FUTURE NEWS

TO CONNECT, TO INFORM AND TO INSPIRE

IN THIS EDITION

Preparing students for the future by actually teaching about the future

by Peter Bishop
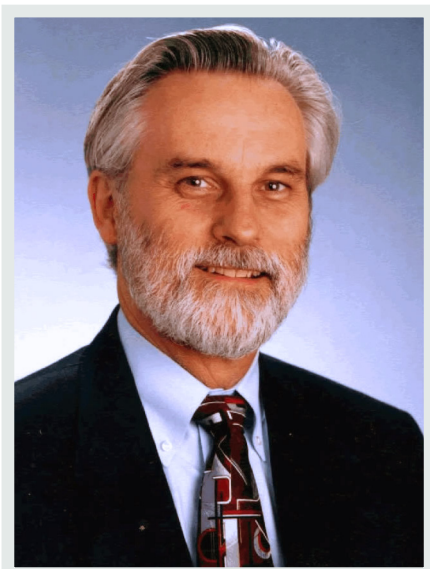
Why teach the future?

The argument for teaching the future is so obvious, even compelling, that it is hard to articulate. Which world will our students live in as adults— Past? Present? Or Future? Since the world of the future will be different from the present in many, significant ways, should we not prepare students now for those differences? It is like preparing someone to enter the foreign service or take a job in another country without telling them which country they are going to.

Why teach the future now?

One of the distinguishing features of our time is the increasing rate of change. We did not invent change. The switch from hunting-gathering to agricultural societies was change; the introduction of literacy to the Renaissance was change; the appearance of democracy was change. However, those changes took a long time, generally longer than a lifetime. As a result, people generally lived and died in the same society they were raised in. Except in a few cases of extreme change, their preparation was useful throughout their lifetime.

Not so, in our world. Change is occurring at a speed today that means we experience significant shocks many times in one life. We are regularly asked to give up obsolete ideas and practices in order to adapt. We have to learn anew, not just fall back on what we were taught. The UK took 160 years to double its GDP for the first time; the U.S. took 60 years; China took 10. Products are adopted faster – the telephone, the radio, the television compared to the Internet and the cell phone. Ideas travel farther and faster, colliding and recombining to fuel the innovation that drives change. So we live in a world that is changing faster than the world of our parents and grandparents, and should these conditions continue, it will change even faster for our children and our grandchildren. So we should respond to the needs of our time by teaching our students about the future.

Then why don't we teach the future today?

There are, in fact, many good reasons. Let me take them one at time.

1. We do not have time to teach the future.

Actually I agree with this one. Schools are burdened, not only with endless curriculum demands, but with the requirement to solve many other problems that children have in society today – character development, hunger, drugs, sexual behavior, etc. Schools cannot possibly add another course in order to teach the future.

And they don't have to. They can teach the future in any subject within the existing curriculum. See the sidebar to learn how.

2. The future is unpredictable.

Again, agreed. There is too much complexity and uncertainty to know what will happen exactly. But do we have to know the exact answer about the future to discuss it intelligently? Here is where futures studies differs from traditional forecasting. The many thousands of traditional forecasters are trying to predict the one future that will occur. Accuracy is their primary concern. They don't do very well, but they keep on trying.

We futurists take a different approach. We don't predict the future. We realize that getting the future "right" is futile. So we see the future, not as a single prediction that _will_ occur, but rather as many scenarios that _could_ occur. Listen to the change in the verb – _will_, what the English teachers call the indicative mood, the mood of fact, vs _could_, the language of possibility. That is a profound difference. Futurists think of the future as a set of plausible futures rather as one future that is "right" and the rest that are "wrong."

We develop those futures in scenarios, stories about how the future could emerge, based on a disciplined use of imagination –

- Imagination because a truly different future can only be conceived in the imagination, not simply as the result of logical analysis.

- Discipline because a well-grounded future requires some evidence to suggest that such a future could plausibly occur.

