

Essential questions for the future school

Addressing the need for transformational, systemic change to meet
the needs of current and future learners

September 2006



Specialist Schools
and Academies Trust
EXCELLENCE AND DIVERSITY

Essential questions for the future school

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Editor

Peter Chambers

Mission

The Specialist Schools and Academies Trust works to give practical support to the transformation of secondary education in England by building and enabling a world-class network of innovative, high performing secondary schools in partnership with business and the wider community.

This publication

Audience

Heads and senior leaders of all schools wishing to consider how education will best serve young people during the 21st century

Aim

To explore essential questions and some possible solutions, culled from practitioners' experience and international conference workshops of practitioners and thinkers in education

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Future schools Executive summary

The iNet Futures Vision group within the Specialist Schools and Academies Trust (SSAT), exists to stimulate thinking among educators and policymakers through questioning current practice and by presenting thought-provoking calls for innovation from practitioners.

This publication addresses 18 essential questions that need to be answered by schools, school systems and education leaders if we are to build world class schools for the 21st century.

Recommended principles to underpin learning for the future:

- The learner is central to all that happens
- The learning process is adapted to suit learners
- Society creates schools as communities of learning
- Curriculum is relevant to each individual
- Change is part of the culture of schooling
- Outcomes from schooling reflect the learners' and society's needs

Essential questions about the future school:

- Why is education configured the way it is? What do we take for granted that we might question and change?
- How can schools justify much of what they do? How do our students develop a sense of identity and belonging?
- Why does the UK curriculum, despite all the reform and innovation, still look very similar to that on offer at the start of the 1900s?
- Why do so many students still leave at the end of compulsory education with so little to show for it?
- If much learning can take place anytime / anywhere, why do schools generally consist of buildings that are usually open for restricted periods?
- Is the traditional classroom based single timetabled lesson the best way to organise most of our students' learning?
- Why is so little of what is now known about learning used on a daily basis to plan experiences for students?
- How will the new technologies transform learning?
- Why is there such a discontinuity between primary and secondary education?
- What do our stakeholders tell us about the school of the future?
- Why do we still depend on outmoded, industrial age thinking, when working with complex organisations?
- Where can we find inspiration and examples of change from which we can learn?
- What are the current and future leadership challenges for secondary school leaders?
- Does one school, operating in isolation, have the capacity to transform itself?
- What are the consequences for students in meeting the challenges of the 21st century if we do not transform our current practice?
- What are the consequences for society if our students are unable to meet these challenges?
- How can transformation in education create greater cohesion in our society and globally?
- How can transformation in education create a greater chance of survival for our planet?

Major trends in technology that will affect education:

- By 2015 all students will have some form of personal learning device
- Electronic sensors and agents will increasingly be part of the learning environment
- Content for learning will increasingly come from collections in digital libraries and online communities

These will interact with the role of the teacher and the goals of education, both of which are in flux.

The role of the headteacher will change and become more varied, as:

- Head learner
- Statelist
- Designer
- Team-builder
- Partner

The new concept of schooling will involve:

- New teaching and learning techniques
- Advances in technology – and their use
- Changes in learners' attitudes and commitment
- Changes in society's attitude towards learning / learners
- Advances in understanding of the brain
- Changing demands of the workplace
- New forms of leadership

The identification and development of these approaches to schooling for the future results from extensive international networking and partnership, between individual schools, school leaders and school systems, facilitated by iNet and the Future Schools group. Much more work by individual schools, including such international networking and partnership, will be needed to translate these ideas into reality, and to help meet the needs of young people through the 21st century.

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Foreword

Essential questions point the way to transformation

By Professor Brian J Caldwell, Managing Director of Educational Transformations; Associate Director of iNet (Global)

At the turn of the century, a group of headteachers in England came together to research and write a ground-breaking publication that was to have a major impact on policy and practice. An initiative of the Vision 2020 group of heads of specialist schools under the auspices of the then Technology Colleges Trust, *One world: one school* acknowledged the dramatic changes in society around the world, and their impact on the place called school. They looked ahead to describe a new and preferred future for schools and the roles of those who would lead them. The leaders of the project engaged their colleagues around the country to identify what should be the subject of innovation and what ought to be abandoned. I consider the report of the project one of the most important of its kind. It was groundbreaking because it was the work of headteachers.

One world: one school remains the most explicit account in education of the need to balance innovation and abandonment in schools. Achieving such a balance was considered necessary by the late Peter Drucker in his book *Management challenges for the 21st century*. The authors of *One world: one school* and many of their colleagues proceeded to implement much of what was proposed, thereby contributing to the transformation of secondary education in England. The emergence of specialist secondary schools, now exceeding 80% of all secondary schools, is in my view the most significant development in secondary education in any nation. These leaders seem to have shed the image of the over-worked and stressed headteacher, and one senses in their endeavours a spirit of exhilaration. They were not 'wiped out' by the waves of change that continue to be a feature of the educational scene. It is regrettable that policymakers have frequently failed to take to heart the need to achieve a balance of innovation and abandonment.

The work of the Vision 2020 group was a key driver in the establishment of a new project of the Specialist Schools and Academies Trust, formerly the Technology Colleges Trust. Known as International Networking for Educational Transformation or iNet, its intention is to share knowledge, work together in addressing common problems, and where possible pool resources in an effort to achieve the transformation of schools in participating countries. Transformation is defined in this context as significant, systematic and sustained change that leads to high levels of achievement for all students in all settings.

The pages that follow constitute the sequel to *One world: one school*, extending the endeavour to other countries through iNet. There are further contributions from headteachers in England, but there is much more to enrich the account, with examples of transformation in schools, and insights on how to achieve it, from Australia, Canada, New Zealand and the United States. An iNet conference in Georgia in April 2006 was the setting for generating many new ideas on the theme of transformation, with a particular focus on personalising learning, the application of new technologies, and the utilisation of new pedagogies.

A feature of this publication is its insistence that further innovation must be balanced by abandonment of policies and practices that may have been well suited to former times but are now essentially obsolete. It is even more important than before that achieving this balance be a priority for policymakers and practitioners everywhere. The consequence of neglecting this task may be, at best, a failure to achieve transformation, and at worst, the meltdown of public education, as meeting expectations becomes 'mission impossible'.

To the best of my knowledge, this publication remains unique in that it is entirely a work for school leaders by school leaders, with a particular focus on the contributions of headteachers and principals. The authors draw on the work of academics, whose own endeavours are rather different to those of others who research and write about leadership and the transformation of schools. They are very much grounded in practice, reflecting more a 'development and research' orientation than a 'research and development' approach. This is also my disposition, and this book based on practice will become part of my well of knowledge about transformation and how best to balance innovation and abandonment.

While this may be an initiative of current and former leaders in schools, it is important to acknowledge those in government and in the public service who have provided a framework for new practice to emerge. While there is still too much centralisation and an often unbearable burden of compliance, most of the practices and possibilities described in these pages have occurred in systems of public education where significant authority and responsibility has been devolved to schools. This is particularly the case in Victoria, Australia, New Zealand and England. This is a tribute to those who created the framework as well as to those who seized the opportunities that were created.

This is an outstanding publication that, if taken to heart by all stakeholders, will make a major contribution to the transformation of schools. The chief beneficiaries will quite rightly be students, but there will also be significant benefits for those who have the privilege to lead, because their work will at least be more satisfying, if not exhilarating. The authors have taken us to the edge of a new, exciting era in schools and school leadership.



Melbourne, August 2006

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Transforming today for tomorrow

Principles underpinning schooling for the future

Produced by iNet Australia through the work of its Futures Vision principals' group. Consultation was provided by Professor Brian Caldwell (Educational Transformations), Mr Tony Mackay (Centre for Strategic Education), Mr. Charles Brass (Futures foundation), and Professor David Hopkins, (HSBC iNet Chair for International Leadership) along with invaluable input and comment provided by representative students from Aquinas College, Collingwood College, and Eltham College of Education.

That the world has changed and that schools need to is not in question. On the assumption that society will still want organisations called schools, the question is: what needs to change if schools are to become relevant to the young people of the global knowledge economy and, concomitantly, the social and economic conditions that follow through globalisation?

We have not come up with a different name for school or, for that matter, teacher. Perhaps we need to use different terms to help people accept the need for change. Both school and teacher have been around for a long time. They create images that we all know and often seem most comfortable with. These may be, therefore, hard images to change while still using the same terms.

An industry leader suggested that we should use educator instead of teacher, as it also distinguishes between the many other people in society, including young people themselves, who are teachers.

However, what of school? Perhaps we need to explore such concepts as community learning centre. This also would have us explore the manner in which we would distinguish between geographic community and community of interest. The global knowledge economy, enabled by the immediacy and power of ICT, particularly the internet and now hand-held mobile devices, demands that schools be more than they have been in the past. There is a greater need for direct links between schools and the social and economic environments in which they exist. Young people today are faced with a complex global community and they need schools to help them develop their view of the world and their interaction with it. In particular, they need to learn how to manage their living, working and ongoing learning in this community of global, social and economic networks. Schools must take responsibility for future society's human capital, not simply see themselves as preparing young people for the next stage of their education within at best an existing society and at worst, a society geared to educational outcomes of the mid to late 20th century.

The late Peter Drucker, the American management leader, summed up the 21st century well when he said: 'In a few hundred years, when the history of our time will be written from a long-term perspective, it is likely that the most important event historians will see is not technology, not the internet, not e-commerce. It is an unprecedented change in the human condition. For the first time – literally –

substantial and rapidly growing numbers of people have choices. For the first time, they will have to manage themselves. And society is totally unprepared for it.' (Drucker 2000).

This appears to be a good general guide to educators seeking direction for the future of schooling. Drucker is suggesting a need for an enormous growth in personal ownership. Too often we take such ideas and see them applying to young people, not adults. If adults are going to create the conditions for young people to learn about taking ownership, then it is essential that adults own and manage their own lives more effectively. The credibility of adults in the school is predicated on their having the social and emotional maturity that they believe young people should be working towards. The future school will value the emotional intelligence and social wellbeing of all its community, rather than as at present simply placing the greatest value on what can easily be assessed and certificated. The latter tends to be epitomised in the final year of school. Elliot Eisner (2004) advises us to think about present school culture. He argues that we can best prepare students for the future by enabling them to deal effectively with the present. The future school is the school of the present and the future. If schools have a culture of change where they can 'read and flex', as he puts it, with the world in which young people live, then they will constantly be in a state of being schools for the future.

Core values

Given this, the iNet Futures Vision think tank determined that its best contribution to thinking and decision making about future schools would be to identify and explore what it considered to be essential principles that should underpin schooling. It did this in a context of key core values. It says something about both the present and the future that leaders from public, independent and Church schools were able to agree on core values and underpinning principles.

These core values, therefore, are independent of the particular form of the institution.

They are:

- We recognise the worth of each individual by valuing the personal qualities they demonstrate in their learning, living and working
- We recognise the experiences of young people by valuing the talents and skills they bring into their schooling experiences, and we commit to ensure that schooling enhances these talents and skills
- We embrace difference by valuing diversity in ethnicity, religion, nationality and race
- We display integrity by valuing openness, trust, negotiation, fairness, honesty and respect for all people
- We foster ambition and independent spirit by valuing each individual's abilities, aspirations and desire to explore and create
- We acknowledge the role of networks by valuing the way in which people can work together and collaborate
- We acknowledge the place of school in the community, particularly, the broader global community, by valuing the essential nature of the relationship between schools and the social and economic environment in which they operate

Values, however, have little meaning if they are not about how we act. Schools have to engage in actively pursuing these values. The iNet Futures Vision group appreciated that a set of underpinning principles is needed in the conversion of values to action that will create schooling for the future. These will help us to question the adequacy of present-

day schooling to help young people. Inherent in these values is the overriding belief that all people can learn and must have the opportunities to learn. These principles will condition our behaviour within our institutions as we transform from 20th to 21st century organisations.

Principles

The principles we are recommending as central to future schooling need to be seen in a context of how we as school leaders will create the conditions through which we can act to make things happen for young people. There is the notion that the principles will take us on the journey of present and future culture for relevant schooling for young people, from their early years to adulthood. Each of these six key principles has sub-principles and descriptors.

1. The learner is central to all that happens

1.1 The most important person in a school is the young person.

Schools exist for and are organised around and energised by young people. Schools embrace the life context of young people. Young people have an active voice and are collaborators in their learning and the life of school.

1.2 Schools exist to provide for young people the opportunity to develop as confident, innovative and collaborative managers of their living, learning and working.

Schools empower young people to actively imagine and shape their future. Schools for the future will have developed standards, assessment and reporting that will reflect the outcomes of this core purpose. Central to schooling, therefore, will be the assurance that all young people will have developed the disposition and skill to learn for life, that is, they will be self-directed learners.

1.3 Schools regard each young person as having the right to negotiate their learning in relation to the multiplicity of their unique needs.

