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Knowledge Management in the Learning Society

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On a rare occasion a coincidental meeting changes one's life. This happened to me when I met Jarl Bengtsson at a birthday party. Because of some work I had done on the knowledge-base of surgeons, he invited me to join the CERI project on the production, mediation and use of knowledge. This fitted the work I was doing, but my involvement in the writing of the book on *Knowledge Management* also took me into some new and unfamiliar territory. Today I understand why knowledge management is critical to the future economic success of OECD countries, and to the development of their education systems in particular.

In the shortest possible history of the human race - the only one appropriate at dinner - there are three major revolutions. The first is the slow emergence of the agricultural economy. By 12,000 years ago, most humans ceased to be hunter-gatherers and settled into the agricultural communities, out of which villages and eventually great cities grew. It now seems that 'people did not invent agriculture and shout for joy. They drifted or were forced into it, protesting all the way¹.' The second was the industrial economy, lasting about two hundred years; and the transition from agriculture to manufacturing was, once again, met by considerable resistance. The third is the transition from the industrial economy to the knowledge economy, of which we are in the midst. As with the previous revolutions, the transition is painful and confusing, not least because it is occurring faster than ever. At different speeds and from different bases, OECD countries are becoming knowledge economies, or they become backward and failing economies.

The industrial revolution had a profound effect on education systems. In many respects the school was an invention of that revolution, a planned attempt to prepare people for a world of work increasingly dominated by manufacturing. The school remains in many ways a creature of industrial society. The question is this: how will the education system, including the school, need to change to prepare people for a knowledge economy?

Many countries, including mine, understand that today *everybody* needs a sound grasp of basic literacy and numeracy, and probably IT literacy too. Moreover, levels of educational achievement and aspiration need to rise considerably for the vast majority of the population. A thriving knowledge economy, however, will demand far more than this, for it rests as never before on knowledge,

intelligence and creativity as its key resource and driving force. There are three fundamental building blocks - the capacity to be creative; the capacity to turn a creative idea into an innovation; and the capacity to market innovations successfully and profitably. In the industrial age, societies needed relatively few people with these capacities: knowledge economies need many of them.

In thriving knowledge economies, patterns of work undergo radical change: jobs do not last very long and successful people enjoy multiple careers, as 'the source of growth in the economy is moving down the scale, from the medium to small/micro [firms] and progressively towards the individual,'² and as the large organizations familiar in late twentieth century get reconfigured into structures and networks that are both locally smaller and yet globally larger.

In consequence, in knowledge economies people engage in lifelong learning, for knowledge and skills need to be continually renewed. People must be enabled to deploy their creative or innovative or entrepreneurial capacities in unstable environments amidst rapidly changing and newly emerging knowledge. They have to learn how to learn in more autonomous ways, and in homes and workplaces, not just in educational institutions.

Education systems are now being influenced by two further advances, the potential scope of which are not yet fully appreciated. One is the recent advance in knowledge about the human mind from neuroscience and cognitive science. New and radical insights into human abilities and learning skills are just over this scientific horizon. They will be to education what genetics is to medicine. The other is the rapid advance in ICT (information and communication technologies), a topic for your further discussion tomorrow. Neuroscience and cognitive science will interact with ICT, not only to accelerate the speed of change in knowledge economies but also to open up new possibilities in the provision of learning services demanded in such societies. The private sector may be quicker than the public sector to seize these educational opportunities, and to exploit them in ways that are more customer-friendly and cost-effective.

That knowledge economies are by definition learning societies and so entail a revolution in education systems is as yet only dimly understood by most teachers and administrators who now run the formal education services. They underestimate the scale of change that lies ahead, and they do not know how to generate the new professional knowledge that is needed to manage the transition successfully. They will expect substantial help from governments and from those organizations concerned with the linkage between education, work and the economy. The schools of the industrial age in many ways mirrored life in factories, and teachers were in many ways models of the factory supervisor. In many OECD countries, technological innovation has been radical, whilst institutional innovation has been cautiously incremental³. The challenge is this:

how can we refashion schools so that they mirror, and thereby help to prepare the young for, life in a knowledge economy? and how can teachers, in what they do in school, be models of what it is to be a successful member of such a society?

