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Uncharted territory

A think piece from the EMLC and NCSL Futures project

Uncharted territory

This think piece reflects a conversation between Andrew Bloodworth, Economic Minerals Programme Manager, British Geological Survey and Chris Williams, Principal, King Edward VII Technology College and Training School, Melton Mowbray, as part of the EMLC and NCSL Futures project.

The views expressed are personal and do not necessarily reflect those of either organisation.

Edited by Karen Carter and Chris Williams

Introduction

The Futures project

The Futures project is a joint venture between EMLC and NCSL. A key outcome of the project has been the generation of a series of think pieces designed to support the development of futures thinking. This first series has been developed by headteachers in dialogue with senior business leaders. In the future we propose to undertake similar work with moral, political, community and cultural leaders.

The aims of the project are:

- to stimulate debate
- to give local leaders a voice in shaping education for the future
- to provide materials and processes to help schools think about and plan for the challenges of the future

The work of the project builds on the Organisation for Economic Co-operation and Development (OECD) scenarios for the future of schooling and FutureSight, a major NCSL initiative to support futures thinking in schools.

Our next steps are to develop tools to help stimulate debate in our school communities, supported by seminars and online materials. For more information please visit **www.ncsl.org.uk**

The think piece format

To give consistency to diverse views, the think pieces in this series use the same format which is made up of six component parts.

Key components

1. **Viewpoint:** who is talking
2. **Mapping the territory:** ideas and areas of debate
3. **Over the horizon:** a business leader's perspective
4. **A view from the bridge:** what the world of 2030 might look like
5. **Futures learning:** a school leader's perspective
6. **Pause for thought:** questions to challenge thinking

Key ideas for futures thinking

As educational leaders, we are firmly in the futures business. Our role, after all, is to prepare young people with the skills and personal qualities to live long, happy and productive lives. Lifelong learning, changing employment patterns, a world where our children are prepared for jobs yet to be invented using technology yet to be dreamt of – are all ideas we use to shape planning. Our national headteacher standards even talk about 'shaping the future'.

Futures thinking gives us a shared language and tools to step outside the present. To think about the future, we first have to try to understand the trends influencing the present. These are powerful and pervasive areas of change, gathering momentum like a stone rolling down a hill. Work by the OECD in the late nineties identified five areas:

1. **The nature of childhood and extended adolescence**
   - the protection and nurturing of childhood continues for far longer
2. **The knowledge economy**
   - instant global communication
   - shift to knowledge working in post-industrial Europe
   - new technologies
3. **Inequality and exclusion**
   - the proportion of older people in Europe rises and they become richer
   - young people are poorer. With this is the potential for alienation
4. **Changing family and community life**
   - nuclear and extended families are less prevalent
5. **Some broader developments**
   - wide and increasing disparity in global income brings higher levels of economic migration

Work undertaken in England by NCSL and others in 2002 applied a reality check to these trends. There was debate about their impact on schools across the country, but universal agreement that they represented powerful forces shaping the work of schools. At the time, headteachers involved in NCSL's Leading Practice work identified a shift in the location of values from religion and family to media and peer group. Further work has identified, for young people, important issues around the complex nature of identify rooted in location, ethnicity and religious belief and at its most extreme, radicalisation.

From present to future – tracking the trends

These irresistible trends impact on our work in schools each and every day. They span moral, political, social and economic analysis. Out of them emerge key questions, moral imperatives and contradictions. ICT brings instant communication but the potential for physical isolation. Where families do less to nurture, schools are challenged to place themselves at the heart of their community as a force for support, social cohesion and intergenerational learning. Children live uneasily in a highly protected UK society which also, paradoxically, condones their early sexualisation.

Challenges to shifting patterns of employment, continuing skill development and the need for robust interpersonal skills mean that schools have to be adept at helping children to negotiate relationships and difference. Economically and politically, there is a push for better functional skills and higher level qualifications to enable the UK to compete in the global market. Finally, there are pressures on schools to enable children to make more discerning choices about learning to reflect the flexibility of new technologies and in common with best commercial practice, to develop a personalised offer for every child. At its most extreme, this could involve the end of schools as we know them.