3. We do not know how to teach the future because we were never taught.

Agreed, again – a trifecta! I received all the education that American society could offer–an excellent high school and college education from the Jesuits and graduate degrees in sociology from one of the top universities in the country. Yet few teachers talked about change; and as far as I can remember, none mentioned the future. I read Marshall McLuhan, Alvin Toffler, Paul Ehrlich, Donella Meadows and a host

of science fiction, but none of that was for school. I went into sociology to study social change, which I did in my thesis and my dissertation, but there was not even one class on social change in my department.

But that condition is also beginning to change. There are now between a half dozen and a dozen graduate program in strategic foresight around the world. There are professional seminars that are introducing professionals to these concepts and even a few in-service classes for teachers. Still a tiny amount compared to the study of the past, but still it's a start.

How can we teach the future to our students?

Teaching the future is as easy as answering a few simple questions. Having selected a domain, a topic to be studied like an issue or an industry, we can ask students four basic questions –

1. What are the **current conditions** of the domain? If you could take a snapshot of the domain today, what would it show? Where are things located? How big are they? Who is involved? That question asks students to do Internet research and interviews, find data and descriptions about their domain and put those into a coherent presentation.

2. **What do they expect to happen** in the domain? Where is it headed? What will it look like in 2040? That question asks students to extrapolate trends and plans into the future and to identify implications for themselves and their families.

3. **What might happen instead?** What assumptions are we making about the future that might be incorrect? How could we be surprised by what happens in the future? That question asks students to think critically about their expected future by challenging assumptions and imaging a significantly different future than what they expect. At the same time, it also asks that they provide a plausible foundation for that future and to present it in an imaginative and creative way.

4. Finally, of all those alternatives, **what would they prefer** to see happen? Which of the alternative futures is better than others and why?

That question asks students to state their preferences and to examine the values that support those preferences.

That can be a whole course or a unit of a course or simply an approach to teaching something else. Simply asking one or more of those four questions would be enough to teach about the future. I submit that every teacher should be able to do that if they wanted to.

So the last question, what is to be done next?

The vision for Teachthe Future is that "We teach the future as we do the past." We teach a lot about the past, as we should, but we should also be routinely teaching about the future.

Leaders ask themselves, "If not us, who? And if not now, when?" We can all be leaders in this movement; it's that early. This is the founding moment, the ground floor. My hope is that we will look back at 2014 as the year that teachers and schools began to take the future seriously for the sake of their students.

If you want to hear more or even get involved, sign up at www. teachthefuture.org/contact-3 or send an email to Peter@TeachTheFuture. org. Tell me about yourself, and more importantly, what you would like to do to introduce futures thinking to our students.

Ideas on how to teach about the future across the curriculum

Social studies, of course, such as government, geography, or economics. How are these institutions changing and what might they look like in 20 years?

History – what did past generations think of the future? We know the end of their story, like the Founding of the Republic, the Civil War, and the Great Depression, but they didn't. What did they hope would happen? What were they afraid would happen? What images did they have of the future?

History again – what would have happened if…

o **Washington had not escaped the British in the Battle of Brooklyn?**

o **Abraham Lincoln had lost the election of 1860?**

o **Lee Harvey Oswald had missed in trying to kill President Kennedy?**

o **The FBI had stopped the 9-11 terrorists before they destroyed the World Trade Center?**

No one knows the answer to these questions. In fact, they have no answers in the traditional sense. But shouldn't students understand that the past is not determined, that it is contingent on things that did not have to turn out the way they did.

• **Literature –** science fiction, of course, or perhaps stories about alternative presents. Stopping a story midway or at the end and asking, "What is going to happen next? What are the possibilities?" (My daughter, who teaches middle school language arts in California, says that good reading teachers do that already. Good for them because they are preparing students to think contingently about the future.)

• **Science –** What scientific experiments are going on today? What technologies are being developed? How will those developments change the world for the students and their children? Which ones do the students like or not like, and why?

• **Math –** That's easy: finding time series data on the Internet, measuring change over time, extrapolating trends into the future.