This negotiation recognises stages of development and that the negotiation involves a partnership between the learner, parent and school. This also implies a different relationship between the learner and the educator. The relationship, which develops throughout the schooling experience, is one that acknowledges the rights of the learner and the learner's parents to seek what they need and want through the schooling experience.

1.4 Schools acknowledge differing developmental stages for young people and focus their resources and organisation accordingly.

Schools are flexible enough to respond to the rapid changes of development in 21st century young people. At the young adult stage (previously referred to as post compulsory), schooling will advance seamless learning experiences that can encompass school learning, further and higher education and training, and work.

2. The learning process is adapted to suit learners

2.1 Intelligence can be taught and is contagious.

Schools recognise that the notion of intelligence embraces multiple intelligences. They can no longer simply recognise academic intelligence, but have to recognise, teach for, assess and report on emotional, social, applied and physical intelligences.

2.2 All learners have the capacity to succeed at a high level.

Schools believe in the capacity of each student to achieve success and teachers create conditions where that success is recognised and celebrated. Schools understand that 'not yet' does not mean 'not ever'. They develop a culture of aspiration in each and for each of their students, and work collaboratively with them to achieve a high level of success.

2.3 Schools are fun.

Schools will be places in which young people want to spend time. In particular, schools will enable young people to develop a strong disposition towards learning and create the conditions for lifelong learning through a belief that learning is fun and a worthwhile activity in which to engage. Learning-teaching pedagogies are flexible, spontaneous, unexpected, exciting, enriching, illuminating, and demanding of engagement. Interactions with colleagues and peers, old and young, are rewarding and stimulating, such that absence constitutes a lost opportunity for growth and enjoyment. Being in attendance is being alive and engaged. School is a lifetime experience.

2.4 Schools are flexible in their use of time, space and resources, recognising that young people need freedom to learn.

Freedom to learn means that young people have opportunity to explore, take risks and challenge their world. This requires greater flexibility in the way in which schools have and use time, greater adaptability in terms of the space that can be used for learning and greater opportunity in terms of how they acquire and use resources, particularly the wealth of human resource that could be available.

2.5 Schooling provides the learning environment that produces resilient, collaborative lifelong learners.

In an era when schools are risk averse because we operate in a litigious society, schooling must still provide the opportunity for experiential learning and risk taking. Lifelong learning is as much about emotional and social resilience as it is about the disposition and skill for learning. Young people must leave school with resilience and the capacity, therefore, to work successfully with other people. In relation to social problems, the school will be characterised by prevention rather than intervention programmes.

3. Society creates schools as communities of learning

3.1 Schools are communities of people who are co-learners, co-researchers and co-educators.

Community members are valued in the learning process for their expertise,

knowledge, experience and passion. Learning is a partnership between all participants. Teachers also are seen as being part of a teaching-learning relationship rather than as custodians. Schooling communities recognise that adults other than teachers will fill the custodial role.

3.2 Schools celebrate difference and recognise and embrace individual and group diversity.

Regardless of whether our schools are public, Church or independent we commit them to both teaching for and providing experiences to learn about individual and group diversity.

3.3 Schools are community resources and available to their communities 24 hours per day, 52 weeks a year.

In an era in which lifelong learning is a norm, schools with their learning and recreational resources must be central to community social, economic and intellectual wealth. This will require collaboration between schools as well as between schools and their communities.

3.4 School facilities are welcoming and adaptable.

School facilities have to be placed where young people, teachers and the community want to be, not necessarily the central or even the principal place for learning. Such communities also have to be safe and secure. They should replace teachers as security people by more appropriate personnel (perhaps including members of the community), and allow teachers to be educators.

4 Curriculum is relevant to each individual, to their need for collaboration and to the global community in which they live.

4.1 Schools offer a curriculum that brings together learning experiences, knowledge and skills relevant to a lifetime of living, learning and working.

Schooling recognises that the future world of work demands that young people have academic and applied (vocational) knowledge, skill and experience, emotional intelligence and a capacity to learn for life.

4.2 Schooling curriculum encompasses the relevant enabling skills for learning and living.

Schools of the present and future will no longer simply acknowledge traditional literacy and numeracy, but will ensure that all skills that enable successful engagement in learning, living and working are developed as a right for all young people.

4.3 Schools recognise that information and communication technologies are now a core part of living, learning and working.

ICT is an enabler for young people and an expected part of schooling. It is not an educator driven part of the school curriculum. The internet, coupled with mobile, hand-held technology are pervasive.

5. Change is part of the culture of schooling.

5.1 Change is fundamental to and embedded in the learning culture of schooling; thus, educators have a leadership responsibility in developing constructive change.

Schools are leaders of innovation through an environment in which imagination, creativity and entrepreneurialism are central to the learning experiences of young people.

5.2 Changing and managing change are part of schooling.

The pace of global transformation is such that the schooling experience for young people must embrace the experience of change.

6. Outcomes from schooling reflect the learners' and society's needs.

6.1 The 'opportunity' outcomes from schooling will deliver broad, valued and equitable choices for each young person.

Young people will not miss out on opportunities because of background or location. While schools will maintain their diversity, they will not be exclusive on the basis of wealth, religion or culture.

6.2 Schooling develops common measures of success to demonstrate accountability for all schooling experiences and outcomes.

Entrance to tertiary study will no longer be seen as a principal measure of schooling success. Traditional senior schooling and traditional post-school opportunity will converge as part of the experiences of post-compulsory schooling.

So, where to?

The experience of schooling has been one of maintaining the traditional organisation, processes and infrastructure. Schools still have much of the look and feel that they had 50 years ago. Despite the opportunities of technology, most schools still manage young people in relatively large groups, in four-walled classrooms. The workplace of most people throughout the world has changed, but that of teachers and students, while it has become busier, has not varied from the standard schooling formula of classroom management and control.

Hedley Beare (2001) presented a scenario of Angelica, a five-year old who is in today's classroom, not in the classroom of 2025. If we cannot transform to respond to Angelica today, what hope have we of responding to her five-year old son or daughter in 2025 (Angelica will be 29)? There is now an urgency and we have to move beyond the complacency that has characterised schooling for too long. The OECD has presented global scenarios of the future, but we believe there is nothing as powerful as Professor Beare's scenario of Angelica because it is now, it is real, and it demands, out of the words of a five year old, that we stop procrastinating by pretending that the future is in 20 years.

The boundaries have to be pushed. We cannot continue to give rhetoric to the skills, attitudes and knowledge that young people need for the 21st century while we, leading and

teaching in schools, continue at best to offer shallow, indeed, cursory, change. It is time to ask whether we are operating schools for older people (teachers and parents) or for young people (students). To simply project schooling 20 years into the future is to deny the scale of change that has occurred over the past decade and is still occurring. Eisner advises us to make schools today relevant and adaptable: then, he says, the school for the future will already be happening.

We need to be outraged that we have not responded to the 2001 Angelica. If we cannot, even today, respond to her, how can we create schools for the future?

We have presented six principles based on core values: principles that we believe are embedded in a transformed world. It is now time for those of us working in schools to have the courage to ensure that we develop in our schools a culture of relevant change to face the future.

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Essential questions for the future school

By Andy Schofield Principal of Varndean School, Brighton, based on papers produced by members of the Futures Vision group following a seminar in Cambridge, October 2005 and subsequent discussions

At the start of the millennium the Vision 2020 group of UK specialist school headteachers published *One world: one school*. Its ideas were informed by conference discussion with specialist schools nationwide and had a significant impact on national education policy and practice.

The Futures Vision group within what is now the Specialist Schools and Academies Trust (SSAT), in conjunction with a similar group of Australian educators, is revisiting the questions still facing us, taking on board the many changes that have taken place worldwide in the last five years. The Futures Vision network exists to stimulate thinking among educators and policymakers through questioning current practice and by presenting thought-provoking calls for innovation from practitioners. We wish to engage in debate with all those in schools facing up to meeting the needs of young people in the 21st century.

As with Vision 2020, the underpinning belief running through the work of Futures Vision is that if we are to build world class schools for the 21st century, it is not enough to tinker with existing structures. We believe we need to transform schooling – the ways in which students learn and the ways in which schools are led and managed – to the benefit of our present and future communities. To illustrate some of the elements of transformation, we have used the conceptual framework of innovation and abandonment to emphasise that we need not only to do certain things differently; we also need to make a conscious effort to abandon, or cease, some current practice.

One world: one school recognised the need for a radical rethink of what we mean by 'a school', where it is located and what it does. This document addresses similar issues, as well as taking into account the rapid technological progress and some of the other dramatic changes in the world that have affected our lives since the beginning of this century. Our intention is to ask key questions that address the need for transformational, systemic change to meet the needs of current and future learners.

Through its international network, iNet, SSAT now debates these issues with educators worldwide. This publication reflects current thinking in the UK, Australia and a number of other countries on the essential questions concerned with leading the secondary school of the future. The publication has been informed and influenced by debate at workshops and conferences in the UK and internationally during 2005 and 2006. Our aim is to stimulate further debate among all schools affiliated to the Trust and iNet across the globe.

The challenge: why change?

'The system we work in today was invented 100 years ago for another time and another mission – the processing of large numbers of students for rote skills and the education of only a few for knowledge work. It was never designed to teach all children to learn to high levels. Caring and dedicated teachers, administrators, and parents work hard every day within this system to educate our children for more ambitious thinking and performance skills - and yet their efforts are often stymied by outmoded institutional structures, most notably the large, impersonal, factory-model school.' (Linda Darling-Hammond, School Redesign Network, Stanford University, California: USA, www.schoolredesign.net)

Much has been written about potential futures for the planet and for education. Whichever one you believe, and some have more likelihood than others, the implications for schools are huge. The only certainty is the future will be different to the present. How will a model of secondary education, rooted for most of us in the past in terms of its rigid subject divisions, its hierarchical structures and its ageing building stock, provide for the divergent needs of all learners in the future? How will we personalise learning if we stick with a system that tests students en masse at the same age and time? How can we best create genuine lifelong learners with the skills and competencies to respond flexibly and cooperatively to the phenomenal changes that face us in the future?

One simple answer is: not by doing what we always have done in the past, or what we do now – even if it delivers results that please newspaper editors, parents and politicians or meets the narrow requirements of the standards agenda. To equip our young people to thrive in their future life as productive citizens with social responsibility, contributing globally to the wellbeing of the fragile planet we live on, more is required of us.

The moral and professional imperative for change is strong. If we anticipate a world transformed even further by technology, a world that is shrinking daily and becoming increasingly globalised, then we need to meet these challenges in schools through what we teach and how we teach it. If we are to lift the life chances of those most vulnerable in our society so that they can make a worthwhile contribution and enjoy the concomitant rewards, then the way that we are educating them needs to change.

What are the other drivers for change? When the students themselves are asked, they invariably say, in their own way, that what's on offer is not coherent. To them it's a means to an end. Many have a sense of playing the game in order to get the magical paper qualifications to go on and do something more meaningful; others disengage and disappear. When students enter employment, they often find their qualifications get them through the door, but once in, the skills and competencies they need to function effectively and flexibly within highly competitive global organisations can be sadly lacking. The big question isn't how we manage and engage with change but, rather, what are the dangers if we don't?

Essential questions

- Why is education configured the way it is? What do we take for granted that we might question and change?
- How can schools justify much of what they do? How do our students develop a sense of identity and belonging?
- Why does the UK curriculum, despite all the reform and innovation, still look very similar to that on offer at the start of the 1900s?
- Why do so many students still leave at the end of compulsory education with so little to show for it?
- If much learning can take place anytime / anywhere, why do schools generally consist of buildings in one place that are usually open to everyone for learning only from a restricted period such as 9–3, 190 days a year?
- Is the traditional classroom based single timetabled lesson the best way to organise most of our students' learning?
- Why is so little of what is now known about learning used on a daily basis to plan experiences for students?
- How will the new technologies transform learning?
- Why is there such a discontinuity between primary and secondary education?
- What do our stakeholders tell us about the school of the future?
- Why do we still depend on outmoded, industrial age thinking, when working with complex organisations?
- Where can we find inspiration and examples of change from which we can learn?
- What are the current and future leadership challenges for secondary school leaders?
- Does one school, operating in isolation, have the capacity to transform itself?
- What are the consequences for students in meeting the challenges of the 21st century if we do not transform our current practice?
- What are the consequences for society if our students are unable to meet these challenges?
- How can transformation in education create greater cohesion in our society and globally?
- How can transformation in education create a greater chance of survival for our planet?

Why is education configured in the way it is? What do we take for granted that we might question and change?

David Hargreaves (2004) has challenged us to question many of the assumptions about education that we take for granted through developing the concept of 'educational imaginary'. In this context, an imaginary is a set of generally unquestioned assumptions about the way education is configured. Hargreaves contrasts the 19th century educational imaginary, where aims and outcomes were well known and uncontested; intelligence was a fixed innate characteristic, and teachers and student roles were sharply defined, with the 21st century imaginary. Here, identities and destinations are fluid, intelligence is multi-dimensional as well as learnable, and the roles of teacher and learner have become blurred. In the 19th century imaginary, schools were designed and organised along factory lines like a production line, with predictable inputs and outputs, coupled with a distinct lack of choice about learning for the student.

