Personalised Learning *Together*

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Current ideas about classes, subjects, timetables and age cohorts give way to workable models of personalised, active, experiential, challenge-based learning together.

Context 2030

Parents and society generally will cherish children's development from early childhood to adulthood no less in 2030 than we do today. We will sustain a school culture, because we have deepened our understanding of the value sites of physical 'togetherness' in an otherwise hyper-connected world, where much of what we do as individuals or groups is neither time-bound nor place-bound. School, but not as we know it, will remain very much a part of growing up. Educational Specialists (ESs, as we will then call them, not teachers) will be highly valued in society, but as a profession will be more diversified in their roles and practices. The sea change that will occur is that they will work in multi-disciplinary teams, supported by paraprofessionals. The paradigm for education will be 'challenge based'. Many school buildings will need to be adapted and refitted in order to make them fit for purpose as we transition to new practices.

We also need reassurance about how our children are progressing, and they do too, but by 2030 we will have long given up on the idea that this can be adequately measured by the examinations and other assessments we depend on today. Individualisation will be a reality in all facets of life, and for our children this will mean a customised, personalised curriculum with an emphasis on engagement through active, experiential learning, that combines solo and team oriented activities. Progression from school to further studies (vocational or academic, or a mix) will still be greatly valued, but the pathways will be highly diversified and, for a majority, will involve integrating work and formal studies, something that will be completely natural to them.

What will remain constant, however, since it is deeply embedded in the human psyche, is the notion that 'what gets measured, gets done' and we will have developed powerful and far-reaching observational and analytic capabilities to help in forming objective judgements about any individual's performance, based in large part on the digital audit trail of their activities. Concerns about such far-reaching analytics will have been largely allayed by 2020, by which time we will have developed a highly sophisticated taxonomy of privacy, and we will have the technologies to implement it in the best interests of the individual.

So what will our young students be doing in 2030? When and how will we allocate credits for it? How will 'school' be organised? How will the evolution of technologies, digital media and resources act as catalysts for the transformation of school education? Transformation will occur, and indeed will become inevitable, as a consequence of a convergence of factors summarised in the following illustration. In short, the future paradigm is for learning that is highly personalised, but also highly socialised during the critical developmental years to the age of eighteen – Personalised Learning *Together*.
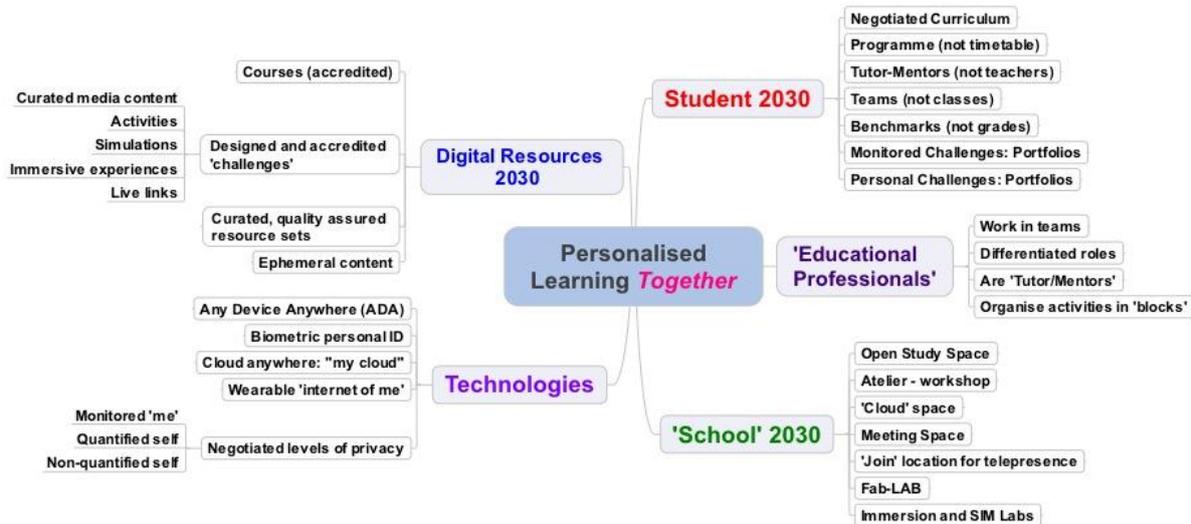
1

