

4. The shape of schools to come?

4.1 21st-century schools.

Table 2 below is taken from the 21st Century Schools website, an independent US company specialising in professional staff development and curriculum design. One of its goals is to help students become «iKids» and truly global citizens. It describes today's students «digital natives», and today's teachers as «digital immigrants», working with students whose entire lives have been immersed in the 21st century media culture. Today's students are digital learners. They offer new definitions for «school», «teacher» and learner' appropriate for the 21st century:

Schools: «nerve centers, with walls that are porous and transparent, connecting teachers, students and the community to the wealth of knowledge that exists in the world».

Teachers: «orchestrators of learning» not «dispensers of information»; help students «turn information into knowledge, and knowledge into wisdom».

Learners: taught flexibly; see how learning prepares them for life in the real world; have the curiosity fundamental to lifelong learning; continue to learn outside the formal school day.

Table 2. 20th century classroom v. the 21st century classroom¹⁰

Time-based	Outcome-based
Focus: memorization of discrete facts	Focus: what students know, can do
Lessons focus on the lower level of Bloom's Taxonomy: knowledge, comprehension and application.	Learning is designed on upper levels of Bloom's Taxonomy: synthesis, analysis and evaluation
Textbook-driven	Research-driven
Passive learning	Active learning
Learners work in isolation – classroom within four walls	Learners work collaboratively with classmates and others around the world – the global classroom
Teacher-centered: teacher is centre of attention and provider of information	Student-centered: teacher is facilitator/coach
Little to no student freedom	Great deal of student freedom
Discipline problems:– educators do not trust students and vice versa. No student motivation.	No discipline problems: students and teachers have mutually respectful relationship as co-learners; students are highly motivated.
Fragmented curriculum	Integrated and interdisciplinary curriculum

¹⁰http://www.21stcenturyschools.com/What_is_21st_Century_Education.htm

Grades averaged	Grades based on what was learned
Low expectations	High expectations: we expect/ensure that all students succeed at high level. Some may go higher: we get out of their way.
Teacher is judge. No one else sees student work.	Self, peer and other assessments. Public audience, authentic assessments.
Curriculum/school is irrelevant and meaningless to the students.	Curriculum is connected to students' interests, experiences, talents and the real world.
Print is the primary vehicle of learning and assessment.	Performances, projects and multiple forms of media are used for learning and assessment
Diversity in students is ignored.	Curriculum/teaching address student diversity
Literacy is the 3 Rs – reading, writing and maths	Multiple literacies of the 21 st century – aligned to living and working in a global new millennium.
Factory model, based on needs of employers of the 19th century. Scientific management.	Global model, based upon the needs of a globalized, high-tech society.
Driven by standardised testing.	Standardised testing has its place.

What is a 21st-century curriculum (from the same website)?

- interdisciplinary, project-based, and research-driven;
- connected to the community: local, regional, national and global;
- incorporates higher order thinking skills, multiple intelligences, technology and multimedia, the multiple literacies of the 21st century, and authentic assessments;
- expanded classroom to include the greater community;
- students are self-directed, and work independently and interdependently;
- curriculum and teaching designed to challenge all students, and provide for differentiation; not textbook-driven or fragmented, but thematic, project-based and integrated;
 - skills and content are not taught as an end in themselves; students learn through their research and their projects;
 - textbooks are just one of many resources;
 - knowledge is not memorization of facts and figures, but constructed through research and application, connected to previous knowledge, personal experience, interests, talents and passions;
 - assessment moves from regurgitation of memorized facts and disconnected processes to demonstration of understanding in a variety of contexts;
 - real-world audiences are an important part of the assessment process, as is self-assessment.

4.2 Royal Society of Arts (RSA) Opening Minds?

Opening Minds (OM) is now being used in over 200 English schools: teachers design and develop a curriculum for their own school based on the development of five key competences:

1. Citizenship
2. Learning
3. Managing information
4. Relating to people
5. Managing situations.

The OM competences are broad areas of capability, developed in classrooms through a mixture of instruction and practical experience: children plan their work, organise their own time and explore their own ways of learning. Subject boundaries are less defined than in traditional curriculum teaching, with schools often integrating the teaching of several subjects together into modules or topics, where competences can be developed through the exploration of common themes. The input of teachers and the individual needs of schools are central to the planning of each OM project.

The five key competences break down into a detailed structure of individual competences, expressed in terms of what a student can achieve having progressed through the curriculum:

Competences for citizenship

- Morals and ethics: students develop an understanding of ethics and values, how personal behaviour should be informed by these and how to contribute to society.
- Making a difference: students understand how society, government and business work, and the importance of active citizenship.
- Diversity: students understand and value social, cultural and community diversity, in both national and global contexts.
- Technological impact: students understand the social implications of technology.
- Self-reliance: students develop an understanding of how to manage aspects of their own lives and the techniques they might use to do so, including managing their financial affairs.

Competences for learning

- Learning styles: students understand different ways of learning and how to develop and assess their effectiveness as learners.
- Reasoning: students learn to think originally and systematically and how to apply this knowledge.
- Creativity: students explore and understand their own abilities and creative talents, and how best to make use of them.
- Positive motivation: students learn to enjoy and love learning for its own sake and as part of understanding themselves.
- Key skills: students achieve high standards in literacy, numeracy, and spatial understanding.