Teaching the future is not just about trying to fit another course in the curriculum. It can be taught in almost any class.

Book Review
## The Future by Al Gore
Published by WH Allen, 2013
Reviewed by Charles Brass

It is said that the President of United States is the most powerful person on Earth, and Al Gore has been about as close to that position as anyone in recent times. That alone is a good reason to read anything he writes about the future. Tim Burners-Lee (one of the founders of the Internet) provides another in his quote on the jacket of the book: "If you are concerned about the massive changes the world is just heading into, then you should read this book. If you aren't, then you must read it."

Al Gore says his book is an attempt to answer the question "what are the drivers of global change?" His answer comprises six themes that are examined in detail below, and he says it is: "based on deep research and reporting… (and) represents… what the world's leading experts tell us about the future we are now in the process of creating" (pxv).

Gore has clearly studied systems thinking and he brings a systems perspective to his analysis, providing a mind map of the key themes prior to each chapter. He is also acutely aware that: "the way we think about the future has a past" (pxviii), and that different people and groups bring their own past. He also acknowledges the importance of different time scales: "though we have great difficulty conceiving of geologic time, we have nevertheless become a geologic force; though we cannot imagine evolutionary timescales, we are nevertheless becoming the chief force behind evolution"(pxix).

As what he describes as "a recovering politician" (pxvi), Gore is also intimately concerned with how power is exercised, and he laments the "withering of self-government" (pxv) both in the US and elsewhere in the face of ever more powerful markets.
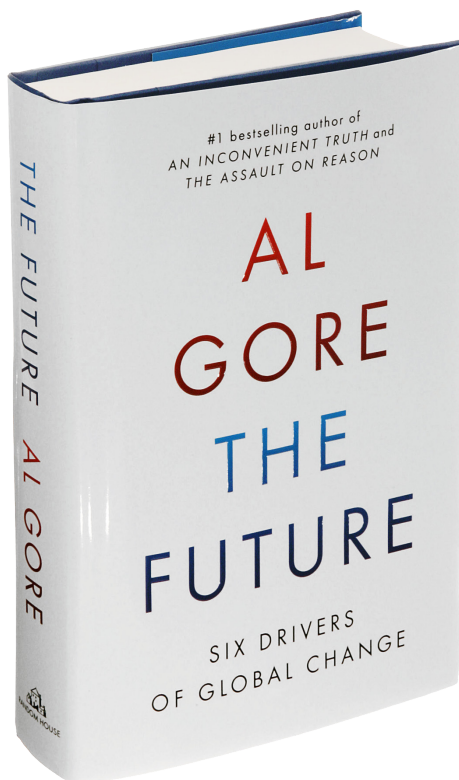
After exploring the shadow side of optimism ["optimism is a form of prayer" (pxxiii)], he lists ample reasons for optimism ["war seems to be declining, global poverty is declining…life spans are lengthening….knowledge and literacy are spreading"(pxxx)] and concludes that he is an optimist: "though my optimism is predicated on the hope that we will find ways to see and think clearly about the obvious tends that are even now gaining momentum" (pxxxi).

Theme 1: Earth Inc

The first he calls Earth Inc (acknowledging that this term was first coined by Buckminster Fuller in 1973) particularly the changing world of work and jobs and its impact on the global economy. Three trends in particular bother him:

• the ever increasing outsourcing of work to machines, or "robosourcing". He concludes: "This trend is now nearing a threshold beyond which so many jobs are lost that the level of consumer demand falls below the level necessary to sustain healthy economic growth" (p41).

• growing wealth inequality: "the wealthiest 400 Americans have more wealth as a group than the 150 million Americans in the bottom 50%" (p10) and "the US now has more inequality than either Egypt or Tunisia" (p9). He wonders whether grass roots movements such as Occupy might not increase as a result.

• an increasing focus on speed – particularly in financial transactions where he describes a privately funded $300 million investment to build a fibre optic network which will reduce the time taken to transact financial instruments between New York and London by 5.3 milliseconds. He bemoans the "increasing financialisation of the economy" (p14) and proposes some principles of what he calls Sustainable Capitalism, designed to lengthen the time horizon under which decisions are made.

