

THE GLOBAL SCHOOL

Education in the Time of Digitisation

MIKE DOUSE AND PHILIP UYS



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The authors have produced articles on various facets of education (for example: secondary curriculum, convivial pedagogy, educational psychology, educational planning, democracy) with each title including the phrase “in the Time of Digitisation”. By including ‘Douse’, ‘Uys’ and “in the Time of Digitisation’ in online searches in ResearchGate, Google Scholar and elsewhere, these may readily be accessed and enjoyed

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“What relationship should there be between education and employment, what kind of connection between school and work? None. Absolutely none. None whatsoever.”

(Andrew Stephenson, sometime Headmaster, Norwich School)

“Given that most work for most workers worldwide will be tedious, exploitative and soul-destroying, those designing and delivering education would be well-advised to steer as far away from it as possible.”

(Sean O’Dowda)

“...nothing that you will learn in the course of your studies (at Oxford University) will be of the slightest possible use to you in after life – save only this – that if you work hard and intelligently you should be able to detect when a man is talking rot, and that, in my view, is the main, if not the sole, purpose of education.”

(Professor John Alexander Smith)

“The best educational research amounts to ‘follow the child!’”

(Christian Schiller)

“Give a man a fish and he may feed his family for an evening. Teach a man to fish and he may destroy the whole eco-system.”

(Peter Trebilco, ED)

“I speak, therefore I thrive; I debate, therefore I flourish.”

(Vince Stephenson, College of Public Speaking)

“There has never been a better time to advance a vision for how to organise technology in a way that benefits everyone.”

(Franklin Foer)

“Was it worth teaching? Was it learned well? Did teacher and learner enjoy the experience? These are the only criteria of the good lesson, of the good course and of the good education.”

(Alan Sall)

“(The happiest young people) are less burdened by an expectation to be good ... (they are) more free to do what they want, and in doing what they want, develop an idea of what they really like ... (their societies) are the most lenient and focus more on developing autonomy than on giving priority to obedience.”

(Professor Ruut Veenhoven, Director, World Database of Happiness)

“The passport to world citizenship has become ‘@’.”
(Gudmund Hernes)

“If you give the child the freedom to follow their own interests, and a rich assortment of resources, they will do the actual learning for themselves.”
(John Holt, quoted and commented upon by Sally Williams)

“Digital citizenship should promote agency that challenges our ideas of what constitutes the good society and help shape better futures for all.”
(Professor Mark Brown)

“The child must feel free and happy during the course of education.”
(Jean-Jacques Rousseau)

“We do not yet know just how the Fourth Industrial Revolution will unfold, but one thing is clear: the response to it must be integrated and comprehensive, involving all stakeholders of the global polity, from the public and private sectors to academia and civil society”.
(Professor Klaus Schwab)

“It’s not the teacher who should be questioning the child. It’s the child who should be questioning the teacher. Questioning everything. Loving the questioning.”
(George Bernard Shaw)

“One’s first year at university should be entirely devoted to enjoying oneself. Year two should involve an understanding of that enjoyment – from whence it came and precisely how it manifested itself. With that comprehension concluded, the third year should be devoted to determining how best that originally-personal enjoyment may be shared more widely and strongly. There will be difference (of degree) across and between the disciplines but the basic principles will remain the same.”
(Vasudevananda Saraswathi)

“There are no failing schools – only failing targets.”
(Tim Curtin - that very same Tim who also wisely observed that ‘every tax is a graduate tax’)

“The day is not far off when the economic problem will take a back seat where it belongs, and the arena of the heart and the head will be occupied by our real problems – the problems of life and of human relations”
(John Maynard Keynes)

“This is a Golden Age for teachers. This is the Platinum Age for learners.”
(Graham White)

CHAPTERS AND SYNOPSES

0. VISION TWENTY-TWENTY SOMETHING

Tales in and out of school in the form of personal presentations from an assortment of perspectives, singly suggesting and collectively clarifying what The Global School is (becoming) and feels like from inside

1. OUR WORLD, OUR EDUCATION, THEIR TRAINING

Descriptions, dogmata, distractions, definitions; ‘Digitisation’ as opposed to ‘ICT’; ‘education’ as absolutely distinct from ‘training’; optimally appropriate education in our utterly transformed world

2. EDUCATION AND ICT – AN ACUTE CASE OF LAPSED EUPHORIA

ICT’s limited and disillusioning achievements over several decades demonstrate that piecemeal applications are worse than useless: overall Digitisation-based transformation is logical, vital and feasible

3. ‘RELEVANCE’, ‘PREPARATION’, ‘COMPETENCIES’, ‘RETURN ON INVESTMENT’ AND OTHER IMPOSTERS

Schools and children have been used for false external purposes across the centuries: education has nothing to do with work or any form of preparation: the fundamental Right of the Child is that of enjoying childhood

4. THE GLOBAL SCHOOL

Immediate universal connectedness makes possible, necessary and inevitable the unitary universal school; this transformed worldwide assembly may and must be based upon enthusiasm, exploration and enjoyment

5. PLANNING TO MANAGE – MANAGING TO PLAN

Paralysis by analysis superseded by animation through participation; educational planning then (pre-Digital Age) now and forever onwards; economics, enjoyment, ethics; digital literacy, understanding and comfort

6. LEARNER-DRIVEN CURRICULA

The inconsequentiality of externally imposed curricula; Professional, Technical and Vocational Training; pre-primary through postgraduate; the concluding of ‘Computer Studies’; fascinating and outdated theories

7. LEARNING-SUPPORTIVE PEDAGOGY

‘Pedagogy and ICT’ as historical relic; ‘Pedagogy and Digitisation’ as category error; Debate as the essential methodology; educators in the Digital Age, at ease with the convivial technology, more SatNav than satrap

8. IMPLICATIONS PSYCHOLOGICAL

Reflecting the immediate and virtual duality of contemporary consciousness; Global School consequences for educational psychology in such areas as self-regulated learning, scaffolding, anxiety and cyberbullying

9. DIGITISATION AND EDUCATIONAL DEMOCRACY

Propagating democracy through education is essentially undemocratic: The Global School, enabling universal participation and embodying ‘rule by the learners’ is the genuinely democratic institution.

10. CONCLUSIONS AND CONSEQUENCES

Seventeen foundation Principles in support of the forthcoming and totally fundamental transformation.

PRINCIPLES

- I. Piecemeal technological ‘add-ons’ have become dysfunctional distractions: isolated ICT is not the answer.
- II. Digitisation makes necessary and feasible a fundamental reshaping of the entirety of education.
- III. Universal connectivity and worldwide inter-dependence are creating The Global School.
- IV. Reflecting learners of all ages’ essential e-lived existence, The Global School embodies the perpetual duality of contemporary consciousness.
- V. The Global School offers an escape route away from education as indoctrination.
- VI. Education is entirely distinct from and utterly unrelated to the world of work.
- VII. Education must be enjoyable of itself.
- VIII. Test-obsessed, performance-comparison-driven schooling must be relegated to the dark (i.e. pre-digital) ages.
- IX. Over the pre-primary and primary phases, children should be helped to become active and educationally self-directed learners.
- X. At the secondary and lifelong education levels, the learners ‘own’ the curriculum and operate, by default, as active learners.
- XI. The ‘Education in the context of Digitisation’ conceptualisation supersedes all notions of ‘ICT’ as something separate.
- XII. Professional, Technical and Vocational Training is inevitable and vital – but it is not Education.
- XIII. It is in The Global School that Teachers come into their own.
- XIV. The well-informed debate is the basic Global School methodology.
- XV. The Global School’s existence will contribute to equity of outcomes worldwide.
- XVI. The Global School necessitates a fresh approach to international cooperation and development support.
- XVII. Nothing educationally will ever be the same again.

0. VISION TWENTY-TWENTY-SOMETHING

There are about thirty teenagers in the room. Most are deeply involved with their handheld devices, type-tapping away, speaking, listening, photographing, manipulating graphics, researching, up- and down-loading, dispatching items for instant printing... Some are finalising assignments for submission; one group is building up a family history diagram on a wall screen; a teacher is attending face-to-face to another's question about genealogy. But this isn't the entire class – some forty others, including mature students, are tied in from locations elsewhere, mostly far overseas, all having closely followed the teacher's introduction and, along with those physically present, proceeded in their selected direction at their own pace. This is a **Caribbean History** course, focussing today on indentured plantation workers. Interviews with some of their descendants are available, along with film, historical documents, virtual museum visits and other relevant materials. The learners are labouring in the fields, encountering the economics of sugar, perceiving it from the plantation owners' perspectives, and then from the workers' families', and each is reflecting upon the overall phenomenon.

Katharini is the only secondary-age student on her very remote Pacific island: confined to a wheelchair, it is unlikely that she will ever travel elsewhere. Today she is studying **Organic Chemistry** with a Boston-based teacher. Together they carry out a series of virtual experiments involving the mixing of liquids at various temperatures. Katharini notes carefully the results and, in a standard format, types up all that has been done. This afternoon, then by herself, but with access to all the world's libraries, and through chat bots using artificial intelligence, she has a series of questions to answer related to implications. This evening she will be taking forward her 'Poetry and the Sea' programme. As she looks around, there is vast ocean in every direction – but her far-off teachers are just milliseconds away.

Education Minister Garten Teng emphasises that "...there are no national or international tests or exams." No-one is trying to compare students or educational institutions (let us from now onwards abbreviate the term to 'EI', as each are integral elements within the one Global School) or countries – they're all part of the one universal school. We encourage parents to give their children time for their minds to imagine, the space to experiment and the opportunity to learn from failing to meet their own expectations, trying again, and trying until they succeed. Not against someone else's standards but their own. Education isn't a race nor should it be geared to the labour market. It certainly involves making an effort. You need to be able to think out difficult concepts and be able to argue your position. But it's not a limited time of anxiety and competition. It is, rather, a lifetime of exploration, of questioning, of discovery and, above all, of good fun".

Curling up with a good book is at the heart of the several Global School (GS) **Literature** courses, and Denzil is presently enjoying *Barchester Towers* in its traditional hard copy format (although interactive reader device options are available). What he does access online is a range of stimulating presentations on the author, characters, plot and background, along with self-testing quizzes, revision summaries and opportunities to join in discussions with readers and tutors worldwide. "Last week", reports Denzil, "we finished studying a Spanish novel in translation and the next on the list will be a modern one from West Africa. With all the support, it's not difficult for me to produce reviews and complete other assignments on time – my Educational Institution (EI) tutor is happy with my work only it doesn't really seem like work!"

A well-known television personality offers guidance in ‘Mathematical Concepts’ (outside the Global School) and Nam Soo Suh is one of many teachers who have enjoyed those programmes, along with other learners of all ages and stages. “These are really stimulating and creative approaches to **maths ideas**”, he recognises, “and students who choose to follow them enjoy and benefit from the fresh lines of attack. To be honest, I too, have found them extremely valuable. Though not a GS programme as such, the approaches are reflected in learners’ performance on our own courses and we can, if we wish, obtain badges and get credit towards a GS course”.

“We designed and built from scratch”, reports Zee Cheen, “a robot that can move on different terrains, including water, to retrieve and transport objects. “When we started, everything was in a mess but, although located in different countries, we learned to work as a team, putting in place, here in Singapore, each bolt, gear and wire, step-by-step in accordance with our design.” This was a project on the **Robots in Practice** programme but, rather surprisingly, Zee Cheen reports that his biggest lesson was not so much in helping create the robot but in explaining it, and how it had been put together by a group of students internationally, to visitors to the Science Centre’s Maker Faire: “I had to practice public speaking, which was not my forte – these are things that I cannot learn in a classroom”.

Roisin has worked in the insurance sector for over forty years, applying some mathematical and person-to-person skills to good effect, most recently as a senior manager. “I look to the GS to help me achieve a good work-life balance”, she observes, “and I deliberately choose courses as far removed from the insurance industry as possible. So this year I am studying **Comparative Religion** and my current assignment involves looking at English cathedrals and Indian temples – it is all of architecture, social studies and theology. Not only can I explore the buildings, but I can speak to people in them, as well as to my teachers and fellow-learners, some of whom are senior secondary students and others are adults like me.”

Dr Kurt Krister of the World Health Organisation recognises that ‘**Health Education**’ has long been seen as aimed at changing behaviour in such areas as personal hygiene, alcohol, tobacco, exercise and mental health. “However,” he makes clear, “we have accepted the GS philosophy so that secondary ‘Health’ lessons and courses are now geared explicitly to upgrading understanding. For example, the basic ‘Drugs’ programme covers just about everything from coffee, through cigarettes and cannabis, to cocaine and it presents the pharmacological and the cultural and, as objectively as possible, the positives and the dangers, including legal penalties. What it doesn’t do is preach and all of the teachers supporting the course are called upon to embody this non-judgemental approach. Effective drugs (or sex or mental well-being) education involves less ‘teaching’ and more frank and evidence-based discussion, also including learning analytics. On completing the programme, the student will be able to make well-informed judgements. In practice, this has highly positive practical consequences, but those are not the programme’s explicit objectives”.

Today’s **Art-Portraiture** lesson involves the depiction, with paper, charcoal and crayons, of the human form, hinting at both anatomy and personality. A young Scot with bagpipes is the model for fifteen students across the world and they may view him from different distances and directions and, even after Duncan has finished posing, they may recall his image online. Their teacher, herself an accomplished artist, looks over each student’s shoulder, albeit from a distance, observing, reacting and suggesting. Eventually, each finished portrait will be

scanned and dispatched for her appraisal and constructive comment (and also shared amongst the class). As well as building up a portfolio for each participant, a virtual exhibition is intended.

Penny has elected to do an '**International Friendship**' course which involves a dozen learners from several countries getting to know and to understand one another (with instantaneous translation, language is no barrier) and then building upon that friendly foundation in order to study links between nations and between different communities generally. "Today we're each preparing a typical dish from our country and – although we can only do this virtually – we will share the banquet together and tell each other about the recipes, the tastes and the traditions. Due to time differences, while it will be lunchtime for me, for others it will be breakfast or supper: that's part of the fun. Next week we'll each sing and dance and then discuss those traditions. The teachers keep in the background so far but will be much in demand when we get to the international relations analyses, although I already have some ideas on what I'll put into my report."

A decade ago, 'Gaffer' Goodwin taught classics to declining numbers at an ancient English public (in the sense of expensive, private, boarding) school, anticipating early and enforced retirement. "Somewhat to my surprise", he chuckles, "I've been given a new lease of life. I'd expected to be pensioned off as I'm completely computer-illiterate and rather proud of it. But that doesn't seem to matter and, with the help of my students. I can use all of the GS features without needing to understand the technology at all. So I set and correct exercises and act as a guide and that's as easy as turning on a light switch. Above all they enjoy it: all the learners of whatever age have chosen to learn this subject and I can help them there. For example, a group are dubbing a film into **Latin**: I know nothing about the technical process, nor do I need or want to, but I can make sure that they get the colloquial language spot on. It's exciting. The GS has brought a dead language back to life and a decomposing teacher back to significance. *In antiquis est ad canem*".

Blaise is pursuing a '**Human Biology**' programme with scope for simulated experiments and receiving support from international tutors. Despite being on the cusp of 'education' and 'training', and although having been developed with the input of university medical faculties worldwide, it is also undertaken by many learners as a thoughtful and challenging end in itself. Blaise admits that "I am keen to enter medical school and this is good preparation but I accept that this is general background rather than specific preparation". From the age of 16, she and other students worldwide will be able to commence the Pre-Med (or Pre-Engineering, Pre-Law, Pre-Accountancy, Pre-Veterinary et cetera) programme administered by the Professional, Technical and Vocational Training Board (PTVTB) and thus very much beyond and separate from the strictly educational GS. As Blaise recognises, "getting into a good med school will involve fierce competition but that can come later – for now I'm content to learn all I can about the human body".

Dr Hans Bedall is **Director of Educational Institutions** in Munich, Jeddah and Windhoek but points out that "in reality this is just the one combined EI within the overall GS. Every teacher, along with each specialist tutor, is available to every learner wherever located. All learners participate in classes originating in Germany, Saudi Arabia and Namibia, always in their preferred language, automatically translated as required. Physically, each campus offers classrooms, laboratories, studios, seminar rooms, individual cubicles and sports facilities. Students select their courses and the teachers support them. What we definitely do not have

is careers guidance – nor any links with industry and commerce. The GS isn't any kind of sorting out mechanism for companies, professions or universities. There are sufficient open learning opportunities at reputable universities and tertiary colleges to cater for everyone seeking admission to educational, as opposed to PTVT, programmes. GS students learn for themselves and not for anyone else.”

Canada-based Rachel and Ghana-based Kofi are producing a **musical** involving students from 17 countries (and songs in a dozen languages, with instantaneous sub-title translation) which will be available on-line for everyone interested to enjoy. EIs in Australia (Moriah College in Sydney) and Ireland (Saint Flannan's in Ennis) are involved in a formal debate (this will subsequently be available as an interactive demonstration debate with learners able to present speeches at any stage and receive constructive feedback). Teams of young chess players from Russia, Afghanistan, Iceland and India compete in a four-way tournament (here again, some of the top standard games will be available, with expert commentary, as models). “Important learning opportunities of these kinds”, observes Dr Bedall, “challenge the definition of ‘extra-curricular’. At present, they're not added to the Secondary/Lifelong Education Transcripts (SLETs) – maybe they should be”.

Sister Carmelita is responsible for a small set of teenagers with **special educational needs**: some have multiple disabilities including mobility limitations. “Although they are full members of The Global School, and although its policy is universal inclusivity, how well we can apply it is limited”, she admits. “I deliver especially-tailored activities to each learner, often in their own homes. As a teacher, I receive excellent back-up and advice. I try to attend to the social needs of each of my pupils, helping them communicate with one another and keep in touch with the outside world. Certainly the idea of education being enjoyable comes across. But we still haven't got it right for everyone – we have to keep trying out fresh approaches, learning together as we go, and listening more to the students”.

Mahmud, although only 14, is a full-time goatherd, sharing responsibility for the family flock with his brothers and other male relatives (enforcing child worker restrictions and compulsory education among nomadic communities remains problematical). In his every free minute he is involved in astronomy, now going through his third course in that area, having pursued some mathematics and physics programmes, along with a specially-created one on ‘**Religions and the Sky at Night**’, all in support of his main interest. “Family elders, seeing things in the old way”, explains Mahmud, “told me either to use all this knowledge to get some kind of well-paid job or else to study something useful about goats. But I already know all I need and want to know about goats and I'll be content to spend my life looking after them. I don't want to work in an office or at some kind of research place, I just love being outside and looking at the stars. And understanding them better. So I'll go on with my studies in that area, and maybe do some poetry as well. Nothing to do with work!”

Eddie Cheong, **adviser to a group of EIs** in South-East Asia, commends the GS teachers who, “...whether they're dealing with a class before them in a room or with three score learners across five continents, emphasise building good educational relationships. Instead of worrying about covering the curriculum, their starting-point is to get every student on board. They spearhead innovation, encouraging learners to examine evidence and consider different viewpoints before arriving at well-informed and reasoned conclusions. But first they connect with each of them. And they let them connect with one another across the oceans. They find out what each student is interested in. They link them with their identities, their cultures, their

particular individualities. Build the relationships. Earn their trust. Then true learning and full enjoyment and lots of imaginative initiatives and everything else can happen.”

Language-Link ties in pairs of learners into a well-structured process for learning one another’s language, commencing with basic conversation backed-up by grammar, conventions, everyday life and customs. At present there are over thirty thousand pairs of youngsters involved in these Links and hundreds more are signed up daily. Laila and Klaus are paired to share the former’s Bengali and the latter’s Icelandic. A teacher (who speaks neither language) checks occasionally and is on call as required but, essentially, the system carries them forward, bringing each to verbal fluency over, on average, ten to fifteen months. When new alphabets are to be mastered – with, for example, advanced Arabic or Chinese – reading and writing may take much longer than speaking and for those skills, the system takes the learners forward, with each helping the other and the teacher still checking and facilitating.

Dr Colleen Murphy, a **Global School Coordinator**, emphasises that “no outside authorities are allowed to determine the curriculum: choosing what to learn is a basic human right and the secondary level and lifelong learners are in charge. Mahmud’s tailor-made programme, bringing together the stars and early religions is a good case in point. He wanted something in this interesting area, we designed it with him, including all the information, simulations, observatory and planetarium access, exercises and linkage arrangements with fully-prepared teachers and other students. And now not just Mahmud but others from all over the place are taking part, and they can each be in touch with one another”.

Dr Murphy underlines that **grades and quantitative comparisons** are deliberately outlawed. “But this brings problems with it. For example, we’d like to explore educational equity: are learners in all parts of the world, including those in advantaged and disadvantaged areas within countries, getting the equivalent level of understanding and enjoyment out of their education? The same with youngsters with special educational needs – are they getting the necessary additional support and do they derive as much from The Global School as others do?” Colleen admits that student surveys can be misleading indications of how learners from impoverished communities or special groups are actually doing. “We sense that there is a massive move towards equity and comparable learning worldwide but, as we’ve quite properly stopped measuring educational outcomes, we’re not yet able to document it or take any necessary further action.”

Abdul Nur, a **GS Coordinator** in North Africa, has no problems with Business Contests and suchlike. “One international competition, run by a well-known bank, involves over 200,000 students each year – the most recent winner was a blind 15-year-old girl from Somalia. Presented and responded to through instantaneous translation into many languages, the event is characterised by creativity and fun. Attempts by private tutors, and tutorial companies, to profit from this event have eventually been overcome by a recognition that the most effective coaching is available online for free. Every effort is made also to prevent universities or corporations from pouncing upon the top performers and, in Economics as in the other subject areas where similar annual worldwide events are conducted, the tension between some higher educational institutions (and professional associations, major corporations) and the GS has yet to be fully overcome”.

Although they are entitled to do so from the age of thirteen, surprisingly few learners worldwide choose **PTVTB vocational options** (such as secretarial, information technology,

marketing, catering...) alongside their chosen GS programme. From sixteen, they may commence apprenticeships, internships, work experience and suchlike, also coordinated by the PTVTB. Irrespective of the move into training, and also into work, everyone is encouraged to continue with 'education' through the GS, and many programmes are specifically designed for mature and even senior learners. As Colleen insists, "Secondary age/stage and adult/lifelong learners tend to differ in some respects in terms of how they learn – there are person-to-person differences also, of course. So, more and more, each programme is geared to individual requirements and all teachers are trained in attending to the differing requirements of particular (groups of) learners".

