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New Futures for Learning in the Digital Age

**Future models of ICT - enabled learning:
What are the implications for schools?**

Thank you for having me here. It is a privilege for an American to be at this podium. I wish that my great-grandparents from Ireland and from Poland could see me here. I know almost nothing about them, and even less about my ancestors from Germany and France. But here I stand, somehow representing them all.

The gap in knowledge about my European ancestry is not unusual among Americans of my generation. Many immigrants from Europe to America wanted to forget their past, and many subscribed to the ideal of the "melting pot", shedding and blending their familiar cultural heritages as they forged a new one. But the expanding Europe has an opportunity to create a Union that respects, supports and maintains its colorful diversity – in its governments and board rooms, workplaces and classrooms.

I am delighted that the organizers of this conference sought to hold the event within Media Lab Europe. We are the European research partner of the Media Laboratory at the Massachusetts Institute of Technology, where much of the groundbreaking research in information and communication technologies has been conducted during the past two decades.

Diversity and pluralism are highly held values at the Media Labs – but they are much more than that as well. They contribute to a strategy for conducting world-class innovative research. We describe our approach as radically cross-disciplinary and radically cross-generational. At Media Lab Europe we have an exceptionally good gender mix too, when compared with other technology-focused organizations, including among our higher levels of management.

We believe that mixes of aims, skills and perspectives heighten creativity and increase innovative potential. At the Media Labs, researchers of varied ages and backgrounds work side-by-side in developing demonstrations of new technologies – some of which you will have an opportunity to see, tomorrow afternoon.

Research and learning go hand-in-hand in the Media Lab model. We are pushing boundaries, exploring frontiers, creating new knowledge. The Principal Investigators often do not know themselves where a given line of inquiry may lead. They are learning as they go, their students are learning with them, and together we generate results to offer to the broader research, business, and education communities.

The lab setting supports this approach. It is an extended workshop, a place where people can be focused on learning, by doing. The space is physically organized to support the sharing of tools, resources and ideas. As you go through the laboratory

you will see open, shared studio areas jammed with work – projects in various stages of development, ideas in various stages of realization.

Our model of shared intellectual property is consistent: the researchers' work is not contained within walls separating one group from another, but is conducted in the open, spread out for all to see – and likewise, our corporate research partners have open access to the ideas we develop. They are joint owners of the intellectual property and often, contributors to its development, through exchanging ideas and sharing resources.

This multifaceted openness lends itself to an important aspect of the collaborative activity: we emphasize critical reflection on the work as it proceeds. This involves both formal and informal discussions in which researchers and practitioners regard and comment on the work – comparing it to other research, considering how it addresses needs in the world, using it as a basis for brainstorming. Such “critiques” may happen at the workbench or in the course of prepared presentations.

This tradition, like the open studio setting, has roots in the architecture and design professions. We call it the “atelier” model, and we like to say that it means we are conducting research in science and engineering through the methods of arts and architecture.

Now, this approach is not suited only to blue-sky research and higher education. We have seen aspects of the “atelier” model to be effective in education at all levels. One project, called Empowering Minds, has supported primary school teachers and their students throughout Ireland in learning about new technologies. During the past five years they have worked side-by-side to create dolls that dance, wheels that turn, cranes that pull, and all kinds of things that move. Many of their constructions echo stories from Ireland's rich repertoire of myth and legend.

Adults and children work together – to make things from a range of materials, and to write computer programmes that set the creations into motion. Special LEGO bricks hold these programmes, while other pieces contain sensors enabling responses to light, touch, rotation and temperature. Still other pieces trigger actions at certain times or under certain conditions.

So the learning environment is rich in materials, and people of all ages work on projects of their own inspiration and design. They discuss their growing ideas in the immediate environment, in public exhibitions, and through writing and pictures posted on the web. In the process they learn about culture, about arts and expression, about computer programming, about balance, dynamics and other basic principles of physics – and about themselves as well.

This landmark project is directed by Deirdre Butler. She understood from the beginning that bringing schools into the information age is not just a matter of putting technologies into classrooms. If the new methods they enable are to be sustainable within schools, teachers need to accept and understand computational ideas. Empowering Minds offers a new model of professional development in which teachers direct their own learning and have time to immerse themselves in constructive, reflective practice so that their ideas can grow. As Deirdre says, they become self-determined learners.

Ireland's National Centre for Technology and Education funded the first phase of the project. Additional funding came from Ireland's Higher Education Authority, which enabled collaboration with Media Lab Europe. Four schools were involved, representative in size and socioeconomic range. The nine teachers spanned a range of ages and experiences, and included roughly equal numbers of men and women.

The project grew to include 13 schools and 29 teachers, particularly involving small rural and disadvantaged schools. They spanned a wide geographic area, including Dublin, Kildare, Kilkenny, Tipperary, Louth and Sligo. The project is now growing beyond schools to an urban community – in fact, to the Digital Hub area around Media Lab Europe. Liberating Learning includes 22 teachers in 11 primary schools, 10 teachers in 5 post-primary schools, and will soon include 2 YouthReach groups. The number of children involved now exceeds 1200.

Funding comes from the Liberties Learning Initiative through Diageo, which includes Guinness. Further support is provided by St. Patrick's College and by the National Centre for Technology and Education. Teachers who participated in Empowering Minds will help to form the supportive community around the new teachers.

So the atelier method that helped to spawn technologies we use every day, and a new model of teacher development, will now be situated not just in the research lab and not just in schools, but among communities – in this first instance, among the least advantaged in Dublin. We anticipate that the effort and the ideas will continue to grow.

In his address during tomorrow afternoon's panel discussion, Gaston Caperton will assert the imperative of equal access to learning and education, as the global economy is increasingly driven by ideas and technology. He will describe measures that he and others in the United States are taking to improve access to higher education – through diminishing biases in standardized testing, providing data for admissions decisions, and advising on policies such as financial aid and affirmative action. The aim is to promote greater access and inclusion in education overall, while emphasizing excellence throughout.

Of course it's essential for us to work toward equal access to good education and access to technologies – not just to computers in their familiar forms, but hands-on access to the very ideas that enable researchers to produce these tools.

And then we have to be ready for the result – people who think for themselves and who act according to only those institutional agendas that they themselves can help to shape.

I am American, yet – if I may – I have a dream for Europe. I imagine people who think independently, citizens who maintain strong identities of self and culture, and nations who emphasize pluralistic learning and research – in order to create places where people want to stay, places people want to return to, places people will want to remember.

Thank you.