Identifying new trends

From a 21st century perspective, it's possible to identify new trends related to sustainability, values and personalisation. As a starter, it may be useful to debate and reshape these and to consider the following questions.

Pause for thought…?

- **Are these genuine trends, with the power to shape everything we do, or just contemporary issues and concerns?**
- **Are there other trends we need to describe?**
- **What the implications for how we shape education?**

- **Sustainability and environment.** The start of the 21st century has brought raised awareness that natural resources are limited. There is also increasing understanding of the impact of fossil fuels on global warming. From initial scepticism, there is now widespread, but not universal, scientific and political acceptance of climate change. This is a recent but powerful trend. Its potential impact spreads to every aspect of education and lifestyle. There is a growing awareness that new technologies need to be found and increasing political tensions as leaders strive to balance economic needs driven by demands for energy and growth with a wider responsibility to conserve and build for the future.

- **Identity and values.** Global mobility has also brought tensions over identity and related shifts in patterns of belief. These changes have the potential for long-term impact on what we value and how we live our lives. In northern Europe and in particular, Britain, the influence and role of the church has diminished. Personal values, once shaped by religion and family, are now increasingly formed by media and peer group. By contrast, in other parts of the world, religion continues to exert a powerful influence. For some citizens of multicultural Europe, our race, where we live and what we believe create tensions over identity. Where this is associated with other feelings of injustice and deprivation, it leads to alienation and radicalisation.

- **Personalisation.** A final trend increasingly recognises and focuses production on the uniqueness of the individual. This aspiration emerges from the capacity of new technologies in a competitive business environment both in products and services. This is a trend which is now increasingly impacting on education, with the potential for more flexible provision or de-schooling.

Futures thinking in action

These ideas for futures thinking are explored in the series of think pieces produced by the Futures project. Out of such analysis, future thinkers identify possible, probable and preferred futures. They also develop scenarios. These are powerful tools. They allow us to walk around in the future, experience how it feels to be a student, a teacher, a facilitator of learning or a parent, in such a world. These spaces do not so much allow us to predict the future as to take the time to pause and think a little. At best, such experiences empower us to identify our preferred future and work together to make it a reality at school, regional or national level.

Chris Williams, 2007

Uncharted territory

Andrew Bloodworth in conversation with Chris Williams

Viewpoint

The British Geological Survey (BGS) was established in 1835. Based in Keyworth on the outskirts of Nottingham, it has 800 staff working in the UK and around the world. A public sector research organisation, BGS began as an organisation producing high-quality geological maps. Over recent years, its activities and stakeholders have diversified, including advice to central government on policy, to local government on planning and land-use issues, to private companies on mineral extraction as well as an increasing range of international training and development work.

Mapping the territory

If the UK's leading geological mapping company tells us that we are entering 'uncharted territory' in terms of climate change, it must be time to sit up and take notice.

This dialogue explores the potential impact of climate change on an organisation charged with understanding its consequences. It describes a world where climate refugees are commonplace, where travel is restricted and where the lives of every family and every company are affected each day.

This is a world where technology and innovation are critical. It is also a volatile world where values and communities may be brought together or fragmented. In setting out the future, the think piece offers a challenge to consider the implications for learning and the schooling system.

Over the horizon – a business leader's perspective

Climate change is a massive challenge with a potentially huge impact on us and our stakeholders. What is difficult to take in, is the speed of this change, with everything happening much more quickly than anyone imagined. These changes will have a huge impact on every person and every business over the next 50 years.

Geologically, we're simply in uncharted territory, there's no comparison we can draw on. We know that bio-diversity declines periodically, sometimes in response to major events, massive volcanic activity or a meteorite strike, for instance. What's clear now, is that the current decline is very rapid and Anthropomorphic. In other words, it's caused by the behaviours and number of human beings on the planet. It may even be that we are at the start of a mass extinction. Geologically an event like that may take thousands of years but it's beginning to look very significant.

