Executive Director, Alberta Education, Jacquie Hansen, President of the Alberta School Boards Association and Carol Henderson, President of the Alberta Teachers’ Association. The session was chaired by Elvira Vacirca, Department of Education and Early Childhood Development, Melbourne, Victoria, Australia. Questions helping to guide the workshop discussion were:

- Is it fruitful to focus on system-level policy as primarily creating the capacity and conditions for innovative learning change at the micro and meso levels? How does this fit with other policy priorities?
- What promising examples are there of what can be done through policy to build capacity or to create conducive climates or incentives for learning leadership or learning-focused communities of practice? What can be done at the centre to encourage learning-focused organisational routines? What can be done to remove the barriers and obstacles?
- How well have these examples worked? How do we know?

There was an introduction to the Alberta school system, where there is now an ongoing conversation across all groups of the population about what the education system should look like including what children need for tomorrow's world. Generative governance implies asking questions together with the broader community on what educational change should look like. The world changes rapidly: international and instantaneous flow of ideas, increased flexibility and choice, economic uncertainty and social upheaval.

It was suggested that there is often a naive understanding of 21st century skills and the potential of technology, which amounts to a false promise – it may be that public funding for education is increasingly diverted to the private sector and that while it seems like the technology promises the customization of learning when in fact it is increasingly standardized. Important efforts to ensure an inclusive education system where each student belongs and receives a quality education, no matter their ability, disability, language, cultural background, gender, or age, nevertheless present challenges for the school system. Social cohesion is a real issue, but there is a clear vision about where the system is going. It is committed to fostering partnerships and working together.

Transformation happens through partnerships, dialogue and collaboration. A grassroots dialogue has been started and stakeholders have been invited to discuss the kinds of programmes they would like the school sector to deliver. Care is needed not to overwhelm people, but to bring them together in facilitated discussions including using technology for on-line moderated discussion. Guides are used to walk people through a range of questions. There are also direct conversations with high school students as well as a student advisory committee. Thousands of voices have been involved in the process of “Inspiring Education” and there have been serious efforts made to ensure that the process did not become sidetracked or hijacked by particular interest groups. Such a public engagement process will work not only if it is rules-based but also values-based and enhances social cohesion. To this end, the authorities spend time to foster agreement on certain values underlying the conversation and public consultations have now become a core part of generative governance.

#### *Panel discussion*

To bring together the different themes and discussion threads, there was a panel on the final afternoon composed of different stakeholders offering their reflections and responding to questions. The panel was made up of John Bangs representing TUAC, Greg Butler (Microsoft Education Leaders Strategy), Charles Fadel representing BIAC, and Julie Taylor (a college principal from South Australia).

John Bangs proposed that schools are profoundly moral places. For many children and young people they are bastions of optimism for the future. Children are increasingly prey to anxieties driven by the media but they see their schools as being protected from the increasing perceived insecurities of the street. Therefore, the teaching profession has an increasing social and moral responsibility. Innovation emerges best in secure stable environments. If teachers are to foster innovation they also have a responsibility for establishing a moral structure in school which is perceived as fair, non-threatening, and involves listening to the voices of children. This is to ask a great deal and it argues for teacher policies which are developed in partnership with the teaching profession. These policies should have at their heart a strategy for teacher development and learning owned by the profession and which recognises schools' moral and social role as well as their central learning and teaching role.

Julie Taylor provided a school principal's perspective to improve student engagement and deep learning through innovation. To foster innovation in our schools it is essential for teachers and leaders to be given "permission" to take risks in a culture of no blame. Resourced action research and professional learning circles are models being used successfully in South Australia to support innovative projects and programs in schools. Current political agendas requiring implementation of national curriculum and benchmarking need to be approached cautiously to ensure innovation is not stifled. Emerging technologies are essential tools to enhance innovative pedagogy and school management. Schools and education systems will need to address issues of equity in accessing technology to ensure all students are able to develop essential 21st century skills in digital literacies. Another major area of focus for schools will be working in partnership with parents and local communities to ensure understanding and support for critical changes in learning for 21st century students and accompanying changes that will be needed in our schools.

Charles Fadel argued the need to redesign the curriculum for the 21<sup>st</sup> century world. It is a world buffeted by change, globalisation, global warming and over-consumption and characterised by very rapid and important technological change. It adds up to a world and prospect that is volatile, uncertain, complex and ambiguous. There are manifest benefits of learning – for economic competitiveness, social and environmental well-being, and individual personal prosperity - yet curricula are very outmoded and evolve only slowly. There is need for deeper learning around *character* (adaptability, resilience, persistence, and ethics), *skills* (creativity, critical thinking, communication, and collaboration), and *more relevant knowledge* in languages, humanities and the arts, and the STEM sciences. Neuroscience underpins the argument for relevance as cortical plasticity is conditional upon it. Doing leads to deeper learning and strengthens transfer. All this argues for rethinking the balance and mix between knowledge, skill and character, intertwined with the meta-layers of inter-disciplinarity and learning to learn: making knowledge more relevant and building skills and character. It means harnessing interdisciplinarity and fostering learning to learn while rebalancing the theoretical and the practical. It is about recognizing student voices and personalization while empowering teachers and giving them renewed respect.