➤ ICT skills: students achieve high standards of competence in handling information and communications technology and understand the underlying processes.

Competences for managing information

- Research: students develop a range of techniques for accessing, evaluating and differentiating information and have learned how to analyse, synthesise and apply it.
- Reflection: students understand the importance of reflecting and applying critical judgement and learn how to do so.

Competences for relating to people

- Leadership: students understand how to relate to other people in varying contexts in which they might find themselves, including those where they manage, or are managed by, others; and how to get things done.
- Teamwork: students understand how to operate in teams and their own capacities for filling different team roles.
- Coaching: students understand how to develop other people, whether as peer or teacher.
- Communication: students develop a range of techniques for communicating by different means, and understand how and when to use them.
- Emotional intelligence: students develop competence in managing personal and emotional relationships.
- Stress management: students understand and are able to use varying means of managing stress and conflict.

Competences for managing situations

- Time management: students understand the importance of managing their own time, and develop preferred techniques for doing so.
- Coping with change: students understand what is meant by managing change, and develop a range of techniques for use in varying situations.

Opening Minds (OM) is being implemented in many school types and across a range of student abilities, year groups and subject areas; curricula differ between schools, but they share a number of characteristics in terms of teaching, learning and assessment:

- OM is at the heart of the school's strategy;
- OM helps improve subject knowledge and skills development;
- a mixture of self, peer and teacher assessment is used;
- curriculum is relevant to the school context and pupils needs;
- reflective practice and action research used to further develop and improve the content and delivery of OM;
- teachers' professional learning and development is central to valuing the development, delivery and review of the curriculum;

- the value of competence development is emphasised and understood by all members of the school community;
- student reflection on their learning is encouraged and student insights inform best practice;
- staff encouraged to work collaboratively across subject areas;
- flexible use of space and time;
- wide range of teaching and learning approaches.

OM supports the aims of the English National Curriculum but enables schools to deliver the content in a creative and flexible way; it is not an alternative to the teaching of subject knowledge but an alternative way of delivering it. The OM competence framework is consistent with the PLTS framework mentioned in Section 1.1 above. Competences are not only skills or behaviours, but also incorporate young people's capabilities and understanding. Opening Minds is not a set of learning objectives to be integrated into an existing curriculum, rather it is a framework for the whole school curriculum and requires a different way of teaching.

4.2 The School of One

«Today's schools are an anachronism» says Neil O'Brien, Director of Policy Exchange in his blog (*Daily Telegraph*, 22 April 2011). «They resemble the assembly lines of the industrial era, when they were conceived. Groups of 25 to 30 children, beginning at age five, are moved through 13 years of schooling, attending 180 days each year, and taking five major subjects daily for lengths of time specified by the Carnegie Foundation in 1910. These schools are time-based – all children are expected to master the same studies at the same rate over the same period of time. They focus on teaching – how long students are exposed to instruction, not how much they have learned. They are rooted in the belief that one size fits all—all students can benefit equally from the same curriculum and methods of instruction».

School systems need to focus now on learning, and of different subjects at different rates, on children's different learning styles, plus what new technologies can offer in terms of individualising/personalising education for every child. «Our schools will shift their attention from teaching to learning, time-based to outcome-based education, and mass instruction to individualized instruction».

He quotes as an example of technology-based innovation, the «School of One» experimental programme in New York, which uses technology to create personalised «playlists» of lessons, aimed at the exact level each child has reached. At the end of each day, pupils take a short online test, to measure how much progress they have made, before a programme works out what they need to be studying the next day. A typical playlist might tell a pupil to start the day by meeting a teacher, then completing a set of online tasks, and then carrying out a project with a group of other children. Thus, instead of a «stream» of 25 children, there is stream of one – hence the name of the programme.

The children do a mix of whole-class, group work and individual tasks, so there is still a personal relationship with teachers and classmates. Teachers can also monitor very closely how well their pupils are doing, and push them along appropriately. The technology also gives children more personal feedback than they

would otherwise get in the conventional classroom. Pupils can also access remote lessons from specialists, or watch lectures from all over the world (the expert approach to teaching mentioned the *Guardian* children's survey in Section 1 above).

«Technology-powered schooling» would also change expectations about the number of potential high achievers in schools in contrast to what O'Brien calls «an anti-achievement culture», referring to the recent Policy Exchange report about the UK system quoted in Section 1, where «targets and league tables have distorted priorities, leading schools to focus on pushing pupils over the boundary of a C-grade at GCSE and leaving bright pupils neglected».

5. A final word about (e)quality of education

I haven't said much about quality so far. PISA and McKinsey talk about «successful schools» and systems and the Executive Summary to the PISA 2009 results identifies some features of what makes a school «successful», in terms of policies, resources and practices:

➤ Students who had attended pre-primary school tend to perform better than students who have not (this applies to 94% of 15-year-olds in OECD countries).

➤ Successful school systems provide all students, regardless of their socio-economic backgrounds, with similar opportunities to learn.