At BGS we use our knowledge of what has happened to look for patterns to help us understand the present and the future, so we are very focused on horizon scanning. In particular, the government commissions us to advise on what is driving climate change and what impact it is likely to have in the UK and Europe. We are also in the business of mitigation, advising on what we can do about it. There are major issues ahead; the certainty of mass migration of climate refugees, particularly from heavily populated, low lying countries such as Bangladesh, flood risks, erosion and costs of sea defences in the UK and beyond, even the possibility of the Gulf Stream switching off. The earth has never undergone changes like the one we are undergoing at the moment. There's much that isn't known and a real risk of wider instability.

The emergence of Asian economies is driving an unprecedented demand for resources. People talk a lot about us running out of things, but the reality is that the earth is a big place. In practice, what is happening is that we continuously get better at finding mineral resources and have better technology to extract more efficiently. It may be harder to get and more difficult to remove, but it's still there. Much more of a problem is the damage we are causing to other non-renewable resources such as air, soil and water. Building more and more houses also means we have sterile resources trapped in the ground. The underlying issue is that we continue to decouple behaviours and their consequences. We may wish to support action to reduce global warming, but don't link this with taking fewer flights, for example.

At BGS we have a tradition of constructing mathematical models, for instance to predict sedimentary movement in a tidal system. Now we are moving into use of scenarios and models to explore and advise on the impact of policy change. We are modelling, for example, how we can provide sustainable resources for building Olympic Park. Analysis of the impact of growth in housing and modelling of planning regulations has also led us into intergenerational planning and closer work with social scientists to understand how these changes will impact on individuals.

Mitigation leads us to practical proposals such as burying carbon dioxide and the emergence of environmental economics. This challenges us to identify our carbon footprint and manage the environmental impact of our lives and work. As an organisation, our strategic planning now takes account of this. Everything has a price, it's just a question of whether it's worth paying. The push of climate change will be to make us more aware of the consequences of our action on our environment, to manage the consequences and to devise new technologies to reduce our carbon footprint.

A view from the bridge

The early 21st century is the digital generation. BGS currently maps through tablets linked automatically to a central computer, with a navigation system specifying locations and data entered through a stylus.

The 2030 generation will have moved from data acquisition to data manipulation. Workers will have unprecedented amounts of data shared and available easily from their desk. A key challenge will for us will be to enable human beings to deal with huge amounts of data, with complex information available in accessible forms for a wide range of stakeholders. By 2030, we will have developed 3D visualisations of data which will allow us to walk around inside ideas and concepts.

Our core business will consequently shift from data capture to construction of complex predictive models which allow us to test out the impact of changes. These models will also be connected, for example, in enabling us to drill down from global impact to effects on local communities and families. Our work will also increasingly provide a bespoke service for our clients. This is happening already. We provide a service to insurance companies on the likelihood of subsidence by post code. We will work more flexibly to do what we are asked to do. Another example of this flexibility is the way we are becoming skilled in working with the developing world in post-conflict situations.

By 2030, the carbon agenda will mean that companies will work in a distributed way, with virtual teams sharing data remotely and more sophisticated communication skills. In many ways, though, the people we employ will not be so different from today. As a research organisation in 2007 we struggle to find people with the core skills we need; innovators who are firmly grounded in principles through a traditional education in pure sciences. Most people we employ have a second degree baseline, but we need to develop them as they work with us. Science is in crisis in the UK, with a downward trend and issues over societal attitudes – we will need to change this.

We also see the impact of education on employees' attitudes. With much academic study organised in modules some employees find the messiness of work which has no obvious closure difficult. We also find that young people steeped in web communication find it hard to construct narrative reports, this is another challenge of the need for communication matched with clients' needs

As for families, the massive carbon agenda will mean that families have carbon cards and trade in carbon. The rich will, in effect, buy a licence to pollute. Work will be more flexible and more often home-based. In the day, villages, once deserted by commuters, will be busier. Trading units will be smaller. Most of us will be generating our own electricity and weekends will see us far more likely to be polishing our wind generators than cleaning our cars.