The GS system deals effectively with **plagiarism**, conscious or unconscious. Automatic checks are in force so that any learner, before submitting any exercise, learns if groups of words have already been used. "Handling and minimising **cyberbullying** and online abuse is more challenging", admits Colleen, "as is the issue of grooming and **untoward relationships**, especially as both adolescent and adult learners are involved. We have checks, without engaging in over-surveillance, and these are supported by face recognition and voice recognition mechanisms. Above all, we address these dangers frankly and openly at the pre-secondary phase and good counselling is available worldwide. For secondary and lifelong learners courses such as '*Bullying, Tolerance and Mental Health*' are available although, of course, we remain true to the Global School ethos of avoiding indoctrination, even in the best of causes."

Bettina's class, including students of all ages from around the world, has been observing an ant colony in the Kalahari as part of a course addressing '**Cooperation and Commotion**'. "The ants take a few days to overcome the chaos when their colony gets disrupted", she reports, but then they set about rebuilding it together. We saw some bullying and aggression but they were dealt with as a collective – maybe there are lessons there for us". [Sarat, in India, is currently developing a computer model of the colony wherein disruptions and responses may be simulated and analysed.]

International **Teacher Federation** General-Secretary Elsie Chan states that, although teachers generally have better conditions than previously, and certainly higher public esteem and more interesting work, there is still a long way to travel. "A typical workload involves teaching one's specialities to learners across the secondary age range and sometimes way beyond. It may extend to developing curricula in response to learners' requirements and to identifying fresh ways of delivering that content. In a rich country a teacher might be getting ten times as much as one doing exactly the same job, but based in – and being paid by the government of – a poor country. The ITF has a direct involvement in negotiating fair remuneration and conducive conditions, reflecting teacher qualifications, good service and workload extent and range."

Idris has made a hard copy of his SLET which lists the two dozen courses that he has taken since completing Primary, covering a wide variety of interests. These **Transcripts** contain no grades, let alone marks, and explicitly cannot be used for quantitative comparisons. "I think that my mother would have liked to have been one of those 'tiger mothers' always on at me to do more homework and to come top of my class. Not only are my parents bewildered at not knowing how I'm doing compared with everyone else, they don't understand why I work long hours when it's not competitive. I tell them the truth, that it's because I'm fascinated by what I'm studying and this still seems strange to them."

Morgan has put together a forecasting algorithm involving the automatic uploading of temperature, rainfall and pressure data from a number of sites as an element in his **Meteorology** course. As he explains, “There are obviously no ‘Computer Sciences’ courses as such, as every GS course is digitally-based. From pre-primary and primary, we’ve all learned to programme and most of us frequently apply these skills as the situation demands”. There are, obviously, many work-related PTVT modules that deal with particular digital skills, just as practically all jobs are to some extent digitally-based. “Out of interest, I have done a ‘*Civility and Social Media*’ course through GS”, reports Morgan, “but in terms of using computing, that is part of most CS programmes and, if I need specific ways of doing things when I seek employment, I shall enrol in PTVT courses then.”

“At the outset”, explains Choo Lee of the **World School Students Association (WSSA)** “many critics prophesied that governments and aid agencies would be unwilling to invest in education that explicitly had no links with the world of work – education that wasn’t preparation. The pressure, not only by young students and their families, but also by the vast number of mature lifelong learners, turned out to be increasingly effective and this campaign was backed up by UN conventions. In addition, although this was never the objective, employers recognised that GS products, who had chosen what to study and had done so both effectively and largely of their own volition, were much better prepared for 21st century work than those who had undergone explicit work-related employment-readiness activities.”

“I am Idris’ mother” declares Mrs Biswas, “and, like he says, I’d expected at this stage of his life to be a tiger mum. But the GS is so different from what I experienced where, from day one in grade one it was push push push all the time. In the traditional school system, 1:1 attention was not there and most teachers weren’t mentors and there was a lack of strong values and self-discipline. There was no real attempt to foster each child’s ability to identify who they are and what they can be good at. Most children were not motivated, many became burnt out or just not interested. Which is why the **parents had to keep pushing**. The GS isn’t like that. **It develops within them a readiness to learn and explore**. Its focus goes beyond standardized testing and in a different route from landing a good job. I can see that it’s better, but it does need some getting used to, more by the families than by the children.”

Dr Bedall recognises that there are still some **reluctant**, even recalcitrant, **secondary learners** “although far fewer than in former more traditional times. Education is free, readily available throughout life and worldwide. In some countries it is compulsory to age sixteen, in others to eighteen, and under other administrations a formal age is no longer seen as relevant. There is enormous scope for subjects and courses. We see it as underwriting enthusiasms. So we can say to a 12-year-old: ‘what do you want to learn?’ and so far I’ve not come across anyone who says ‘nothing’!”

As learners chat with one another across time zones, the border between ‘learning’, ‘teaching’ and ‘socialising’ becomes increasingly indeterminate. An international institution becomes each individual’s nourishing mother. Every teacher is a learner, no learners are in competition, no lesson propagandises, every course is optional, and every world inhabitant, anywhere, knows that a school is personally available, customised, reachable, inclusive and boundless. Education has entered the golden and Digital Age.

1. OUR WORLD, OUR EDUCATION, THEIR TRAINING

Planet earth has come far, carrying many but not all of its inhabitants with it. Much has improved significantly – we tend to live longer and fall ill less frequently, to travel further, cheaper, faster and mostly more comfortably, to access wider varieties of entertainment, to engage in – and yet more commonly to just watch – a wide range of sports, to dine on foods imported from far beyond our villages – indeed, increasingly few of us still have villages. International cooperation since World War II has helped deliver more material progress than at any other time in history; over the last two decades, the proportion of people living in extreme poverty has halved, constituting an unrecognised miracle of human progress. The entirety of the world’s knowledge (if not its wisdom) is available through black rectangular slabs concealed about our persons. No-one can doubt that we are fairly well into an entirely new millennium and, undoubtedly it is a time of fantastic change and, for many, of immense opportunity.

And yet, despite all of that, our fragile world remains characterised by scarcity contrasting with sporadic profusion; rampant inequalities and inequities [43 individuals possess as much of the world’s wealth as does 50 per cent of humanity (or is it 50 people and 43%?)]; unemployment and dehumanising employment; protectionism, tariff wars and dumping; censorship and defamation; commodity fetishism; exploitation and discrimination; dictatorships and captured democracies; tax avoidance, money laundering and pecuniary scams; data monopolies, fake news and misinformation misapplied; natural and human-made disasters; forced migrations, anti-immigrant discrimination and migrant worker exploitation; addictions and acute anxieties; pan- and epi-demics; xenophobic, racist and violent extremism; mindless fundamentalism and a loss of faith (which of itself is not necessarily bad); strong faith movements and increase of some world religions; terrorism and related humanitarian crises; genocide and the massacre of civilians; the perpetual possibility of deliberate or accidental nuclear, chemical or biological destruction; natural resource depletion, oceanic deterioration and environmental degradation.

Today’s global economy seems unable to supply what the nation states were delivering half a century ago. Each of work, social exclusion and inclusion, and both wealth accumulation and poverty reduction, are being profoundly altered through the Digitisation of our society. Dishonest, deviant and predatory behaviour are intensified by the internet and magnified through the anti-social intrusions of social media. Every industry is being disrupted and/or enhanced and/or changed beyond all recognition. This year’s skills priorities might be in areas such as device and network security, cloud-based solutions, the Internet of Things and network administration; next year’s may well be completely different, including some fields as yet unearthed. Indeed the ‘cloud’ is a misleadingly benign metaphor: rather than some ethereal nymph, it is a massive reality, with profound energy and environmental consequences. Apparently, by 2020 the power requirements for digital services will outstrip the world’s entire generating capacity: data centres will soon have a larger carbon footprint than the entire aviation industry.

As we peer into the techno-abyss we are confronted by opaque political communication and asymmetrical social media platforms. We seem to be entering a new dark age characterised by ever more bizarre and unforeseen events. This is the era of intangible universalism which,

unless utterly understood and vigorously responded to, will entrench and exacerbate inequality – both within and between nations. Adaptation and vigilance in these volatile times are essential; an international rather than a national or even a regional response is obligatory. For we are in danger of encountering a **post-human economy**, one that proceeds even further than the exploitation of labour, colonising the human mind itself. Solitary genius is replaced by the wisdom of the crowd wherein the networked mob enforces conformism with algorithms aimed at making it impossible to think for ourselves. At its best, this evolving consciousness is responded to by a vague commitment to a universal vision focused upon applying fresh approaches and on leaving nobody behind. At worst, digital disruption is resisted rather than embraced, leaving us unable to escape from the confines of failed philosophes and the mindless repetition of outdated practices.

Incomparable Challenges

The tyranny of poverty and related astronomical inequities, deficiencies and volatilities are all embodied within education. Worldwide shortcomings in relation to, for example, levels of participation, good quality teaching, limited early childhood development and pre-primary education, a lack of affordable and quality technical, vocational and tertiary provision, including affordable places in reputable university, limited numbers with relevant skills for employment, decent jobs and entrepreneurship, gender disparities, unequal access for persons with disabilities, indigenous peoples and children in vulnerable situations, limited literacy and numeracy, limited safe, non-violent, inclusive and effective learning environments, insufficient qualified teachers, and ineffective education in relation to environmental sustainability prevail. That which is good illuminates that which is flawed.

Although access to education has greatly increased for both boys and girls, 264 million children are out of school globally, another 162 million go no further than (poor quality) primary education, and 617 million do not achieve even minimum proficiency in reading and writing. Over 3.5 million refugee children, forced from their home countries by war, are not in school. Without education, the already perilous future for all of these children is threatened still further. Such limitations are reflected also in the areas of so-called Technical and Vocational Education and Training (TVET) and in higher educational opportunities, lifelong learning, the preparation and retention in the system of good teachers, and the increased finances needed from domestic and external sources for supporting the expanded educational agenda. Industry, commerce and academia, worldwide, urgently require relevantly skilled or readily trainable workers, but look in vain to traditional education systems to deliver them.

The exhaustion of the traditional paradigms, coupled with the need to react against these regressive trends of the new capitalism, have stimulated the definition of principles based upon various concepts of social justice. The increase in inequalities and the phenomena of violence towards particular population sectors shows that intense educational efforts, in better systems than those presently prevailing, will be needed to generate the levels of commitment to universal fairness that cross-cultural social development requires. A major challenge of these times involves introducing greater doses of innovation and experimentation, coordinated with precautionary criteria, in teaching and learning strategies. The response, if it is to succeed, and to be recognised as successful, will require a fundamental revision of the underlying educational philosophies and a transformation in educational structures – more on that later.

The majority of children entering primary school today will have jobs which do not as yet exist [assuming that they do have jobs; assuming that the notion of ‘jobs’ persists]. Office, administration and production functions will change dramatically. The key drivers to the transformation of jobs are not to be found only in the use of certain applications such as 3D printing or the use of drones. The application of Artificial Intelligence and new forms of data collection and analysis techniques will have a huge impact on future work (it has been optimistically estimated that, in the UK, 7 million jobs will disappear, including many in manufacturing and retail, but that 7.2 million will be created, predominantly in health-care, science, professional services and education).

AI and its companion technologies offer great growth opportunities but, as well as creating high-paying jobs and positive spill-over effects for the more fortunate, the threat of producing billions of low-skilled, low-waged, low-regarded workers worldwide must be recognised and ameliorated. Drones are likely to replace occupational positions from stock controllers to helicopter pilots as they allow speedier visual access of everything from giant warehouses to colossal power lines. Similarly, flying cars will turn drivers into pilots (and passengers into nervous wrecks). But hundreds of thousands will soon be working in the drone economy, inspecting infrastructure and drop spraying, for example, and contributing significantly across construction, defence, energy, logistics and other sectors. Similarly, AI can help solve some of our world’s most vexing problems – day-to-day communication, climate, health care, transportation, loneliness – but its real magic will be technology that adapts to people. These advances offer not only major boosts to economies but will prove profoundly transformational for humans and humanity.

Those seeking jobs in the future should, presumably, possess the kinds of skills and capabilities that are lacking in machines. Most real jobs are about responding to the deep needs of others – and robots aren’t yet that good at that. But most of the subjects officially emphasised in education – mathematics, technology, sciences and languages – are precisely those where robots will increasingly bring about redundancies. Contemporary computers are far less competent in the creative arts – an area that is presently underemphasised in schools.

Digital technologies are spreading rapidly in developing as well as developed countries but, while these have boosted growth, expanded opportunities and improved service delivery, their impact is unevenly distributed within and across nations. For such technologies to benefit everyone everywhere requires closing the remaining digital divide, especially in internet access. However, lack of connectivity makes digital technologies unaffordable for the majority of many populations due to the high costs of data and voice bundles. There also are persistent digital divides across gender, geography, age, and income dimensions within each country. Digital technologies also influence the participation of women in the labour force, the ease of communication for people with disabilities, and the way people spend their leisure.

Education cannot overcome all of society’s problems nor may it cure the multiplicity of maladies wounding our imperfect world. But what it can and must do is to provide the best possible setting wherein those who teach and those who learn may encounter and alleviate their own inadequacies, recognising as they do so the common challenges besetting all of humanity and, through that universal connectivity, realising that, as humans, our differences are exceeded by our similarities.

Inconceivable Solution

For this is the Digital Age, classified by some as the Fourth Industrial Revolution. The world, countries within it, institutions within and across those countries, and thus people's lives are being – and will, exponentially and largely unpredictably, continue to be – dramatically transformed by ever-more-rapidly progressing technology, in effect by Digitisation. More than half of the world's population uses the internet in some form; around a quarter of adults in the United States now go online almost constantly, including about four in ten of those aged between 18 and 29. People living in far corners of the globe now have access to research, information, music, images, gossip, online communities and much more at the tap of an icon or upon the swipe of a screen.



Regarding money, how we handle it, when we have it, and our ways of purchasing products such as insurance, transport and legal services are changing dramatically due to exponential technological developments. It has been apparent for several decades that information technology has produced a single global financial market, with associated uncertainties, precipitative shocks, and the stunning inapplicability of time-honoured

theories and remedies. That financial sector has responded comprehensively, if not entirely successfully. Similarly, those fruitfully involved in entertainment, telecommunications and architecture have recognised practically that Digitisation enables and requires overall transitions and those working lucratively within those sectors have had to take action accordingly. But not those involved in education – in many senses easily the world's largest sector, in every sense, its most vital. A secluded few educators inhabit the digital world, some play with ICT, the majority stumble along as if it were still the 20th century, and quite a number proceed pedagogically as if Queen Victoria were reigning still.

The participative connectedness of all learners is something more than enabling development: it is development. But it has yet, with universally-enhancing, equity-accomplishing and profoundly humane consequences, explicitly to occur. Recognition of the magnitude of on-going and future economic and labour market changes, within the broader context of personal and socio-cultural actuality generally, necessitates and enables **across-the-board transformation in the objectives, content and approaches of education**. Education cannot explicitly prepare people for situations in which they will need frequently to upgrade their skills, especially when the nature of those skills are unknowable. Rather, the love of learning and the ability to learn, to handle information expertly ('computer comfortability' – call it what you will) and to master digital tools may well be amongst the competencies required.

The Future of Work

Five forces have been identified as especially likely to impact on the pattern of forthcoming occupations: technology; globalisation; demography and longevity; society; and natural resources. Using these forces as critical points of reference, **four thematic areas** emerge as

likely to evolve into a portfolio of demand clusters of skills that will become ever more valuable, rare and difficult to imitate. These comprise:

- **Science and Health**, including ‘health hubs’ across the world, involving offshore medical tourism, and clusters around the life sciences, which will become ever more important as universities, health and pharmaceutical companies, joint ventures and service companies in concert multiply. Biomedical engineering, with a growth rate of 72% annually, is currently the faster growing skill area in Western developed economies.
- **Energy Conservation** will be of increasing significance as new industries continue to be built around the capture of energy: we are all part of a worldwide (including community-level) energy revolution. There should be more opportunities available in the renewable energy sector than in the traditional segment, as renewables create more jobs per unit of power, per unit of installed capacity and per amount invested than does conventional power generation.
- **Creativity and Innovation** will flourish, and increasingly permeate everyday life. As experiences become as important as consumption, those that invent, design and execute them will have valuable skills. A German futurist lists over a hundred creative vocations including animators, architects, authors, ceramicists, creative managers, DJs, documentary filmmakers, event-agents, fashion consultants, fitness trainers, graphic designers, interior designers, media trainers, musicians, muses, painters, photographers, philosophers, preachers, publisher’s readers, rappers, researchers, star cooks, storytellers, stylists, theatre directors, trainers, website developers. Many others, as yet unnamed and unknown, will create creative work also.
- **Coaching and Caring**. In a world that will become increasingly virtual, creating supportive relationships to help navigate through life, keep overworked employees feeling great, and address the challenges of growing time fragmentation will be key. We can expect a plethora of micro-entrepreneurs developing virtual personal coaches capable of building and managing personal and professional avatars, ensuring personal ‘brands’ are working, and monitoring and providing advice on the development of a high value network. Expect also to see virtual and physical service jobs addressing the challenge of time fragmentation; virtual-clutter organisers who will help to organise complex electronic lives, handling e-mail, storing data and managing identities; and ‘narrowcasters’ – specialists working with content providers and advertisers to create personalised content.

Lifelong Learning

20th century technology fragmented both society and the economy, replacing the mass production factory systems of the second industrial revolution with ‘flexibilisation’, leading to the dominance – in ‘Western’ countries – of the service sector and finance. Within that setting, the ‘symbolic analysts’ have achieved the ‘good’ jobs in the oligopolistic financial and hi-tech sectors, while the huge majority are left in low-paid insecure jobs in what might be called the ‘gig economy’.

Some suggest that schooling is mainly about getting a 'good job'. As most school-leavers worldwide will fail to get 'good jobs', then who should be regarded as the failures: the school-leavers themselves, their underpaid and powerless teachers, or those who propagated those falsehoods in the first place?

The first array of machines wiped out well-paid jobs in manufacturing; the second array is about to wipe out well-paid jobs in the service sector. Humans are (for the foreseeable future)

more innovative and entrepreneurial than machines, which means that there will be rich pickings for the creative few. Globalisation acts as a multiplier of trends, driven by the technological revolution and the growth, in many advanced countries, of the debt economy across borders. It is in this situation, itself being profoundly affected by Digitisation, where the products of digitally-supported training must survive and, if possible, thrive.

Given the pace of change and recognising that the types of skills in demand alter rapidly, shortening the shelf-life of those skills, work-related lifelong learning will become the norm. Training activities will have to prepare people for situations in which workers will need frequently to upgrade their skills and the overall response will thus have to focus on capabilities such as information and digital literacy *cum* fluency, along with ‘learning how to learn’, enabling continual upgrading and not merely on providing the capacity to have short- or medium-term success in a specific and transitory occupation. Skills development in capabilities will need to occur simultaneously with skills acquisition, as proficiencies will be required that are easily transferable across jobs and occupations and that help respond to changing labour market demands. Capabilities involve emotional and social intelligence and the ability to analyse situations and problem solve. That is a holistic, integrating, creative, multidimensional and fluid phenomenon, essentially concerned with what is going on inside a person’s head.

Flexibility and adaptiveness will be critical capabilities for those who are lucky enough to have careers as opposed to a series of short-term jobs punctuated by undramatic pauses of differing durations. Non-routine, higher-order cognitive skills and non-routine interpersonal, socioemotional skills are required, while the ability to work independently will be necessary as distributed workplace innovations are implemented. The question used to be: “What will you do when you grow up?” The question now is: “What will you do when the robots grow up?” And, in the robot era, tertiary institutions will still need to hone the skills that ‘keep us human’ and are harder to automate, such as critical thinking, curiosity and judgement. Broad liberal arts experiences in the first few years of college will be increasingly valuable: the distinction between ‘education’ and ‘training’ being kept very vividly in the forefront of the mind as these weighty issues are discussed.

Third Millennium Education faces but one issue: Digitisation. Every other topic of discussion – teachers’ remuneration and status, Sustainable Development Goals, equity, refugees, inclusion, international support, private schooling, pedagogy, curriculum, statistics, testing, standards, et cetera et cetera – are sub-sets of that one underlying challenge to be addressed from that ‘education in the context of Digitisation’ perspective.

The recognition that Digitisation will profoundly change not only the world of work but also socio-cultural actuality generally, necessitates transformations in the objectives and nature of education and of training. Collaboration, group work and online resources will transform the way learners learn and learning facts from memory or solving problems while sitting alone in an educational institution will be recognised increasingly as abysmal ways of learning. But who shall determine these appropriate curricula and what should be the emphases of those evolving pedagogies?

As there may well be far fewer paid occupational opportunities than citizens as the Digital Age unfolds, learning objectives may need to embrace not only the socio-cultural and civil society aspects of people’s lives but also address **prospering without employment** as it will occur worldwide, and also in the developing world: in other words, learning for life.

Digitisation thus needs also to support volunteering, human play and positive socialisation. Enabling lifelong and life-wide learning, in its widest manifestations, may be facilitated within the educational planning and management perspective, which is addressed below.

Of course, as ever, education should be focussed, in a friendly way, upon the child (or more generally but less evocatively, the learner – non-vocational skills development starts at birth and is lifetime long). Digitisation empowers that focus to be significantly more effective, just as it involves the world of that child becoming more complex, challenging and, hopefully, enjoyable and fulfilling. Some schools are already shifting away from the conception of ‘the lesson’ as a rigid, subject-specific unit of time that takes place within the four walls of a classroom and, instead, embracing the idea that it can be many things: long or short; based within or beyond school premises; face to face, online or blended. Where, one wonders, is all of this leading? [This question is answered below.]

Education for this Digital World

Many dramatic descriptions have been drawn and multifarious fantastic forecasts fashioned. The virtually worldwide recognition that everything is transformed has yet to be matched by any fundamental reshaping of educational structure, curricula, content, culture or philosophy. We are now undoubtedly in VUCA circumstances (characterised by Volatility, Uncertainty, Complexity and Ambiguity), exemplified by (almost) universal Digitisation. One’s Ford Focus has more microprocessors than had one’s early 1960s university (and other scholars than that present author, with larger vehicles – albeit briefer careers thus far – have made similar observations). The young inhabit – indeed own – a digital world embracing social interaction, entertainment, gaming, music, images, information gathering and friendships and, as Yeats put it, ‘This is no country for old men’, at least in terms of antediluvian self-perceptions.

