Taking Our Brains to Another Dimension!

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Interview with Baroness Susan Greenfield – *Alison Cooper*

‘Mind Change’

Baroness Susan Greenfield outlines the concept of ‘Mind Change’, which could be as significant as ‘Climate Change’ for the future of the human race, taking our brains to another dimension.

Mind Change describes the outcome of changes to the way our brains take in and process information becoming ‘hard wired’ as a result of prolific connection to digital technologies. This could have a profound effect on our thoughts, feelings, behaviour and relationships, ultimately affecting the cultural fabric of society.

Potential culprits are prolonged exposure to action packed sensory stimulation through computer games and bombardment with disjointed information from the internet, social networks and advertising. Neurological and psychological testing and informal reports indicate that on the one hand rapid decision making, co-ordination and performance on traditional IQ tests may improve. However, distracted attention resulting in shallow processing and reclusive individualistic behaviour with increased risk taking, could be a drawback.

Lady Greenfield acknowledges that effects visible in humans may be complex and subtle while technology develops so rapidly that scientific measures struggle to keep pace, creating uncertainty for legislators and policy makers. Nevertheless, she reasons we cannot afford to ignore the possibility that our thought patterns could change beyond recognition, with implications as serious as climate change in terms of human sustainability and longevity.

By telephone, Lady Greenfield discussed her ideas for a novel which have emerged during her lifetime researching neuroscience, pharmacology and the brain.

Describe your current interest?

One hundred years from now, we could be creating a society where cybernisation of the planet is the norm, especially as innovations like high definition TV become more and more vivid. This could have a profound effect on human consciousness, skills and relationships. While prolonged participation in activities such as computer games can improve skills like sensory motor co-ordination and response speed they may reduce concentration and empathy resulting in shallower information processing and dramatically different 'mindsets'.

This might sound speculative because it is difficult to prove effects when you can't control what people take in from screens day to day. Scientists can't prove a negative and safely say it hasn't had an effect. All they can do is look at trends. As brains attempt to keep up with proliferation of media in the environment we could be looking at an economy of attention.

How are our brains affected by information in the environment?

Minds are like a mobile phone network with cheaper calls for more frequently used numbers, numbers can become blocked or be forgotten if rarely used. This mechanism is called synaptic plasticity. This network is vulnerable to 'lost and stolen' processes, 'hacking' and 'spam'.

How would you describe a 'sensory' and a 'cognitive' experience?

A sensory experience provides sights, sounds, smells, and movement, for example going to a disco or skiing. A cognitive experience involves reading a book, having a conversation, looking for meaning and narrative. People need a balance of both. Screen technology encourages a bias towards the sensory and can literally 'blow your mind'.

Beyond receiving digital information from screens, what are the possible effects for developments such as Nanotechnology and Synthetic Biology?

Emerging technologies, such as body monitoring systems using nanotechnology challenge the notion of the body's firewall with the outside world, eroding our sense of privacy which opens us up to third party intervention and scenarios such like 'Brain Hacking'.

What would you say to those who might call you a scare monger?

This is only justified only if you know it is not a problem and it isn't too complacent to suggest everything is just fine. I would prefer to be called a scare monger and be proved wrong than sleepwalk my way into a future where it is too late.

Mind change is a neutral term which doesn't imply a good thing or a bad thing, it is simply a description of how we may evolve. In writing a novel I am aware it is a personal view, not a textbook, a little like 'brave new world'. I allude to where the science is real and introduce people to democracy, concepts and possibilities, ideas and predictions that emanate from science and are interesting enough to read for pleasure.
"We need to think ahead, becoming the master not the servant of technology, defining what we want it to do, otherwise we are not serving the next generation well".

How effective are current methods for studying brain activity?

Brain imaging acts like a 'virtual photograph'. You can't see the movement and the exposure is too slow. It is also invasive and expensive. Tests given to people in the imager are 'blunt tools' and there are many effects occurring in a person's individual internal environment during the scanning process that are difficult to control and affect the result. It is still better than doing nothing. Studying mechanisms such as attention bias in addiction in a laboratory can inform brain scanning, indicating what to look for.

Scientists need to collaborate with web designers and educators to decide new things that could be done to develop software and focus the many possible tasks for studying cognition, attention, emotion and behaviour.

How are our brains affected by the way we interact with technology?

Our interaction with computers is an ongoing two sided dialogue. We design them to help us in learning e.g. developing cognitive processes such as driving. At the same time our brains adapt to this environment and our skill base changes becoming more machine like.

Simulations are very powerful e.g analysis of electrical signals in the brain which occur before a movement is initiated still happen in people who are paralysed. Tapping into this could further our intimate connection with technology for example, using it to control a robotic arm.

What do you think about techniques such as Neuro Linguistic Programming (NLP)?

Neural connectivity is the basis of how we come to see the world a different way, working with different problems. This can involve responses to words as well as actual things. Presentation can affect development of goods and services, influencing risk taking and leadership in the workforce.

How does 'climate change relate to the concept of 'mind change'?

Mind change and climate change are both critical scenarios concerning governments and negotiations between countries. There is sometimes an idea that science can save us through climate policy and eco products. An example of how quickly mind change can happen is the way that everyone now recognises the telephone. It may affect boys and girls differently according to the technologies they interact with and influence relations with developing countries. Time spent in virtual environments could lead to behaviour which is individualistic, reclusive, and child like with a high level of greed, impulsivity and disregard for consequences.

How can scientists and society at large tackle Mind Change?

Scientists need to anticipate and 'see' potential future impacts, considering economics and taking a multidisciplinary approach with dialogues transcending academic disciplines. Regulation sometimes isn't helpful and the processes happen too late. It can appear negative, stopping people from doing things. Instead it is better to be constructive, consulting people and giving them alternatives.

"We need to focus on, ***education, not regulation*** *and work with the* ***art of the possible.*** *I would like to hear what parents and children think."*

We could devise a questionnaire to measure parents concerns and look for effects of age and gender, making observations and looking for consensus.

How would you define Progress?

"Enabling people to reach their full potential, which is now higher than ever before, using the best mixture of skills and talents."

Having spoken to Baroness Greenfield the concept of 'mind change' is a great way to describe something that is already here, with individuals affected to a matter of degree. At a societal level there are already signs of a backlash from screen addiction. In the UK on trains and buses, casual observation suggests that books and newspapers are as popular as mobile phones and laptops. On the high street the stationary market appears to be booming while people are flocking to spas retreats, fleeing the countryside in droves at the weekend, weather permitting.

From my point of view, while the science remains uncertain, nourishing my brain is a top priority. This involves participating in activities, and discussion including both sensory and cognitive components. Making it acceptable to rely solely on technology for information could allow new embodied cultural divides to really set in. Given its elusive nature, here is a danger that the concept of Mind Change could disappear from our conscious awareness and fail to benefit from the attention it deserves, leaving us wide open to isolation and erosion of our autonomy and identity.

Continuing to allow machines to shape us could affect our ability to deeply engage with complex material and relate to others, essential attributes for collectively combating global climate change. Our minds are perhaps the most important tool we have in terms of conserving the planet, so it seems essential the two concepts are considered hand in hand.

More Information:
Baroness Greenfield: http://www.pharm.ox.ac.uk/research/greenfield