The challenge for school leaders today is to reconfigure education so that it is fit for the 21st century. What makes the task significantly more taxing is that the pace of change from one educational imaginary to the other is happening now, in real time. School leaders are living with the transition and faced with leading and managing the transformation. Hargreaves sees the personalising learning agenda (for example, Leadbeater 2004, Hargreaves 2005) as the driver to get us from the 19th century imaginary to the 21st century.

Hedley Beare (2001) presents a similar challenge, of moving from factory based, parochial schooling to a new kind of future school. The drivers for this change – which is coming, whether we like it or not – are radical shifts in post-industrial economies, information technology and globalisation. Beare (in Caldwell 2005) has repeated the urgent need for school systems to rid themselves of the military analogies – of power, rank, compliance, and obedience, as well as the still persistent industrial age metaphors – and replace them with a new imaginary and new forms of systems thinking. Caldwell calls this 'new enterprise logic'. The challenge for school leaders is to oversee the transformation of schools, rather than their reform. Simply recycling the same components will not go anything like far enough.

We know that top-down, command and control management systems have had their day – other than in the armed services or in prison – so why does hierarchy, status and department or pastoral affiliation still matter so much in teaching? How can professional people end up counting 1265 hours (in England) and how many meetings a week they're attending? Local authority and support staff still get appointed to 'officer' grades in the UK. Leadership and management structures in schools have changed relatively little over the years. They remain intensely hierarchical, inflexible and multi-layered. The department structure in secondary schools creates units that militate strongly against seeing the student as a whole. The fact that departments can have different stances on the school's values and core purposes only adds to the lack of coherence.

The new UK legislation around the Every Child Matters agenda has the potential to radically shift the focus of secondary schools from teaching subjects to each and every student. It also broadens the range of agencies that schools will have to interact with. But unless it is funded properly, it risks diverting schools from their core purpose of learning and personal development.

How can schools justify what they do? How do our students develop a sense of identity and belonging?

These are profound and very serious questions for the school of the future. One way of looking at the choice facing us is to decide whether we want value centred or rule bound communities. Value centred communities define what constitutes acceptable attitudes and behaviours from an agreement about the real purpose of the school – from the inside-out as far as the community and the individual are concerned. Attitudes and behaviours which are out of synch, or not congruent with what has been agreed, can be challenged by reference to some deeper moral purpose, rather than from the position of seeking to defend an arbitrarily imposed set of rules. This has the potential for much more powerful engagement with students. The core values of the school become a living, everyday force, and some of the detail becomes easier to justify and to some extent more flexible.

Rule bound communities define what's acceptable in terms of lists of do's and don'ts – from the outside-in as far as the individual is concerned. This can result in an outbreak of sad teacher mentality, with arcane debates about the number of ear-rings that students are allowed to wear, or the 'do it because I say so' mentality that has alienated so many students over the years.

A considerable amount of work has been undertaken by Julia Atkin (1996) with schools in Australia and New Zealand around value centred practice and principles, but much of it has yet to reach the UK. Tallangatta High School in rural Victoria has transformed staff-student relationships through just such an approach, whereas far too many UK schools are implacably wedded to the rules and regulations model of mass schooling for purposes of control, rather than learning. This should come as no real surprise as the UK is the world leader in this respect, providing the public school system and the trappings of school life such as uniforms, to many parts of the world during the colonial era. Why are homework and uniforms still seen as a test of how strong a school is on standards?

A rule bound culture is ultimately disempowering for both students and staff. Authority is externally imposed and relates to lists of regulations which someone else, at some time, thought were a good idea. Virtuous attitudes and behaviours should arise from – and be congruent with – an agreed set of core values that the whole community has played its part in shaping. Students' behaviour can then be defined and debated within a framework that has real veracity, not by an imposed set of rules that may have little credibility in the eyes of the students themselves – or just as importantly with the staff whose task it is to impose them.

Why are so many of our schools bound together by externally imposed (to the individual) rule driven cultures?

These questions go right to the heart of the sense of identity and belonging that we want our students to develop. These are crucial issues in an era when identities are being formed in new, multiple ways that are no longer under the control of the school or indeed the family. Furthermore, in a profession that has a reputation for shortening one's life expectancy the longer one works in it, how we motivate, engage with and retain the teachers and staff of the future must also be crucial. Why does the actual job of teaching burn people out? How can educators retain the passion and desire that they had to make a difference throughout their working lives? (See Schofield (2004) for an analysis of Julia Atkin's work applied to UK school and staff leadership.)

Schools that react to societal changes by trying to increasingly control what students learn and do within a continued model of mass provision will find themselves facing great difficulty appealing to students. The students increasingly recognise that they have individual rights as consumers and citizens, and expect services to be personalised to their individual needs. The school system is faced with increasing numbers of students who are challenging accepted norms, are alienated or disengaged, or have been lost to the system by age 16. A producer dominated model of education, which tells students what to do en masse, is inappropriate for the world in which we now live. It causes massive stresses in the system for those that work or study there, as well as a massive waste of talent.

More practically, how does the layout of the average secondary school encourage socialisation and civilised behaviour? If we expect students to develop a sense of belonging and identity, why do we mass them together in enormous year groups? Is it any surprise that secondary school students often feel isolated and alienated when they have no place or workspace to call their own, live a nomadic life from classroom to classroom, and have to use tiny canteens and grotty toilets?

Botany Downs, a newly opened purpose built secondary school near Auckland, New Zealand, has been designed around social units called Whanau Houses (communities in Maori), which apply the concept of the school within a school and a home away from home. In the USA, the home of enormous state schools, there is now a movement, backed by research, towards smaller schools aimed at reducing alienation and isolation (McKinney et al, 2002). The Small Schools Network actively promotes and researches smaller secondary schools in the USA.

The academic-pastoral divide in secondary schools is also notorious. Countless teachers with pastoral responsibilities get the blame for the failings of classroom teachers, their departments or the school itself to effectively engage with students. Maybe the recent workforce reforms in the UK will change some of this; but pastoral systems in themselves are not especially efficient or effective, and it could be argued that they touch only the minority. Some schools, such as Peacehaven Community School in East Sussex, have been designed without the one-size-fits all 1:30 ratio of form tutor to form group, replacing it with individual tutoring or mentoring. Some schools have opted for vertical tutor groups, as opposed to all members being from the same year group. This can enable cross-age mentoring or be designed to recreate the family atmosphere that some of our students are now said to miss at home. In the USA, the small schools network promotes the replacement of mass produced tutoring systems with 'advisories', which have smaller ratios of staff to students and use adults other than teachers to provide guidance.

Why does the UK curriculum, despite all the reform and innovation, still look very similar to that on offer at the start of the 1900s?

The traditional curriculum in the UK is very similar to the list of subjects that was prescribed at the start of the last century – with a few options thrown in at key stage four. The UK national curriculum enshrined much of this tradition in law and guidance. So much of what we put into place is from the perspective of those who have succeeded with traditional, academic education. There are signs, however, that this type of old-fashioned subject based curriculum is being questioned and replaced. In Australia, the New Basics in Queensland, Essential Learnings in Tasmania and the Victorian Blueprint are state wide reforms looking to transform secondary education. The RSA Opening Minds curriculum in the UK is a similar attempt to define essential learning experiences for students around skills and competencies, rather than subject knowledge per se. These reforms question

the pre-eminence of the subject based secondary curricula and attempt to define approaches that will result in more independent, emotionally resilient learners. They also inevitably raise questions about broadening the range of adults who interact with students.

Tallangatta Secondary College, Victoria, Australia, has had a vertical modular curriculum since 1979, incorporating a very strong vocational component. The school has an enterprise centre on site which includes motorcycle maintenance and horticulture, as well as a mobile hospitality and catering unit called 'food on wheels'.

Mitchell Secondary College in Wodonga, Victoria, Australia, planned and implemented a modular, vertical curriculum from year 8–10 in a single year during 2002–3. There are modules targeted at switching boys onto reading fiction in English as well as the usual mix of subject based and vocationally based modules to create coherent programmes of learning. The school has a fully equipped high-tech motor vehicle maintenance block. Its vision is 'everyone included, everyone challenged and everyone successful'.

The Leigh City Technology College in Dartford, Kent, UK embarked on a similarly ambitious project to restructure the curriculum during 2004–5 for implementation at the start of the following academic year, demonstrating that quite radical change can be introduced quickly if done skilfully. Leigh's vertical curriculum from 8–13 means that students of the same age do not have to be taught together. Many UK schools are breaking away from the traditional three-year key stage 3 and two-year key stage 4 model during the compulsory secondary years. Some even incorporate key stage five into the plans, as Leigh have done. Hargreaves (2005) provides other examples of UK schools that have broken the mould in this way.

Research done in the UK into 'assessment for learning' has produced evidence of the success of personalising assessment (Black et al, 2003) and revealed the limitations of one-size-fits-all summative assessment. Summative assessment at given ages will need to be replaced by students travelling through their learning programmes and being assessed as and when they are ready, maybe with mixtures of ages in each class reflecting a really individualised approach to progress. Embedding formative assessment for learning will help students to track their own progress through learning programmes which can be rigorously moderated by teachers and other adults supporting their learning. In the USA, the Coalition of Essential Schools promotes assessment through multiple forms of evidence, including demonstration of mastery at an exhibition in front of family and community members.

Why do so many students still leave at the end of compulsory education with so little to show for it?

Despite the claimed success of so many educational reforms over the years, in the UK it is still seemingly accepted as inevitable that 20% or so of students leave compulsory education with no record of achievement. Many are lost to education and training, sometimes for good. This is a shameful record – and one of the worst of any post-industrial nation. The continued predominance of the so-called 'academic' subjects, tied to a heavy dose of key stage 3 testing, is enough to switch off many of those for whom learning is not a priority. When schools fail to engage or provide worthwhile learning activities or courses, some students vote with their feet by the end of year 11; many others are still present in body, but their minds are elsewhere or focused on disruption. Even the ones who succeed may not be true independent learners, often relying on a diet of spoonfeeding justified by the testing and assessment regime.

What do we do with students in the UK who are not ready to learn, or find learning really hard? In years gone by students who found learning difficult were punished or forgotten about. Nowadays, we readily accept that students have learning difficulties and most schools have learnt to help those who find learning hard. However, the non-compliant or the students who present with a range of emotional or social issues in the classroom are now the ones targeted for punishment and exclusion. In the school of the future, maybe it will be as unthinkable to punish a student for exhibiting distressing signs of behaviour, as it used to be to punish those who found learning hard. If the UK education system is so successful, why are there so many exclusions, why is challenging behaviour on so many agendas and why have schools so blatantly failed to adapt to the changing nature of the students that now require educating? Excluding more and more students is not the answer – either for the individual school or society as a whole.

Collingwood College in Melbourne, Australia, have three sub-schools (junior, middle and senior) plus three further annexes: The Island, Richmond No1 and the Alternative School. They are also unique in having a dual curriculum, with a Steiner stream running up to year 10, which students and their parents opt into. This provides a range of schools, with different styles, as well as a school within a school – quite a contrast with the one size fits all industrial model. The college has a huge commitment to inclusion and to all its students always leaving with qualifications. This provision is based on a vision of working class education that has existed for over 20 years. 'The Island' is the work education and training unit for the college, based in a converted factory, where 60 students a day, aged 15+, are taught to apprenticeship standards. All who attend have disconnected from other schools; 95% of these students go into paid employment.

If much learning can take place anytime / anywhere, why do schools generally consist of buildings in one place that are usually open to everyone for learning only from a restricted period such as 9–3, 190 days a year?

There is a need to get beyond the school as the basic unit to work with, and to focus on the individual learner. Yet many educators still have an emotional attachment to the buildings and grounds of the traditional school campus. Learning is assumed to take place only when students are physically present on the school site between prescribed times. Extracurricular activities are just that – extras, not part of the core provision. Why isn't attention focused on the service being provided, rather than the location or the time it's on offer? Schools might come to the conclusion that it's actually impossible or undesirable to provide everything on one site. It is common for older secondary students to study at other locations, such as college or in the workplace, but is this just scratching the surface? First day educational provision for excluded students, now required in some behaviour improvement partnerships, certainly concentrates the mind in this respect.

A rich variety of community and home based learning opportunities may be much more in tune with students' aspirations and learning styles. In addition, schools must develop skills in teamwork and co-operation that employers require – and these are already evident in activities children take part in outside school, such as sports and music, drama and dance productions. Often extracurricular activities have been tacked on to an overcrowded, content dominated curriculum. Should they not instead be placed at the centre of a competency based curriculum that focuses on skills acquired rather than information remembered?