The World Economic Forum’s founder tells us that “...we stand on the brink of a technological revolution that will fundamentally alter the way we live, work, and relate to one another... in its scale, scope, and complexity, the transformation will be unlike anything humankind has experienced before”. Previous industrial revolutions have led to increased inequalities and amplified imbalance: the First using water and steam power, the Second using electric power, the Third using electronics and information technology [and none using workers as partners – authors’ observation]. A pessimistic scenario is one of workers finding themselves engaged in an inexorable race to the bottom in a world of unregulated virtual sweatshops. While the fourth industrial revolution might well lead to that kind of dehumanising dystopia, others envisage how we could use it to lift humanity into a new collective and moral consciousness based on a shared sense of destiny. That would be nice.

As the then Director of UNESCO’s International Institute for Educational Planning put it some years ago: “there has not been one ICT revolution but five – so far – namely (i) The Computer; (ii) The PC; (iii) The Microprocessor; (iv) The Internet; and (v) Wireless Links.” The realisation that this development is much more than mere devices implies that Digitisation should be regarded not as a sixth ICT revolution but as a time-shift into a fresh revolutionary dimension, characterised by a surge beyond ICT: less technological, much more a matter of consciousness. While such a transformation has many roots in current realities, it also possesses the power to create capabilities for flexibility in learning for a largely unknown future.

We praise 'hardworking families' and rejoice in full employment, even though most of the employment is mind-destroying and that which the work delivers is meaningless. Advanced economies have become vast engines for producing rubbish on the basis that populations kept busy with make-work are less likely to revolt. Reflecting this, schooling focusses increasingly on pointless learning (that ostensibly 'trains the mind') with exams that involve the regurgitation of facts (replacing flogging as the vital training in dealing with stress).

We as a world have learned a great deal from the economic and technological phases of globalisation thus far and, provided we reflect upon those lessons, possess the basic concepts for the more challenging phase of envisaging, constructing and maintaining a universal educational structure, necessitated and enabled by our integrated world system. This – The Global School – will indubitably come to pass: precisely how and when it does so, and exactly what form it should best take, remain to be determined – and constitute the pivotal theme of this book.

Sustainable and Unattainable – Unless

With the Sustainable Development Goals (SDG), as with their Millennium Development Goals (MDG) predecessors, significant progress will be achieved but it seems likely that the ambitious sectoral objective (in this case “inclusive and equitable quality education and... lifelong learning opportunities for all”) will not eventuate [indeed, what good are opportunities if no-one takes them?], just as our world will not be utterly and sustainably freed from the tyranny of poverty a couple of decades or so from now.

The 2030 Agenda gives passing recognition to “...the spread of information and communications technology and global interconnectedness (having) great potential to accelerate human progress, to bridge the digital divide and to develop knowledge societies...”. It goes on to advocate the enhancement of “... international cooperation on and access to science, technology and innovation and (enhancing) knowledge sharing... through the use of enabling technology, in particular information and communications technology”.

While these are undeniably commendable objectives, they fail to capture the profound challenges presented by Digitisation along with the potential offered by ‘education in the context of Digitisation’ to meet those challenges. The Agenda’s architects see ICT as an enabler rather than recognising Digitisation as the answer. The application of ICT to improve current educational practices, although sometimes creative (and often inordinately expensive), is – as discussed in more detail below – an inadequate response. While ICT has undoubtedly contributed in some interesting ways to current educational delivery and administration, especially in developed countries and typically on relatively small-scale bases, Digitisation now makes feasible and inevitable an entirely different dimension of communal and participative learning, supported by appropriate educational planning, management and international bonding.

The SDG’s and the 2030 Agenda’s aspirations may be achieved if and only if the massive potential of this ‘Education in the context of Digitisation’ is understood and harnessed. How best to accomplish it is not only the major educational agenda item before all of us, it is both the question and the answer underlying all other educational agenda items. The world’s learners – whose magnitude will increasingly approach that of the world’s inhabitants – deserve and may soon achieve full membership and shared ownership of that stimulating,

supportive, bespoke and dynamic institution that we have recognised as The Global School. Its prospectus remains to be delineated but its indispensability and, indeed, inevitability are indisputable.

Hard-Working Definitions

But first, let us clarify our basic terminology. Clarity and consistency are crucial for effective communication between learners, teachers, managers, policy-makers, aid agencies, beneficiaries, other stakeholders, experts and members of the general public. In this publication we distinguish (a) between Information and Communications Technology and Digitisation, and (b) between Education and Training. Indeed, these distinctions are fundamental to this book's distinctive contribution.

ICT is an umbrella term that includes any communication device or application, encompassing: radio, television, cellular/mobile phones, computer and network hardware and software, satellite systems and suchlike, as well as the various services and applications associated with them, such as videoconferencing. Much wider than *ICT*, *Digitisation* is the application of numerical transformation to just about every aspect of our society, our world at large and our individual lives. Educational Technology (*EdTech*) is, quite simply, the application of technology in order to improve education.

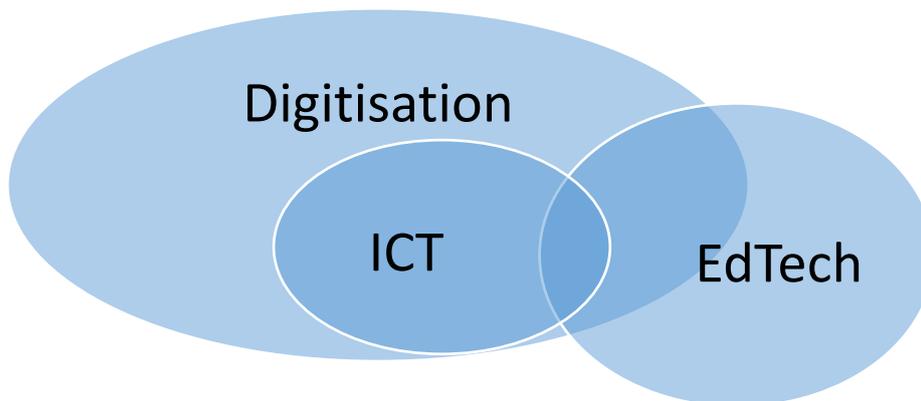


Figure 1: The relationship between Digitisation, ICT and EdTech

As illustrated, Information and Communications Technology represents an element entirely within Digitisation, with Educational Technology overlapping with each of them and extending beyond. *Education*, for present purposes and generally, is the gaining of knowledge, the development of wisdom and the acquisition of the love of learning [other definitions have been hazarded over the millennia]. *Training* is the explicit preparation for the world of work, whether for specific occupations or for employment in general.

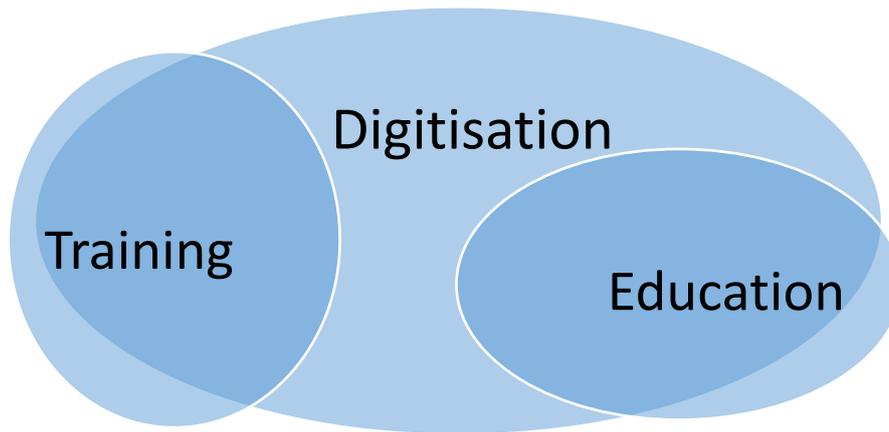


Figure 2: The (non-existent) relationship between Education and Training

As illustrated above, Education and Training are entirely separate from one another, with Digitisation the virtual location of the bulk of each. [While the areas of portions of these (Venn) diagrams do not signify emphases, if the impression is given that only a small part of each of Training and of Education is unaffected by Digitisation, such an unintentional indication is far from incorrect.] The paramount theme of this book is that, while training is an investment, education is the exercise of a basic and universal human right. While the former allows, nay demands, the thoughtful analysis of its costs (of all kinds) and its benefits (of all kinds), the latter should be free from market forces, free from the influences of privilege and wealth and, let us freely declare, directed unequivocally at enhancing the enjoyment of those involved.

Towards The Global School

Universal connectedness not only makes The Global School necessary, feasible and inevitable. It offers also an opportunity (of the kind that only comes once every six centuries or so) to explore entirely afresh what education is for and, hence, what it should be about and like. The Digital Age demands and facilitates an entirely fresh philosophy of education – if this is not recognised, identified and applied, then Digitisation will simply make a deficient system more powerful. Moreover, citizens/ consumers/ workers/ people the world over will participate in, influence and enjoy the multifarious and largely unforeseeable experiences that will undoubtedly occur. It is relatively easy to recognise that Digitisation changes everything – but more difficult to understand just what, in practice, that means for the curriculum and for its optimum delivery.

Some of the many possibilities, as developed at a recent conference of educators, are presented below. Each suggested implication – along with many others that may readily (with a huge margin for error) be predicted – merits attention; the concluding **BOLD** one of ‘unimagined opportunities’ sums the entire list up.

LIVE LANGUAGE LEARNING... SHARED STARWATCHING PROJECTS... GLOBAL CONFUSION... DATA-DRIVEN EDUCATIONAL ECONOMICS RESEARCH... INTER-CONTINENTAL DEBATES... WORLDWIDE MATHS COACHING... COMPLEX DIGITAL DANGERS... PLAGIARISM AND CORRUPTION... ONE GLOBAL STUDENTS REPRESENTATIVE COUNCIL... PERSONAL TUITION BY TIP-TOP EXPERTS... MULTILINGUAL DRAMA... SHARED PHYSICS EXPERIMENTS... GLOBAL WARMING EVIDENCE... ASTRONOMICAL COOPERATION... ABYSMAL CHAOS... GEOGRAPHICAL FIELD TRIPS WORLDWIDE... CHESS BETWEEN NATIONS... VIRTUAL GALLERY AND MUSEUM VISITS... MANY MORE MOOCS... FULLY-PORTABLE LEARNER RECORDS... COORDINATED RESISTANCE TO EDUCATIONAL INEQUALITIES... LOW-COST ONLINE TUTORING... NEWTON'S LAWS THROUGH VR HEADSETS... OUTLAWING OF LAWBREAKING TEACHERS... OPTIMAL SCHOOL TIMETABLING... BESPOKE ROUTES FOR EXCEPTIONAL STUDENTS... INTER-CONTINENTAL CHOIRS... FREE ONLINE TRIALLING OF CLASSROOM TECHNOLOGY... IMMEDIATE TRANSLATION FACILITATION... MONOPOLISTIC ONLINE DOMINATION... CODING FOR PRE-PRIMARY CHILDREN... INTERNATIONALLY-COACHED SPORTING TEAMS... SAVINGS COMMUNICATION OVERLOAD... EXPERT ATTENTION TO SPECIAL EDUCATIONAL NEEDS... FREEDOM OF EDUCATIONAL EXPRESSION ACROSS FRONTIERS... WORLDWIDE CAREERS GUIDANCE... INTERNATIONAL CYBER BULLYING... CONCERTED ACTION TO OVERCOME EDUCATIONAL IMBALANCES... INEXPENSIVE TEACHER EXCHANGES... ENHANCED ENVY AND JEALOUSY... SHARED PARENTAL CONTACTS... REALISTIC HISTORICAL SIMULATIONS... MENTAL HEALTH COUNSELLING... SPLENDID CHAOS... PRIVATE ONLINE ASSESSMENT SYSTEMS... MUCH MERRIMENT... UNIMAGINED OPPORTUNITIES...

Figure 3: Some responses to the question: ‘What would the educational implications be if all learners and all teachers, everywhere, were able to communicate with one another, easily, instantly and inexpensively?’ as posed at the 2017 UKFIET Conference in Oxford

Some things will happen anyway. Some elements of The Global School are already with us and the entirety will materialise more vividly over the next few years. Mobile communication technology will improve and expand worldwide irrespective of policy architects and planning pundits: to a large extent, the development and distribution of the devices will keep pace of their own (i.e. the market's) accord. But ensuring that it occurs soon and with optimum benefits involves a good grasp of the fundamental nature of the necessary transformation and a creative comprehension of The Global School's distinctiveness and potential. Essentially, although made possible and inevitable by contemporary technology, the bases of the entirely fresh educational approaches are social and ethical. Above all – as emphasised in the following chapter – we are not talking about ‘ICT in education’.

2. EDUCATION AND ICT: AN ACUTE CASE OF LAPSED EUPHORIA

Set against the over-enthusiastic promises and the world-shaking expectations, the practical consequences of three decades or more of Information and Communications Technological applications to education have been immensely disappointing. There is no doubt that contemporary let alone forthcoming technology has the potential to enhance education beneficially. Equally definitely, the anticipated improvements in learning associated with the various devices, software and systems have seldom materialised. Indeed, piecemeal technological ‘add-ons’, once seen as innovative and ingenious, have become dysfunctional distractions.

Scouring the literature, visiting educational institutions, listening to teachers and students in three score countries, and interviewing managers and planners, our overall finding is that, while ICT applications have sometimes produced interesting, and even measurably positive results in specific small-scale settings, but not in scaled-up setting, the optimistic benefits have very seldom been fully achieved and, allowing for opportunity costs, the overall consequences have often been negative. At most, as many studies have shown, there is no significant difference between using ICT, and not using it. ICT, as presently utilised in schools worldwide is often rather more problem than solution.

Disappointments across the Disciplines

On the face of it, the possibilities are wondrous across all school subject areas. However, the practical experience is patchy at best. At present, the types of ICT resources available internationally mean that use in schools tends to be focused on specific aspects of the curriculum, notably mother tongue and literacy, through the use of word processing, presentation software and interactive video, and mathematics and the sciences, through the use of mock-ups, displaying and other specific ICT resources. There are some well documented positive effects in specific cases (simulation and modelling is useful if intelligently incorporated into improving science standards, the use of word processing and communication software is sometimes fairly effective in developing language skills) but there is concern that large areas of the curriculum (and, indeed, of the world) are not benefiting.

Inevitably generalising, there are convincing indications, based upon reports and surveys from across the world, to the effect that:

- The integration of ICT in the area of the **humanities** has not been easy for many teachers, with inappropriate use of software identified as the most frequent weakness, along with a default position of ‘display and explain’ and teacher-centred learning;
- In **mathematics and the sciences**, where greater familiarity with contemporary technology might have been expected, most teachers still see ICT as exclusively the affairs of those in computer science departments and lack the basic computer literacy and numeracy to make best use of that which is available;
- With both mother tongue and foreign **language** learning, that vast potential for ICT support remains virtually untapped with very few teachers using the wealth of online study aids and intranet resources increasingly available;

- Some technological support for **learners with special educational needs**, such as mobile, affordable tablet and eye gaze solutions for the partially-sighted and similar devices for those with hearing or mobility difficulties, is proving beneficial in some instances;
- For **Sport, Fitness and Health**, ICT is being effectively applied for a variety of educational activities, reflecting the widespread – and commercially viable – applications of ICT in sport generally; but
- Other than on relation to sport, there is little utilisation of ICT in **extra-curricular activities** (debating, school newspapers, various clubs and societies), largely due to the virtual non-existence of such pursuits in all but a small minority of such schools worldwide, a deficit that seems associated with poor teacher morale, logistical difficulties and lack of funding and, hence, resources.

When a new examinable subject emerges (such as ‘Migration, Empire, People’: a recently-added UK General Certificate of Secondary Education cross-curricular course), a flurry of commercially-driven ICT applications are almost immediately available and, as teachers interested in innovative curricula tend, presumably, to be more receptive than others to fresh technologies, the take-up is significant. However, in general, and with a few exceptions, education has made little effective use of the wide and increasing range of, largely commercially-driven, ICT opportunities. [Which is not to deny that manufacturers and marketers have frequently done extremely well for themselves, often at the expense of pupils’ more genuine needs.] Moreover, even when such innovations are applied, the positive and sustainable consequences are difficult to identify (other than in relation to sport which, as mentioned already, reflects that thriving sector generally as opposed to sport in schools specifically).

Anxieties, Attitudes and Apprehensions

The internet has created a political ecosystem in which the extreme, the incendiary and the polarising tend to prevail over the considered, the rational and the consensus-seeking. On the internet, falsehoods (so it is alleged) spread some six times faster than truth. Distinguishing between fact and fiction (the reality of experience), and between the true and the false (the standards of thought) become more difficult and more vital as the virtual and the tangible intermingle. Information literacy thus is becoming a critical attribute of students in the GS. Undoubtedly, the internet intensifies the level and seriousness of plagiarism (breaking copyright and theft of intellectual property), trolling, bullying, financial impropriety and sexual exploitation. These challenges must and may be met within The Global School. Social media is currently, with much justification, perceived as threatening. This is no minor matter, easily solved with a few confident sentences. Indeed, it goes to the heart of contemporary society. For now, let us say, very simply, that The Global School offers the setting wherein these acute problems may be encountered and resolved. This will be returned to later, although no complete solution will be claimed herein.

A major danger is the possibility that those most likely to benefit are those who already enjoy many privileges. Some digital technologies may widen the disparities between those with and those without disabilities. Already, teachers in the most disadvantaged schools are less qualified and less experienced than those in the most advantaged and, unless handled well, technology can exacerbate these inequities. Similarly, where education is considered a mere commodity, technology may easily become a tool of exploitation: this too should be understood and resisted by lawmakers and planners. Digital re-colonisation/imperialism could

occur through the dependency of developing countries upon the brave new systems and devices unless we – and they – are constantly on our respective guards.

Cheating is rife. A few seconds on the internet will reveal dozens of disreputable sources of essay writing ‘assistance’, assignment completion and suchlike. Given two minutes, someone who will actually sit the exam for you may be located – the going fee seems to be in the region of US\$1,000 plus travel and accommodation (expenses related to impersonation disguises are not quoted). There is a grey area between this blatancy and the various levels of ‘scaffolding’ and ‘participative encouragement’ by teachers, families and friends in relation to marked coursework and ‘spotting the likely questions’ coaching. Suffice to say, the test-obsessed, inequitable and child-abusive perpetual selection system that permeates present day education is as flawed as it is malevolent. Two options are available: either alter human nature or transform the system. We favour the latter.

As seen by many, ICT is associated with moral decay. People fear children’s access to inappropriate material, violation of personal privacy, and being the recipients of sexual predation, pornography, harassment, stalking, or scams and dissemination of harmful or abusive matter. The arrival of Short Message Service (SMS) provoked fears that texters were doing to our language what Ghengis Khan did to his neighbours eight centuries ago. Similar dread of the new has been expressed throughout history. Children of the 1950s lived with the constant concern of grown-ups that television and pop songs would corrupt morals, rot brains and, even worse, leave the next generation speaking in American slang. No doubt 40,000 years ago Palaeolithic parents were warning their children against lurid cave paintings. Certainly rebises such as ‘B4’ and ‘CUL8R’ have been around for centuries without crippling the communal intellect.

Two or three generations ago, children craftily located medical tomes covering sexual intercourse from a plumbing perspective, giggling at the graphics. More recently, booklets for children and adolescents, and for their parents, became available, sometimes addressing the issues from strict moral and austere religious perspectives. The young people themselves had always tended to be, in some respects, ahead of their elders. For instance, a report put together by secondary school students for the New South Wales Health Commission in 1972 (within an exercise coordinated by one of the present authors, then in mid-career) noted that “many people argue that sexual information should be accompanied by moral education. Since they invariably disagree on the nature of that moral content, no sex education has been imparted”. Those young students (now in their mid-sixties) called also for “the following aspects of sex to be covered... petting, sexual behaviour... pornography and erotic literature... sexual slang...” Most teachers still shy away from discussing, for example, sexual pleasure but, these days, YouTubers have stepped up to offer everything from masturbation videos through gay marriage arrangements to sensitive consent advice. And, yes, many parents worry about that.

Other concerns, maybe containing some legitimacy, include such trepidations as:

- By using ICT, students do not learn the basic mental arithmetic skills because they rely on electronic methods to the exclusion of personally calculating;
- With ICT, students tend to do much copying and pasting instead of learning and taking their own notes. This has led to ethical issues such as plagiarism; and
- Relying on spell check and Microsoft grammar features lead to lower literacy skills because they tend to make the students think less.

At least the products of word processing are not made inaccessible by bad handwriting.

The attitude of society and of government can have a large impact of how ICT is perceived and thus how effectively it is used. Countries where the government encourages ICT usage and where the majority of the people apply it on daily bases are likely to make better use of ICT in education as well as in the larger society. On the other hand, in countries where some applications of ICT are restricted because of, for instance, political or religious reasons, the use of ICT in education becomes less effective and may even be seen as a threat to those in power and thus actively discouraged. Empirical findings indicate that the efficiency of ICT, when taking educational outputs/ outcomes into consideration, differs significantly across as well as within countries. [Analyses of the varying levels of (output-oriented) efficiency suggest that Finland, Norway, Belgium and Korea are the most efficient countries in terms of their ICT sectors.]

While some teachers will resist the requirement to become digitally-supported professionals (if, in fact, that is the opportunity placed before them), such technologies can complement their contributions and connect them to content, encouraging and facilitating self-organised learning. A ‘Granny Cloud’ of teachers – life-sized projected images – has been operating out of the UK into schools in India and South America for several years and, in turn, tutors from Calcutta and Chittagong guide learners in Berlin and Birmingham. A pilot study in Uruguay found that videoconferencing and laptops not only raised the children’s scores in English but also impacted positively upon the English-language proficiency of the teachers.

Learning analytics, that tracks teacher and learner online behaviours while adhering to ethical standards, provides new evidence-based ways for supporting online learners and for amending learning designs for maximum student success. Such depth of analytics are not available without extensive used of educational technologies. And, in the GS, it will be the learners who access and – if they so wish – utilise that guidance, as opposed to well-meaning others applying it for and at them.

Of course, experts from leading education institutes can teach directly through learning management systems and other online technologies such web-conferencing tools, while digital technologies can offer access to high quality material where there are no teachers with the needed skills. While the former is, at best, an entertaining supplement to effective personal tuition, the latter – research by learners – is most fruitful when a good teacher is on hand to offer skilled and sensitive guidance. [Further attention is given to the attitudes and roles of Global School teachers in the chapter on Pedagogy, below.]