Theme 2: the Global Mind

Consistent with his self-declared optimism, he does see the rise of the internet as: "providing a new means to build new forms of political influence not controlled by elites" (p41) – and that is the subject of his second theme, The Global Mind.

This chapter focuses on the various ways in which information is being generated, shared, analysed and stored in the modern world. From embedding Radio Frequency Identical Devices (RFIDs) in school children to monitor truancy to using social media to bring down governments, Gore is clearly encouraged by the creation

of a world brain through which all humanity can learn and grow.

He is not blind to the downside of big data, however. From quoting Sherry Turkle that: "we are spending more and more time alone together" (p47) to a lengthy discussion of the privacy and security consequences, Gore is well aware that we are in the midst of an "historical discontinuity" (p88) and that "the Global Mind is not so easy to make up" (p89). Despite these reservations, he is clearly encouraged by an information trend which began with Gutenburg's printing press.

Theme 3: the nation state (?)

He leaves the question of how these changes will affect global power structures until his next chapter: a sweeping examination of the historical rise of the nation state, the corporation, the NGO and supra-national bodies (such as the UN, the G20 and the Eurozone) and their various roles in exercising power. Gore acknowledges the role each of these players (and other mechanisms such as the Kyoto Protocol) has in shaping the way power will be used in future, and concludes:

> "No matter the nation in which we reside, we as human beings now face a choice: either to be swept along by the powerful currents of technological change and economic determinism into a future that may threaten our deepest values, or to build a capacity for collective decision making on a global scale that allows us to shape the future in ways that protect human dignity and reflect the aspirations of nations and peoples." (p139)

Theme 4: Outgrowth

Gore's fourth great global trend he calls Outgrowth, by which he means to focus on how we are allowing ourselves to grow beyond natural limits in many different areas. Not surprisingly, this chapter looks closely at natural resource limits in land, water, food and other consumable natural resources, as well as our human propensity to waste and pollute. It also examines various demographic trends such as:

- the overall increase in population,
- ageing,
- shifting family structures and the empowerment of women
- the movement of human population into ever larger and more unsustainable cities.

The close attention he pays to refugees and migration is particularly thoughtful. He also takes a look at how corporations have employed ever more powerful mass marketing techniques to encourage us to want more than we have.

Theme 5: life and death

Having looked closely at the consequences of approaching natural limits, Gore then turns to proposed solutions to these challenges in a chapter entitled "The reinvention of Life and Death". This chapter focuses on how humans "are crossing ancient boundaries: the boundary that separates one species from another, the divide between people and animals, and the distinction between living things and man-made machinery" (p204).

Again, this chapter covers much ground – from precision health care through cloning and the creation of artificial life even into post-humanism and how we might respond if we eventually create life which is smarter than us. A particular focus is on the 100 trillion different microbes with whom we live and what impact they have on our quality of life.

As he promises, Gore's focus is on research and not subjective opinion, but this doesn't stop him from venturing into the myriad ethical issues all this technology raises (who controls it, who benefits from it and who profits?) as well as on considering how our attitudes to insurance may change.

Theme 6: the environment

His final theme brings Gore to the issues for which he is best known since the release of "An Inconvenient Truth" in 2006 – ecology and the environment.

While Gore is convinced by the arguments that humans are causing global warming, he quotes extensive research to critically examine the arguments of climate change deniers.

Of particular interest to this particular non-sceptical reviewer was the section on mitigation vs adaptation. Gore indicates he was initially opposed to efforts to adapt to climate change because he believed all-out efforts at mitigation were necessary. He now believes both strategies are essential – in part because it is now too late to mitigate all the negative impacts.