➤ In countries where more students repeat grades, overall results tend to be worse.

➤ In countries where schools have greater autonomy over what is taught and how students are assessed, students tend to perform better.

➤ In countries where schools are publicly held to account for their results, schools that enjoy greater autonomy in resource allocation tend to do better. In countries where there are no such accountability arrangements, the reverse is true.

➤ Countries that create a more competitive environment in which many schools compete for students do not systematically produce better results.

➤ School systems considered successful tend to prioritise teachers' pay over smaller classes.

➤ Schools with better disciplinary climates, more positive behaviour among teachers and better teacher-student relations tend to achieve higher scores in reading

Interestingly, and sadly, the last set of results also show that 28% of students in OECD countries are in schools whose principals say that their teaching staff's resistance to change negatively affects students; 23% attend schools whose principals report that students are not encouraged by teachers; 22% attend schools whose principals believe that learning is hindered by low teacher expectations; and 17% of students attend schools whose principals say that teacher absenteeism hampers learning).

The European Report on the Quality of School Education (May 2000) identified five challenges and sixteen quality indicators as summarised below:

➤ the knowledge challenge (refers to the information explosion and the need to rethink traditional conceptions of knowledge, its «transmission», «delivery» by teachers and «acquisition» by students);

- the challenge of decentralisation (more autonomy and responsibility for schools and increasing demands for accountability);
- the resource challenge (education as investment; cost-effective alternatives to expensive institutional practices);
- the challenge of social inclusion (to offer all children and young people the opportunity to benefit from school education and to prepare them for life after school);
- the challenge of data and comparability (benchmarking - a new way of thinking about national performance, local and regional effectiveness, and school performance; benchmarks used diagnostically to inform policy and practice).

The sixteen indicators relate to four areas:

- **attainment:** in mathematics, reading, science, information and communication technologies (ICT), foreign languages, learning to learn, and civics;
- **success and transition:** pupils' ability to complete their studies by examining dropout rates, completion of upper secondary education and participation in higher education;
- **monitoring of school education:** the level of participation of the various stakeholders in school systems through evaluation and steering of school education and evaluation of parental participation;
- **resources and structures:** educational expenditure per student, education and training of teachers, rate of *participation in pre-primary education and the number of students per computer*.

The **Education for All** sixth Goal is «*Improving all aspects of the quality of education and ensuring excellence of all so that recognized and measurable learning outcomes are achieved by all, especially in literacy, numeracy and essential life skills*» and places quality at the heart of education. A quality education is «one that satisfies basic learning needs and enriches the lives of learners and their overall experience of living». Successful education programmes, according to UNESCO, require:

(1) healthy, well-nourished and motivated students; (2) well-trained teachers and active learning techniques; (3) adequate facilities and learning materials; (4) a relevant curriculum that can be taught and learned in a local language and builds upon the knowledge and experience of the teachers and learners; (5) an environment that not only encourages learning but is welcoming, gender-sensitive, healthy and safe; (6) a clear definition and accurate assessment of learning outcomes, including knowledge, skills, attitudes and values; (7) participatory governance and management; (8) respect for and engagement with local communities and cultures.

5 Conclusions

- 21st-century students are constrained by 20th-century teachers in a 19th-century system.
- There is broad agreement on the need for 21st-century competencies and for «survival» and «employability» skills: to meet unforeseen future challenges requires versatility, the ability extrapolate.

- 21st-century competencies need 21st-century support systems and teaching and learning «spaces» and resources.
- 21st-century competencies embrace skills, attitudes, values.
- There is less attention so far to assessment and teacher development programmes for these competencies.
- The ethical, respectful and leadership aspects are particularly important, but harder to measure.
- PISA results are becoming increasingly important as a driver for change and reform both for «successful» and aspiring education systems and for both OECD and associate countries; the «achievement gap» is expensive (investment in education for GDP?).
- Successful systems prioritise school autonomy and accountability, teaching and delivery quality, well-rewarded teachers, even at the expense of class sizes, and raising standards for **all** students.
- Education projects operate on a different basis, driven by donor agendas.

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Девід Ройл

Якісна середня освіта, заснована на компетентісному підході: питання та труднощі

Так звані компетенції студентів 21 століття активно обговорюються вже протягом декількох років. Цьому сприяє зростаюча цікавість до результатів PISA та їхня порівняльна цінність для освітніх систем, що мають на меті покращення та підвищення своєї ефективності. Однак менш зрозумілим є те, що шкільні системи мають охоплювати й такий спосіб досягнення поставлених за мету компетенцій, як, наприклад, внесення необхідних змін до програм професійної підготовки вчителів.

Девид Ройл

Качественное среднее образование, основанное на компетентностном подходе: вопросы и трудности

Так называемые компетенции студентов 21 века активно обсуждаются уже в течение нескольких лет. Этому способствует повышенный интерес к результатам PISA и их сравнительная ценность для образовательных систем, целью которых есть повышение своей эффективности. Однако менее понятным является то, что школьные системы должны принимать во внимание и такой способ достижения таких целевых компетентностей, как, например, внесение необходимых изменений в программы профессиональной подготовки учителей.