Expensive and Exploitative, Economical and Effective

Just as programmed learning machines were optimistically and expensively delivered to some schools in the 1960s, and much as language laboratories were installed in the 1980s, dedicated ‘computer rooms’ replete with many exorbitant desktops have been established more recently. Their benefits in relation to their costs have been, at best, questionable and, in situations of poor servicing arrangements, lack of consumables, spasmodic electricity and computer semi-literate teachers, the expensive hardware approach is dysfunctional. **Providing schools with expensive computer hardware is of limited value – and may have negative educational consequences.** Enabling individual connectivity through inexpensive handheld devices is the advocated way forward: no longer should any well-meaning donor, still entrapped in the 1990s, offer to provide ‘computer rooms’ or powerful ‘desktops for all’.

However, ICTs in education can indeed make a positive difference, but in the GS we see an integration of ICTs in education in such a way that their utilisation is so commonplace as to become transparent. The attitude of the educational establishment also seems to have a greater effect in that, in some circumstances, those responsible for purchasing and provision may not have the knowledge and experience, or often the money, to enable widespread and effective use of ICT in their schools. In many low-resource communities, the appropriate technology is the one that people already have, know how to use, and can afford. In most circumstances, this is the mobile phone: the most important platform in the world. However, almost 60 percent of the world's people are still offline and cannot participate in the digital culture or economy in any meaningful way.

There is thus a huge potential for supporting mobile learning in developing countries.



Educational systems and institutions might well consider following a **bring-your-own-device** (BYOD) policy given the proliferation of contraptions. Mobile computing with a strong set of cloud-based software tools and content may, in the appropriate setting, support higher order knowledge deepening, knowledge creation and problem solving and will provide learners with a positive and virtually (in both senses) unlimited learning potential along with the resources to develop 21st century skills. Once everyone worldwide may BYOD and has connectivity, then 'search' works the same, whether you're a distinguished professor or a dextrous pre-teenager.

Educational Digitisation might well be the Inexpensive Revolution. However, success is far from automatic. The One Laptop per Child project in Peru provided hundreds of thousands of pieces of low-cost computing equipment to learners in rural schools but early research found no evidence of increased learning in either mathematics or language. And this is just one high-profile example of the difficulties faced in introducing hardware-centric educational technology projects conceived in highly developed environments into less developed places without sufficient attention to local contexts. The failure to meet expectations is in large part due to the pre-occupation of a relatively few interested managers and teachers with isolated, often costly, supplier-driven applications.

In addition to handheld devices, other communication technologies such as steam and streamed radio, television, email, Skype and its successors, and the much-maligned social media can play an important role in connecting teachers and learners, and, indeed, learners with other learners. Through such communication, assistance can be provided as well as direct instruction and group work. Such technologies support teamwork and communication skills by bringing together diverse teams and breaking the distance barrier. Increasing engagement with learning increases learner success. Haptic technology (hand-held technology where the user interface makes use of touch) such as touch-sensored screens or the rumble generator in

an Xbox game controller; and web-conferencing provide synchronous learning experiences and a sense of online presence. As already emphasised, the opportunities are there, and have been there for decades, but it is the widespread, integrated and fully-committed maximisation of values from those opportunities that is absent.

Learning Materials

Digital textbooks (also known as e-textbooks) are potentially a major component of technology-based education reform and are currently being piloted and introduced from California to Uttar Pradesh. They may serve as the texts for a traditional face-to-face class, an online course or degree, or a Massive Open Online Course (MOOC – see below), offering lower costs, effortlessness (compared with hard copy textbooks) for learners to carry around, easier for teachers to monitor learner progress, and allowing simpler and cheaper updates as needed. Because digital textbooks must be accessed through an electronic device, such as a laptop, e-reader or other mobile device, schools and colleges must determine how to provide access to all learners. Many interconnected factors, from device access, to digital literacy, to teaching methods affect the implementation of digital textbooks in the classroom. One approach might be to provide every Primary Grade I child (or professional Accountancy student) with a dedicated device covering the entire curriculum for the 6-year cycle.

Some evidence of improved learning outcomes, (in terms of increased mother tongue reading fluency, is available in relation to the substantial and ever-increasing array of **eReaders, and tablets** to support early literacy. However, a closer analysis suggests that, after a boom in e-textbook enthusiasm and application a few years back, there has more recently been a cooling of interest and investment, due perhaps to an absence of policy-level commitment and the incongruity of digital textbooks for some subjects and familiar hardbacks for the remainder.

Online learning/e-learning needs to be prevalent in the GS so that learners can have the flexibility to study at their own pace, place and time, often through learning management systems but also offering a myriad of other online learning technologies, each giving learners access to a global educational network. Flexible learning of this kind provides new channels for delivery and support through, for instance, online tutoring. Formative assessments may be used to develop **personalised pathways** for learners through the learning process. Personal learning environments allow learners to collect and integrate learning resources from multiple sources and technologies based on their personal preferences. Here again, the absence of a wholehearted and widespread commitment to taking full advantage of these possibilities has limited their development and restricted their prospective benefits.

It has been claimed, with some logic, that the growing demand for accessible, affordable quality higher education can only be met through the adoption of open education strategies, supported by commitments to open educational resources, research and educational innovation. **Open learning practices** such as MOOCS, open education resources (OERs), open textbooks, free-and-open-software and virtual libraries need to be implemented to address this demand. According to their advocates, MOOCS make education borderless gender-blind, race-blind, class-blind and bank account-blind. They say also that this form of online interaction promotes active learning through an innovative user interface incorporating instant feedback, self-pacing, online discussion forums and the application of gaming mechanisms to virtual laboratories. Reports on their usage and effectiveness levels are still coming in and this development is returned to below.

In relation to **Inclusion and ICT**, there is a wide range of **assistive technologies**, including screen readers; robotics; voice recognition; magnification; text-to-speech functionality; short message service; instant messaging; telephone relay; video captions; and hands-free navigation and gesture-controlled interfaces). **Adaptive technologies**, involving any object or system that is specifically designed for the purpose of increasing or maintaining the capabilities of people with disabilities, can be used to include those with disabilities in the digital learning process and support their learning and communication. Such disabilities can include visual, cognitive, learning, and mobility disabilities. With the widening range of **Computer Assisted Learning programmes**, there is some evidence of improved learning outcomes from remedial programmes as supplements to be utilised by under-privileged or under-performing learners although, here again, hard evidence of sustained gains is patchy.

We may promote girls' and women's access to and competency in using ICT to narrow the digital gender divide and contribute to their empowerment. However, there is a general recognition that, to date, the instantaneous communication, the possibility of immediate access to a staggering amount of information and knowledge online, and the growing availability of digital technologies, have achieved but little progress in educational inclusion generally, in the absence of the necessary accompanying changes regarding the curriculum, teacher attitudes and competencies and underlying pedagogy. We have a great chance and responsibility to prepare children in developing nations to play a full part in the world that they will inherit. This could yield significant economic and social benefits – and ensure that they are on the right side of the 'programme or be programmed' choice that faces every citizen in a networked world. When all children, through The Global School, are, as a start, happily proficient in three languages, including a 'world language' (see the discussion of Curriculum, below), these linguistic proficiencies will enable optimum benefits universally to be obtained. Such times are still to come.

Games, Simulations and Virtual Reality

Developments to **bridge reality digitally**, making learning more immersive, include digital activities such as programming which can directly promote critical thinking, teamwork, problem solving and creativity. For example, Scratch, a simple programming language for young children, can help develop abstract and critical thinking from an early age. Other utilisations include augmented reality apps on mobile devices; providing interactive and context-sensitive learning experiences through (Quick Response) QR codes; virtual reality addressing, for instance, shortages of specialised facilities such as laboratories, while simulating real-life situations when financial, logistical or ethical reasons make such experiences difficult to provide; robots used to increase telepresence, and also in developing environments where expertise might be lacking. Reflective practice that can support deeper learning can be achieved through the appropriate use of blogs, discussion forums, and e-portfolios.

Similarly, **collaborative technologies** such as wikis and shared online document systems (that allow for collaborative modification, extension, or deletion of content and structure) support team work and cooperative learning and break the distance barrier. Such technologies enable groups to work together, share resources and files with ease, and connect to wider specialist interest groups where support is not locally available. There is an implication here that teaching and learning will have to be increasingly social. Educational institutions of the future

will have, more and more frequently, a traditional cohort of physically present learners, as well as online only learners who live far across the country or even way across the world. Things are already starting to move this way with the emergence of MOOCs and the broad adherence to social constructivism. Increasing openness implies that people are prepared to share educational materials and educational experiences which requires developing a capability for sharing one's own products and an openness to use materials developed by others.



Online **educational games** for young children, with appropriate adult supervision, are increasingly used to develop foundational skills. A variety of technologies can increase engagement such as videos and other animations and there are tremendous possibilities for the applications of game-based learning along the lines of Educopedia in Brazil. Sadly, this potential has barely been tapped in any wholehearted manner for post-primary learners.

While designers and manufacturers are, naturally enough, keen to produce and market imaginative products, many educationalists and planners have tended to steer clear.

Children may enjoy learning about the management of sporting teams or of colonising the world or building up a business or responding to environmental challenges: the digitally-based games are there. But what is lacking is the dovetailing of games and curricular – the relating of these initiatives to schoolwork in an integrated manner, so that they are much more than ‘fun extras’ and constitute serious elements within an effective and entertaining learning programme. Let it not be suggested that educational games represent trendy roleplay or that the ‘fun’ approach generally signals a movement away from knowledge-based processes: the entire methodology embodies the realisation that serious, reflective learning can and should be enjoyable. Which is how it should always be but which is seldom the case as yet.

Besides the above innovations, there is a myriad of **discipline-specific learning technologies** available including simulations aimed at, for instance, paramedic, dentistry X-Ray and running a virtual pharmacy. There will still be the need for training in requirements needed for specific occupations, which can be described as ‘competencies’, which are the skills and knowledge required to perform specific tasks in predictable circumstances. The concentration here is on behaviour and performance and such competencies are necessary but not sufficient for effective practice. These developments are, however, more training (i.e. PTVT) than they are education, a fundamental distinction as addressed in the following chapter.

Overall and Onwards

Given that ICT, when sensibly applied, has already contributed made some contributions to improved learning, and recognising that the potential contribution of Digitisation remains relatively untapped, it is necessary to identify and understand the critical factors that have enabled this state of affairs to come to pass. In assessing the true consequences of these several developments, there is a need for evaluation mechanisms that go beyond outputs to look at consequences in terms of changes in teaching and learning practices, or learning outcomes. Effective educational technology is embedded in rich pedagogy which entails an appropriate

learning and curriculum design that acknowledges the affordability of the learning technologies and addresses the needs of the learners. Neither the thoroughgoing evaluation nor the high-quality tailored methodology are typically present.

In some circumstances, ICT can be a powerful albeit expensive tool to improve access and equity in education, enable the delivery of superior learning and teaching, and boost teachers' professional development, as well as enhancing educational management, governance and administration. However, while these and many other illustrations of fairly effective ICT applications are interesting and valuable in their ways, **the potential contribution of Digitisation remains relatively untapped**. Many Edtech programmes have lacked a clear and specific curriculum focus, have failed to focus on teacher development and pedagogy and, as mentioned above, have not applied thorough and deep evaluation mechanisms.

Claims of effective ICT applications on learning abound but, in many instances, encountering convincing evidence is as elusive as establishing concrete proof of clairvoyance. On the negative side there are large costs involved and the poorer students/educational establishments can end up being disadvantaged. Moreover students, and sometimes teachers, can get hooked on the technology aspect, rather than the subject content. Just because a topic can be taught through ICT does not mean that it is taught most effectively by such means. Even when there is the money available, it does not always follow that there are sustainable advantages: the findings of the many studies and assessments are at best inconclusive. It would appear that, while there is typically some initial impact in using ICT, in that students get a wider range of resources and experience some extra motivation, this effect soon fades as using it becomes the new normal. The manner in which the subject is taught probably has a larger effect than the mere use of ICT: if teachers do not adapt their methods in order to make best use of the technology, the students do not gain significantly from that use.

Several studies present evidence of learners working more independently and collaboratively using online or offline digital resources to support project work. ICT can certainly increase access to information, make content more accessible, and create new channels for delivery and support. Advanced computing capabilities, large-scale data storage, and high bandwidth data access enables researchers readily to collaborate with one another. Technologies can also reinforce content learned in educational institutions. The emphasis on personalised learning is a key principle underlying recent educational initiatives. Flexible, cost effective and well planned ICT design is required to meet the pedagogical needs of learners and to enable teachers and administrative staff in education institutions work effectively. Such approaches, providing customized trajectories through tailored course material, is a result of adaptive learning and teaching and addresses the needs of individual learners.

A major study covering primary and secondary schools indicates that, despite considerable investments in computers, internet connections and software for educational use, there is little solid evidence that greater computer use among students leads to better scores in mathematics and reading. This, yet again, again points to the necessity of implementing both digital and analogue strategies in an integrated fashion to ensure return on investment, to view 'learning' as lifelong and life-wide instead of merely reviewing the immediate results in assessment, and to extend study time and practice, when used to allow students to assume control over the learning situation (e.g. by individualising the pace with which new material is introduced), and when used to support collaborative learning.

From a current perspective, the future of education technology is all about the cloud and anywhere access: educational institutions need to embrace cloud technology to prepare for the future of learning. Learning technologies will increasingly become **cloud-based** which will increase the physical mobility of learners as technologies will no longer require expensive hardware to access it but merely mobile technologies. A few forward-thinking institutions are reimagining operations both inside and outside the classroom, using cloud services, analytics, and other digital technologies to deliver more personalised instruction when, where, and how students require it. However, the key message of this book is that, with Digitisation, a fresh educational era has been entered and we should no longer simply be talking and planning in terms of ICT assisting contemporary approaches and arrangements but rather, start considering how best education should, through Digitisation, serve and help shape the new and ever-evolving socio-cultural-economic world.

There is also an acknowledgement that, to date, the instantaneous communication, the possibility of immediate access to a staggering amount of information and knowledge online, and the growing availability of digital technologies, have achieved but little progress in relation to educational inclusion, based on the necessary changes regarding the curriculum, teachers and underlying pedagogy: this particular point is considered further in the section on ‘Equality, Equity, Etcetera’, below.

It is reasonable to conclude that, while internet access is potentially a great educational tool, there is little hard evidence that it will significantly increase learning sustainably set against the certainty that, in many circumstances, ICT is a costly add-on. With which this book’s authors fully concur: applying ICT to education as currently envisaged will continue to cost a great deal without paving the way towards gratified learners, joyful teachers or Agenda 2030 achievement. To be fair, there is some evidence that ICT can, in favourable circumstances and with intelligent planning, make a significant and positive impact on teaching and learning outcomes in some limited areas. However, while these isolated illustrations of effective ICT applications are interesting and valuable in their ways, unless a fundamental digitally-founded educational transformation is achieved, the unique opportunity of these times will be lost. The paramount challenge is not to improve 20th century education in and for this Digital Age – the paramount necessity is to reinvent it for our times and make it future-proof.

Contemporary technology both creates and enables the satisfaction of its own emerging demands. In terms of learning, the need for (a) anytime, anywhere (mobile) learning; (b) custom-made learning; and (c) flexible learning spaces, taken together, calls for an integrated rather than a piecemeal approach, in order to ensure synergies. Attempts at partial solutions are akin to electrifying only a portion of a railway system or strengthening just a few of a major construction’s foundations. Unless the entire environment is transformed, a few worthy novelties will not only appear out of place but their incongruity may damage the overall entity. Or, to put it another way, piecemeal ICT within an outdated system is no substitute for wholehearted Digitisation-based educational transformation. Which is precisely why education needs to be restructured for our times, with Digitisation as the cohesive force. This recognition is further justified and lucidly enunciated in the chapters that follow.

3. ‘RELEVANCE’, ‘PREPARATION’, ‘COMPETENCIES’, ‘RETURN ON INVESTMENT’ AND OTHER IMPOSTERS

Schooling has, over the centuries, been misused in the service of particular religious, military, ideological, empire-governing, social justice or – the current fad – sustainable development objectives. No matter how well-intentioned the decision-makers, such manipulation is akin to utilising education in the production of pre-pubescent chimney sweeps or, indeed, child soldiers. Digitisation offers an escape from education as indoctrination, albeit bringing with it heightened opportunities for exploitation, in turn demanding effective safeguards, supplements and subtleties and the empowering of students as genuine partners in their own learning, effectively becoming fellow-teachers. (Just as all teachers are learners.)

Given that Digital Age labour market requirements are largely unknowable, the false notion that education is predominantly preparation for the world of work may at long last be overturned, with the vital partition between ‘education’ and ‘training’ valuably becoming a very hard border. Above all, the myth of educational input being justified by economic returns is exploded with the realisation that education’s true objectives are essentially non-material. Learning analytics should thus support student self-fulfilment, breaking out of the tyranny of mindless metrics that focuses on mere monetary return on investment. We may commence this chapter by exploring how socio-personal fulfilment has been eclipsed by pecuniary-exploitative manipulation in schoolrooms since very soon after mankind time began.

The Historical-Universal Dimension

In the beginning was **indigenous education**, existing ever since human beings lived in societies and stretching from reliant childhood through mature adulthood to respected eldership. Despite some variation from one place to another, the implicit goals of these practices have often been strikingly similar: instilling the accepted standards and beliefs governing correct behaviour and creating unity and consensus, with much stress on the communal and social aspects rather than on individual achievement. It was, say the experts, the same education that was practiced over and over for years and it included laws, moral principles and obligations to ancestral spirits, to relatives and to others in particular groups or to the tribe at large. Children would learn through imitations and as elders told educative stories while sitting around a unifying fire. Indigenous education was meaningful, bonding, holistic, effective, practical and relevant to the learner as well as to the community generally, creating strong human fellowship in that it involved everyone, embodying a separation between education and the forthcoming world of work, thus reaching out to and educating the whole person.

Education in **Classical Greece and Rome** gave us fantastic philosophy, wondrous tales of conquest and heroism, and centuries of schoolroom struggling with the works of Catullus, Ovid, Horace and Livy [*Latin is a language, As dead as dead can be. First it killed the Romans, And now it's killing me!*]. Over nineteen centuries ago, the rhetorician Marcus Fabius Quintilianus entitled his analysis of the formal learning process as ‘The Education of An Orator’. He laid out the educational process step by step and discussed many issues of education that are still relevant today and his work still repays study. For example, Quintilian’s most arresting point about the growing orator is that he should be educated in

morality above all else: he quite literally believed that an evil person could not be an orator, "...for the orator's aim is to carry conviction, and we trust those only whom we know to be worthy of our trust". Although assertions of that nature may well be contested (a worthy oratorical topic), and although Quintilian was focusing on the sons of patrician families – he uttered no advice on the education of girls nor, indeed of the offspring of plebeians, let alone of slaves – his work recognises the central role of public speaking in the Roman governance and legal processes. It was, essentially, a vocational treatise, much as demonstrating the ability to translate Caesar's Gallic Wars became correlated with the likelihood of being called upon to govern vast tracts of Empire. Oratory – and the debate as methodology – will be returned to later.

Ireland's commitment to enabling others to achieve learning stretches back nearly 1,500 years and exemplifies the central educational role of religion over the Christian period and territories. St Columbanus was one of many Irish monks in the first millennium to leave Ireland and travel across Europe in the Dark Ages, preserving and restoring the cultural heritage of Europe, establishing centres of learning in Italy, France, Poland and elsewhere. An enlightening historical example of an external authority's views being entirely at variance with young learners' educational – as well as national sovereignty – aspirations is offered by John Bull's other island. Well over a millennium ago, her indigenous Bardic Schools were producing not only poets but chroniclers and lawyers. While remaining pagan, they saw the coming of Christianity, first through the traders from Rome and other places on the continent, then through the contact with Wales, finally through the missionary work of Saint Patrick. They, together with the Monastic Schools, survived in fading glory until the mid-17th century when the Penal Laws, imposed by the occupying power, enacted universal, unqualified and unlimited proscription of educational institutions, other than those for Protestants, and which operated through the medium of English. In response, Hedge Schools flourished illegally nationwide and vast numbers of Irish youngsters carried their turves in pursuit not only of (Irish language) Reading, Writing and Arithmetic but also History, Mechanics, Astronomy, Latin, Greek and, of course, Poetry – very far from vocational subjects in English-occupied, selectively Scottish-settled, rural and pre-industrial Ireland.

European **missionaries** (often Irish) arrived across the South under the premise of setting out to convert the locals to Christianity but in actuality they aided in their colonisation: in many cases Christian conversion looked more like European Capitalist conversion. Their schools, replacing and scarcely considering the merits of indigenous education, rejected much of the traditional way of life as the more the indigenous people learnt how to read the Bible the higher the chances that they would be drawn into the Christian faith. The 'modern' or 'western' education provided stressed religious doctrines along with agriculture, carpentry, blacksmithing and other skills, some teaching that salvation might be obtained only through formal work. The education brought by the missionaries was competitive and formal, essentially bookish, therefore not conforming at all to the practical needs of the indigenous people, divorced from the life and culture of the wider community. Working in a West African teachers college in the early-1960s, one admired the lifetime dedication of the Irish nuns involved (so many Ghanians know well the towns and rivers of Ireland and the dastardly deeds of Cromwell). The sisters conveyed the certainties of their beliefs along with time-honoured teaching practices, while genuinely caring for the adolescents in their charge (virtually all of whom were or became Catholics and subsequently cascaded the converting process after qualifying) and preparing them for the routines of Ghanaian school-teaching as well as the life hereafter. Significant attitudinal change in missionaries' educational roles

occurred post-independence and post-Vatican II, when, influenced by leading liberation theologians, a re-think took place in favour of a declared option for the poor. Similarly, many missions' investments in providing educational opportunities to girls and young women (albeit using a 'Western' model) endowed an undeniably valuable educational legacy.