Gore proposes four broad groups of policy options for driving solutions to the climate crisis (using tax strategies to discourage emission of carbon dioxide, removing subsidies to existing polluting industries, and indirectly subsidising alternatives and pricing carbon. He also explores two that he believes are unlikely to work: carbon sequestration and nuclear power

In conclusion, Gore makes four points:

- as the pre-eminent world power for over 130 years, the United States and Americans have a key role to play
- we need to start telling ourselves and others the truth: "our first priority should be to restore our ability to communicate clearly and candidly with one another in a broadly accessible forum about the difficult choices we have to make" (p369)
- GDP as our preeminent measure of progress needs to be redesigned
- we need leadership based on deep human values.

And the book finishes with this paragraph:

> "Human civilization has reached a fork in the road we have long traveled. One of two paths must be chosen. Both lead us into the unknown. But one leads toward the destruction of the climate balance on which we depend, the depletion of irreplaceable resources that sustain us, the degradation of uniquely human values, and the possibility that civilization as we know it would come to an end. The other leads to the future." (p374).

FUTURISTS IN ACTION

Knox in 2030: Engaging the community in the future

Knox City Council

As part of the strategic formulation process for its 2013-2017 City Plan, Knox City Council embarked on an ambitious collaborative process with its community stakeholders. Not only was this process bold in terms of its level of community engagement (multiple workshops involving hundreds of community members, local businesses and Council staff); it was also bold in terms of the planning horizon it asked these participants to consider: 'What's it like living in Knox in 2030?'

The purpose of such a long-term approach was to engage the community in thinking beyond the here and now of rates, roads and rubbish. Instead, participants sought to identify the macro drivers of change, those drivers that could really make a difference; and how these drivers might shape life in Knox over the next twenty years.

In isolating these significant drivers of change and their possible impact, Council hoped to clarify its future priorities and objectives in formulating its 2013-2017 City Plan.

Such a comprehensive and inclusive approach to planning had never been attempted by Knox Council before, and they quickly came to realise and appreciate its benefits:

Providing a forum for discussion of the big issues

Rarely do organisations or communities put time aside to get together and discuss the long term future. There's 'just not enough time'. And besides, there are more pressing issues to deal with. The Knox community workshops were spread out over five months, with some involving up to 100 residents. These workshops provided a 'space' for residents to actively engage in conversations about the future as they created scenarios to describe what it could be like to live in Knox in 2030.

One of the early challenges in facilitating these sessions was managing the expectations of participants. You see, when residents go to their local council, they rarely go by choice. We go to pay our rates, to contest a fine, or to register our gripes. If the Knox community workshops were to be successful, then they had to remove participants from this short-term mindset. This was a feat that was eventually achieved, but not without its lighter moments.

I clearly remember the elderly gentleman who brought with him a page of issues he intended to raise at this so-called futures forum. Closer inspection of his notes showed his key concern for the future centred on the lack of lighting at the end of his street. I decided to keep an eye on this would-be complainant. Over the course of the day, as he became immersed in longer-term discussions about the futures of housing, commuting and employment, I wondered what had happened to his list of grievances. As he got up to leave at the end of the workshop I had my answer. As the long-term focus of the day slowly dawned on him he had discreetly (and sheepishly) hid his immediate concerns under his jacket!

Collaborative strategy works best

The Knox community forums acknowledge that strategy works best when it is created collaboratively. Too often we associate strategy development with middle-aged men in dark suits working behind closed doors to design a strategy for others. Such an approach invariably fails because of poor execution and a lack of buy-in. How can you expect people to support a plan they might not believe in and certainly don't fully understand?

On the contrary, Knox City Council drew back the curtains, threw open its doors and invited its community to help identify the emerging issues of the future and Council's subsequent priorities. Such an approach recognises the value of participation and learning in the strategy process.

If strategy development and implementation is to be successful then as many stakeholders as is practical should be involved in its creation. This especially applies to the inclusion of community members in the creation of Council plans and strategies. This participation enables a deeper understanding of the drivers of change, which then helps to identify future community priorities. And while more participants might increase the complexity for the facilitator, there is no doubt that it also leads to greater strategic impact. And this is what Knox City Council was seeking to achieve.