Futures learning – a school leader's perspective

2030 isn't far away. Step back to the same period of time and you end up in the mid eighties - 'The Singing Detective' and 'Neighbours'. So, computers are faster, smaller and more sophisticated now, but maybe this rhetoric of continuous and unpredictable change overdoes the fact that much is as it was. Yet under the surface, things have changed enormously. There's the World Wide Web revolutionising information and commerce, economic migration, shifts in values, powerful and emerging Asian economies, radical changes in family life, social exclusion. So, despite the surface similarities, we should recognise that change has been pervasive, deep and irreversible.

But what about 2030? Surely that's not going to be very different? After periods of rapid change, can't we rely on a generation of consolidation, embedding all that has happened? Andrew's analysis is a powerful statement that our world will increasingly be one of volatile change, where technological economic growth now seems certain to have created an irresistible momentum. So, even if we are watching 'Neighbours' in 2030, even if few members of the cast of 'Coronation Street' have changed, the world will feel and be a very different place. What is extraordinary is that, even at the end of the 20th century, the OECD trends did not recognise the immense impact of climate change on our thinking and on our world.

After our conversation, I am sure that implications will reach much further than any of us can imagine. The impact on education I find even more difficult to grasp. I can see how we will live in a world where huge amounts of data are available instantly to us, where work will increasingly be virtual and home-based, where products will be personalised. I can also see how we will become much more adept at exploring information through virtual models. I worry, though, about the polarities – how instant communication will produce even greater isolation, where the rich are able to travel and experience more and the excluded become more so. If you imagine the community in 2030, I am very taken by the homeliness of micro-generation. I even quite like the idea of polishing my wind generator at the weekend and of people spending more time at home. In this brave new world, though, developing a sense of a cohesive community will be more important than ever. It looks to me that learning and inter-generational support, rather than the church, will be critical in developing shared values and identity.

In educational terms there are implications for:

- how and when we learn
- what we learn

Here's now it might look.

By comparison with 2007, students will spend more time learning virtually. Whilst secondary schools will continue to exist, local learning centres attached to primary schools, will offer facilities, support and encouragement for children for typically, a day a week. Students from 11 will consequently spend time in their local learning centres, time in work-related activity and time in their school. Tutors will have a very different role from the one they have today, supporting learning through daily conferencing to which parents and carers will also be able to tune in. Whilst primary schools will continue to develop core learning and social skills, education beyond 11 will have undergone extensive change with schools relinquishing their custodial role in favour of a personalised mix of vocational education, core learning and innovation skills.

Education will include:

- core learning with some traditional elements of subject provision studied to greater depth for those with aptitude
- social, active citizenship and community skills
- communication, information and data management skills
- thinking, innovation and technology skills

All of these will require significant development but all, hearteningly, build on current developments. The first will more explicitly recognise a national need to educate some students as potential researchers. The second will include educating young people in sustainability and personal responsibility, alongside team-based project work rooted in the local community. The third will bring together traditional areas of English and ICT with a much broader view of the different forms of communication in a multi-media world. The fourth will require more project-based work with students now engaging in problem-solving for small companies by working in small virtual teams.

In such ways, our learning communities will build issues of sustainability into our curriculum, root learning into local communities and develop, in our students, the growth in innovation and technology which will be required. Just as the challenges of climate are massive, so the challenges to education are huge if we are to give our children the resilience and shared values to avoid the fragmentation and division of a potentially turbulent future.

Pause for thought…?

- **In a worst case scenario of rapid climate change and migration, what will schools and learning look like?**
- **If the curriculum schools offer does not change, what will be the consequences?**
- **The analysis suggests a brake on growth, but how will this sit alongside national economic assumptions about continuing growth?**

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