For more than four decades, Moscow and Washington engaged in a **global competition** for presence, influence and control. Aid was an integral part of the rivalry and had, as its primary purpose, the attraction of potential clients and allies. By the end of the 1950s, a growing number of Middle Eastern, Asian and African countries were receiving Soviet economic assistance, while increasing numbers of students were travelling to the USSR for both university studies and other training programmes. Patrice Lumumba University, founded in Moscow in 1960, was *alma mater* to hundreds of government officials and leaders throughout the Third World. For much of the period between World War Two and the break-up of the Soviet Union, foreign aid was used for four main purposes: political/diplomatic, developmental, humanitarian relief and commercial. Aid to underdeveloped countries was often unashamedly more in the interest of the donor than of the recipient, often a form of neo-colonialism. In addition to military, espionage, propaganda and economic activities, the two superpowers promoted differing approaches to education across much of the developing world. For instance, until the overthrow of Nkrumah, Cape Coast University in Ghana received considerable Eastern bloc support – science and mathematics professors with limited English, substantial (often somewhat odd) equipment, and Russian- and Czech-language books (including Lysenko-based biology texts and hefty physics tomes lauding Lenin). While this engendered vague goodwill towards the Soviets and their allies, together with (probably justified) suspicions regarding the West, it is unlikely that it resulted in many long-lasting conversions to (state capitalist) communism.

One interesting survivor from those cold war contexts is that of **Cuba** whose considerable local-level contributions, despite over six decades of experience in internationalising education (and health) by substantially assisting other developing countries, is hardly recognised at all by most people in the West. What Cubans describe as their 'solidarity' principles characterised the internationalist cooperation agreements that Cuba shared with numerous nations. It is worth examining these global justice-based educational models that can work in conjunction with other educational measures aimed at strengthening the capacity of the most vulnerable and socially excluded segments of society. Meeting with Cuban teachers of science and mathematics, with limited English, sufficient subject knowledge and high levels of commitment, some of whom had dedicated thirty or more years to poorly-paid teaching in remote African locations, one marvels at just how little is known about this altruistic indeed genuine socialistic phenomenon.

To an important degree, the United States lost interest in underwriting education internationally as soon as it was no longer engaged in what was usually viewed as a zero-sum game for influence and control with the Soviet Union. American dogmata continued to permeate its aid policies. For example, USAID scholarships in the 1980s had to be related to 'employment generation': recipient nations soon became adept at linking every Masters degree topic – from 'colonial archives management' through 'early Setswana literature' to 'Papuan linguistics' – to job creation! **Bilateral donors** continued to embody their national interests in their educational support strategies: being answerable to their parliaments and electors, this was understandable. [Those at 'headquarters' sometimes required, for instance, primary schools to be constructed within sight of main roads to ensure donor visibility,

or for French to be taught (in Anglophone or Lusophone countries) as a key curriculum component, to children having difficulty in learning in the official national language (which differed from their mother tongue). However, locally-based educational managers and technical assistants usually contrived – despite virtually impenetrable and beneficiary-unfriendly procedures – to achieve common sense compromises between donor country political imperatives and on-the ground educational priorities.] China is a relatively recent and increasingly important provider of support for education in developing countries. Unconfined to any 'basic needs' philosophy and readier than many western donors to support higher education, it seems to be enabling international competitiveness amongst beneficiary nations – just as China itself, as a recently-developed economic and technological power, offers an aspirational model.

At its best, educational aid is genuinely focussed on sympathetic perceptions of developing countries' requirements. For instance, the current **European Union** Policy for Development reaffirms a commitment to supporting education in partner countries through its various instruments based on countries' needs, capacities, commitments and performance and potential EU impact. In particular, the Policy highlights the importance of education as part of "our support for social inclusion and human development. quality education to give young people the knowledge and skills to be active members of an evolving society". A recent EU concept note portrays education as a driver of inclusive growth and poverty reduction, and vital to the achievement of broader development goals. It adds that Education is a human right recognised in the 1948 Universal Declaration of Human Rights and by many conventions and international declarations ever since. Impacts of education on other sectors – health, nutrition, employment, environment, peace-building and governance – are clearly evident.

[Many EU educational and social sector interventions achieve their Purpose-level indicators but when, as is frequently the case, Overall Objectives claim that a contribution will be made to, for example, 'Reduced Unemployment' or 'Enhanced Productivity', let alone 'Diminished Reliance on Imported Goods' or 'Increased GDP', these targets tend to be unverifiable in reality and ignored by evaluators. A programme may well upgrade primary retention or even improve science and mathematics performance – but to imagine that its outcomes may be linked explicitly and measurably to economic indicators is over-ambitious and disingenuous.]

Philosophies and Paradigms



Over recent years the emphasis has moved from one of 'aid' to one of ostensible '**partnership**' although it is widely claimed that 'continuities of dependence' endure, even when that companionable word is included in the development partner's name. The 2006 Paris Declaration on **Aid Effectiveness** backed a process of collaboration between the donor nations and those impoverished countries receiving educational aid. They articulated goals for an improved approach that would make it more effective than the inadequate and

flawed educational models inherited from colonial times, which continue to be entrenched

across the globe. Competing theories have occupied academics and, to some extent, influenced international educational support practices since the 1960s. For instance the non-traditional, bottom up, 'searcher's' approach rejects the idea that 'we' know what is best for impoverished countries. In contrast, shock-doctrine economist Jeremy Sachs' top-down approach presents a broad, proscriptive solution to poverty. Positing a broad analytical 'checklist' of things a country must attain before it can reach the next step on the ladder towards development, and contending that democratisation is not an integral part of efficient aid distribution, it supported the utilisation of broad ranging plans developed by external aid organisations such as the UN and World Bank. There are many instances of more than one such organisation's teams simultaneously developing distinctive (and often incompatible) plans 'at' the recipient nation, each regardless of the efforts of the others. Moreover, each Development Partner demands that beneficiaries make applications and submit reports embodying its own customised, frequently byzantine, documentation.

An alternative was that aid should be funnelled more towards countries with 'good' policy, contending that funding would be best allocated in favour of those whose marginal productivities per dollar were highest, and away from those with low to negative rates [much in the manner that a food programme might be focussed away from those least nourished]. Other commentators offered a 'New Conditionality' compromise, claiming that policy is important and that the most significant factors in the efficiency of aid are income distributions in the recipient country and the avoidance of corruption. This is **a fine and vital debate** – it is when support for education is included within it that it becomes problematical. And it is education sector edicts from well-meaning non-educators that have resulted in confusion and chaos. For example, the fundamentalist 'rate of return' doctrine stipulating that investment should be concentrated upon primary education has resulted in vast numbers of resentful half-educated youth walking the streets of many Third World capitals. Similarly, the oxymoronic concept of 'Technical and Vocational Education' has diverted attention from what might have been high-status training to third-rate routes for formal schooling drop-outs.

A decade or so ago it could be claimed that "recent pronouncements by international aid agencies on their interest in and preference for a learner-centred pedagogy so far appear not to have attracted much scholarly attention". Analyses of articles on **learner-centred education** in developing country contexts suggest that there is increasing 'convergence in the divergence' of how this LCE policy is translated into practice. Although the efficacy of the pedagogy is often couched in cognitive/educational terms, in essence its usefulness lies in its political and ideological nature. The fact that the aid agencies' concern over classroom practices became explicit soon after the fall of the Berlin Wall is in itself significant. Aid agencies' apparent lack of interest in methodological issues before 1989 lay partially in the very central hypothesis of the modernisation theory of development which became enshrined in the policies of aid agencies soon after the latter were created. That supposition, coupled with human capital theory, viewed education in technicist terms. However, the ascendancy of neo-liberalism as a development paradigm in the 1980s and 1990s elevated political democratisation as a prerequisite for economic development. Education then assumed a central role in the democratisation project and learner-centred pedagogy was a natural choice for the development of democratic social relations in the schools of aid-receiving countries.

Aid agencies, therefore, had to be explicit about their preference for the pedagogy which was in effect a worldview intended to develop a preferred kind of society and people. It may be regarded as representing a process of Westernisation disguised as quality and effective

teaching. In Sub-Saharan Africa, South Asia and Oceania, attempts to impose LCE failed miserably, the programme designers not having taken full account of the cultural contexts and assuming too readily that long-standing frameworks of 'respect' and 'authority' could be demolished with the injection of half a million dollars over a three-year period. Based upon analyses of **programme and project objectives**, very few, if any, donor-funded education sector programmes and projects are directed at, or even take seriously on board, anything beyond material progress: the notion that children should enjoy their education gets very few mentions. International aid, despite being misguided towards all kinds of donor goals, and even when some heedance is afforded to beneficiary nations' priorities, has seldom achieved let alone exceeded its specified higher objectives and – as those are in most instances misguided – that is no bad thing. But, to some degree due to and to a larger extent despite of, such international munificence, there are educated people the world over, the best educated being those who have risen above their educational systems.

The Encroachment of Employment upon Education

The world's very lifeblood is money, both beyond education and, unless this is wholeheartedly resited, within that sector itself. On a personal level, in many 'advanced nations', young adult learners face student debt and perilously easy credit, exorbitant rents and hidden charges, sneaky loan traps, shimmeringly deceptive mortgage deals, elaborately convincing scams and the general headache of tax management in a gig and short-contract economy. Beyond their own lives they witness a society infected by an obsession with literal 'worth', reading splash stories about instant bitcoin fortunes, viral YouTube mini-millionaire influences and teenage video-game tycoons.

Studies of international trends in primary education depict a wide range of developments related to such (overlapping) themes as citizenship, life skills, personal welfare, social relationships, health education, family life, moral education, character development, leadership, orientation on mankind and the world, international understanding, environmental studies, communication/new media and/or literacy; technological literacy; working with others, improving one's own learning and performance, independent learning, problem-solving and thinking skills, cultural and multicultural education, the spiritual dimension, physical/ motor skills, education for peace, consumer education, mental health, values that underpin society (honesty; reliability; respect for others; respect for the law; tolerance; fairness; caring or compassion; and non-sexism and non-racism) and many others. Here again, while increasing the pupils' enjoyment may be implicit in the intentions behind some of these developments, the statement "we are doing this primarily to make schooling greater fun" does not appear. Indeed, 'moral education' is the height of immorality: teachers have neither right nor competence to teach right from wrong, save by their own good examples.

In respect of many developing countries' educational plans, 'real life competencies', 'career and work' and similar themes abound. In one such system, Primary 1 pupils are required to "obtain the basic idea of number in relation to examples from the farm" and to "learn the letters of the alphabet linked with occupations such as Accountant and Baker". Another southern African country requires its Year 3 (aged around nine years) children to "understand the work of primary producers, retailers, service providers such as doctors, nurses and customs officers (!), parliamentarians, civil servants and entrepreneurs and their contribution to the economy and to community wellbeing". The possibility (which certainly does exist) of covering these ideas in an entertaining manner is limited by a number of factors – children at

this stage are just making the classroom transition from mother tongue to English; the teachers are generally under-paid and predominantly under-trained (and not all that confident in their own English communications skills); and the textbooks covering this syllabus had (when last visited) yet to arrive. Consequently, the classroom activities typically consisted of the teacher writing, say, three obvious facts about fishermen on the board, the children chanting these until they have absorbed (but not 'learned') them, and some subsequent testing to check whether they may accurately recite them back.

A further illustration is from the 'New Pro-People Curriculum Development Training Programme' as implemented fairly recently in Maoist rebel areas of west Nepal and in which the traditional focus on "praising kings and gods is replaced by practical help and egalitarianism... the instructor holds up a graph, calling out 'Rifles – 50; long machine guns - five; self-loading rifles – 40': the graph depicts the weapons captured by rebels in an attack on the security forces and will be used in lessons for children between six and eight". Many may find this horrifying. But, being objective, the only difference between this shocking syllabus and, let us say, the mixture of cadets, catechism and colonial history taught in some of the world's most admired (from afar) schools is simply a matter of degree. Let it be recognised that England's elite boarding schools, regarded as models by many misguided magnates worldwide, have been (and maybe, to some extent, still are) characterised by "beasting, bullying, fagging, cold baths, vile food and paedophile teachers".

An analysis of field reports and curriculum material from thirty sub-Saharan African countries traces the attempts to introduce Primary School Agriculture into school systems and notes that "some elements of this failed practice still survive". Wisely observing that enforced labour of this nature can only serve to increase the young people's ambitions to escape from this type of work, it is suggested that, if properly presented, there is reason to believe that the subject *can* provide agricultural knowledge and skills, and make the teaching of Science and Environmental Education more relevant and effective. Alas, the key word 'enjoyable' does not appear.

It is clear that much of Education for All (EFA) was, in practice, prevocational and, in many instances, blatant training. Indeed, the swing away from the academic towards the work-oriented curricula, which has characterised much Third World education over the last two decades, will soon become the subject of considerable criticism, and attempts will increasingly be made to swing back the pendulum. This will be done, not only because the children prefer it, but because the decision-makers determine it – EFA, in practice, tends to stand for Education for the Authority. [In passing, it may be noted that 'sex education' tended to be less prominent in those (sub-Saharan) countries with high HIV/AIDS incidence and, similarly, 'religious education' has retained its place in (government schools in mainly Western) nations where participation in formal worship is relatively low and getting lower.] The traditional meaning guidelines – educating to build the Nation-State or educating to train human resources for economic development, for example – seem to have exhausted their capacity to mobilize the interest of the various social actors and are unable to meet the new demands. But what of the belief that the school curriculum needs to change so that our young people will be global, digital citizens who are adaptable and can communicate confidently using technology? An immediate answer is that many of those young people – as opposed to very many of their teachers – are achieving this already.

Laughter against the Odds

Let us explore the challenges faced by teachers in trying to amuse and excite their young charges. The UK national curriculum stipulates that children aged seven to eleven "should be taught word classes and the grammatical functions of words, including nouns, adjectives, adverbs, pronouns, prepositions, conjunctions, articles" as well as "the grammar of complex sentences, including clauses, phrases and connectives.". At that age, this simply does not work. Good teachers understand the joy of fooling about with words and, despite the edicts, allow their pupils to enjoy writing with much fluency and effectiveness (and indeed with interesting spelling mistakes and fascinating grammatical errors). Teachers and learners alike are able to see that the only reason for writing is to produce something true and beautiful; that they were on the same side, with the teacher as mentor, not editor, nor instructor, measurer, critic nor judge.

One of the transitory fashions that, for a couple of years or so dominated the attention of a certain kind of development economist *cum* educational planner was that of the 'livelihoods framework', described by its enthusiasts as "a way of looking at the complexity of people's livelihoods, especially the livelihoods of the poor, whether they be rural or urban". Now those who come up against such challenges – being in many instances refugees from the classroom – could put together a fascinating lesson based upon the ideas contained in the various livelihoods frameworks. Indeed, perhaps this book's readers might each care to design a lesson – say for Primary Grade 6 – covering the various elements: assets such as human social and economic capital; production, income, consumption, processing and exchange activities; security and vulnerability; transforming structures and processes; strategies and outcomes. And remember – the central purpose is to enthral and entertain the youngsters. If they happen, in passing, to grasp an important concept, that is a useful by-product, but let them be smiling as they do so.

And, of course, all of the above examples could readily be turned into attractive and digital video games. People's reactions to that possibility are as interesting as they are indicative. At a conference of Headmasters (yes, each was male) around four decades ago, one eminent principal of a fairly famous Welsh school asked in all innocence "Whatever would students do with computers if we provided them?" We may assume that, if he is still on this earth, he has his answer now and, in a similar manner, the potential educational impact of video-gaming is becoming increasingly obvious. Perhaps the designers and manufacturers of these devices are primarily thinking of preparing young people for their post-Child lives. Perhaps not.

Educational Economics as Oxymoron

Over the last half-century, humankind has been wantonly misled by educational economists. While few classroom practitioners takes that craft at all seriously, those who fund and manage education have fallen for the remarkable notion that investment at the primary stages gives a greater 'rate of return' than does providing support for the subsequent phases. Although exploded over two decades ago by such as the late Tim Curtin, the ridiculous supposition is still strangely resilient in some remote academic corridors and along a few development partner walkways. As already noted, this palpable absurdity has resulted in tens of millions of half-educated jobless youngsters, pouring on the streets bereft of personal fulfilment and threatening community order. These victims of the notion of 'Incomplete Education for All' (IEFA) are neither reconciled to returning to primary production (which they and their parents

perceive schooling as the long-awaited road away from), nor sufficiently credentialised to proceed to gainful employment or to genuine training.

Six set books from a postgraduate Economics of Education programme at a reputable university some ninety minutes east of Cambridge by road were analysed. Their authors' consensus is that education is an investment (social and private) and its acquisition a form of capital (personal fulfilment is touched upon but marginally in just two of the volumes while the concept of 'social capital' is accepted unquestioningly by all). Costs and benefits are assessed at great length in those six texts, such analyses characterised by an apparent unawareness of the most significant costs (dreary lessons) and the most noteworthy benefits (fascinating lessons) to the customers. Those postgraduate students taking that particular module were – unless it was taught entertainingly, or unless their only objective was the Masters credential – receiving negative benefits for their (or their parents') monies. Nor, if such nonsense was subsequently applied, were their communities.

Many developing countries moved significantly towards the Millennium Development Goal of Universal Primary Education, although few actually achieved it fully. They have gone along with the falsehood that access (more correctly 'participation') is less important than what, if anything, the children learn. The vast output, in developed countries, of youngsters who have studied, for instance, English Literature for many years but do not read books, is a similar phenomenon [formal examinations require all sorts of facts and analyses performances related to the canon of great literature: the real tests are (a) are the students enjoying these books, and reading them of their own volition? and (b) how many books of those natures – and what literature generally – are they reading and enjoying, say, five years after course completion?]

It should be noted that the notion of 'utility' has been central to economic thinking since the mid-18th century (although a thorough study of Bentham's 'felicific calculus' might well but may not necessarily be pleasurable). With no other good or service is the immediate utility entirely ignored while one aspect of the potential future utility is focused upon utterly. Utility of classroom experiences is apparently a closed book fallen behind shelves in the educational economist's library. There may well be works that take account of learners' laughter in relation to institutional income and expenditure (competitive independent schools and private language centres, for instance, grapple with these issues daily) but it still seems possible to become highly qualified in this professional field without necessarily encountering them.

Classical studies of 'the Worker' (Marx, for example) apply in many respects also to the consciousness of many (non-teacher) classroom workers worldwide (i.e. the learners). Not only do they tend to perceive themselves as school students rather than as, say, prospective business persons, factory workers or farm labourers, considerations of class still apply. Alienation is of especial relevance to the issues before us – a condition somewhat akin to the *anomie* experienced by factory, supermarket or call centre operatives. Youngsters, unless their attention is engaged by a stimulating activity, frequently sleepwalk through their lessons, remembering some of what may be required to avoid medium-term humiliation, but failing fully to engage with the subject matter. Much as the hands of a conveyor belt machinist may all day be adjusting drifter sprockets, while the mind is much more concerned with scoring the winning goal at Pam Brink, Guangdong Olympic Stadium or Carrow Road.

The Fundamental Frequently-Ignored Objective

Out of several hundred international educational interventions encountered by the authors over the decades, none targeted student enjoyment as an explicit consequence. In several cases, it may be inferred that the project depicted would probably have a positive effect on children's liking for schooling: indicators of increased numbers enrolling, attending and passing depend, presumably, upon satisfaction with the classroom experience – at least in comparison with the out-of-school alternatives. Similarly, better-trained teachers, improved learning materials and (despite earlier considerations!) more thoughtful curricula, should all enable more lessons to be greater fun – but the reluctance to address that issue directly is puzzling. It is submitted that a 'School Enjoyment Enhancement Project' (SEEP) would [at the Overall Objective level, in LogFrame hierarchy terms] contribute more to the subsidiary concerns of planners (drop-out, examination performance, subsequent employment...) than does the current crop of donor-funded interventions – although, of course, those desirable by-products should not be confused with the central purpose.

A major study of practical subjects in basic education reviews various models for work oriented, practical education: colonial and socialist paradigms in Africa, UNESCO's promotion of ruralisation, agriculture as a topic or subject of general primary education, prevocational training – agriculture, domestic science, and arts and crafts (woodwork, masonry, and metal work), Builders' Brigades, work-oriented education, and vocationalisation. It concludes that "Results have been mixed and, most of the time, discouraging. The best basic education is a good general education". While this is certainly true, it is regrettable that the issue of whether or not the pupils enjoyed these various experiments with their lives is not assessed.

Of the many entirely well-meaning and thoughtfully argued contributions in this important area, the actual process of 'occupational awareness creation' (or 'career consciousness-raising' or whatever else it may be called) is not considered in or of itself. Exciting lessons may readily be delivered in relation to business studies – which is education; valuable information and prevocational skills may readily be transmitted in respect of typing (well, in relation to the evolving secretarial function, let us say) – which is training. Some of these efforts may conceivably produce an inspired office worker, which would be nice, but, in relation to that which is education, the prior question is whether the groups of youngsters involved take pleasure in the process in which adults with the best of intentions compel them to participate. And this is ignored.

An interesting UNESCO publication is aimed at promoting girls' participation and performance in Scientific, Technical and Vocational Education (STVE) in the developing regions. Its author offers many creative approaches geared to ensuring that "girls too access, actively participate, enjoy [*my underlining*] and succeed in STVE and the related jobs and careers" including, for instance, "visits to small-scale projects, making the best out of the surrounding environment, recycling of waste paper into new paper for use in school, the fabrication of gadgets like sewing machines and battery-driven electric burglar alarms, and the preparation of a children's magazine by pupils themselves". It is noteworthy that the likelihood that the girls would actually enjoy – as well as benefit from – these activities is actually mentioned, but the implication that it is subsidiary to 'succeed' is saddening.

A Litmus Test for Laughter Makers



The vital pleasure element that should characterise education remains virtually overlooked, other than as a catalyst to purposes external to the Child as Child. And yet numerous authors come very close to announcing that, above all else, schooling should be fun, without ever quite articulating it. Even lifeless curricula may, in the hands of dedicated and creative teachers, be turned into animated activities. Yet many seem to prefer livelihoods to liveliness. What is to be

done?

Let us offer an analogy. Were one, as a parent perhaps, or as an aunt or an uncle, to take three or four children to the cinema, concert or live event, what would predominate in the choice of show and one's whole approach to the event? Specifically, would the main purpose of the outing for the target population best be described as:

- (a) preparing them for their future as adults;
- (b) improving their characters;
- (c) helping them develop an ethic of service; or
- (d) having an enjoyable time?

Similarly, were you to take your daughter or son out for a decent meal (or even to MacDonald's), what would be the main objective? Or, were you to purchase a board game as a present for a youngster (monopoly, say, or chess or scrabble), would your foremost intention be that of fostering strategic thinking, or of assisting that young person in relation to forthcoming examinations, or of encouraging her or him to become a property magnate, field marshal or crossword compiler, or simply hoping that the recipient has a good time playing it? It is respectfully submitted that, in respect of all these activities, demonstrable enjoyment would and should be the only Objectively Verifiable Indicator (OVI).