Longer-term foresight ensures shorter-term cohesion

The planning horizon for the community forums initially caught many participants by surprise: 'In an age of rapid change and increasing uncertainty, how can you think about the year 2030?' 'How is such a long term horizon relevant to today?' Yet, the longer term horizon is extremely relevant to today.

This process led to the collective development of a Vision for the Knox community showing what the future could and should look like. The City Plan was then developed outlining how Knox's Vision could be achieved, identifying shared objectives for the future of Knox, direction for Council's activities and clear priorities. Such a long-term approach therefore ensures strategic cohesion - an informed planning consistency that arises from knowing where we are headed.

It's this development of original insights, and the connection of their relevance back to today's operations, that makes the scenario process so powerful. Knox City Council is to be congratulated on undertaking such a thorough strategic process in collaboration with its broad community base.
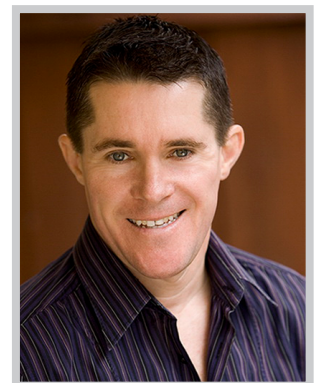
The process was facilitated by Steve Tighe, Strategic Foresight & Design, www.chasingsunrises.com.au

Signals in the Noise
Top ten emerging technologies which will change your life

Computers operated by the power of thought, wearable technology and advanced cancer treatments are among the top ten emerging technologies which will reshape the future, a new report claims.

The World Economic Forum has compiled a list of the most potentially influential technologies currently being developed which also includes mining metals from the desalination of sea water and super-light cars made using carbon-fibre elements.

Each innovation was selected for its capacity to have a real and positive impact on the world, according to the WEF's Global Agenda Council on Emerging Technologies which made its selections with the help of leading figures from industry and academia.

The full list of the top ten emerging technologies:
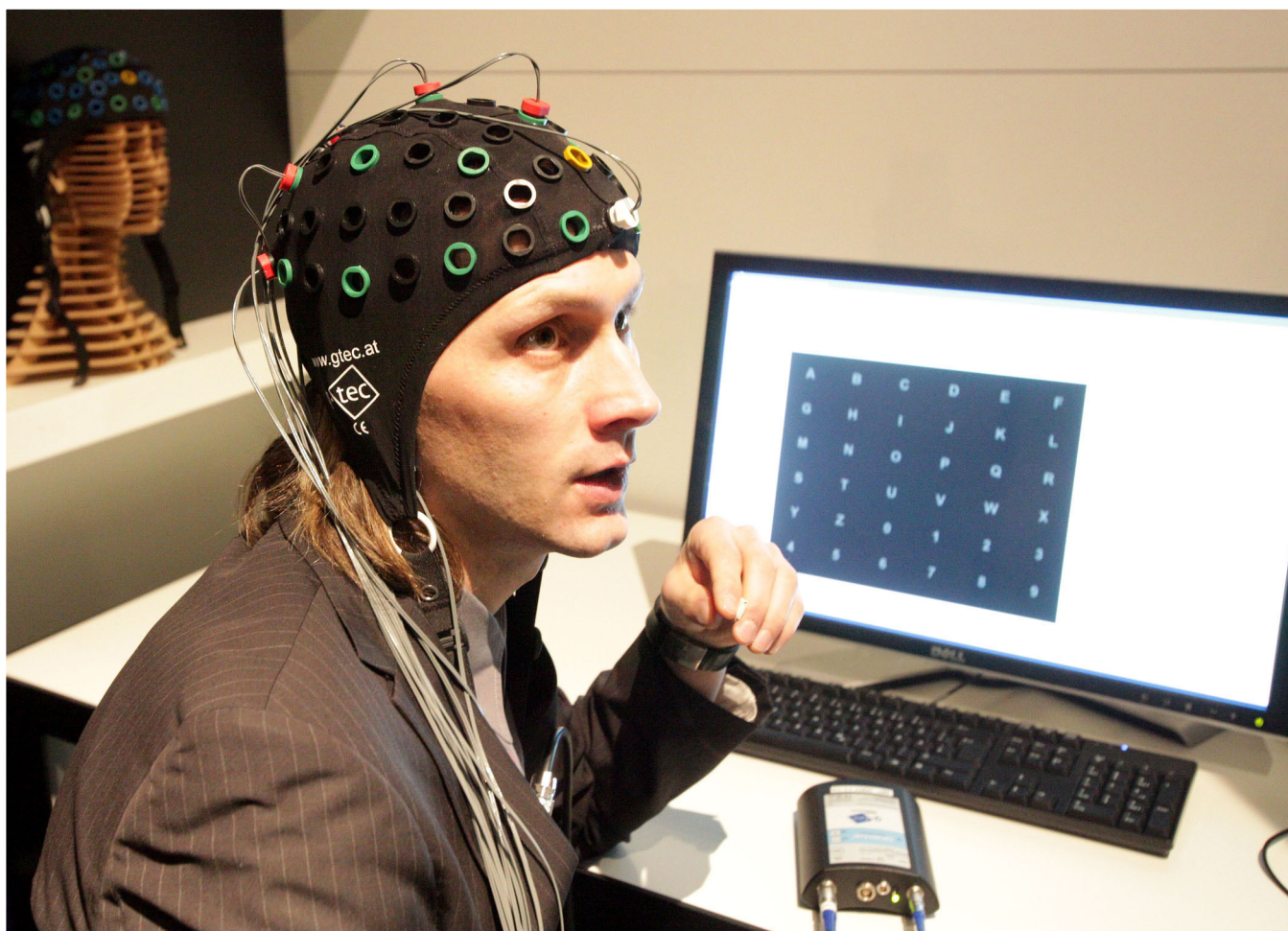
1. Brain-computer interfaces: It is already possible to type just by monitoring the electrical activity of your brain, but as the technology advances, it could be possible for people with disabilities to operate wheelchairs using only their thoughts.