If my argument is sound, then the OECD has never needed CERI more than it does today. The book *Knowledge Management in the Learning Society* is an early contribution to defining and so potentially to solving the problems that lie ahead – and you will see now why I feel privileged and excited to have played a small part in its production. Here is my view of some urgent priorities.

Schoolteachers work largely alone in classrooms with students. Much of their professional knowledge is acquired through experience and remains unvalidated and unshared. Teaching is a profession where the key knowledge and skills involved are locked in the heads of individuals, and the culture of schools maintains this state of affairs. This is far less true in business or medicine. The head of Hewlett-Packard, that most successful of firms, famously said: *If HP knew what HP knows, we would be three times as profitable*. If schools knew what all their individual teachers know, and if ministries knew what all their individual best schools know, how more effective would education systems be?

Clearly we need to know more and distribute that knowledge more efficiently. Educational research and development can no longer be conducted only by a small and separate body of specialised researchers. To achieve the scale and speed of the educational R&D now needed, practitioners have to be directly engaged with researchers in selecting the areas where new knowledge is needed, and then become co-creators of that knowledge and partners in its validation and transfer. Old models, by which new professional knowledge was developed by university-based researchers and then disseminated to teachers in schools, have been found wanting: they need to be redesigned and in some cases replaced. CERI is rightly looking to how educational R&D systems might be transformed. Sharing best practice across countries will be essential to the rapid improvement of educational R&D commensurate with the challenge that governments will set for their education ministries.

Successful schools, like successful businesses, have to learn how to use to the full the intellectual capital trapped in the heads of their members. Many teachers are inventive and innovative improvisers, but that knowledge is never captured and made part of the school's collective knowledge-base. To do this, schools will have to increase their social capital, that is, the trust between people and organizations that underpins and releases collaboration. Schools that are rich in social capital transfer it to their students. Evidence about social capital supports the view that it is precisely these schools that best prepare students in active citizenship, political participation and the social entrepreneurship from which new communities arise and are sustained.

No teacher today doubts that young people need ICT skills as preparation for life. But ICT is only just beginning to be used as a means of creating, managing and transferring the new professional knowledge and skill needed by teachers in the new economy. ICT allows the creation of networks of schools and networks of teachers to underpin the collaboration on which the creation of new knowledge depends and to ensure its rapid transfer within national education systems and from one national system to another.

This is, in short, a vision of the school as a learning organisation, of schools and teachers as learning communities, and of an education service which has itself become a learning system in a global environment.

For my own part I am sympathetic to those governments, like my own, which have intervened in the education service from a conviction that externally imposed reform was necessary and that educational professionals could not be trusted to make the necessary improvements if left to themselves. But there are limits to what can be imposed. Increasingly, the task of governments will be to give to the professionals, first, a clear responsibility for the creation and transfer of the knowledge and skill that will transform both educational practices and institutions to meet the demands of knowledge economies, and secondly, to provide the supportive infrastructure to ensure that new responsibilities can be met. This infrastructure will include:

- the provision of local, national and international networks of schools and teachers
- action to stimulate new forms of educational R&D and to co-ordinate and implement the outcomes
- assistance to schools, and particularly to school leaders, to learn about effective knowledge management from the business sector, so that they have the commitment and confidence to apply knowledge management principles and practices for the transformation of educational institutions
- the brokering of new partnerships between the education service and those elements in the private sector that are effective in education and/or are interested in the provision of new learning services.

It is clear that in knowledge economies educational institutions will undergo profound change, but the nature of that change is not yet clear. In such circumstances, the duty of government is create a system by which answers can be devised and implemented. The teaching profession must become as creative, innovative and entrepreneurial as the citizens they nurture for life in the

knowledge economy. The countries that discover how to do this will, I believe, have found one of the keys to the door of the flourishing knowledge economy on which the quality of all our lives depends.

¹ Colin Trudge, *Neanderthals, Bandits and Farmers: how agriculture really began*, Weidenfeld & Nicolson, 1998.

² Alan Burton-Jones, *Knowledge Capitalism: business, work and learning in the new economy*, Oxford University Press, 1999.

³ See Charles Leadbeater, *Living on Thin Air*, Viking, 1999.