And, in the realm of Rights, this is the appropriate contributor relationship: the adult whose present or presentation pleases the Child. Those who provide education should, we maintain, be creative artists rather than child-minders, impresarios rather than jailers, masters of ceremonies rather than sergeants-major. The fond relative who selects and bestows the gift that fascinates and enlivens is paralleled by the dedicated teacher who plans and delivers the attractive lesson. The loving parents who entertain their offspring with an appreciated evening out are the equivalents of the curriculum or textbook composers, and of the donor agencies or educational managers, who stimulate pleasurable schooling. That is **the essential Human Right of the Child – to enjoy her or his childhood as an end in itself**. And any connection with livelihood would be purely coincidental.

Yet again we stress the distinction between 'education' (which has nothing to do with livelihoods or productivity or economic growth) and 'training' (which certainly has). The conventional wisdom is that education should be viewed as instrumental to poverty reduction

and economic growth: the well-intentioned yet thoroughly misguided notion that education is only (or mainly) about poverty reduction and material progress. Many participants in that debate take that misconceived stand not as a debatable hypothesis but as a given. They see education as aimed solely at economic growth and they measure its effectiveness in terms of marketable skills acquired, employment generated and productivity enhanced. Students worldwide reject that view, preferring enjoyable and stimulating teaching and the development of a love of learning.

It is self-evident that education is a fundamental social good and that all young persons worldwide are entitled and should be enabled to pursue their own interests for their own sakes. Let us go further and proclaim that education should, above all else, be enjoyable and, indeed, that enjoyment is the sole criterion upon which its merits may be judged. So let us say yet again that, as a fundamental Right of the Child, learning should be fun. Because life itself is meant to be pleasant, and as formal education occupies a significant proportion of people's lives, then the years spent as a student should surely be congenial. However, the axiom that children should enjoy their schooling is virtually ignored by planners, researchers and many practitioners. Analyses of standard educational economics texts illustrate how 'anticipated future earnings' has become the virtually unchallenged criterion for educational outcomes. Assessments of multi- and bi-lateral agency investments in developing countries' education sectors reveal that the happiness dimension is ignored.

The current obsession with educational input-output measures is entirely bogus. Some desiccated number crunchers may be fascinated by apparent correlations between person-years of schooling and social rates of return. One especially droll practice is to use 'number of years of full-time schooling' as a surrogate for 'level of education achieved'. This is akin to estimating a person's health status based upon 'time spent in hospital'. What happens during those long years of schooling is what really matters".

An inspection of primary curricula indicates the extent to which (in developing but not in Western countries) facts, concepts and processes related to the world of work increasingly encroach upon classroom activity. And yet it is the case that the economic benefits of effective and relevant education for society, and for the students themselves, may best be regarded as providential windfalls: pleasure should be the primary purpose. Paradoxically, projects related to training frequently include Objectively Verifiable Indicators related to, for instance, the trainees reported 'satisfaction' with the courses.

Formal education occupies a significant proportion of people's lives, in terms of time and, even more so, in terms of consciousness. It is, therefore, imperative that it be as pleasurable as possible – exemplified by laughter rather than sorrow. It should, as we keep saying, be fun. And it should be fun, not because a happy lesson is an effective lesson, although that does tend to be true [the positive relationship between entertaining and successful learning is readily acknowledged but that is an obvious and – in terms of this book – a subsidiary observation]. In that life itself should be as pleasant as possible for all concerned, education should be enjoyable as an end in itself.

Attempting indirectly to create individual and communal well-being - through economic growth – brought about by increased productivity – by means of a better educated workforce – is a remarkably roundabout route to human happiness. Yet this is often the grand strategy of educational planners, development partners (donors) and developing country governments.

Rather than giving the donkey a carrot, the wretched beast is placed in a mind-numbing maze and, just possibly, should it eventually emerge from that lack-lustre labyrinth, there might conceivably, but not necessarily, be half a carrot awaiting it at the exit. [Which is not to suggest that students are donkeys.]

The question is: to what extent and in which ways are those kinds of and anticipatory skills development and livelihoods analyses of relevance to education?

The answer is: in no ways whatsoever.

The Child's Right to be a Child

Unless we regard schooling as preparation.

Some consider that the Child has a Right to be prepared for adult life (or, rather, for selected aspects of an imagined adult life). Some, indeed, fervently believe that the Child has a Right to be prepared for the next life – and that unattestable conviction may go even further back into history and pre-history than the pre-vocational deception. For a century or so, Western nations have been committed to universal, compulsory and (in some senses) free basic education – and, in this as in so much else, the developing world has fallen into line. The implication here is that the Child has a Duty to attend school consequent upon the Child's Right to be schooled.

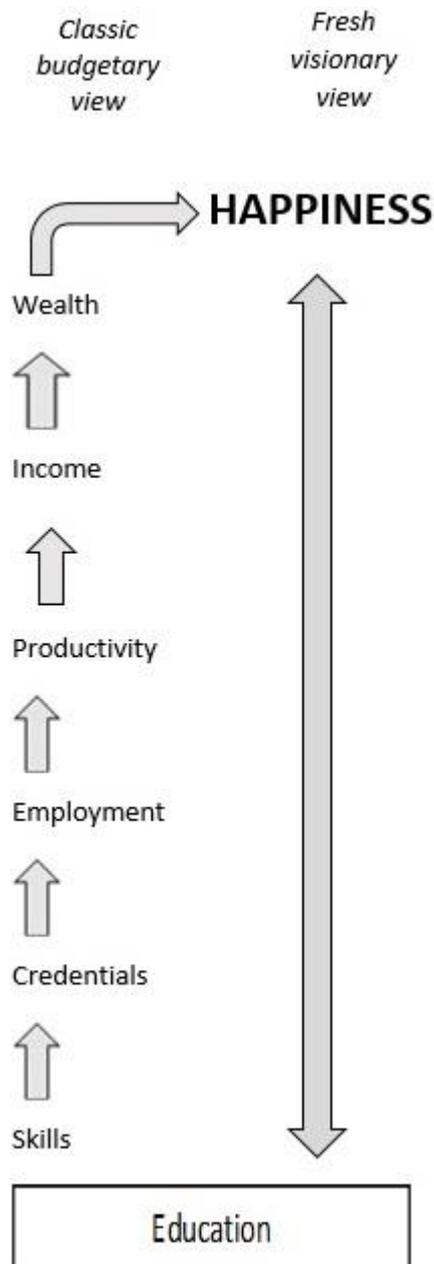
A small minority of educationalists and philosophers (A.S.Neill and Ivan Illich, for example) have contested this arrangement, and somewhat more significant numbers of children have themselves elected not to, or have been by others disallowed to, exercise this Right. Here is an interesting school avoidance stanza from the Pacific:

A Sect in Ra

*Veidrala's Candle Church has ruled
That children should remain unschooled
But rather wait at home and pray
In readiness for Judgement Day.
But what if Judgement, when it comes,
Involves a spelling bee and sums?*

But most adults who have thought about it – particularly if they are parents – are convinced that all children should attend school (for a set number of years and/or until 'basic skills' are learned and/or they are old enough to not need minders), for their own good ('livelihood') and for that of the state ('labour and taxation.'). They, through their appointed leaders, articulate on behalf of the Child those Rights that the Child – being a child – is too immature to express. It is a comforting albeit dangerous philosophy. When one group of people (be they colonialists, masters in lunacy, political agitators) assert their Duty to enunciate the Rights of others, the spectre of self-interest is frequently imminent. Moreover, we have yet to encounter a school student exerting the Right to be prepared for her or his likely 'livelihood'.

These goals are implicitly intended to contribute to a Supergoal of 'Enriched Pleasure and Heightened Self-Realisation for All' – how else might they be justified? Thus it would be



entertaining to trace the links from various kinds of investments in assorted forms of education, through improved participation (wrongly termed 'access', as already noted) and enhanced teaching quality, by way of increased completion, graduation and tuition, to improved employment, productivity and output, thereby "eradicating extreme poverty and promoting sustainable development". Which, as implied above, necessarily raises the questions of why extreme poverty (indeed, all poverty) should be eradicated and why achieving sustainable development is a worthwhile cause.

And, if the answer to those questions is along the lines of promoting universal happiness and self- and social fulfilment, then this prompts a further question (which we have for many very long years been asking): why set out to answer it in such a roundabout way? [As illustrated in Figure 4.]

The temptation to sugar coat the pill of compulsion with the saccharine of relevance should be resisted. The fundamental Right of the Child is that of enjoying childhood. Yes, it is good for all concerned if youngsters leave school with a thirst for knowledge. Yes, in later life competence may be a prerequisite of happiness. Yes, it is fine for them, for their families and for the nation if they then are 'trainable'. But these are no more than the welcome side effects. We do our students a serious disservice if we treat them predominantly as future adults. It is what they 'are' rather than what they may 'become' that is significant. Stimulate them, stretch them, encourage them, inspire them, promote their potential, advance their individuality, cultivate their community spirit, foster their natural curiosity, underwrite their divergent enthusiasms – in other words, educate them.

Figure 4: Deferred Gratification and Present Enjoyment: alternate (non-exclusive) routes to Happiness through Education

But do so with their present pleasure rather than their future fulfilment as the primary objective – let there be laughter as their inalienable Right.

Present-day education, embodying contemporary technology in its connectivity, organisation, curriculum content and research, and in innovation, learning methods and management, presently seeks to provide trainable graduates for the rapidly evolving requirements of commerce, industry and civil society. Some, allowing schooling to be mistaken for the development of marketable skills, advocate that it should do more than that, welcoming the workplace's colonisation of the classroom. However, given that tomorrow's labour market skills demands are increasingly characterised by uncertainty, the vital distinction between

'education' and 'training' may valuably become an extremely hard border. The aims of the former may include, at the very most, a 'readiness' for the latter and, more desirably, be recognised as something worthwhile and enjoyable of itself. Above all, as already emphasised, the myth of educational input being justified by economic returns is exploded with the realisation that education's true objectives are mainly non-material.

So we have no problem in assessing alternative schemes for, say, 'modern apprenticeships' [especially when trades unions are involved in their design and implementation], or 'medical officers who will not move overseas after qualifying', or 'consciousness-raising for unemployed youth' from a 'Value for Money' perspective. The objective is reasonably clear, the desired outcome more or less measurable, and the economic benefits and monetary costs may with care be compared, all to the enlightenment of donors and the reassurance of electorates. But education isn't like that. Engendering a love of learning and underwriting enthusiasms and generally having fun in understanding and responding to our world is self-evidently good in a moral sense but in no way constitutes an economic good. Bringing the marketplace into the schoolroom devalues the invaluable, transforming a universal right into a tradable commodity.

Undoubtedly there are social and private spin-offs from a well-informed fascination with puzzles or a wide-ranging appreciation of artistic creativity. Assuredly individuals, families, villages and nations invest in learning ladders that they perceive most likely to lead to vendible credentials, etiquettes and contacts. Certainly the comparative cost-efficiencies of different ways of delivering EFA (or of, say, facilitating live births or saving fragile ecosystems or responding to tsunami) may be evaluated. But once we apply analyses based upon the assumption that helping an infant to walk, or enabling a child to read, or aiding an adolescent to enjoy cricket, or inspiring an adult to participate in drama, or enthusing an ancient pensioner to become an ICT whizz-kid is amenable let alone limited to economic number-crunching, then we're trading in our human values for a debased conception of value.

Expressions of Youth

If it is accepted that equitable quality lifelong education and learning for all is the overarching goal, there is an implication that, as young people constitute the majority of the world's population, children and youth should be consulted in the development of the new framework and be meaningfully involved in its implementation. What is largely missing, ironically, from the debate on Learner Centred Education (LCE) – and to a great extent from the wider literature on educational themes – is **the voice of young learners** in developing countries although, looking at a few contemporary studies, it is possible that this may, to some extent, be changing. What are young people's views on LCE and on classroom life during attempts at its implementation? How can students be an active part of curriculum development and educational project planning and implementation? What would those young people say, were they to be consulted?

Some five decades ago, Australian secondary students startled one of the present authors with their insistence that they wanted schooling to be valuable in itself rather than preparation for the post-school world. Time and time again, from school to school and from class to class they insisted that (to quote some archetypical comments):

"...we are students not future solicitors or future wharfies"..."there's plenty of time to consider what an army officer or a bricklayer needs to know once you've joined up or started laying bricks"..."quite a few kids are really frightened of having to make a living so they don't want to hear about it" (and) "we all want education to be education not preparation, just as pensioners don't want to keep hearing talks on death, maybe"

Much of the fieldwork supports these findings – indeed it is extremely difficult to locate any valid empirical study that shows school students calling for education to incorporate explicit workforce training or for childhood to be geared to career preparation. An interesting anthropological work makes the point that in many traditional cultures, children are held to be the best judges of their own needs, including how they spend their time, giving examples from Cherokee, Wintu, Alacaluf, Yali, Sami, Ngarinyin and many other cultures. Similarly, a Unicef study of 'what children say they need in order to be happy' concludes that the top three things were (a) time, (b) friendships and (c) being outdoors – little mention here of the explicit world of work preparation.

It is us well-intentioned Westerners who muddle up education with employment preparation, to the detriment of both. A recent report indicated that, of the 27 governments whose responses to a **Sustainable Development Goals survey** included 'education', only 7 mentioned 'vocational' or 'training' or 'skills development'. Unlike so many articles on post-MDG goals and related issues, it seems that those who put together their developing countries' responses tend not to confuse the very distinct entities – 'Education' and 'Training' – which are as different as, let us say, chalkboards and cheeseboards.

Evidence was gathered by one of the present authors from especially-conducted **pupil fora** in a total of four secondary schools in East Africa (two), South Asia and Central America. These were hour-long open discussions (with no other adults present) prompted only by the question: "What do you like about school and what do you not like about school?" The dialogue seldom flagged but, whenever it did, that opening mantra was repeated. In each case, two students served as recorders. Many matters were mentioned – friends, poor facilities, lack of textbooks, water and sanitation problems, limited seating, late/absent teachers, corporal punishment, long walks to school, limited security, financial pressures on parents, opportunities for sport and music, the kindness and dedication of particular teachers, the preference for particular subjects over others, the enjoyment of learning. There was some mention of examinations but this was not a major topic. Preparing for the world of work was never mentioned. [Those who encounter this paragraph are urged to repeat this exercise for themselves, lest that present author be suspected of some lack of subjectivity unwittingly affecting his investigation and hence its findings and consequently his conclusions.]

Each year, pupils in hundreds of UK schools enter a competition to describe '**The School We'd Like**' – it is illuminating that, in the one recent year's report encountered, there is no direct reference to explicit employment preparation in any of the entries quoted or referred to. Children's proposals ranged from "a learning bus to whizzy technology, garden and kitchens, via a graffiti-covered walkway and woodland path (all embodying) aspects of learning and development that create happy, confident, fulfilled and rounded children". Here again, readers might care to conduct similar investigations.

Almost 700,000 people from almost 200 countries voted in the MY World global survey conducted (using mobile phone and web technology as well as face to face surveys) in order "to hear people's priorities for the future development agenda after the Millennium Development Goals expire in 2015". While the survey's experimental design would fail to pass Masters' Degree muster, the magnitude of the response has delighted its organisers and enthralled countless data artists and analysts. The overall results ("a good education", "better health care" and "an honest and responsive government" are the top trending issues to date") are unsurprising – these are familiar aspects of all our lives. The now-fragmented 'A Good Education' alternatives received in total 40 per cent of all ticks, and those with the most were, in descending order, the following:

- 'Interesting and stimulating teaching' (32.0% of the 259 students ticked this one);
- 'Enjoying music, films, literature, art and cultural activities' (30.1%);
- 'Developing a love of learning' (28.6%);
- 'Good opportunities for lifelong learning' (28.2%);
- 'Pleasant, safe and student-friendly schooling' (24.3%); and
- 'Facilities and coaching for playing sport' (21.2%).

It should be emphasised for present purposes that:

- 'Acquiring specific skills related to my future work' (13.6%) and
 - 'Getting formal qualifications – degrees and certificates' (10.8%)
- were very much lower down the list of preferred educational priorities.

While decision-makers nationally and development partners universally perceive education as a key element in the drive towards poverty reduction and economic progress, school students worldwide do not share that well-intentioned sentiment. They say very clearly that they value enjoyable and stimulating teaching and the development of a love of learning way above the acquisition of diplomas and work-related skills. As with the MY World survey itself, methodological imperfections may be identified. Nevertheless, it is reasonable to claim that a hypothesis along the lines of 'school students tend not to regard their education as world of work preparation' has been supported. Which is in line with the literature and severely at variance with the expressed views of present-day donors, as with those of their predecessors.

Indications and Implications

Those of us who plan, practice or pontificate about international education are heirs to the many missionaries, imperialists, cold war warriors, multinational buccaneers, celebrity philanthropists and development bankers who have, across the continents and centuries, set out to convert, conquer, colonise, control, consumer-ise, customer-ise or by other means convince the developing world of the righteousness of their insights. Undoubtedly well-meaning, through our assumptions and in our actions we and our organisations all too frequently embody the error that education's objectives worldwide should be external to education itself – notably circuitous components in the fight against poverty and the drive for economic progress.

Confident in the apparently self-evident truth that

- * A good education significantly contributes to economic growth and poverty alleviation *therefore*
- * Economic growth and poverty alleviation are the true objectives of a good education,

they (or, let us face it, we) manifest the same *post hoc ergo propter hoc* fallacy that reduces a rich cultural heritage to a source of tourism revenues and that relegates corruption-free governance to a condition for corporate expansion. Underlying the entire issue is the fine-intentioned yet thoroughly misguided notion that education is all about poverty reduction and material progress – most blinkered planners, dogmatic decision-makers, orthodox academics and other assorted contributors to the debate appear to take this as a glorious given.

Undoubtedly, a 'good education' is positively correlated with national development and individual success. Indisputably, wealthier countries and international bodies should focus on helping poorer countries escape poverty and achieve economic growth. Certainly this is self-evident in relation to emergency aid and, indeed, to the bulk of development aid, including that which is tied to trade, primary production, communications, industry and commerce, energy, and technical and vocational training, for example.

But by lumping education (and other activities that are good in themselves) within this high-minded anti-poverty pro-growth movement, the curriculum and the ways in which learning is delivered are all too readily taken over by market imperatives and by world of work obligations. When education is defined in pecuniary terms and aimed at economic goals it is inevitably regarded as a function of the market and, consequently, the world of work will come to colonise the space of the school.

School students worldwide reject this annexation. Despite social pressures to 'work hard and get a good job' and to 'repay the investment that your parents/government/donors are making in you', when given the opportunity they affirm that education is manifestly not preparation. And the belated recognition that school students should be permitted to participate in the debate fails to overcome the underlying problem that it is the wrong debate.

While the age of indigenous education was far from golden, that stuff which has been externally wrought thereafter embodies alien machinations and a false prospectus. Let us not succumb to the all too common folly of confusing 'education' with 'training' which, as already emphasised are, as we just now observed, as different as chalkboards and cheeseboards [a good metaphor merits repetition]. Let those participating in the revolution be completely clear as to when they are talking about the one and when they are referring to the other: let us please have none of this oxymoronic 'vocational education' nonsense. Assuredly we need good data on training and its consequences: unlike education, it may have precise output and outcome indicators and lends itself to scrupulous analyses of skills developed against time and money invested. Which is very different from education and all decent revolutionaries should fight to keep the workplace and its values out of the schoolroom and its ideals.

Equally assuredly there are some recent interventions that bear such banners as child-centred teaching, active learning and child-friendly schools. But these most welcome developments tend to have indicators related to reduced drop-out, improved attendance and better examination performance. From pre-school through post-graduate, students should be loving learning on a lifelong basis – and surely it is that attitude which deserves to be measured, to be the key element in any educational data revolution.

'Revolution' can mean one of two things. One is the 'orbital motion about a point' which, in this case, implies the continuous concentration around the conventional minutia of how educational support may eventually translate into economic development without really

getting anywhere new. But 'revolution' may also signify the 'forcible overthrow of an obsolete social order or system for an original one', typically based upon an awakened consciousness. In this present context, this would be the awareness that enabling education to be enjoyable now, as opposed to its leading on to something that leads on (et cetera et cetera) to something that might be enjoyable far into the future, is the highest priority. That delivering happiness now is more significant than arranging its possible arrival, to some extent, for some, in some far-off epoch.

Let us, therefore, have a genuine **educational data revolution**, based upon there being direct investments in optimising the happiness of learners, with indicators unashamedly couched in terms of children enjoying schooling. This won't be easy but can't be avoided. Quantifying happiness in the world's classrooms is for sure a worthy nay revolutionary challenge for the élite data-mongers at Geneva's Rothschild Building, on the Pasrisian Place de Fontenoy and elsewhere. Let us resist the intrusion of training into education. Educational objectives are, when put together by those who see children merely as future workers, doomed distantly to fail. The post-2015 Development Goal should best have been: 'All Children Are Loving Learning' but those responsible were too infatuated with their own inadequate perceptions to reach out for such possibilities.

Education is not about helping countries nurture the workforce they need to grow in the global economy (to quote from several recent international reports) for this misses the central point. **Education is about Education.** But there is still an implication that even that is about climbing the non-existent ladder rather than composing Petrarchan sonnets or being fascinated by prime numbers or bowling the perfect ball at cricket. Judging the efficacy of education by the subsequent earnings of its victims is not just bad statistics; it is the workplace colonialism



of classroom integrity. As already regretted, most planners appear to take it absolutely for granted that education is predominantly about economic growth and poverty alleviation and that it should be supported, planned and evaluated from that perspective. Education is valid as an end in itself – and this is to be shouted loudly from the rooftops, pronounced unashamedly at conferences and incorporated efficaciously into policies, budgets, programmes, plans and classroom practices.

All too frequently, non-educators holding forth about education have used crude estimates of (along with even cruder assumptions regarding) incremental remuneration ('X additional years of primary schooling bring about Y additional duly discounted lifetime earnings'). We have for far too long been gravely hoodwinked by World Bank macroeconomists. Assuredly there is much to be gained by comparing the costs of training with the benefits of better-skilled and more motivated workers. The objective is reasonably clear, the desired outcome more or less measurable, and the EcoFin benefits and monetary costs may – with care – be compared, all to the enlightenment of donors and the reassurance of electorates.