2. Mining metals from desalination brine: Large-scale desalination is becoming economically feasible for the first time because of new chemical processes that enable the mining of metals from waste water, or brine.

Signals in the Noise

Top ten emerging technologies which will change your life, continued

3. Nanostructured carbon composites: Cars made from carbon-fibre reinforced composites are as much as 40% lighter than older models, stronger, and more easy to recycle, offering the prospect for huge energy savings.

4. Grid-scale electricity storage: A fundamental breakthrough is close that would allow the saving of surplus energy from fluctuating renewable sources such as sun and wind within the electricity grid.

5. Body-adapted wearable electronics: Whether worn on the body, embedded in clothes or even under the skin, these devices can track information, such as heart rate and stress levels, giving people real-time feedback about their health.

6. Nanowire lithium-ion batteries: New batteries based on silicon – using tiny silicon nanowires – could have a longer life, charge more quickly and hold up to three times the power of existing batteries.

7. Screenless display: A 3D image projected into space – a "screenless display" – can convey information that a 2D image presented on a screen cannot, and is close to becoming a practical reality.

8. Human microbiome therapeutics: Drawing on knowledge gained from the Human Microbiome Project in 2012 and other research, human microbiome technology is increasingly seen as an important source of treatment for serious diseases as well as for improving health.

9. RNA-based therapeutics: RNA, like DNA, plays a part in protein synthesis and, to a lesser extent, the transmission of genetic information. Scientific advances are combining to enable a new generation of targeted, RNA-based drugs that could help find new treatments for cancer and infectious diseases

10. Quantified self (predictive analytics): RNA, like DNA, plays a part in protein synthesis and, to a lesser extent, the transmission of genetic information. Scientific advances are combining to enable a new generation of targeted, RNA-based drugs that could help find new treatments for cancer and infectious diseases

The full article can be found here:

http://www.telegraph.co.uk/technology/news/10662135/Top-ten-emerging-technologies-which-will-change-your-life.html