Greg Butler began by emphasising the strong opportunities for partnership with the business sector that will become even more important in the future. For partnership to be successful the actors need better to understand each other, and the benefits and processes involved. There is much to learn about effective “adaptive” partnerships that achieve things not otherwise possible, where there is shared risk and benefit and true “share accountability”: there are many “technical

partnerships” but few successful interdependent partnerships. Partnership is a powerful lever for getting to scale and sustainability. The “why?” issue is important: for Microsoft this is about three related areas. First, education is the primary focus of citizenship; second, it is the desire and the ability to do something that is both innovative and that can be scaled and sustained; third, it is the “self-interest” of wanting to be able to hire people with the competencies for success in a rapidly-changing business environment. On the “what?”, he highlighted three:

- The Innovative Teaching and Learning Research Project, combining deep research and the scaling of the research methodologies to make them globally available.
- The ATC21S project, which aims to transform large scale international assessments, and inform the teaching required to develop 21<sup>st</sup> century skills. This is now extending to PISA and TIMMS instruments and promises to have impact at scale sustainability.
- The Innovative Schools Program, which aims to build an ecosystem of support for schools wanting to adopt innovative practices and approaches.

### **Summary remarks**

David Istance (OECD) in his final summing up presented some of the underlying threads that had emerged during the conference.

*‘Tinkering is not the same thing as transformation’* refers to a contrast that featured in the discussion at various points. It was made at the very beginning of the conference when Alberta Minister Hancock called for transformation not just tinkering, and which Deputy Minister Henke qualified as ‘informed transformation’. Similarly, there were the different cases made for incremental versus radical change, and the related question of how far this is about change in fundamental functions or instead in organisations and structures (new environments for learning might arguably be needed to create effective educational environments not as rejection of longstanding goals such as cultural transmission or social cohesion). In this regard, different responses arose in the conference on how far the case for change is widely shared: several participants warned against assuming that the rationales of reformers and innovators are shared by others in education and the wider community.

*Evidence* arose repeatedly as a topic – the “proof points” as described by Nelson Gonzalez in the first keynote. This covered the need to provide evidence and to clarify what counts as evidence that an innovation is promising and has potential for wider emulation or adaptation. One participant asked in response to the call for ‘proof points’: ‘how do we know when change is an improvement?’

One relevant issue then is the “S-shaped curve” described by Valerie Hannon in the second keynote – the pattern that innovation initially may lead to a fall in measured outcomes on certain indicators prior to embedding and later take-off – how then to interpret that initial disappointing phase and with what confidence to expect imminent positive improvement? (Appropriate outcomes is one theme for possible more detailed scrutiny in the next phase of the ILE project.)

*Time* was a recurring theme but in very diverse ways, e.g. the need to understand time as part of the innovative learning environments and of trajectories, the time involved in making change occur, as well as the urgency of transformation. *Risk* – risk-taking and risk aversion – was another theme discussed throughout the conference.

*Alignment* is an aim that calls for better understanding as, in the words of one participant, “education is more zig-zag than symmetry” – in this case, referring to the alignment between different levels and functions of education in changing learning. This issue has been identified as a critical one in the proposals for the next stages of ILE work, especially the question of how to better align the learning and the institutional environments, in which dealing with the ‘messy asymmetry’ may be more through encouraging certain routines and processes rather than through structured solutions.

This asymmetry may also be viewed as a reality of complexity, part of which is inherent in the *partnerships and networking* developing as part of contemporary learning environments and the ‘meso’ level (and so emphasised in the project proposals). Moving from closed to more open systems necessarily introduces “zig-zag rather than symmetry”.

*Teachers and learning professionals* were discussed repeatedly throughout the conference: issues of professional identity and professional learning, of practice and capacity, and of engaging practitioners fully in innovation and leadership. It is a theme that CERI will be discussing *inter alia* through the ILE project in partnership with Education International and Cambridge University in a seminar on the teaching profession in February 2012.

*Student agency* provided the complementary focus to that on teachers that frequently emerged in the conference discussions; as with the discussion of incremental vs radical change, it elicited diverse viewpoints (in particular the extent to which the primacy of student agency should be a desirable or a defining feature in personalised, innovative learning environments).

The conference addressed fundamental questions too about the *nature of knowledge* and the diversity of context and beliefs, while recognising the global pressures at work. Knowledge vs. skills came up especially in the question of how far the focus on skills (as in 21<sup>st</sup> century skills) introduces a fragmented, disaggregated perspective that runs counter to knowledge creation and the promotion of student agency. At the same time, the ever-present factor of assessment may well push for operational itemisation even if it may be counter to the original spirit of the reform or innovation.

## ANNEX

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