The pattern of the traditional school year is historic, as the summer break was originally needed to release labour for the harvest period. Current patterns of schooling have as

much to do with providing childcare in an effort to cope with working patterns as they do with provision that might lead to the most effective learning. Why do public schools and Oxbridge have much shorter terms than state secondaries? Are their standards of learning worse as a result? Do all students need to be on the school site from 9–3, 190 days a year? If not, how might we reconfigure schooling so that the structures fit the learning, rather than the other way round?

Is the traditional classroom based single timetabled lesson the best way to organise most of our students' learning?

In most UK secondary schools the dominant mode of learning is more or less the same as it was throughout most of the last century, with one teacher in a room with about 30 students, often unsupported by new technologies. At its worst, the teacher is the transmitter of knowledge and the student the passive recipient. Even the presence of large numbers of interactive whiteboards or laptops won't necessarily guarantee more enlightened types of learning. These modes of learning remain part of the old factory, producer dominated model of education – and then we wonder why students are increasingly disengaged or unimpressed by what is on offer. In an effort to personalise teaching and learning, the Coalition for Essential Schools movement in the USA a core principle to limit the number of students any one teacher should be teaching at any one time.

Given the emotional attachment (largely by teachers and parents) to the 'lesson' and regular movement during the day, is it surprising that schools generally consist of long corridors and a series of similar looking classrooms? Why do most secondary classrooms consist of 15 double desks, often in rows, and 30 uncomfortable plastic chairs? How many adults would be prepared to sit in one of those chairs for five hours? What would a school built around learning actually look like? Why are the vast majority of students required to be in lessons all the time? Will the UK's Building Schools for the Future programme provide schools built around student learning and personal development, or simply give us more of the same old tired designs?

Unlimited Paenga Tawhiti – a state secondary school in Christchurch, New Zealand – opened in 2003 with 400 students on roll in a city shopping centre. Unlimited has very few of the conventional trappings that would mark it out as a school – yet it is an inspiring place to work and learn. It has no fenced off site, relatively few conventional lessons and no typical classrooms. Every student has an individual education plan which maps out their learning around core time and 'glide time', when attendance is voluntary but by prior agreement. Their feeder primary (called Discovery 1) has a similar unconventional location and a refreshingly thoughtful approach to learning. In the same city, Christchurch College of Computing was set up to provide a high quality alternative to the traditional sixth form education – in an office environment, more akin to the sort of thing we might expect a private language college in the UK to look like. However, the college was set up and owned by Burnside High School, which in other respects is a conventional state secondary school.

Woodbridge High School in Tasmania, Australia has used the impetus of the new state curriculum framework, known as Essential Learnings, to provide longer learning periods, alongside trying to combine the needs of learners with different types of spaces. The school has based these developments on experience of what worked, informed by their own and others' research. In a conventional secondary school timetable, most teachers meet so many students in a week that they can't possibly know each of their minds well,

assess their work properly or personalise anything. So much of the work that is set for students, either in class or for homework, is to keep them busy and to get to the end of the lesson.

The Australian School of Science and Mathematics (in UK terms a sixth form college), constructed on the campus of Flinders University in Adelaide, South Australia, is a unique educational environment, with a number of highly innovative features. There are no conventional classrooms, with some teaching taking place in 'learning commons', which are adaptable open-plan ICT rich learning spaces.

It would not be too far-fetched to suggest that the whole culture of schooling could move towards active learning centres. The day would be flexible and built around learning needs, with extracurricular activities as part of the package of opportunities, and choices that build up the portfolio of competence throughout school life.

Why is so little of what is now known about learning used on a daily basis to plan experiences for students?

Twenty years or so ago, relatively little was known about how humans learn and how the brain works. Through the use of magnetic resonance and other new technologies imaging neurologists investigating brain activity now know much more about how learning happens. This work has given weight to theories of learning such as: Howard Gardner's ideas on multiple intelligence; David Kolb's cycle of experiential learning that requires a shift 'towards teaching how to do something'; Daniel Goleman's seminal work on the impact of emotional intelligence on learning; and Black and William's research on the impact of assessment for learning as an alternative to summative assessment. All of these have profound implications for the development of learning in our schools.

Now we know that intelligence is not fixed and is multi-faceted. We know that the brain is plastic and that it can be taught to learn, even if some of the connections inside it that many of us take for granted have not been made in the years soon after birth. We also know that there is no such thing in general terms as a low or high ability student – but many of us still use the language. Being a good learner is not about being 'able' or 'bright'. In fact all students have the potential to learn – and it's the school's job to find the answer, not to take part in a self-fulfilling prophecy of doing what we've always done and then blaming or labelling the students as special or EBD when it doesn't succeed. Learning more, in relation to one's own previous best or level of performance, is all we should really be interested in.

We know that there is a strong link between the quality of learning and the level of cognitive and metacognitive activity taking place. We also know that learning about learning has more impact than teaching something like study skills. Those classrooms that operate as 'communities of inquiry' produce better learning, thinking and communication. Although there are different views about learning in different situations, learning in classrooms is often a social activity, with the individual student involved with the teacher or other students in the co-construction of understanding. Lessons taught in brain friendly ways are those where active participation, variety and challenge combine to make learning exciting but demanding.

We also know that student engagement and interest increases when the context for learning is a real-life problem or issue. The metaphor of 'work' for activity in the classroom

is dangerous, as it can avoid asking deeper questions about the level of engagement of students and especially about the degree of cognitive and metacognitive activity taking place. And finally, we also know that assessment to support learning (known in the UK as assessment for learning) is more successful than traditional testing and examinations with age related formal assessment, regardless of the learner's readiness.

In other words, some classroom experiences are consistently more successful in enabling students to learn. What these experiences are and why they work should be at the centre of every school's professional development programme – and indeed be a stimulus to work across schools as well. A helpful analogy is with the medical profession, where professionals research, share and create new knowledge about how they can be more effective in their practice. Where learning is concerned, teachers and schools should be the experts – but they seldom are. The former UK Minister for School Standards, David Miliband, commissioned the think tank 'Demos' in 2004 to set up a learning working group and produce a report on the implications of this type of thinking. The resulting report, *About learning*, while having some interesting observations to make about learning in general, also advocated the need for regular summaries of research on the brain, learning and thinking to be made available to schools, and for teachers to develop and share this increased understanding.

Students (and indeed adults) are all different – are motivated to learn in different ways and have different learning, thinking and working styles, in turn deriving from individual aptitudes, needs, likes and personalities (Prashnig, 2004). Some primary schools in quite challenging circumstances, such as Moulsecoomb in Brighton, UK and Katikati, North Island, NZ, have transformed themselves and the engagement of their children by systematically applying these principles in every classroom. The challenge of doing something similar at secondary level is much greater and as yet, largely undeveloped. However Cramlington School, a 13–19 upper secondary in Northumberland, UK has integrated some of these ideas within its year 9 'learning to learn' course, and developed blueprints for teachers' lesson planning across the curriculum.

The education system has traditionally been one dimensional, rewarding those who were good at remembering and sitting still. This is no longer good enough, as knowledge is changing fast, it is more accessible to all, and we do not know what our students will need to know in the future. It has been argued (Claxton, 2002) that what we should be doing is teaching students to develop supple and nimble minds, so that they will be able to learn whatever and whenever they need to in the future. A focus on how to learn would include students developing an understanding of their own learning profile and how to use it to raise achievement and develop their full potential. Students could use this knowledge to develop transferable skills especially in literacy, numeracy, communication and self-management in order to become emotionally intelligent, flexible and resourceful learners in the future.

Schools have been searching for alternative ways of organising learning to produce resilient, independent learners who have flexible skills and competencies, and who can work well in teams, while also being able to lead themselves and others. More widely, there is a growing desire to find out just what we need to change in our education system. What will make the difference between producing students who simply pass (or fail) exams, and producing independent lifelong learners who have the potential to thrive in the knowledge based economy of the 21st century?

In the UK the RSA Opening Minds curriculum is an alternative model being used in the early secondary years which has produced interesting outcomes, including improved levels of literacy, improved behaviour and independence in learning. The curriculum is taught through projects mapped against the national curriculum, and include many cross curricular links such as citizenship, ICT and literacy. It also has an important part to play in improving transition from primary to secondary school, as the projects are taught by one teacher, so decreasing the tendency to fragment learning with students having to meet numerous teachers in a week. The nature of the early secondary years can lead to disengagement by year 8 and disaffection for many by year 9. A competency based curriculum model, scaffolded by a 'learning to learn' approach, can develop an academic curiosity and independence in learning that allows students to take more responsibility for their own learning. This can dramatically improve engagement and motivation, especially when combined with a focus on an active student voice programme that encourages a sense of ownership, enterprise and responsibility. Opening Minds enables aspects of emotional intelligence such as persistence, optimism and self management to be explicitly modelled and taught across the curriculum.

Why is there such a discontinuity between primary and secondary education?

The issue of primary-secondary transition has long been problematic. Historically secondaries have used the number of their feeder schools as a reason for either starting again or starting from the lowest common denominator. It used to be said that UK primaries produced some of the most creative and independent learners in the world, but the advent of high stakes testing at the end of the primary stage has cast a shadow over creativity and independence, as well as raising doubts over the validity of the test results. Most examples of primary-secondary transition reinforce the existing hierarchies and tend to be subject centred rather than learner centred.

We need to develop transition projects that are based on learner skills and competencies rather than subject knowledge. Transition records need to reflect broad achievement rather than narrow attainment. Skilful use of ICT – as in the case of e-portfolios – could be used to combat geographical difficulties.

In the future, where and how learning takes place may be radically different – and indeed school structures may be different. Could learning in and out of schools be equally important and blended, and will cohorts of children be based on criteria other than age? If transition from primary to secondary still occurs, how will it be managed to promote greater coherence?

Why do we still depend on outmoded, industrial age thinking, when working with complex organisations?

Why do we still rely on traditional planning systems and policies in helping us determine how to act? Why has some of the latest thinking on complexity theory failed to permeate schools? Traditional strategic planning, and the policy and action planning that goes with it, are problematic because schools are unpredictable, human organisations. This is an uneasy, messy message, as there is a degree of familiarity and security with a folder of policies, the conventional development plan and its grids of actions and success criteria. However, a developing body of work has exposed the myth of reducing complex problems to separate, rationally manageable component parts – as in traditional modes of planning and thinking (see for example: Brooke-Smith 2003 and Chapman 2004).

A well known analogy is to compare the results of throwing a rock and a live bird. Both actions are governed by the laws of physics, but such laws are hopeless for predicting where the bird will end up. Systems thinking treats schools in the same way, as complex, adaptive systems – in direct conflict with the command and control mentality of the industrial age. This is also a major challenge to government and its unremitting production of good ideas for the school system as a whole, coupled with modes of thinking from a bygone era, such as target setting coupled with pressure and support.

Complexity theory says that the best way to improve performance is to take a range of actions, evaluate the results and learn what works best, rather than simply specifying policies, targets or success criteria to be met. What works best would be for teachers, students and parents to judge, not just the senior management team. This type of approach requires a degree of innovation and creativity, and an evaluative, reflective style of thinking in relation to professional practice. School leaders will need a new mindset which allows for a degree of uncertainty, is not too eager to control the details of change, and nurtures deep and powerful learning across the school – much of this depending on the quality of interactions between the staff and students. The optimum condition for the school is known as the creative state, a condition on a continuum between rigidity at one extreme, where everything is controlled and nobody takes risks, and anarchy at the other, where everyone does as they please. There are similarities in this thinking with the concept of distributed leadership and the different types proposed by Hargreaves & Fink (2006). Based on empirical studies of schools in Canada, they propose a continuum from autocracy to anarchy, with the most well developed form of leadership, which they call 'assertive distribution', only one step away from anarchy.

Optimistically, complexity theory also tells us that in the creative state, small changes (known as those with high leverage) can lead to major transformations. Using these ideas, school leaders can consciously work towards the development of the optimum creative state, but also seek out those high-leverage initiatives that may result in transformation. Ultimately complexity theory gives the leader of the school of the future a hopeful, positive model within which to be more at ease with innovation, risk and a degree of uncertainty.

At a system wide level in the UK, there has been an intellectual acceptance within government that transformation of secondary schooling won't happen through centrally determined, prescriptive policies. Such a realisation doesn't, however, automatically translate into the everyday policy announcements and the latest good idea that politicians seem so keen on. The tension felt in schools between the desire to transform schooling, against league tables of examination results and multiple accountabilities is not conducive to creativity, risk and innovation.