We have been misled by malevolent macroeconomists (erroneously claiming that rates of return are highest at the primary, basic education level) to the extent that, from Port Moresby through Port Louis and Port of Spain to Port-au-Prince and all ports south, gangs of half-educated youths roam the streets, unemployed, disaffected, alienated, often armed and entirely understandably enraged.

Inevitably, if education is defined in pecuniary terms and aimed at economic goals it will be regarded as a function of the market and, consequently, the world of work will come to colonise the space of the school. Only when it is recognised that **education (as opposed to training) is about enjoyment and self-realisation (as opposed to acquiring marketable skills and the getting of certificates)**, will the profiteers be chased from the temples of learning and the laughter of children come to drown out the clacking of the cash registers.

4. THE GLOBAL SCHOOL

As all learners and all teachers worldwide are now (about to be) in contact with one another, the educational opportunities are of a different dimension than hitherto. This chapter explores how best to seize that once in twenty-nine lifetimes opportunity and optimise the benefits and their equitable worldwide distribution.

Responding Educationally to the Digital Age

Outcomes of piecemeal ICT applications have, as already discussed, fallen drastically and depressingly below expectations. Unless and until the entire educational system is Digitisation-based, the consequences of incorporating this approach or that device will be at best limited, possibly negative, at worst disastrous. As emphasised earlier, Digitisation makes necessary and feasible a fundamental reshaping of the entirety of education, for our times, and for times to come, locally, collectively by category, nationally and globally. Universal connectivity involves the emergence of what, for all intents and purposes, may be regarded as The Global School. Creating a distributed, worldwide educational institution, with local manifestations, characterised by fellowship rather than fear, inclusion rather than discrimination, cooperation rather than competition, active learning rather than passive non-learning, naturally enabled by technology, involves a major revolution in both concept and culture.

It may be helpful to consider the analogy of libraries. For over two millennia, there have been numerous discrete libraries, each tied to a physical location and providing services to their particular customers. Relatively recently, there have been inter-library loans, and then faxed, and then emailed exchanges of material: the late-20th century Wow! But, with Digitisation, it is sensible to conceive of the one fully-connected worldwide library ('The Global Library'), enabling any user anywhere to access information, to contribute to the vast body of facts and ideas and, indeed, to print out items or download books and journals for private study and enjoyment on hand-held and other personal devices.

And, in a similar way, instead of multifarious and isolated educational institutions of varying natures, locations, qualities and aspirations, with Digitisation it is now feasible and necessary to think of The Global School as the one (potentially fully-connected and networked) worldwide educational institution. Over recent years, the traditional concept of the 'school' has evolved in some respects towards a fresh and enhanced concept of participative connectivity. There are two main evolutionary dimensions: the change within educational institutions themselves (classrooms, teachers, learning materials, the concept of a 'lesson'...), and across all schools (their increasing interconnectedness into 'one' potentially universal School). This brand-new conceptualisation is elaborated upon and practically applied below.

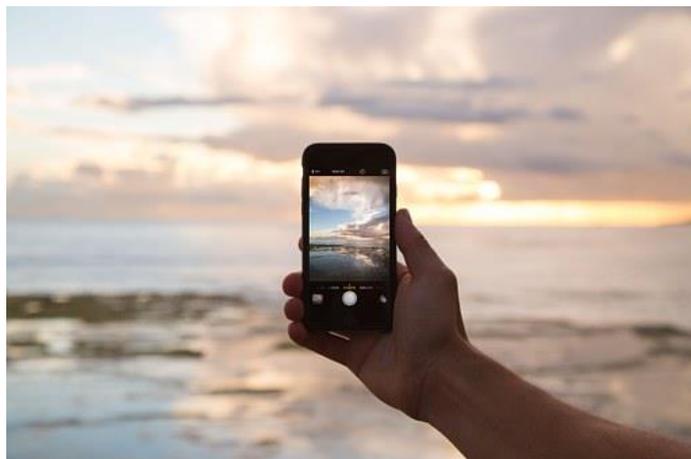
Digitisation has changed, and is continuing apace further to change, both the nature and aspiration of educational objectives and the means and enjoyment of their achievement. While, for instance, banking, entertainment and telecommunications are undergoing wholehearted digitally-based makeovers, this is yet to occur in the education sector. The objectives of those engaged in those other sectors are fairly clear – the goals of education are contested. Accordingly, **educational Digitisation, if it is to be successful, must articulate with utterly fresh understandings of what education is and is for.**

Its goals and objectives now make sense only if they are set in the digital context. Similarly, the transformation of organisation, curriculum, pedagogy, management and other educational elements into digital form will be valuable if and only if they dovetail with an entirely reworked comprehension of education's purpose. The task is not simply to apply Digitisation but to articulate it with something completely transformed. No wonder that bits of IT tacked on to an antiquated skeleton had but negligible positive consequence.

The society within and into which the teachers operate and learners are moving has altered radically – and will be characterised by on-going alteration. Similarly, the ways in which the transmission of information and the sharing of ideas and the stimulation of creativity may be achieved manifest a fresh educational era. It would be the most bitterly shattered window of opportunity ever were the present, outdated educational practices, policies and philosophies simply to be shuffled into the utterly transformed Digitisation-based system: The Global School, if it is to be anything beyond its technology, must rise to the needs and aspirations of disparate and often desperate peoples in a deficient and frequently dangerous world. The virtually worldwide recognition that everything is transformed has yet to be matched by any fundamental reshaping of educational content, classroom culture or institutional philosophy. This thoroughgoing surge forward represents a pivotal leap in human potential as profound as the wheel in relation to development and as significant as the book in the context of education.

With the emergence of The Global School and the creative application of ubiquitous and relatively-inexpensive hand-held devices, a long-overdue move away from high investment solutions should eventuate. Most products, services, usage models, expertise, and research related to ICT use in education have come from high-income contexts and environments and, consequently, 'solutions' enabled by technology have, until now, been imported and 'made to fit' in environments that are often much more challenging. That expensive, imported response is now redundant and the machinery obsolete. Moving wholeheartedly into the 'education based upon Digitisation' situation is the predominant challenge before us. In the light of this forthcoming, fundamental reformulation, many major **international interventions**, current and forthcoming, in that they are not grounded in the evolving digital context, are unworkable, irrelevant and vain.

With the advent of The Global School, the best teachers, top researchers and the best texts need no longer be available only to those with the most money. Digitisation offers a unique opportunity to redress historical imbalances and bridge the current digital divide. Moreover, developing countries may leapfrog developed countries by going directly to mobile technologies instead of first implementing expensive Internet infrastructure.



Lofty aspirations enshrined in many developing countries' Visions may now be approached through the creative application of Digitisation. Furthermore, free and low-cost mobile apps, for instance, offer increased functionality for persons across the disability spectrum. Assistive software is available for feature phones. Accessibility enhancements for web browsers promote greater internet use by persons with disabilities. Here through such means is an opportunity to ensure inclusive and equal access to mobile devices and online resources to the poor, to those with disabilities, to women and girls, to the youth, and to learners in geographically isolated areas across the developing world.

With these fundamental (some might say utopian) transformations, the substance, practice and consequences of education can and should become much more equitable, ethical and enjoyable (and far less competitive, test-oriented and world-of-work-dominated) as addressed in the 'Equality, Equity, Etcetera' section, below. With Digitisation, once the far-reaching possibilities are comprehended, the challenges faced and ICT novelties no longer presenting haphazard distractions, learners and teachers may come into their own in The Global School. Educationally, these are the most exciting times since Socrates [the philosopher not the footballer].

With Digitisation, we are already in an entirely fresh situation and starting to experience a new order of necessities and potential benefits. The challenge of transforming education for our times will also have to create capabilities for flexibility in learning for a largely unknown future. It is time, nay overdue, to cease thinking of ICT supporting schooling as currently perceived in favour of comprehending that Digitisation makes possible, nay necessary, an entirely fresh approach to education, as it does to society generally. And this ground-breaking conceptualisation is made manifest in The Global School.

What is this 'Global School'?

This is the rural school for hungry children in disadvantaged areas of Haiti, Burundi and Nepal. It is the fee-paying college serving the sons and daughters of prosperous parents in a leafy suburb of any European capital or resort. It is the academy for teenage would-be computer engineers and specialist doctors in Johannesburg, Beijing and New York. It is the mixed-age class run in tents by volunteers for up-to-sixth-generation juveniles in refugee camps from Aqabat Jaber on the West Bank through Nauru by way of Lesbos on to Darfur. It is Eton College near Windsor and Dawakin Tofa Science Secondary School in Kano State and Moriah College in Sydney and the Princesses' School in Riyadh and the reformatory for young offenders in Abu Dhabi and the second-chance street school for dropouts in Dhaka or for recalcitrant rascals in Port Moresby.

It is the school around the corner, continually reappearing in unprecedented configurations - it is all forms of educational institutions, everywhere. It is **not** the 'school of the future'. If you, the reader, wishes, it is the 'whole school approach' made manifest for the Digital Age - for the present continuous '**now**'.



Figure 5: The Global School

The GS's essential, integrated and mutually-supportive components comprise:

- **Learners:** active, engaged, for life, committed to personal development, self-directed, information and digitally literate, research-capable, mobile, collaborating, sharing their learning globally;
- **Connectivity:** easy, rapid, reliable, uninterrupted and affordable (i.e. free) access worldwide utilising appropriate mobile appliances for every learner [unspecifiable here, as there will be rapid changes in handling, versatility, on-line support methodologies and cost minimisation];
- **Teachers:** well-prepared and well-led professional educators, delivering, facilitating and assessing digitally-delivered learning, at ease with the technology, guiding, supporting and counselling the learners, sharing their learning materials globally;
- **Curriculum:** responding to learners' well-informed preferences, attractive, contemporary and proven learning modules (with teachers' guides) at all levels in all subjects, in every relevant language, plus background materials, further reading, in ineffable variety;
- **Pedagogy:** geared to supporting learners whether face-to-face or at a distance, far from test-obsessed, encouraging enjoyment and the thrill of exploration and discovery, engendering a lifetime love of learning;
- **Inclusion:** all learners worldwide, full- and part-time, on-campus and distant, irrespective of age, gender, beliefs, abilities or disabilities, are welcomed equitably and individually catered for; and
- **System:** geared to optimising enjoyable learning through, for example, exemplary educational institutional leadership, the continuous professional development of teachers, participation of family and community, and stimulating extra-curricular activities.

Proposals, Pitfalls, Practical Possibilities

The paramount objective is for all learners (i.e. everyone) readily and effectively to receive and benefit from connectivity, appropriate and readily available devices, suitable software, skilled enabling and sympathetic encouragement. The absolute priority is for all learners worldwide to participate. While Agenda 2030, seeing ICT (rather than Digitisation) as a subsidiary, enabling development, envisages a longer timeframe, our view is that all learners and teachers in all educational institutions worldwide could and, with appropriate support, should be fully connected participants in The Global School by 2020.

The Global School embodies a recognition that the world has changed dramatically and, in at least two senses, for good. The ‘interesting ICT add-on’ approach is gradually fading as the recognition by far-sighted educationalists and decision-makers of Digitisation as the basis of the entire educational endeavour gathers momentum. Whether it be a project or a programme or successive tranches of budget support, it is now the case that (a) ‘ICT in education’ is no longer something to be treated separately, and (b) education should be conceptualised only in its Digitisation context.

Not all teachers will be won over immediately. This is true of people generally, with some seeking to resist the relentlessness of immersive technology, often rejoicing in their digital illiteracy [“the most interesting thing about me is that I’ve no idea how to use a computer”] while others enjoy exploring how the digital world is rewiring our sense of what it means to be a human. Increasingly we are coaxed from the three-dimensional world around us and into the wonders of a fourth dimension, a world of digitised experiences in which we can project our idealised selves. A recent manifesto on coming to terms with free speech in a connected world recognises that, “because of mass migration and the internet, much of humanity now lives in a permanently connected ‘cosmopolis’... for good or ill, freedom of expression flows easily across frontiers”. The Global School will take forward that realisation.

Let it be emphasised that Digitisation offers an end to the reproduction of educational inequality from generation to generation. Much attention needs to be paid to ensuring that, while genuine private sector participation is encouraged, the commodification of education is made redundant by The Global School. Responses to the educational challenges of the Digital Age should be designed and delivered in full understanding of the entirely fresh circumstances, profound opportunities and potential dangers. If responded to democratically, participatively and creatively, Digitisation offers an unparalleled opportunity to redress imbalances.

The governments of some developing countries explicitly prepare their citizens to join overseas workforces (or, indeed, armies) so that remittances will flow to their families and the economies back home. For as long as grotesque international imbalances of wealth persist, and until this trade in human misery is outlawed, such dehumanising bondage will prevail.

The sharing of worldwide experiences along with the re-shaping of them for specific local conditions and aspirations will be the basic process for optimising learning in the Digital Age. Learners will have greater mobility as they travel and work anywhere, which will require globally accepted standards of qualifications and qualifications that can be recognised cross-border. In terms of PTVT (not education) it will also require national and regional systems of credit transfer, work-based learning accreditation and prior learning assessment and recognition. Overcoming language barriers in accessing learning materials, teaching and

examining is also feasible – as in all things educational, the recognition that we are in a fresh new era is paramount.

The conceptualisation of all educational institutions being integrated elements of the one universal organisation – The Global School – illustrates the emerging situation, with details undoubtedly dramatic but as yet unknown. To offer just one example, let us imagine an ill-equipped lower secondary school in an impoverished and inaccessible area of Africa (or Asia, or South America, or mid-Pacific...), and every teacher and pupil therein, becoming readily and inexpensively in contact with institutions, teachers, learners, counsellors and materials providers worldwide. Obviously, without imaginative planning and effective support, this could be chaotic distraction. Alternatively, information and ideas could be exchanged, stimulating software accessed, assignments assessed and constructive suggestions offered and applied, lessons, tutorials and practical sessions shared, staff responsibilities reordered, continuous professional development transformed, and a whole host of other possibilities (as hinted at in Chapter 0, above) explored and enjoyed.

Digital Literacy

Each succeeding generation will be more ‘digitally familiar’ than its predecessor: can there ever be a limit? Today’s children know no other Age than the Digital, their children in turn will wonder at the parents’ unfamiliarity with devices and systems as yet undreamed of. Digitisation has already propagated a contemporary culture of computerised gaming, play and entertainment. While not, very strictly speaking, ‘educational’, this involvement from infancy offers a readiness for digital learning – indeed, pre-schoolers are already, in a sense, part of The Global School. Digital literacy and digital fluency are capabilities that are increasingly critical (and indeed natural, inconspicuous and inescapable) and already one-half of urban workers in developing countries use digital technology at work.

Schools are seen simultaneously as the cause of economic woes, sporting failures, mental health and eating habits problems, and the rise in drug and drink problems, and also the road to their solution. The examination culture celebrates the winners in a never-ending contest, focussing upon the measurable at the expense of the valuable. The exams themselves are unreliable, costly and in many instances run by non-responsible boards for private profit. Typically, they create a climate of fear, bullying and human failure. By such blinkered focussing upon the most readily gaugeable basics, equally vital skills such as high level IT, thinking analytically, solving inter-disciplinary problems, working in teams, interacting civilly with individuals from different cultures and thinking for themselves while acting for others, are neglected.

Some evidence suggests that, in the United Kingdom, students perform badly in mathematics, science, language and other attainment tests in comparison with those in other so-called developed nations. In so far as this indicates that their teachers are not 'teaching to the test', these findings may be regarded as encouraging.

This movement towards the one universal educational institution will, thankfully, outgrow the examination culture and, as the autonomy of individual schools and systems evaporates and, thankfully, national league tables and **odious trans-country comparisons** by such as PISA will become redundant. With the Digitisation of education, the substance, practice and consequences of education can and should become far less competitive, test-oriented and

world-of-work-dominated. Schooling will resume its true role of drawing out: less a process of work-preparation and student-comparison, more one of creative stimulation and enjoyable interaction, distributed across the globe. Whether universal connectivity necessarily causes universal values and references, embodied in the shared desire for a better and more solidarity-based world, along with a “strong core of universal values that reinforce meanings and practices regarding justice remains as yet unproven: let us live in hope and the only world we have.

Misbehaviour, Bullying, Sexual Exploitation and Suchlike

If one were to study all of the journal articles, research papers, conference presentations, national plans and policies, international declarations and strategies, theses and dissertations published or delivered in recent years (and, given that we are emphasising enjoyment, we are not recommending that this be done), it is likely that relatively little will be located that is of relevance to this section’s heading. Studies focus on such themes as ‘Internationally comparable scores in STEM subjects as surrogates for future economic growth’ [to take an actual and far too typical topic from a forthcoming international gathering]. Children worldwide are more concerned with relationships, how to keep out of trouble, how to keep awake while hungry, and how soon the lesson will end.



In some cultures, some students bring guns into school and indeed sometimes use them to terrible effect. In others (as illustrated in this cartoon, taken from a Sub-Saharan African country’s daily newspaper), teachers impregnate pupils with impunity¹. Schooling worldwide is characterised by misery, boredom, bullying, deceit, anxiety, humiliation, brutalisation,

¹ The interviewers seem mildly perturbed rather than utterly horrified and appear more likely to be looking forward to sharing this story with colleagues than sending for the police. One suspects that the interviewee with ‘too much strength’ still got the job. Typically, teachers make young students pregnant, resulting in the young expectant mothers’ expulsion, with the teacher perhaps going through some forms of suspension, even criminal proceedings and perhaps professional enquiry, but then being permitted to continue teaching.

ethnic – and many other types of – discrimination, religious – and many other forms of – indoctrination, sexual – and many other kinds of – exploitation, and testing to destruction. It should not be like that. [And the extent to which this central reality is ignored by planners, academics and authorities both national and international remains remarkable.]

The needs of young people extend to an education that is safe and participative and convivial. That is free of bullying and discrimination and sexual exploitation. That is open and democratic and active and child-centred and creative. That is enjoyed by teachers and learners. In other words, education that is fun. However, it is entirely reasonable to ask whether it is realistic to expect the entire education process to be enjoyable: how can learning about, for example, the Black Death, or slavery, or the plight historically of so many indigenous peoples, or the Holocaust be entertaining? As with life, learning necessitates dealing with deeply unpleasant issues. In such areas, ‘fun’, or even ‘pleasurable’ are entirely inappropriate terms. So, what descriptions may properly be used? ‘Honest’ and ‘objective’ and ‘thoroughgoing’ come to mind. When learners choose to focus upon, say, the pollution of our oceans or the Irish Famine – and that crucial issue of choice will be dealt with in detail below – then that exploration, those lessons, will be authoritative, stimulating and fair. Taken all in all, education will be enjoyable and enlivening, contributed to by the serious elements, thoughtfully-tackled, that are inevitably to be included.

Although the conditions of teachers worldwide (typified by poor status, low remuneration and limited professional autonomy) are dealt with under Pedagogy, below, it is necessary to say something about them here. Preoccupied by mindless paperwork, inspections, changing syllabi, assessment objectives, schemes of work, grids, strands and levels, many depart from the professions whilst others report that they would much prefer to be truly teaching, with all the good things that it involves, extending to coaching sports teams, directing plays, organising outings and generally inspiring their pupils. The Global School will free them from much of the tedious distraction, much as the movement away from externally-imposed curricula and the test-free environment will allow them to concentrate on guiding and encouraging their learners and upon enlivening and enhancing their lessons, extending to facilitating the full range of extra-activities arising from the well-informed requests of learners.

Neither in terms of human happiness, nor in relation to good behaviour, freedom from exploitation and overall well-being, is education, as presently practiced, working – and ICT has, on balance, probably made it worse. While recognition and patterning AI may enable those who police to identify high risk offenders as they walk the evening streets, and empower those who run department stores to forecast the paths likely to be trodden by those most likely to purchase branded socks, the potential of algorithmic surveillance to identify bullying and sexual exploitation before they happen needs to be balanced against the threats to liberty and possibilities of false accusations.

The evolution of The Global School, despite the significant transformations involved, will not solve all of the sector’s deep and damaging difficulties at a stroke. [Nor do this book’s authors claim that they have touched upon all of the pertinent challenges – additional chapters, nay entire volumes, might well have been written regarding, for instance, ‘parental roles’, ‘mental health’ or ‘sex and family life education’.] What it will achieve will be **a convivial setting wherein intelligent people of goodwill may cooperate creatively in seeking acceptable and effective solutions** to such issues as they arise.

Individual Educational Institutions (EIs) will still exist, guiding their younger learners towards a love of learning and to the responsibility for its direction, and facilitating the learning of those who have reached that self-directed stage. Within the EIs, in conjunction with their local communities, the teachers and managers will work with the on-site learners in order to create and sustain a convivial environment. Perfection will be neither utter, nor immediate, nor automatic but, with The Global School, the conditions for significant improvement in all-round well-being are extensively enhanced.

Equality, Equity, Etcetera

Moreover, from both national and international perspectives, education, as presently mostly practiced, is the enemy of equity. Other than at conferences, on protest marches and in the pages of peer-reviewed journals or of pious official declarations, there are few signs of education systems genuinely gearing up to overcome inequality and prepare the world's children confidently, competently and cheerfully to seize this century's opportunities. However, while the internet is a marvellous medium for international munificence, good deeds are not enough. The ongoing digital revolution offers new intrinsic opportunities; it dramatically changes what can be learned and by whom. Welcoming all learners irrespective of background, gender, previous knowledge, age or other such factors, to the lifelong Global School offers much potential but poses many fresh challenges for educational philosophers, planners, managers and deliverers, involving getting beyond the slogans and being judged by practical consequences.

Digitisation, as opposed to mere ICT, enables and requires those lofty aspirations about equity to be purposefully addressed, along with a re-opening of the important debate on what (and indeed who) education, now inevitably in the context of Digitisation, is really for. As discussed in terms of planning and management, below, Digitisation both necessitates and makes possible a change in the organisation as well as access to and the delivery of education, offering the potential to equalise learning opportunities and, more challengingly, outcomes, involving a significant movement in favour of economically and/or demographically/or otherwise disadvantaged communities.

Inclusion in education works. It enables empathy, understanding and tolerance – all essential in developing a cohesive society and a unified world. But true inclusion involves not only motivated and enlightened educators but also a system geared to meeting social and emotional needs. Without the real understanding of human difference, with which proudly diverse educational institutions endow their pupils, how are the adults whom these children all too soon become going to make a good society, a good world?