Technologies

Already significant developments in semantic web, ambient intelligence, 'internet of things' and big data will be fully mature and ubiquitously deployed by the 2020s. Immersed at all times in a cloud environment, our 'presence' and even our intentions will be signalled by an inconspicuous wearable, biometrically enabled device. Many of our interactions will be entirely automated, e.g., arrival at work (or school) will be recorded as we pass through the door. Payment for lunch in the cafeteria will no longer involve production of cash or of a payment card. In effect, our wearable device becomes an 'internet of me' and, for students, this becomes their constant point of presence in an educational cloud that is place and time independent. In school, a wide range of devices are immersed in the cloud environment: screens (small and large), wearable AR and immersive devices (glasses and headsets), laboratory equipment, workshop equipment and sports/gaming consoles. Costs of manufacture for many of these devices are so low that they are completely ubiquitous. Students do not bother to bring their own devices; by 2030, it will be a case of any-device-anywhere (ADA): pick it up and it recognises the individual and configures to their profile by synchronising with their wearable 'internet of me'.

By 2030, our understanding of privacy and protection of the individual will have significantly advanced. We will recognise and be able to implement three core levels for each individual:

− "Monitored me": where we understand that our interactions and activities are being logged and can be subjected to analytics. During much of what students will do in fulfilling requirements of formal education, they will operate in this mode.

− "Quantified Self": all manner of technologies and biometrics will assist and enhance our individual lives, health and wellbeing. However, data generated will be private to the individual, unless they choose to share it.

− "Un-quantified Self": we will have a sophisticated understanding of "time off". This will include being entirely offline and unmonitored, but it will also include a particular form of digital engagement that is 'freestyle', i.e., leaves no trace.

Evolution of Digital Resources

A rich, dynamic catalogue of high quality, well-designed and educationally validated resources will exist, spanning all disciplines and levels, aligning with national and increasingly international curricula and comprising:

- Full courses: (appropriate to different stages). Each course will include a curated set of content (including options for live interventions in a majority of cases), suggested activities, challenges, assignments and projects, all underpinned by analytics that will provide formative and summative assessment. Courses will be designed and developed by multi-disciplinary teams, comprising curriculum specialists, educational professionals ('teachers'), visual and media designers, games/activity designers and analytics specialists. Courses of this kind will be validated by national and pan-national educational agencies. Schools may choose from a very extensive catalogue of courses or can put forward courses of their own design for validation.

- Curated Resource Sets: Ongoing collaboration between educational professionals and other stakeholders, e.g., higher education, industry, cultural institutions, health, environmental and other agencies of government, will lead to the creation of curated resource sets, that will go far beyond what is available today as individual resources or apps. These curated sets will be maintained and regularly updated within an educational quality assurance framework, and they will be identified with recommendations for their use in specific contexts.

- Designed and Accredited Challenges: Challenge-based education will become a reality during the 2020's and will be fully embedded by 2030. We can think of challenge–based learning as an evolution of problem based learning. To work at scale, schools will need to have in-house, or through collaboration, the multi-disciplinary skills required to design meaningful, relevant, comprehensive challenges for students, appropriate to their stage of development. Alternatively, schools may tap into a catalogue of 'challenges', i.e., fully designed kits/scenarios, much as business faculties in colleges today tap into libraries of real world business cases. Again, as is the case for 'courses', challenges will be validated and accredited by national or pan-national agencies. 'Challenges', will represent the new units of curriculum and will be undertaken in groups, supported by tutor/mentors. A typical 'challenge' may be of several weeks duration. Students collaborating on challenges will maintain individual portfolios as evidence of activity and participation.

- Ephemeral Resources: An incalculable quantity of freely available digital resources of all kinds will be accessible to the learner of 2030. Individual learners will of course continue to create and share resources and will join communities of interest and practice, much as they do today. However, we will increasingly come to regard such resources as ephemera. Much of what passes today for OER/learning objects would be regarded by 2030 standards as ephemera – interesting curiosities, but largely undeveloped in terms of educational potential.