Future schools

Levers for transformation, innovation and abandonment

'We are operating in the wrong frame of reference and as a consequence our lives will continue to become more busy, more exhausting, less humanly productive or satisfying and increasingly devoid of meaning. Alternative frameworks exist that are likely to serve our human needs more profoundly and more engagingly: it would be foolish to ignore them.'
(Michael Fielding, Sussex University, UK, 2001)

| Key issue | Levers for transformation | Abandonment |
|---|--|--|
| Language of the 19 th century educational imaginary | Re-evaluate metaphors and language used; stop using those that convey outmoded or inappropriate messages; increase choices over learning content, style and location | Military metaphors and industrial age concepts: officers, rank, hierarchy, command, control, obedience, compliance, orders, mindless rules, delivery, line management, rigid job demarcation, teacher as complete expert, student as complete novice. One size fits all systems |
| School buildings, sites, opening times and where learning takes place | Virtual learning environments; redesigned classrooms; community and home based learning; extended independent learning assignments; first day educational provision for excluded students; regular residential programmes; specialist vocational provision; specialist additional needs provision; blurring boundary with extracurricular; shift times for different cohorts | Rigid working patterns for students (eg 9–3, 190 days a year); provision on one site; distinction between curricular and extracurricular; traditional piecemeal homework timetables; uncomfortable plastic chairs; traditional lunch times; poor quality food; uncivilised canteens; corridors with lino and lockers; traditional unpleasant toilets |
| Values and purposes; students and staff commitment; how students form their identities; how students develop a sense of belonging | Revised values, attitudes and behaviours statement; the 'school within a school'; smaller units; redesigned social facilities, canteens and locker areas; supervised, civilised, toilets; peer to peer, smaller tutor groups, advisories and / or 1:1 mentoring; student ownership of desks, learning and social spaces; teaching and building emotional intelligence capacity | Rule bound communities; behaviour modification programmes that fail to address teachers' core values and beliefs; detailed, arbitrarily created lists of rules; punishment regimes and scapegoating of disturbed students; classifying students by behaviour type; 1:30 tutoring ratios |
| Learning and the brain | Metacognition; activities which challenge and stretch beyond the comfort zone; assessment for learning; reflective diaries; 'learning to learn' integrated into teaching; co-construction of understanding; learning styles that engage emotions; classroom based development and research; staff research groups and publications; availability of water; linking diet, exercise and learning; learning styles; development of emotional intelligence and habits of mind to include persistence, self-awareness, self management, optimism and deferred gratification to produce resilient learners | Fixed intelligence and the language of low and high ability; narrow attainment rather than achievement; conventional models of professional development; large gap between research evidence and practice; teacher as know-all expert; controlling rather than motivating classrooms; copying; exclusive use of summative assessment |
| Early 20 th century curriculum and pedagogy | Define absolute standard / outcomes, then work backwards from 100%; achievement measured against own personal best; competency and skill based learning programmes, which explicitly address emotional intelligence; competency based curriculum; portfolio of achievements; longer periods of learning; student evaluations of learning; integrating discrete subjects; individual educational plans; choice over what, where and how students learn; real life, authentic contexts for learning; assessment by exhibition; mixed age teaching; choice in early secondary years; accreditation for extracurricular and community based learning; extended work related learning and internships; rigorous use of data to track students and combat underachievement; diplomas | Incremental models of judging success (eg 55% 5+A*-C to 65%); language of being busy and doing 'your work'; fragmented daily timetables with lots of movement; the classroom, lesson, teacher, timetable or school that puts any of these units of organisation before the individual student; teacher as worker, student as passive recipient; compulsion over what, where and how students learn; traditional key stage three and four division; traditional age related cohort learning and testing; key stage three testing for all at the end of year 9; work experience lasting a week; targeting only certain borderline or high profile groups; teaching to the test; passive, teacher dominated learning; lecturing; spoon feeding; random hourly slots for ICT, PSHE and citizenship; exclusive focus on 'standards'; vocational education as second class |
| Transition from primary to secondary | Transfer when ready; phased transition; teachers who can teach in both primary and secondary schools; competency based curriculum in year 7; two year key stage three; teachers teaching across a range of subjects; all-through schools | Transfer when 11; primary / secondary divide; transition always in September; primary and secondary teaching qualifications that exclude the option to teach in each phase; 10+ teachers a week in year 7; three year key stage three; groupings based on age |
| Styles of leadership, command and control | Distributed and broader leadership; leadership defined by accountability, competence and impact; student researchers; student associate governors; student surveys – including quality of learning; an ethos of creativity; networks, clusters and federations; engaging with other agencies, professionals and stakeholders | Know-all, heroic leader; macho management; selfish, inward looking, self-serving, self congratulatory styles of management; competitive school practice, which neglects responsibility for whole system; job descriptions that simply list tasks; management by telling people what to do; complex, multi-level systems of organisation, control and accountability; cultures of permission and excuse; individual schools competing or working in isolation; the concept that educators know best and have to do everything |
| Complexity theory and rational planning | Systems thinking; achieving the 'creative state'; relaxing rigid systems; tightening anarchic systems; networking, learning from and connecting with others; international benchmarking | 'Rational' models of planning; linear thinking, traditional strategic and development planning; complex, detailed development plans with tables of targets and success criteria; simplistic definitions of success, such as 5+A*-C |

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5

Envisioning the impact of new technologies on learning in 2020: A view from a City Academy

By Mike Butler Principal, Djanogly City Academy Nottingham, UK April 2006

'I think there is a world market for maybe five computers.' Thomas Watson, Chairman of IBM, 1943
 'There is no reason anyone in the right state of mind will want a computer in their home.' Ken Olson, President of Digital Equipment Corp, 1977.

The future is, of course, notoriously difficult to predict and the future of technologies even more so, as the alleged remarks from these two pioneers of computing attest. Nevertheless, the business of educators is the future: if we are not about creating the possibilities for improved life chances for the young people in our care, then what precisely is our *raison d'être*? In seeking success, we must bear in mind that 'education is fundamentally an imaginative act of hope'^a. We have a moral obligation to take cognisance of predictions for the type of world that will be inhabited by the youngsters who are about to start their schooling when they become adults in a decade or two. Perhaps even more significantly, we have a duty to help the young to help themselves in making that world as good as we and they dare to hope and to imagine.

Despite understandable scepticism around crystal ball gazing, several groups of well respected people have confidently posited some futures scenarios in respect of learning technologies.

In November 2000, a paper entitled *Instructional technology produced by the Programs Committee of the Governors' Education Reform Study Commission in the state of Georgia, USA* held that:

'The first two decades of the twenty-first century will be characterised by changes occurring at a rapidly increasing rate. The most fundamental, powerful, and far-reaching change will be in digital technology, which has already revolutionised the way people produce, store, retrieve, and use information. The real impact of this change is that it has completely reorganised how, where, when, with whom, and even why people work. It has created a global economy in which people buy, sell, trade and produce collaboratively with companies and individuals who may be living in distant parts of the world. With the swiftly changing nature of the world, governments and educators must accept the challenges that these changes bring to education. These challenges must lead to a vision in which all children can become independent, critical managers of their own work – the skills valued in today's workplace.

'The conditions that will exist in the twenty-first century will necessitate a shift in cultures; a shift in the way individuals make a living, interact with others, and spend leisure time. Therefore the culture in which the young are raised has to be adjusted so it becomes a culture that is supportive and prepares young people to function successfully in their environment. Because elements of technology will provide a vast interconnectivity only

among the economically prosperous if things continue as they are, it is the responsibility of the state government to ensure that all of its citizens, especially the young, have access to this interconnectivity.

'Technology will continue to change. The technology of tomorrow will be vastly improved and distinctively different from the technology of today. Recognising this however, the educational system cannot simply focus on the technology of today, but must focus on the foundations of education and the ever-changing work force. These foundations must include oral and written communication, problem solving and thinking skills, and the basic skills in content areas such as reading, mathematics, and science. In addition, students must have the skills necessary to design a task, manage the task, and complete this task with a high degree of quality and integrity. Consequently, while the mastery of a curriculum that is specific to each year of a child's education is an absolute necessity for children to be successful, it is not totally sufficient to prepare them to be productive citizens of the future.'

The implications of these statements are far-reaching, not just in terms of the recognition of the overriding social imperative or the political and fiscal consequences. There is an implied responsibility for educators to re-examine and re-engineer modes of teaching and learning. There is a distinct shift taking place, a shift that in some quarters has become almost platitudinous in its repetition.^b

Many readers, for instance, will be familiar with the request to consider a comparison between the presiding 19th century educational paradigm and that of the 21st century, especially when contrasted with the discipline of medicine. A 19th century surgeon, armed primarily with hacksaw and leeches, magically transported into a modern-day hospital operating theatre crammed full of electronic technology and para-professional support, would be at a total loss. By contrast, a schoolteacher from the times of Queen Victoria beamed into most modern-day classrooms would soon be able to begin practising his craft. Like Mr Gradgrind from the novel *Hard times* by Charles Dickens, he would be able to lecture to passive students and 'fill the empty vessels full of facts, facts, facts' without too much trouble at all. How many schoolteachers still consider themselves the font of all knowledge, the 'sage on the stage', rather than the facilitator of personalised learning and development, the 'guide by the side'?

However, if the future presents certain challenges for the role of the teacher, then the same is also true for the learner. It is unlikely that a 'vision in which all children can become independent, critical managers of their own work' will be sufficient in a world of such extreme connectedness. Online collaboration and teamworking, co-operative production of artefacts and distributed leadership all require significant competencies beyond independence, autonomy and self-management: interdependence will be the key.

Thinking is not linear and sequential: neither is learning. They're both about creating links, connections and associations. They're to do with nets and webs and movements back and forth; reviewing, revising and re-presenting. The analogy with the use of information and communications technology (ICT) is profound. It is the natural medium for learning and for developing higher order critical thinking skills such as analysis, interpretation and synthesis.

Art Costa famously talks about 'thinking dispositions'^c, arguing that it is all very well teaching students thinking and learning strategies but that they must go in tandem with

the readiness to apply them. The principle is similar in our view of the technology; the technology our students are using today will have progressed by the time they are using it in the workplace. They will be using different and more specialised technology, and they will be working in completely different contexts from school. But raising them on a diet of innovation will mean that they are comfortable in using technology per se, and shall be fundamentally adaptable; 'knowing how to behave when they don't know what to do', which is 'the true test of intelligence'^d.

Alan November^e and Steve Molyneux have both recently spoken about the nature of learners today. The message is that learners today are 'information natives'. They receive and communicate information in a way not previously possible due to the emerging technologies. Information bombards them constantly through the internet, mobile phones and the trend in scrolling news banners on our TV screens. This is the diet on which they are being raised, while the generations responsible for educating them are still more comfortable in reaching for a book. Teachers are often the 'information immigrants'.

A recent study published by the British Educational Communication Technology Agency (Becta) considers emerging technologies and some of the future trends that are likely to have an impact on education. The particular focus of the report is personal portable devices, where the most significant technology trends are summarised as:

- The power of the processor, memory and battery is increasing and the physical size required is decreasing
- The costs of many core ingredients (screens, batteries, memory) are reducing
- Operating systems, as well as file formats and the media we use for transferring them, are standardising
- Mobile devices are getting better at communicating with one another, in several different ways^f

Increased proliferation of personal devices in the hands of students naturally presents considerable ramifications for learning, particularly when considering how best to use those key resources of time, space and people. As technologies converge and connectivity improves, possibilities for learning anytime, anywhere, at any pace expand: so do the challenges to educators.

In 2005 in Taiwan, National Central University hosted a group of 20 experts from around the world for a workshop aimed at envisioning the major factors that could influence the future use of technology for collaborative learning. The event was organised by G1:1, a global network of researchers studying how learning could be enhanced when each student has a personal computing device, which might be a handheld, tablet, or laptop computer. The aim of this particular workshop was to identify major trends and uncertainties that could change the course of future learning.

Several major trends emerged. First, researchers believe that by 2015 all students will have some form of personal learning device. Schools will have difficulty keeping up with the range of devices that students bring to class. They will seek to use the devices students favour in appropriate ways, but will also provide the teacher with some standard technology, such as electronic whiteboards. Personal devices will have some standards that allow the teacher and students to share their work, but will also include non-standard features to suit student preferences. Second, researchers believe sensors and agents will increasingly be part of the learning environment. Sensors will detect students' progress and provide appropriate feedback and help to the student and teacher. Major ethical dilemmas

will emerge around the ethics of monitoring student behaviour electronically. Third, researchers believe that content for learning will increasingly come from collections in digital libraries and online communities. The current roles of a small set of authors and publishers will be challenged as it becomes possible for many more authors to produce content and for teachers to recommend content to each other through the network.

These trends, however, do not point to a single certain future. After deliberation, the experts decided that two uncertainties will have the most impact on the future.

First, the role of the teacher is in flux. On one hand, strong content experts will be needed to select appropriate materials from the many possibilities available on the network, to adapt these to local use, and to participate in creating new, high quality materials. On the other hand, faced with the rapidly changing nature of knowledge, countries may opt for teachers who are experts in students' social and emotional well-being, relying on technology-based content to make the latest knowledge available to students.

