Nanotechnology, Biotechnology and Education

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In taking on the challenge to propel ourselves 20 years on I think we will need to balance information with knowledge and wisdom. A serious problem of our time is the gap between skill and wisdom. Science and technology are accelerating furiously, but wisdom is not. Somehow we must be able to allow the technology of the near future to lead to an era of extreme creativity.

There is also some concern over technology taking over education and the debate is about *"clever or stupid"*. For some time now, concern has been rising that the internet is changing our brains; and not for the better. That we may be becoming 'information hunter gatherers' rather than 'knowledge cultivators', as a result of distraction and instant gratification courtesy of the internet and other new technologies. James Evans who is an assistant professor of sociology at the University of Chicago, who focuses on the nature of scholarly research sent a Press Release called *"Too Much of A Good Thing?"* July 17, 2008 stating "The Internet gives scientists and researchers instant access to an astonishing number of academic journals. So what is the impact of having such a wealth of information at their fingertips? The answer, according to new research released in the journal 'Science', is surprising-scholars are actually citing fewer papers in their own work, and the papers they do cite tend to be more recent publications. This trend may be limiting the creation of new ideas and theories."

A goal of the twenty-first century ought to be to develop the capability latent in everybody by harnessing powerful technologies that accelerate learning potential which we are addressing here. For example, on December 22, 2011 MIT made an announcement about discovering the memory gene by Yingxi Lin, a member of the McGovern Institute for Brain Research and the Frederick and Carole Middleton Career Development Assistant Professor of Brain and Cognitive Sciences. The Npas4 gene is responsible for activating the genes that make memories stronger and more permanent (both synapse strength and connections between neurons). The ability to produce Npas4 in sufficient volume may have an effect on the study of learning and education in the future. This includes the concept of 'direct learning' whereby you 'upload' information (knowledge) direct to your memory as demonstrated in the film "The Matrix".

Computer intelligence that is quite different from human intelligence will feed on itself, becoming more intelligent at a rapidly accelerating rate which is Singularity. Humanity needs to discover how to avoid being overwhelmed by accelerating change that is totally out of control and, in the wrong hands, harmful. Transhumanism will be highly controversial and will raise major ethical arguments and might harm some qualities of humanity and create extreme differences between the haves and have-nots. Others, however, argue that new approaches to learning and sharing will bring other benefits and new forms of intelligence. We'll connect the brain directly to nanotechnology objects in our skulls and to supercomputers which will change human capability in extraordinary ways. We will need to understand where changes to Homo sapiens can be made without negative consequences.

Baroness Susan Greenfield who is Professor of Pharmacology at Oxford University and Director of the Royal Institution, in her book 'I.D. The Quest for Identity in the 21st Century' (2008) Sceptre p.153 stated "Just imagine a future society where status, being Someone in the real world, need no

longer matter because it's offset by living most of the time in the cyber-world. Could it be that, for the first time, the ideal is, after all, to be a nobody?"

Her argument is that at the present time this self, the 'Someone' scenario, is being challenged by two very different forces. On the one hand, an increasingly pervasive information technology coupled with an ever more invasive biotechnology, is leading to a culture of passivity and hedonism that obliterates the individual altogether: the 'Nobody' scenario. On the other hand, as never before, fundamentalism is suppressing the uniqueness of the individual, and imposing a collective narrative: the 'Anyone' scenario. If the only two possibilities are indeed loss of private identity to technology, or its suppression to a collective public an obvious and urgent question, is: *what other alternative might there be for the human race*?

So there are huge social issues associated with digital education, indeed the digital world, which have yet to be understood. Cyber bullying, online fundamentalism, stolen identities to name a few. Richard Eckersley, a founding director of Australia 21 and Leader of its work on *"Australians in Society"* challenged the orthodox view that the health and wellbeing of young Australians are improving. He drew attention to the fact that 20-30% of young people are suffering significant psychological distress at any one time and that mental disorders are the largest contributor to the burden of disease in young Australians.

There is a growing movement to slow us down, to be mindful, more present, more freedom from digital distraction. French biochemist turned Buddhist monk Matthieu Ricard says *"What is happiness, and how can we all get some"*? We can train our minds in habits of well-being, to generate a true sense of serenity and fulfilment. Ricard is sometimes called the "happiest man in the world."

As James Martin('The Meaning of the 21st Century: A vital blueprint for ensuring our future' (2006) says "Society's best brains are saturated with immediate issues that become ever more complex, rather than reflecting on why we are doing this and what the long-term consequences will be".