Flexibility and Personalisation

The co-evolution of digital technologies, devices, infrastructure and resources that will occur in the coming decade suggests that a changed trajectory for formal education is inevitable. Looked at another way, it raises questions about how we can justify continuing on our current trajectory, where much of the evidence to date points towards a 'business as usual' model of schooling, supported rather than invigorated or reinvented by digital advances. Consider the following questions in the light of the digital prospect for 2030:

- Why would we organise schools around classes?
- Why would organise groups on the basis of narrow age cohorts?

- Why would we organise curriculum around the narrow confines of 'subjects'?

- Why would we organise the day into discrete time-slices?

- Why would student choice be as limited as it is today?

- Why would assessments and examinations be scheduled for every student in the same end of term or end of year timeframe?

- Why would we expect teachers to be a professionally homogenous group, operating to common standards but in the mode (as seen by their students) of sole-practitioners?

- Why would we expect one school to be much the same as another?

Arguably, by 2030 there will be no valid reason to hold to familiar time-honoured and deeply engrained practices, and indeed they will have been largely abandoned. However, there is no doubt that the adjustment to a new trajectory for school education will be difficult and divisive, since step changes are required rather than less radical adaptation.

The Future?

What will the future look like on this new trajectory? It will be founded on five fundamental assumptions:

1. Each student will have an individually negotiated curriculum. (Parents, educational guidance specialists and the student will be involved in selecting this curriculum, with the locus shifting increasingly to the student as they develop in age and maturity).

2. The curriculum will be balanced (notionally 30:50:20, below) in order to ensure that each individual:

   2.1. Achieves and demonstrates a core set of competences – we will call these 'benchmarks'. There will be a pan-national consensus about a framework for a wide range of benchmarks, relevant in scope and breadth to particular stages of development. Students of 2030 will refer to this aspect of their curriculum as 'Benchmark Challenges (BMCs)' Self-directed learning, under the guidance of a personal tutor/mentor, using digital 'course' resources, will be the predominant modus operandi.

   2.2. Engages in and satisfactorily completes a wide range of 'challenges' (as described above) as a member of a group under the tutorial guidance of educational professionals. An individual portfolio will be used to document 'challenges' for both formative and summative assessment. Students will refer to these as 'Guided Portfolio Challenges' (GPCs)

   2.3. Has freedom to identify personal goals and personal 'challenges' and can follow such interests, either formally or informally. A student can opt to offer a personal 'challenge' as an element of their formally assessed curriculum and in this case they will fulfil a portfolio requirement similar to that of 2.2. Students will refer to these as 'Personal Portfolio Challenges' (PPCs).

3. Benchmarking (BM) tests (i.e., relating to 2.1 above) can be taken at anytime, since they are fully online. Like a driving test, each BM is seen as a necessary indicator, but the individual prepares and takes the test by reference to his/her own circumstances and state of preparedness.

4. 'Challenges', either school-based or personal, will be pursued as project 'blocks', i.e., the student is substantially or fully immersed in a challenge, rather than pursuing several in parallel.

5. 'Educational professionals' will take a team-based approach to tutoring and mentoring of students. The education profession will be more diversified and will include paraprofessional and other supporting roles.

When students are preparing to advance to tertiary education or to enter the workplace, what will be looked for is a statement of their achievement, covering BMCs, GPCs and PPCs. Schools will be differentiated by the scope and quality of the GPC 'challenges' they can support – this will be related to the inter-disciplinary mix of professional and tutorial skills they have in-house or that they can bring to bear through their wider network and/or through their engagement with external organisations. Individuals will be distinguished by the 'challenges' undertaken and, particularly, by their personal challenges (PPCs).

School 2030 – how will it be organised?

To support flexibility and individualised curricula, by 2030 the educational profession will be significantly diversified and the all-important 'group/together' aspects of personalised learning will be supported in school buildings that have undergone significant spatial re-design.

Educational Professionals:

Careers as educational professionals will include such roles as:

- Discipline Specialists (who can work in teams as lead tutors for BMCs and team tutors for GPCs)

- 'Challenge Leaders/Designers' (who can implement complex, cross-disciplinary challenge-based scenarios with groups of students) and who can play a role in the pedagogical design, updating and validation of 'challenges'.