Second, the overall goals for education are in flux. On one hand, schools may compete to produce easily recognised measures of success, such as scores on international comparison tests. On the other hand, schools may be certified for their capability to produce students who can innovate and collaborate – qualities that can be enhanced through good teaching, but are not easily measured on comparative tests.^g

At Djanogly City Academy, we have seized the opportunity to innovate, working with major business partners such as Toshiba and Microsoft to develop physical and virtual learning environments based on concepts of personalised and flexible learning. Our vision is based on a firm belief that it is only through 1:1 access to portable computing devices on demand that we can best exploit the potential of technologies to develop learners' intellectual and other capabilities. Our recently opened new centre for 11–14 year-olds was established with high-speed wireless networking throughout, 1:1 provision of tablet PCs and networked data projectors in every learning space.

According to the Department for Education and Skills (DfES), academies should provide facilities that are 'comparable 'with the best in the maintained sector'. In practice, with most academy projects involving either complete or partial new build, the programme as a whole is potentially an experimental test-bed for new physical structures. It should enable research into how these structures support and enhance learning and teaching, social development and community regeneration. Academies are the skirmishers in the UK government's multi-billion pound battle to upgrade the secondary school buildings stock through its Building Schools for the Future programme.

Nevertheless, some of us recognise that there are futures scenarios that posit the demise of the school as the centre for learning. As Tom Bentley describes in *Learning beyond the classroom*: 'It requires a shift in our thinking about the fundamental organisational unit of education, from the school, an institution where learning is organised, defined and contained, to the learner, an intelligent agent with the potential to learn from any and all of her encounters with the world around her.'^h

This shift is only just starting. It has great potential in the academies programme, and other similar initiatives, where there is an imperative to do things differently and to do some different things, not least because past and present strategies have failed to deliver. So, issues such as homework, age related cohorts, organisation of the year and day, and subject content are all examined afresh.

Moves in the UK to bring greater collective accountability to public services at local level under the Every Child Matters agenda points up the great importance of collaboration. This is needed not only to improve standards of educational attainment but to ensure the social, emotional and spiritual wellbeing of young people. If one accepts the futures scenario whereby schools are to continue to play a key role in provision for young people, then perhaps the predominant model for the school will be as a central hub for deployment and development of multiple services. Already there are several examples in the UK of school campus arrangements that include wraparound public services, including mental and physical health, sports, police, library and special education provision. With the advent of increasingly mobile learning, one might envisage a future in which the school buildings and site are no longer a focus for formal academic education but rather a venue for socialisation and citizenship.

The challenge to technology and educational leaders in this context is not the supply of learning objects and events specifically aimed at acquisition of knowledge or skills. Rather, it is how to organise for personal development, which is by nature unpredictable. Such a scenario, coupled with the necessary re-engineering of curriculum and modes of learning, suggests that another significant shift will occur in assessment. No longer will it be enough to evaluate progress in terms of academic attainment and targets derived from previous cohorts. More and more, there will be a need for judgments about aptitudes and potentials: a requirement for a new metric. We will need to measure the futures potential of learners, that is to say their habits of mind, their capabilities in the acquisition of new competencies, their capacity to develop transferable skills and their ability to deploy and employ new technologies with discernment and responsibility.

David Hargreaves^l has challenged us to question many of the assumptions about education that we take for granted through developing the concept of 'educational imaginary'. In an educational context, an imaginary is a set of generally unquestioned assumptions about the way education is configured.

Hargreaves contrasts the 19th century educational imaginary, where aims and outcomes were well known and uncontested; intelligence was a fixed innate characteristic, and teacher and student roles were sharply defined, with the 21st century imaginary. Here, identities and destinations are fluid, intelligence is multi-dimensional as well as learnable and the roles of teacher and learner have become blurred. In the 19th century imaginary, schools were designed and organised along factory lines like a production line, with predictable inputs and outputs, coupled with a distinct lack of choices about learning for the student.

The challenge for school leaders today is to reconfigure education so that it is fit for the 21st century. What makes the task significantly more taxing is that the pace of change from one educational imaginary to the other is happening now, in real time. School leaders are living with the transition and faced with leading and managing the transformation. Hargreaves sees the personalising learning agenda (for example, Leadbeater 2004^k, Hargreaves 2005) as the driver to get us from the 19th century imaginary to the 21st century.

Hedley Beare^m presents a similar challenge, of moving from factory based, parochial schooling to a new kind of future school. The drivers for this change – which is coming, whether we like it or not – are radical shifts in post-industrial economies, information technology and globalisation. Beare has repeated the urgent need for school systems to rid themselves of the military analogies – of power, rank, compliance, and obedience, as

well as the still persistent industrial age metaphors of old, and replace them with new forms of systems thinking. Caldwellⁿ calls this 'new enterprise logic'. The challenge for school leaders is to oversee the transformation of schools, rather than their reform, as simply recycling the same components will not go far enough.

A steer to educators envisioning the impact of new technologies on learning in 2020 is perhaps best summarised in the words of Ralph Waldo Emerson: 'Do not go where the path may lead, go instead where there is no path and leave a trail.'

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Leadership for schooling in 2020

By Alison Banks, Principal, Westminster Academy, London

The ‘megachange’ which is transforming Futures Vision schools impacts on every aspect of school life and none more than on the role of the headteacher. In 2000 I had the privilege of a Unilever secondment to the London Leadership Centre, during which I visited a number of innovative schools, including several UK technology colleges and city technology colleges, to interview their headteachers about their role and actions. The following is a summary of the main strands that emerged, which I have presented at NPQH (UK National Professional Qualification for headship) residentials and elsewhere. It appears to resonate with those aspiring to headship and with the model of distributed leadership:

| Challenge | Need | Role |
|----------------|------------------|--------------|
| Diversity | Focus | Head learner |
| Uncertainty | Future vision | Strategist |
| Complexity | Structures | Designer |
| Expansion | Management | Team builder |
| Accountability | Public relations | Partner |

Head learner

What appears to me to characterise successful Heads in this changing environment is their passion for learning personally and for their staff, as well as seeing it as a priority for students. What drives good teaching is surely a personal enjoyment of learning rather than a desire to dominate in the transmission of knowledge. While good teachers in the past were invariably experts in their specialist subject field, the specialism of good teachers in this new era is knowledge about the psychology of learning and learning how to learn. Good teachers, at secondary as well as primary level, are likely to be generalists engaged in constantly updating their own skills and supporting their students as mentors.

Keeping up-to-date with scientific knowledge about learning and with developments in ICT is just as important to a headteacher as learning new technical skills is to a surgeon. Providing a role model for staff and students is part of this but a deeper significance lies in embodying the concept of lifelong learning. The successful heads I met clearly themselves enjoyed the challenge of learning – most were writing books or engaged in courses of higher study. All were desperate to discover what works in teaching and learning, and relentlessly trying out new ideas in their determination to offer a better quality education to their students.

Many of today’s adults did not have a happy experience of school. ‘When I went to school,’ writes Charles Handy, ‘I did not learn anything much which I now remember except for this hidden message, that every major problem in life had already been solved. The trouble was that I did not know the answers. Those answers were in the teacher’s head or in her textbook but not mine. The aim of education, in that world of certainty, was to transfer the answers from the teacher to me, by one means or another. It was a crippling assumption.’

That world of certainty was an illusion, which lent authority, control and a large helping of convenience to the headteacher’s role. It no longer exists, although many schools seek to conserve it. The risk they run is that if they do not convince pupils and gain their respect (which is becoming increasingly difficult as students have direct access themselves to the latest equipment and up-to-date knowledge), they provoke challenge and confrontation. Facing this reality is the first step to forging a new professional role that frees teachers from the role of experts to be co-learners alongside their students.

NPQH and the SSAT’s Aspirant Heads programme are helping the heads of the future along this road. Federations, networks and global links also promote a continual professional development in heads, supporting each others’ work. A head learner needs this kind of stimulating environment, and hopefully ever more ways will be found of creating it. As the role of headteacher becomes increasingly complex and multi-faceted, it clearly helps to focus on this one crucial priority – being a lead learner.

Strategist

A lot has been written about school leadership in terms of having a vision, and about school management in terms of school improvement planning. This theme of strategy rather takes that as read and goes beyond it. It is about having an understanding of where you want to take the school, having a passion for innovation and a future-focus, but then translating that into a strategic overview and communicating it with such clarity that it can be translated into a series of improvement, development or action plans.

It has been said that future focus is about seeing the possible, probable and preferable. The successful head of the future will examine the possible, develop an intuition about the probable and be guided by personal values towards the preferable. This is not necessarily an intellectual pursuit but may be more about emotional intelligence and moral judgement, Gladwell’s ‘blink’. If management is about doing things right, then leadership is about doing the right things. When working with a team, whether a senior management team or more likely a leadership group consisting of governors, parents, students and staff at all levels, there exists a fine braiding, which is creative and innovative but also produces strength and confidence.

Senge writes about ‘the art of seeing the forest and the trees’. Strategic planning requires even more skill than that image suggests, because it is not only a very big picture but also a picture of future possibilities, like considering issues of deforestation alongside environmental consequences and alternatives.

The heads I interviewed could wax lyrical about their school in five or 10 years’ time. They clearly had a picture of it in their minds. For one, this was a world vision as well as a community vision, encompassing the management of learning for a wide range of people. For another, leadership meant having a vision in order to reconstruct the school. Twenty years ago, he argued, a good head was a good manager and administrator; now leadership is an essential part of headship.

Having a clear future vision and what Brent Davies calls ‘strategic intent’ does involve risk-taking. One head described the success of his school being attributable to a radical model of leadership which is about taking risks. Another talked in terms of having the courage to think differently, using the analogy of two road-diggers arguing about the relative merits of

the pickaxe and the shovel, with a JCB sitting alongside which neither of them knew how to drive. 'We've got to drive it', he said. 'It's no longer acceptable to say you can't change because it's a risk. We've crossed that barrier. There's often less risk in change than in maintaining the status quo.'

Students entering school at the next intake will leave in 2013 and many of the schools due to be rebuilt are being designed now for the students of 2020 and beyond. We cannot adequately cater for their needs without this futures perspective at the centre of our strategy.

Designer

Writers about leadership frequently fall back on metaphor to describe the headteacher's role. Using the imagery of ships, Senge makes the point that commentators often cast the head in the role of captain. Sometimes s/he is seen as the helmsman steering the ship, or perhaps the navigator. Senge in *The fifth discipline* argues that the appropriate analogy is that of the designer of the ship, which takes infinitely more skill and foresight. It is about design of a structure, within which there are many sub-structures, such as the use of time and space.

When I visited schools whose heads had thought radically about the structures they had created, there was abundant evidence that they had considered carefully the organisational psychology involved in the relationship between learning and the learning environment. Relatively minor aspects of school life, some might think, such as bells, toilets and breaks, assume much greater significance when seen as part of the creation of an appropriate learning environment. The designer cannot afford to overlook any such detail. For very sound educational reasons, UK schools like Thomas Telford, Brooke Weston and Leigh CTC have taken such steps as doing away with bells, upgrading toilets and staggering breaks. They have also looked at the bigger issues, like Dixons CTC's adoption of the five term year. 'The three term year doesn't make educational sense,' in the words of the head.

In looking at 'how people learn', Bransford highlighted 'factors out of alignment' and talked about 'consistent alignment, no mixed messages'. This sums up for me what these excellent schools are doing through the design of the learning environment. The way students are accompanied by staff to staggered breaks, for example, gives a strong message about equal value and the work ethic. The headteacher as designer is constructing gestalts around the principles of coherence and alignment, which applies just as much to curriculum design as it does to building or time structures. Again, the designer imagines and creates the whole picture. In the way that a reflection in a mirror cannot be recreated by sticking together the broken fragments, as the physicist Bohm argues, so the headteacher's job is about creating all the connections.

As with the building, so with curriculum design. Writing a hypertext curriculum is like building a structure with scaffolding, to facilitate climbing learners. It is a framework within which students and staff work, and the more coherent the connections, the more effective will be the learning. Hence the value of extended projects, cross-curricular learning, team challenges and other mechanisms schools use to overcome what can be seen as the straitjacket of traditional timetables. RSA Opening Minds schools and others are breaking down subject boundaries and age-related accreditation, particularly with fast-tracking and year 9 options. In such contexts, curriculum planning moves centre stage.

In the past, senior staff often simply 'mapped' the curriculum. The principal task now of any school leader is to design the curriculum, as well as the learning environment.

Team-builder

Of course, it is at this point worth reminding ourselves that while no head can do this job alone, there is no consistent formula for building a successful leadership team.

Some schools and colleges distinguish the roles of principal and that of chief executive, separating the teaching and learning priority from the business management. Some distinguish the internal and external role, with one senior member of staff taking responsibility for the community dimension.

One headteacher spoke to me about 'headship turned on its head', seeing the role as supportive rather than sitting at the top of the hierarchy. Another distinguished the head's role as leader from the senior colleagues' roles as managers, but also saw it as his responsibility to see that the college was well managed: 'It's no good having brilliant ideas if they don't happen on the ground.' He noted the importance of grooming young staff and having them come through into teams, in which case it is important not to have a set structure but build the management model around the people, following the maxim: 'no-one's perfect but a team can be'. Others stressed flexibility and the struggle to recruit young staff. Some heads have built several teams for different purposes, such as a website team or a specialist school team. Leadership teams are more likely now to be loose-knit structures, which change as new members are brought in. Some schools have student leadership teams, some student governors and some school councils. All of these teams need support and access to the head.

An interesting longitudinal study of eight US and Canadian schools over 25 years was published by Andy Hargreaves of the University of Toronto. It makes depressing reading in so far as it charts the change of these new schools over the years, showing how in every case they lost their difference and impact with the loss of the charismatic heads who opened them. Hargreaves' conclusion is that, in their in-service training of younger staff and the way the leadership team operated, these schools did not pay enough attention to succession management. It seems to me that innovative schools are now beginning to heed this and perhaps the teacher shortage and imminent retirement of a generation of heads is drawing more widespread attention to this need.

An alternative adopted by some schools has been to move towards much flatter structures, which has the benefit of spreading workload and responsibility. This can be very motivating for younger staff and can build a sense of the whole staff as a team. Thomas Telford, for example, adopted a 'flat-top management' with 12 senior staff but no hierarchy. Many more schools are now following Brooke Weston in abandoning traditional pastoral structures of house or year heads, in order to place learning and the individual more at the centre of the school.

Another trend in UK workforce reform is the development of roles for support staff. They now include a wide range of responsibilities: administrative staff, technical support staff, teaching assistants, ICT technicians and assistants, librarians, counsellors, sports liaison officers, examinations and data officers, finance managers, personnel staff, international links officers, welfare staff, site services staff, grounds and catering staff. More and more,

Future schools

these staff members undertake roles which at one time were carried out by teachers and senior staff, such as pastoral care, cover for absent staff and invigilation. Schools are now examining professional and paraprofessional roles more closely and including all staff within leadership structures and roles. This will undoubtedly be realised even more radically in the future.

Partner

In the UK networked community vision, schools are expanding in all directions – links with partner schools at home and abroad, further and higher education, local businesses, parents and families, adult learners, community groups, sporting organisations, federations. The 24 / 365 school has the potential to create a workload which is unmanageable, for a leadership team, let alone one person. So the UK government's Every Child Matters and extended school agenda, however enthusiastic we are about it, throws up some practical concerns not just about staff contracts, terms and conditions but also about legal liabilities and boundaries.

It also extends the whole notion of accountability, which has been so much brought to the fore already through the debate about standards. If we are truly working as a networked community with all these other groups, we must be accountable to and with them for healthy and safe lifelong learning. That requires us to develop a new understanding of and skills in public relations, and new ways of working in partnership.

Accountability is a challenge, because the demands and requirements of various local groups may not harmonise. Indeed, there are very likely to be conflicts and different perspectives when judging priorities, for example in the community uses of a college site. Nonetheless, schools have been very entrepreneurial in setting up companies and consortia as enabling mechanisms to overcome such difficulties, and sometimes to gain credibility with the business world, such as the Minerva Centre at Dixons CTC.

The central principle appears to be mutuality of benefit, with the head requiring skills in negotiation, politics and PR. Education has always been a political football, and never more so than now, with the move to greater independence and autonomy for schools. Accountability is a fraught concept for headteachers, positioned as they are within so many structures which are often out of alignment: government ministers, local authority members and officers, Ofsted (national school inspection service), auditors, large organisations such as training and enterprise councils and regional bodies, the governing body, staff groups and unions, students, parents and the local community. The agendas of these various groups shift and many conflicting forces prevail, such as the need for efficiency under the business or Ofsted model contrasting with the service expectation uppermost in the minds of parents and community users.

Two trends make this aspect of headship even more unpredictable at present. One is the likely demise of local education authorities. The other is the growth of private sector organisations and companies whose business is education. Gell has called this 'education sector meltdown', perhaps an over-dramatic phrase but in our future SWOT analyses schools need to do some scenario planning around the threats and opportunities being posed. If 'the only certainty is uncertainty', then another certainty is that partnerships will play an ever-increasing role in our work as school leaders. The headteacher's voice will become more influential: both a great responsibility and a great opportunity.

| Role innovation and role abandonment | |
|---|--|
| Role innovation | Role abandonment |
| Head learner: <i>Viewing all teachers as learners and headteachers as lead learners</i> <i>Levelling and democratising staffing structures</i> | Authoritarian headteacher |
| Strategist: <i>Emphasising future focus</i> <i>Strategic and scenario planning</i> | Preoccupation with management |
| Designer: <i>Designing the environment</i> <i>Designing the curriculum</i> | Mapping the curriculum |
| Team-builder: <i>Succession planning</i> <i>Multifaceted teams</i> | The isolationist head |
| Partner: <i>Joint working with primary care trusts, community groups, etc</i> <i>Federations and networks</i> | Control by local authorities (UK) and other controlling bodies |

Thanks to the headteachers interviewed:

Peter Simpson, Brooke Weston City Technology College, Corby
 Frank Green, The Leigh City Technology College, Dartford
 Jim Stewart and Alan Stevens, Sawtry Community College, Huntingdon
 John Lewis, Dixons City Technology College, Bradford
 Mike Wood, The Cornwallis School, Maidstone

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A new concept of schooling

7

By David W Harris Principal of Serlby Park, a 3–18 Business and Enterprise Learning Community in Doncaster, England

'How on earth did I get here?' is the regular cry of commuters who suddenly, in the middle of the daily trip to work, realise they have reached a point with no recollection of the past 10 minutes of their journey. This example of our brain 'carrying on without us' is a good metaphor for the position in which we find ourselves in education.

How on earth did we get here?

It is often said that if someone was to time travel from the 18th century the only place they would recognise would be the local school. I feel this is rather unfair to many excellent present day schools, but the point is one we all understand.

- Why do we separate education into little chunks and then test it?
- Why do we think of a building when we talk about learning?
- Why do we choose a small square room with an adult at the front as our model of perfection?

A wise friend of mine likened educational leadership to driving a vehicle with a blocked windscreen using only the rearview mirrors. This may explain our current situation rather well. If we are looking at how things have changed in the past and making assumptions about the turns in front of us, it is hardly surprising if we miss the hole in the road ahead.

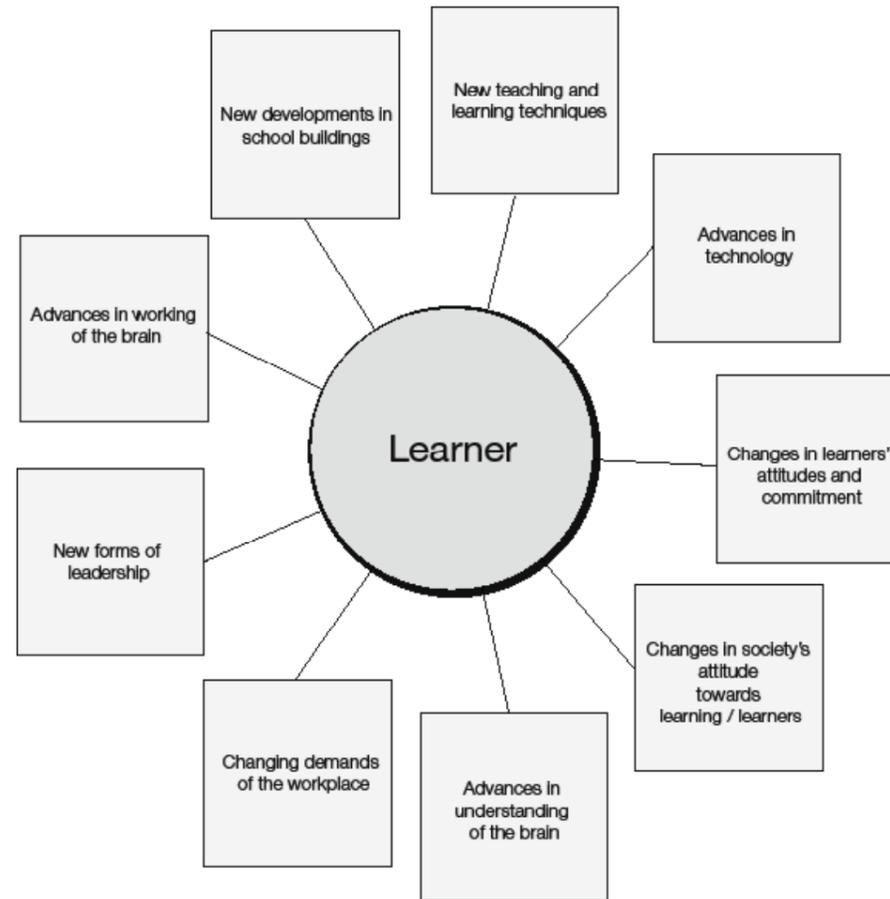
So instead of using the rearview mirrors, maybe we should start using our crystal ball, and see what the pupils of 2020 might need us to prepare them for. Sadly humans do not have a great record when it comes to future gazing:

- 'Well informed people know it is impossible to transmit the voice over wires and that if it were possible to do so, the thing would be of no practical value.' (*Boston Post*, 1865)
- 'Heavier-than-air flying machines are impossible' (Lord Kelvin, 1895)

Let's believe we can fare better than this. We must ask ourselves what the factors are that may influence learning in 2020.

It is generally agreed that the coming decades will be times of great change, and for this reason it is essential that educational provision helps the student of the future to meet the changing agenda. So the question we should be asking ourselves is: how can we help today's learners prepare for the future and not the past?

Factors that may influence learning in 2020



Advances in working of the brain

I think we can quickly discount physiological advances. Professor Robert Winston informs us that evolutionary change is a slow process, with little advance in brain function over the past 30,000 years. The internet is alive with suggestions of drugs to enhance brain function, but even if these prove to have some grounding in truth, they would present society with a huge moral dilemma. So it seems likely that developments in the next decade need to focus more on how we use our brains more effectively.

New developments in school buildings

Likewise, we may be looking in the wrong direction if we believe the saviour of future schooling to be bricks and mortar. One only has to examine architectural advancement in the current range of schools being built. Many have an impressive modern façade, but the basic learning space is still a small box. One must remember that the new build of today will not be halfway through its expected lifespan by the year 2020. It is easy to assume that buildings will provide the solutions to all our problems, when in fact they may be limiting the extent of our vision. Indeed at Serlby Park our own piece of 'future thinking' – the amalgamation of three schools to form a single 3-18 learning environment – has the tag line 'All through schooling is a philosophy not a building'. Our split site buildings, well past their best, house an exciting variety of cross-phase learning initiatives, yet we know of purpose built 'state of the art' buildings where innovation is rare.

New teaching and learning techniques

Maybe we need to think radically if we are to meet the future agenda, particularly if Dr William Daggett is correct in his view that 'the world our kids are going to live in is changing four times faster than our schools'.

So if we are going to try and build our new concept of schooling from first principles, what are the facts about education that we can use as our foundation? Surely after hundreds of years of development we must have a clear idea of the ingredients for success? Barbara Prashnig, in *Power of Diversity*, questions many of the 'facts' that teachers take for granted. She lists 10 false beliefs about education:

1. Students learn best when seated upright at a desk or table
2. Students learn best in well-illuminated areas and damage their eyes when they read in low light
3. Students learn more and perform better in an absolutely quiet environment
4. Students learn difficult subjects best in the early morning when they are most alert
5. Students who do not sit still are not ready to learn
6. Eating should not be permitted in classrooms during lessons
7. Effective teaching requires detailed step by step explanations
8. Whole group instruction is the best way to teach
9. Generally the older students are, the easier it is for them to adapt to the teacher's style
10. Truancy is related to poor attitudes, home problems, lack of motivation and other factors that have nothing to do with preferred learning styles

Prashnig claims that while all of the above statements are true for some learners, they are not true for all, with more than half of teenagers not fitting the rule. Despite the large

number for whom these statements are not true, most classrooms around the world are designed as if they are. We now have greater access to research on the workings of the brain than ever before, yet many of the practitioners who could use this in their work are oblivious to its very existence. Surely this is as strange a situation as developing a new type of car engine, yet not instructing the garage mechanics on its working.

Advances in technology

So perhaps we should focus on the advancements that technology offers us. There is no doubt that computers and the internet have already greatly increased access to information, and over the next decade one must assume that this trend will continue. But does the increase in availability of information naturally mean improved education? It would seem not. One only has to listen to Alan November explaining the misuse of common search engines which act as league tables of most popular sites (rather than most appropriate ones), or look at a random sample of homework to see that we appear to have produced a 'click and print' generation. Although producing four beautiful colour pages on Queen Victoria, the pupil's contribution to the work may simply have been to click the first link on the search engine and submit. The skills of critical thinking and analysis, vital for questioning the validity of data, are often a low priority in many ICT classrooms, or sadly may not be taught at all.