- Coaches (paraprofessionals, who provide individual mentoring and who can work with small study groups on their preparation for BMCs)

- Guidance specialists (for ongoing negotiation of personal curricula and mediation of supports required)

- Production Team members ('challenge' scenario design, design of resources, implementation of feedback and assessment scenarios)

- Analytics experts (supporting tutors/mentors in profiling student needs and attainment)

- Technical specialists (to oversee the digital infrastructure, although these professionals are likely to be centralised regionally)

Significantly, these roles are fulfilled in teams that are both local (immediate to the school) and networked (tele-presence collaboration and exchange). Schools, as workplaces, will mirror to a far greater extent ways of working that can be found among today's most innovative and vibrant organisations in the creative industries. Individual talent, working in teams will be the dominant paradigm for the education profession.

Students:

Individual students are more likely to be intrinsically motivated in circumstances that accommodate a high degree of choice and flexibility. In all cases, the role of tutors/mentors is critical for maintaining focus and for balancing solo, self-directed work with supportive teamwork. An indicative student activity profile will include:

- Self-directed study through digital courses for all BMCs. (Each student is assigned a coach. Coaches work with groups of students and moderate individual study and group sessions among groups undertaking the same BMC). A digital course can be followed anywhere/anytime, but because we value physical 'togetherness' students will have a personal study space in school and will belong to a core tutorial group (much as an employee has a desk and belongs to a core team). Coursework can also be seamlessly undertaken outside of school: digital resources and 'place marks' follow the learner.

- Core groups will not be confined to age cohorts, but will be formed in broader age bands (e.g., 14 to 16 together). Students will identify strongly with their core group, but will form other teams and groups in order to fulfil their selected 'challenges'.

- Guided Portfolio Challenges (GPCs) will be undertaken sequentially, and blocks of typically 5 to 6 weeks will be allocated to complete what will amount to substantial, inter-disciplinary projects, drawing upon the core skills acquired in the BMCs.

- Many 'challenges' will involve active learning and creation. Students will have access to powerful visualisation, experimental and simulation opportunities in the school laboratories of 2030, including links to remote experimental and research laboratories. Art rooms and technical workshops will long have been superseded by creative 'Fab-Labs', where students can fabricate all kinds of artefacts (physical and digital) using traditional and digital tools for design, modelling and building.

- Personal Portfolio Challenges (PPCs) will for the most part be fulfilled outside of school. Their purpose is to enable each individual to pursue excellence and depth in a field of their choice. Many of what now count as extra-curricular activities will be brought within this domain, including music or drama performance, sports or specialised or advanced study in a particular field, not immediately supported by the school.

- A typical school day will involve a nominal 40% of time with the student's 'home' group, engaged in a mix of personal study using digital courses/resources, group peer learning sessions and group session moderated by coaches or tutors. This will be referred to as 'BMC-time'. Students will also devote 40% to 60% of their day to the particular GPC they are currently engaged in. This involves working with a different group and tutorial team. The variance (40% to 60%) is dependent on whether the student is concurrently pursuing a PPC for which a time allowance of 20% will be made.

School as Physical Space:

For a new vision of education and educational practice to become a reality, the nature of schools as physical spaces will need radical reconsideration. Schools and classrooms, as we currently know them, are designed on the premise of teachers as sole practitioners and students as members of homogenous class groups. School 2030 will require removal of many walls and an opening up to provide:

- Flexibly configurable open plan spaces (studios), to host GPCs ('challenges')

- A personal space (desk) for each student within large open 'home group' areas to facilitate learning/acquisition of core competences (towards BMCs).

- Presentation areas for group work

- Tele-presence Areas to link with other groups and with external organisations

- Experimental/Simulation Laboratories for the exploration of scientific and technological phenomena

- Fab-Labs for design and artefact production

- Digitally supported gymnasia and sports facilities

Conclusion:

Remarkable advances in digital technologies and media are already being incorporated in today's schools. However, in 2013, our frame of reference remains the teacher and the classroom. Innovation is discussed in terms of creative classrooms, rather than creative schools or creative communities. This is set to change. Education is fundamentally a process of constant creation and re-creation. As in other spheres of creativity, space matters, whether physical space or virtual space. Space conducive to creativity and learning does not arise in a haphazard way. It requires thoughtful design, and form should follow function. Open Education, at least insofar as it applies to our children up to the age of 18, represents an opportunity for creative engagement with the very best and most comprehensive digital resources, curated and tutorially supported by challenging and engaging tutor-mentors, in circumstances that place a high premium on the combination of individual and social learning.