Changes in learners' attitudes and commitment

This brings us to the area covered by Thomas Friedman in *The world is flat*. He very clearly demonstrates that the communications boom of the past decade has 'flattened' the world. He cites many examples of work that is being outsourced to the other side of the world, where talented and well trained individuals are competing directly with each other, and with those in the so-called developed world, regardless of their background or origin. The empowering of poorer nations must clearly be seen as a boon to the development of individuals within those countries, but when looked at from the viewpoint of a British student some more worrying conclusions can be drawn (even leaving aside the issue of wage rates). When comparing two pupils of identical ability across the continents, they now have similar opportunities, identical access to information, but Friedman reports that the average Western pupil has a greatly reduced desire to succeed. This lack of hunger for knowledge and learning may prove to be the most serious challenge for our new concept of schooling. Unless an enthusiasm for learning can be developed, even the most imaginative building and technology will fail to produce the desired results.

Changes in society's attitude towards learning / learners

Roy Leighton in his contribution to *The big book of independent thinking* makes a strong argument for schools and society to shift from their heavy reliance on IQ as the pinnacle of achievement. He describes the example of two parents who 'hot house' their child, impressively raising his IQ to a level far beyond that expected for his tender years. However, the progress is focused purely on intellectual ability, paying little regard to the emotional development of the child or the family as a whole. The danger of this approach is shown when the young child shows severe signs of stress when he fails to win a chess match, rocking on the chair and wringing his hands.

Intellectual development without emotional development creates human beings who are unable to use their knowledge effectively. Schools have tended to place IQ at the core of their work, indeed they are ranked by how effective they are at developing this intelligence. Should our new concept of schooling place equal importance on the development of EQ (emotional quotient)? Imagine parents choosing their child's school based on a league

table of the institutions that developed pupils' EQ the most. In fact I believe it is possible to gauge the importance a school places on developing emotional intelligence; simply by sitting in the school reception for 20 minutes at the start of the day, you gain a very clear idea of the empathy and respect shown by both staff and pupils.

Advances in understanding of the brain

So what exactly should be the focus of our new concept of schooling? Subject development or brain development?

Neuroscientist Elisabeth Sowell is clear: 'Now, the brain is like a muscle and needs to be 'worked out' to develop in a healthy way. It has to be used to grow. In other words young people have to use their developing prefrontal cortex in order for it to develop effectively. There is a huge growth spurt in this area that starts in girls at around 11 and in boys around 12, with thousands of new connections being developed. This is followed by a massive pruning process [with] those neural pathways that aren't being used being lost.'

'School is the most important vehicle for training this part of the brain and developing the young mind, a task that in the grand scheme of things is more important than teaching a child facts from a particular subject matter.'

Maybe we are guilty of missing the wood for the trees. We have developed a forest of subjects, when we should have been focusing on the roots of this growth, the working of the brain.

Changing demands of the workplace

The days of being born into a career, entering a long apprenticeship followed by 40 years in the same workplace, disappeared with the decline of the manufacturing industry. We are now in a century where the average person will change career many times: the key desire is therefore to develop high quality transferable skills in all learners. It is important that any skills learnt and any qualifications gained enable a person to then specialise in a wide range of jobs. It is now totally impractical for an individual to choose their career path at age 14, and schools must not allow pupils to narrow their potential horizon at an early age.

Schools are quickly waking up to the fact that, for example, a range of new vocational courses as run by many specialist schools not only engages pupils who may otherwise have been disenfranchised, but also plays a key part in community regeneration.

New forms of leadership

The press love to praise the 'super-head', a smiling individual who parachutes into the school laying waste to all around. Sadly this form of top down model becomes totally reliant on the individual and rarely produces long-term progress. The leadership model of the future must be less hierarchical and devolve power across a much wider base.

In our own 'through school' we have developed a form of leadership where subject expertise is no longer the key requisite for success at middle leadership. We have developed a level of TLR1s (the higher UK Teaching and Learning Responsibility grade), which have cross-phase (3-18) responsibilities in teaching and learning, personal development, independent learning, life-long learning and core skills. This team comprises both secondary and primary practitioners. The subject leadership is carried out by a cross phase team of TLR2s (the lower grade). This type of structure re-emphasises to both teacher and pupil that school is not simply about the regurgitation of large amounts of subject knowledge.

Agents for change: the learner

In a system with truly devolved leadership, the agent for change must be the individual educator. There is no place in our new concept for an attitude of 'doing it by the book' or 'we've always done it this way'.

We don't have to wait for the future to begin this. In the foreword to *The big book of independent thinking*, Ian Gilbert challenges us all: 'Does the assembly you're about to give, or that lesson on 'forces' you're about to deliver, or that staff meeting you're about to lead or that new intake parents evening you're planning look like everyone else's anywhere else? If so, then what about sitting down with your independent thinking hat on and identifying how you can make it so that we couldn't drop you into a totally different school on the other side of the country without anyone noticing the difference. Have the confidence to be memorable – the world of education needs you to be great.'

Agents for change: an all through solution

There is a growing band of schools and academies developing an all through approach as their solution to a new concept of schooling. There is no ready template for any of these schools, and each has had to develop its own response to its community's needs. It is interesting that in making such fundamental changes the process of change itself seems to have produced many beneficial side effects. The schools do not suppose that a cross-phase institution is the solution to all educational problems. But considering education as a process from birth to adulthood helps us to challenge old assumptions.

Each of the all through schools reports a great strengthening of the ethos in their institution, which the new DfES guide on all through education reflects:

A common ethos can provide:

- Purpose and direction for all staff and pupils
- Continuity in learning and behavioural approaches or expectations
- Consistency in classroom management and practice
- A shared set of core values and goals which provide a strong framework for the social, moral and spiritual development of pupils

Agents for change: passion, vision and action

Whatever changes are made to a learning community, it all falls apart without three key ingredients: passion, vision and action (the most powerful glue around.). Two out of three isn't good enough. A school with only vision and action knows where it is going but fails to motivate many of its learners, whereas a school with only passion and action may contain lots of excited and enthusiastic individuals who are unprepared for the world around them. So the battle cry must be 'passion, vision, action', with which this society can produce well prepared, emotionally intelligent learners capable of matching competition from anywhere in the world.

So what is our 'to do' list for the future?

| Innovate | Abandon |
|------------------------------------|--|
| A relevant curriculum | Subject dominance in secondary schools |
| Remove age boundaries | Dramatic transfers between phases |
| Shift in the importance of IQ | Teaching for the test |
| Promote and develop EQ | Impersonal organisations |
| More community learning | School as the only place to learn |
| Imaginative use of new technology | Using new technology in old ways |
| High quality personalised learning | Teaching to the middle |
| New forms of devolved leadership | The micro-managing leader |

It is important to remember that a 'paradigm shift' in pupils' learning is not possible unless the educators make that same move. We must focus our minds on the great change that is needed across the education system – and the great penalty we pay if we leave things as they are:

'Learning is the greatest game in life and the most fun.

All children are born believing this and will continue to believe this until we convince them that learning is very hard work and unpleasant.

Some kids never really learn this lesson, and go through life believing that learning is fun and the only game worth playing.

We have a name for such people.

We call them geniuses.' (Glenn Doman)

Our challenge is to ensure that the new concept of schooling brings out the genius in everyone.

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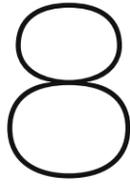
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The four strands of a 2020 vision for schooling

By Tom Clark, Associate Director, SSAT

An international working conference in Georgia, USA, in April 2006 considered the shape of schooling in 2020:

- What it might mean to be a leader of schools in 2020
- What might be the essentials for learning in 2020
- Envisioning the new technologies for 2020
- A new concept for schooling in 2020 – with a 21st century 'imaginary'

Pre-conference papers were provided by the iNet Futures Vision group, and several are reproduced in this publication. The issues were considered by 200 education leaders, from the USA, Canada, Australia, Hong Kong and England, including 13 English and American universities.

Leadership for schooling in 2020

Innovation involves culture and an attitude of mind. Schools do not start in the same place. Things innovative in one school may be standard practice in another. This is particularly true in a global context where schools may be operating in different stages of a political and economic cycle. Sometimes idiosyncratic innovative practice may be taking place but it may not be system-wide or even school-wide.

In the view of the conference the innovations that might have to be embraced to be an effective leader in 2020 include:

- The headteacher becoming the 'head learner', prepared to say 'I don't know, but I'm willing to learn'
- Being thoroughly prepared for the role through systematic professional development including internship, work shadowing, and an informed global perspective
- Being prepared to do 'something scary' every day

School leaders need strategic awareness to build a culture able to be adaptive in the short term but consistent in a long term view:

- As a designer of education, the school leader needs to engage in co-construction with design teams of staff, integrating technological developments that are proven to have positive impact on learning
- As a team-builder the headteacher should empower teams and give them time to think, grow and interact. Future leaders should be 'grown' to help ensure sustainable succession planning

Part of the culture is that of partnership and networking within schools and between schools locally, nationally and internationally. This may involve abandoning the role of heroic leadership, and the 'cubicle' concept of leadership, that of secrecy behind closed doors with exclusive comfort zones and a fear of change. (Peter Drucker's idea that to

make improvements some practice, even though still largely effective, may have to be abandoned has been developed by Professor Brian Caldwell.)

School leaders need to remember that although they may be able to do anything, they can't do everything. Strategic principles should be their guide.

The new essential learnings – beyond reading, writing, and arithmetic

Innovations

- Students need to learn how to learn and to be independent and self-managing in their lifelong learning, which involves understanding how they learn best
- Students need personal understanding, including awareness of their emotional intelligence and personal resilience
- When people are able to think about their learning, they can develop their own ethical / moral framework and practise meta-cognition
- It is essential to develop in students the capacity to deal with problems that are beyond single, one-stop solutions and which involve judgements
- Students need to be able to participate as global citizens with multi-literate communication skills (the arts, ICT, literacy and numeracy) and to develop the capacity to form relationships

This will involve abandoning the tactics of standardised tests and compartmentalising an overloaded, externally driven, prescriptive curriculum. Instead the approach should be to develop students' capacity to become informed learners and to make judgements involving multiple perspectives.

Envisioning the new technologies for 2020

Innovations

- Schools need to have a view of what learning will need to take place and how students will be equipped to learn in 2020, and use the technology to help make this happen
- A global learner is someone who can practise authentic learning by networking with other learners and tutors globally
- The teacher should become the technology enabled professional – a practitioner-researcher of learning materials and pedagogy networking to share research and practice
- In assessment, technology should be used to widen what is assessed to include teamwork, creativity, and the essential learnings described above
- Technology should be used to engage the student and the parent in assessment for learning when the student is ready
- School design should enable 7/24 learning and research. It should facilitate preferred learning styles and personalised assessment of student progress with immediate and appropriate access to ICT

This may involve abandoning: the concept of the teacher as transmitter of knowledge and the student as receiver; traditional methods of assessment by chronologically-driven 'big' tests; traditional concepts of time and space (lessons for 30 students for periods of time characterised by the 19th century imaginary); and a preoccupation with product rather than process.

A new concept for schooling

- There will need to be innovations to facilitate personalised learning and end chronology determining the start and finish of schooling
- In a holistic learning environment, spaces should not be micro-labelled and schools should stop looking like schools
- Students must be enabled to learn beyond school buildings and outside conventional school hours
- Students need opportunities to get things wrong as well as to learn effectively
- Students need to be able to engage in cross-cultural, mobile, flexible international learning communities
- Future leaders of learning may be recruited outside schools

Things abandoned would include time as the measurement of assessment; a teaching model with the classroom as the walled universe; fragmented schools; ugly schools, one-stop solutions, and conformity as a control mechanism.

The identification and development of the four strands at the Georgia conference itself demonstrated, among other things, the value of international school networks working together.

Essential questions for the future school: A summary

Schools, school systems and leaders in education need to address these essential questions about the future school.

- Why is education configured the way it is? What do we take for granted that we might question and change?
- How can schools justify much of what they do? How do our students develop a sense of identity and belonging?
- Why does the UK curriculum, despite all the reform and innovation, still look very similar to that on offer at the start of the 1900s?
- Why do so many students still leave at the end of compulsory education with so little to show for it?
- If much learning can take place anytime / anywhere, why do schools generally consist of buildings in one place that are usually open to everyone for learning only from a restricted period such as 9–3, 190 days a year?
- Is the traditional classroom based single timetabled lesson the best way to organise most of our students' learning?
- Why is so little of what is now known about learning used on a daily basis to plan experiences for students?
- How will the new technologies transform learning?
- Why is there such a discontinuity between primary and secondary education?
- What do our stakeholders tell us about the school of the future?
- Why do we still depend on outmoded, industrial age thinking, when working with complex organisations?
- Where can we find inspiration and examples of change from which we can learn?
- What are the current and future leadership challenges for secondary school leaders?
- Does one school, operating in isolation, have the capacity to transform itself?
- What are the consequences for students in meeting the challenges of the 21st century if we do not transform our current practice?
- What are the consequences for society if our students are unable to meet these challenges?
- How can transformation in education create greater cohesion in our society and globally?
- How can transformation in education create a greater chance of survival for our planet?

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