Digitisation may, with much creativity, genuinely support inclusion and diversity, just as it may, with care, be utilised in safe and ethical ways and, indeed, become an effective network for altruism. Enforced 'student selection' may now thankfully be discarded to the scrapheap, along with, as already recognised, that damaging oxymoron 'educational economics'. As recognised at the commencement of this chapter, all learners and all teachers worldwide are now (about to be) in contact with one another and, consequently, the educational challenges and opportunities are of a different dimension than hitherto. As already emphasised, the necessary response covers design, content, delivery, school organisation, classroom culture and institutional philosophy, embodying and integrating contemporary technology in its

connectivity, organisation, curriculum, learning methods and management. Nothing educationally will ever be the same again.

But those most bullish about these opportunities are those who are the most educated already. Half a billion children either abandon primary school or learn very little while they are there. Over 260 million children and young people are not in school. About 1 in 10 of the world's population is illiterate. In 20 countries in Africa and Asia more than half of the people cannot read or write (let alone enjoy poetry or the calculus). It is wonderful that the UN has a global educational initiative but, for it to make any kind of sense and impact, it needs to be conceptualised and delivered in the context of Digitisation. People in poor countries want to share in the lifestyle that they recognise in rich countries: if they cannot see a route to getting it at home, they will move to where it exists, in spite of all the sanctions, dangers and prohibitions.

Desires for action and the need to demonstrate 'quick wins' as a result of a new national 'education in the context of Digitisation' policy can, in their practical execution, greatly complicate goals related to equity and fairness. Do you first educationally connect those EIs which are easiest to reach and upgrade the teachers who are already the 'best'? The temptation to do this can be substantial. Such school and teachers are often found in communities where learners already possess a number of advantages (related to wealth, for example, or the fact that they live in urban areas). The potential of the predominance of English in online education also negatively affects the provision of education in other languages. While rhetoric around helping to close the 'digital divide' can mark key opening passes of 'education in the context of Digitisation' practices, and while such sentiments can be an important catalyst for the development of an 'education in the context of Digitisation' policy, great care needs to be taken to ensure that individual components of such policies align with, and do not stand in practical opposition to, a more general policy interest in promoting equity. [It may be observed that a 'nutrition' programme would most likely focus on the least rather than upon the most well-fed.]

This raises the broader question of equity, within countries as well as between countries, particularly between the industrialized and developing world. There are optimistic theories about development – about a great technological bound forward or about latecomers' ability to leapfrog generations held back by already outdated technologies. Pessimists (who refer to themselves as 'realists') affirm that the vast divisions between rich and poor will always be with us, in power relations as well as in wealth and income. While inter-national leapfrogging cannot occur within current conceptualisations, perpetual inequity is neither inevitable nor acceptable. As an integral element in planning for a great digital-based bound forward, the inequalities and injustices within and between nations must be a major consideration as The Global School requires basic access to digital technologies and an ability to utilise them. And, within education, the humane vision should be embodied in systemic, school and classroom arrangements (steadfastly avoiding, as emphasised elsewhere, the misuse of the curriculum for purposes of even well-intentioned indoctrination). The learning crisis is a moral crisis and, although usurping education in the name of specific moralities would be, as already explained, the height of immorality, overcoming digital as well as other disparities will better equip people to solve real world problems in their communities and beyond.

It is the heart-rending case that a significant proportion of out of school children and adolescents live in **conflict-affected countries** and fragile states and that this number is

increasing. These primary-age children are more than twice as likely to be out of school as are those in other locations and these adolescents are two thirds more likely to be out of school. The movement towards The Global School encompasses all children in whatever circumstances they are in, as they can all remain connected to each other, to teachers, to resources and to learning. Key enabling factors promoting effective education during and after crisis situations include learners, teachers and parents (where applicable) having access to the appropriate technology and to the network and the cloud, be it with a feature mobile phone or smart phone and, if the latter, the required mobile app and their having been trained in the workings of The Global School effectively to participate in and experience its full benefits before, during and after crisis situations.



As already emphasised, The Global School provides the setting within which the challenges of misbehaviour, bullying, sexual exploitation and suchlike may be addressed and, with intelligence and goodwill, minimised and mollified, rather than solving them directly and immediately. In a similar manner, The Global School delivers the environment wherein equity may best be pursued as opposed to creating it directly. Assuredly, the wide range of EIs – some small, some vast, some ancient, some run by religious organisations, some by local communities, some on financial bases, some embodying particular cultural norms, some in wondrous facilities, some in lean-to sheds – will now be integral elements of the one universal school for all. There will, inevitably, be big differences between these EIs, just as no two teachers can ever be identical. But, from now and onwards, as never before, Digitisation offers opportunities for enjoyable and stimulating experiences, in safe and convivial learning

conditions, for all learners the world over, including those in the remote, poverty-ridden and dangerous locations just as much as those in relatively favourable circumstances. We have but one world and soon we shall have just the one universal Global School.

5. PLANNING TO MANAGE – MANAGING TO PLAN

Whether it be a one-teacher school in Northern Alberta, a technological university in New South Wales or a national education system in Sub-Saharan Africa, the basic educational planning task is identical: to mobilise available resources in order to achieve the agreed (or implied) objectives in a pleasurable and stimulating setting. By "available resources" we do not mean 'learning content' but the entire gamut of resources, including but going far beyond content, enabling the creation of rich learning experiences in a pleasurable and stimulating setting. Digitisation has changed, and is continuing apace further to change, both the nature and aspiration of those objectives and the means and enjoyment of their achievement. The society within and into which the teachers operate and the learners are moving has altered radically – and will be characterised by on-going alteration. Similarly, the ways in which the transmission of information and the sharing of ideas and the stimulation of creativity may be achieved have altered pivotally.

The new era ushered in by Digitisation, symbolised by the emergence of The Global School, is as utterly changed from that which has gone before as was the pre-books to with-books transformation. It has long been recognised that Digitisation will fundamentally rework the notion and nature of EIs and the future model of The Global School had, over a decade ago, been tabulated as follows:

From	To
A school building	A knowledge infrastructure (schools, labs, radio, television, Internet, museums, artificial intelligence...)
Classrooms	Individual learners or self-selecting groups of learners
A teacher (as provider of knowledge)	A teacher (as tutor, guide and facilitator)
A set of textbooks and some audio-visual aids	Multimedia materials: print, audio, video, digital...

Figure 6: Earlier Indications of some features of 'The Global School'

Yet it remains vital for decision-makers and planners, while allowing their imaginations to soar cloud-wise and beyond, to keep their feet very firmly planted upon *terra firma*, in order effectively to serve and be served by this emerging Digital Age. The challenge for those who guide education is to recognise that reality, to think through the implications, to avoid the pitfalls and extravagances, to promote a well-informed consensus, and to strategize and invest accordingly (and prudently). Digitisation (which includes but extends far beyond ICT) is not only altering the world into and for which people of all ages are being educated, but also transforming the means by which that education may be planned and managed.

Planning International

This educational transformation in the context of Digitisation will inevitably have profound consequences for development partners seeking to support national educational policies and plans. The Global School is with us – but as yet only to a limited extent in most of the developing world. The goal must be universal participation. The paramount objective is for all learners (i.e. virtually everyone) readily and effectively to receive and benefit from

connectivity, devices, software, skilled enabling and sympathetic encouragement. Accordingly, development partners should help all learners in EIs worldwide to achieve full internet and cloud participation as soon as realistically possible. This begins with rapid, reliable, uninterrupted and affordable (ideally free) internet and mobile access but, while connectivity for all remains an important goal and a tremendous challenge, it is not enough, of itself, to realise the full development benefits. There needs to be attractive analogue parallel capacity, contemporary and proven learning modules (with teachers' guides) at all levels in all subjects in every relevant language plus background materials, further reading, self- and teacher-administered-tests. And, as we shall soon discuss, arrangements and materials will need to support and arise out of learners' well-informed preferences, in addition to teachers' professional requirements.

Recalling the topic of conflict-affected countries, with which the previous chapter concluded, this would involve providing especial support in terms of access and full educational participation for those in Less Developed Countries (LDCs), fragile and post-war societies, and countries in transition, and for women's and girls and those with disabilities and members of disadvantaged groups. It would involve supporting interventions that strengthen links between **education, the private sector and civil society** in the socio-economic-cultural context of the Fourth Industrial Revolution. Development partners should consider diverting funding from national interventions to supporting the evolving Global School in such areas as free BYOD connectivity, online learning resources, reference sources, teacher consciousness-raising, inclusiveness, special needs and, in relation to PTVT only, international accreditation that celebrates distinctiveness yet concentrates upon our similarities. The policy debate and decisions regarding investment should focus on achieving and optimising the benefits of educational universality.

With Digitisation, a fresh educational era has arrived and, as emphasised, we should no longer simply be talking and planning in terms of Information and Communication Technology assisting ever more outmoded approaches and arrangements. Assuredly, much more learning will be self-directed and, equally indubitably, teachers' functions will alter profoundly, taking on 'escorts to wisdom' roles [as discussed in more detail below]. But, in another sense, education will forever be characterised by the guided and encouraged acquisition of fascinating knowledge, of stimulating ideas and of deep understanding, within a convivial environment, fostering creative self-fulfilment and communal well-being. *Plus ça change, plus c'est la même chose.*

Computer hardware production exemplifies globalisation, just as satellite-enabled communication manifests the worldwide integration of labour. Indeed, labour is following capital (but not land) in becoming universally mobile (walls and seas notwithstanding). This does not necessarily involve physical migration, as increasing proportions of workers may cooperate across hemispheres. Educational planning, including investment and expenditure, may – nay must – be now conducted in the context of creative interaction across nations, continents and oceans.

Rich countries have impersonal mechanisms such as points systems so that those migrants admitted from poor countries will be those highly-qualified ones upon whom their own countries most depend. Much better all round to accept unqualified migrants, as friends rather than slaves, but eager to do the dirty work that rich country citizens disdain to do, but whose children will go on to become engineers, surgeons, top accountants, health and safety inspectors, poets, professors of fuzzy logic and selectors of future cadres of migrants.

Given that the aim is for all EIs soon to become active elements within The Global School, connectivity is the priority. Market competition, public-private partnerships, and effective regulation of internet and mobile operators encourage private investment that can make access universal and affordable. Mobile ICT has taken off driven largely by the private sector. Private universities with a wide array of degrees already fully participate in education globally. Certainly the private sector – along with civil society – should be involved in programme design and policy dialogue regarding education in the context of Digitisation. [Although even this is contested with the claim that it is “...unrealistic to expect philanthropists, corporations, and charitable organizations” to contribute \$20 billion/year by 2030”, adding that “whatever they do contribute will continue to be as uncoordinated, self-interested, and misdirected as it is now”, believing that “...business should not be a partner, should not be at the advice or governance table”. This debate must and inevitably shall continue.]

As already asked: what is to be done? Clearly, many fascinating initiatives will continue to occur spontaneously (or, let us face it, commercially). Youngsters from four continents will jointly construct a Minecraft or Roblox model of the human respiratory system. Primary children in Tarawa will explore Spitzbergen without donning winter clothing. A student in Peace River will be coached in Arabic by a tutor in Medina. A postgraduate degree in Roman Law will be designed, delivered and marked entirely by robots (yes, really!). Dangers will be recognised, grappled with and manifestly outweighed by advantages. Chapter 0 has presented a wider range of such possibilities from the various perspectives. These are but a minute fraction of the forthcoming actuality.

And yet, beyond the exciting examples, the central challenge is that of conceptualising and creating educational structures and arrangements appropriate to the dramatically new circumstances of these times. Which involves proceeding far beyond the examples and the particular innovations, interesting though they well may be. Which necessitates utterly reworked definitions of, for example, lesson, classroom, curriculum, assessment, accreditation, learner, learning, teacher, teaching and, of course, School. And all of this to be envisaged and achieved, let it be emphasised, not by remote albeit well-intentioned coteries of sequestered decision-makers but by means of the kind of well-informed universal participation that, at its best, Digitisation makes possible.

For example:

- Educational Management Information Systems (EMIS) are now being used to provide accurate and timely data to inform educational planning and policy dialogue and development;
- Geolocation, the identification of the real-world location of any Internet-connected device, is becoming more widely available and useful in education for school mapping, field research and data acquisition, as well as proving context-aware information to mobile teachers and learners;
- Learning analytics, the measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimizing learning and the environments in which it occurs; taken further by
- Academic analytics, used by educational institutions to develop strategies for learning and administration and to improve educational planning and management, to identify at risk learners and to plan better plan interactions; they include learner profiles, performance of teaching staff, quality of course and subject design, and resource allocation;

- Machine learning and adaptive learning providing personalised learning based on learning patterns;
- Digital business and educational intelligence systems are used by educational institutions to gain essential information about learner preferences and their trajectories, the educational marketplace and the potential of innovative interventions, and thus to plan marketing and communication strategies;
- Augmented reality bringing to life physical historical settings; and
- Automated online assessment systems, linked to artificial intelligence, learning analytics and machine learning, providing for exams to occur with online invigilation delivered from another country.

A general observation may be made regarding the potential of such innovations and the readiness of users. Planning should not be technology-driven; educational management should use, rather than be used by, contemporary systems. The dream of a computer system with godlike powers and the wisdom to use them well is a theological construct, not a technological possibility. Without human judgements we are helpless against the errors introduced by earlier human judgements. The capacity of the technology should not significantly exceed the readiness of planners and decision-makers to apply it. As already emphasised, the deployment of technology should include the necessary ‘analogue’ dimensions such as capability building, convivial regulations enabling companies to leverage the internet to compete and innovate, and public relations so that educational managers and administrators may fully understand and be positive towards innovative approaches. Within the context of The Global School, the above examples, and many other justifiable applications, will be incorporated in an integrated manner, supporting the well-informed educational planning advice and well-balanced educational managerial decisions.

Economics, Enjoyment, Ethics

Educational planning, as practised from the original industrial revolution up to today’s date, has predominantly been an economic exercise, admittedly with some educational content but constricted and defined by overall and local resource parameters. While it is the case that many public policy decisions in education are influenced by concepts of equity and human rights on the one hand, and by the concept of education as an important ingredient for economic development on the other, the constraints have tended to be budgetary rather than visionary, ‘how much is in the purse?’ as opposed to ‘how best may we lead all learners out?’. While human capital theory has, as already recognised, fallen thankfully into well-earned disrepute, there remains in some influential corridors an irrational faith in education being not so much good for both individuals and the society at large but more a matter of enhanced public expenditure on education as an investment for the future and (the foremost) justification for multilateral and bilateral aid to education.

The aims of the former (education) may include, at the very most, a ‘readiness’ for the latter (work) and, more desirably, be recognised as something worthwhile and enjoyable of itself, guiding learners to developing life-long and life-wide capabilities. Above all, the myth of educational input being justified by economic returns is exploded with the realisation that, as already emphasised, education’s true objectives are mainly non-material. [As depicted in Figure 4, if investment in education is ultimately justified by a multi-stage route to human happiness, it seems irrational to ignore the more immediate opportunities for enjoyment that offer a more direct vindication.] Causal links between schooling-years and economic growth

have always been unconvincing – in the Digital Age, with an abundance of free on-line global courses and resources and formal and informal learning, all such speculation may cease.

This seminal transformation brings with it a crucial (and at first sight possibly startling) implications, namely that decision-makers and planners should cease creating policies and plans related to technology use in education in favour of Education Policies/Plans [i.e. educational policies and plans taking full account of Digitisation’s central significance]. As emphasised in Chapter 3, above, the term ‘Education and ICT’ is redundant: a 20th century relic, as superfluous as, say, the expression ‘education and learning’ or, indeed, ‘education and children’. In relation to an expert, or a teacher, or a text or, indeed, to a committee or a commission, the adjective ‘education’ necessarily implies ‘education in the context of Digitisation’. Similarly, ‘ICT in Education specialists’ are now superseded by ‘Education specialists’, which title implies a confident familiarity with Digitisation and its educational implications.

Central coordination and planning can facilitate effective use of digital manufacturing technologies in schools. Digital textbooks may serve as the bases for traditional face-to-face classes, online courses or degrees, or for MOOCs, offering lower costs, effortless (compared with hard copy textbooks) for learners to carry around, easier for teachers to monitor learner progress, and allowing simpler and cheaper updates as needed. A BYOD approach could become feasible across the developing world through well-planned investment, in the pedagogy and curriculum as well as in some future-proof technology. Assuredly, enabling all learners in EIs worldwide to achieve full internet and cloud participation (by say, 2020) will have substantial cost implications, and it is recognised that mobile access can be a considerable expense for those in developing settings!

However, pre-loaded handheld servers to which individuals may connect can overcome this problem, even in remote settings. It is recognised too that a majority of the world’s primary and secondary schools are without electricity, and that manually or solar operated computer systems may be available in the interim. Even more so, it is recognised that, if such fundamental inequitable deficiencies are not addressed and remedied, the world’s underlying problems will never be solved. This may well have economic justifications but the moral ones are immediately evident – and educational planners cannot avoid confronting such issues.

Digital Literacy, Understanding and Comfort

Basic numeracy and literacy will remain critical building blocks for participation digital world. No less important than facilitating a familiarity with words and numbers is a collective awareness that today’s children will be working in an environment that reflects not just a generational shift but a relentless technological revolution. Digital literacy be integrated into literacy training, thereby achieving two objectives at the same time, while adult learning becomes ‘communication in the context of Digitisation’.



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Another key capability is information literacy which can be described as “information skills, including the ability of learners to search for information and separate high-quality sources from low-quality ones”. In a digitally connected, networked world, digital information overload from reputable and other resources will be widespread. Considerable attention has been given to the nature of ‘digital literacy’ (or indeed ‘digital literacies’, with talk of ‘digital skills’, ‘digital fluency’, ‘digital capabilities’, ‘digital competencies’, ‘digital intelligence’, ‘digital erudition’ and so on, not to ignore our earlier use of ‘digital understanding’. The consensus emphasis is upon the ‘digital agency’ of individuals in terms of their development as ‘digital citizens’ and ‘digital workers’.

It has been said that any attempt to define [digital] literacies need to be located as part of social practices and occur within culturally constructed instances or literacy events as the goal of developing digital literacies is inextricably linked to enabling a greater sense of both personal and collective agency to help address some of the bigger issues confronting the future of humanity in an uncertain world. Some have sought to develop a shared vision of ‘digital literacies’, confirming that the literature is broad and ambiguous, making digital literacy a nebulous area that requires greater clarification and consensus. The EU-wide Digital Economy and Society Index (DESI) indicator on ‘digital skills’, suggesting that 44.5% of the EU population aged between 16 and 74 has insufficient of these particular skills, offers a good example of **the reassuring power of meaningless statistics**. While it is difficult (and unnecessary) to disagree with the observation that there is no simple answer to the question of ‘what do we mean by the term digital literacies?’ this absence of closure should not be allowed to distract educational planners indefinitely.

It has been claimed that we are in a landscape that is simply moving too fast for any ICT-based (or, to be accurate, Education based upon Digitisation-based) policy to have meaning. A contributor to the World Bank blog claims that no school, college or university can ever be “e-ready” or “e-confident” because the technology evolves so fast they will always be playing catch up and, consequently, technological innovations will always outpace the ability to innovate on the policy side. While technological changes typically surpass the abilities of policymakers to keep completely up to date, focussing upon education more generally, and realising that, to a large extent, the development and distribution of the devices will keep pace of their own (i.e. the market’s) accord, is, as underlined earlier, the appropriate and feasible approach.

For this is a delightful discussion, reminiscent in some ways of medieval disputes regarding angels and pins, but with limited practical implications. Just as the intersection between the philosophical aspects of infinitesimal space and the qualities attributed to seraphim and cherubim may (or may not) be made manifest to some or all of us *post mortem*, so also will the precise nature of required digital competence, at any particular pinpoint in time, become sufficiently clear for all practical purposes once that moment arrives. The objective is to be ‘digitally comfortable’, as probably most children are already, much as one might be a successful electrical engineer without being able to define (or indeed delineate) ‘electricity’. Education cannot ever update anyone, teacher or learner, with the entirety of digital understanding at any moment – if, on rational bases, they feel ‘digitally comfortable’ and are ‘at ease’ in the digital world, then that is enough. [If one felt it essential fully to understand a play in order to enjoy it, one would never go to the theatre.] Armed with that comforting insight, let us proceed to consider educational planning, then and now.

Educational Planning: Then

One searches the standard educational planning guides in vain for acknowledgement of Digitisation as a central factor, let alone the recognition that any plan, policy or strategy failing to be founded upon Digitisation may be regarded as obsolete. While this may be just about forgivable in respect of earlier documents, such as the turn-of-the-millennium UNESCO guides, it is alarming in relation to current advice from a prominent educational funding channel conduit *cum* would-be trend-setter, notably the Global Education Partnership.

Similarly, advertising materials for training in ‘Strategic Education Planning’, from those who should appreciate the presence and promise of Digitisation, offer to provide those involved with “a clear understanding of the necessary requirements, processes and considerations for establishing a well-resourced, well-regulated and equitable education sector, based on a realistic assessment of the available resources” but nary a mention of the digital dimension upon which all aspects of “developing, constructing and implementing strategic plans” are now embedded. Yet again, UNICEF is currently “commissioning a series of *Think Pieces* that aim to promote fresh and cutting-edge thinking on how to improve the quality of education in Eastern and Southern Africa”. A dozen topics are suggested – the fundamental digital component is not even implied in any of those, let alone as the basis for the overall initiative, once more exemplifying the ‘ICT as optional extra’ approach.

Generally, and with regard to national educational planning for developing countries, in terms of 20th century standard approaches to educational planning, the basic pattern is logical and (for the now concluding pre-Digitisation era) understandable. They may be summarized as illustrated:

Traditional Education Sector Plan Contents
I. SECTOR ANALYSIS: general context, system description, situation analysis (achievements, lessons, issues, challenges and opportunities: PEST and SWOP), stakeholder analysis;
II. POLICY AND STRATEGY: development objective and overall goals, specific objectives and strategy for achieving development objective, beneficiaries, institutional arrangements, major sub-programmes (or sub-sectors);
III. PROGRAMMES OF ACTION: for each sub-programme - programme objective (Statement and description of the programme), Components (Results > Actions > Inputs/Resources);
IV. MANAGEMENT, MONITORING AND EVALUATION: governance and management, development coordination (government, donors, NGOs, private sector, etc.), risk assessment and assumptions, monitoring and evaluation
V. COSTS: recurrent and capital, disbursement schedule
VI. ANNEXURE: input timing; output, outcome and impact indicators; responsibilities.

Figure 7: Current (Outdated) Education Sector Plan Contents

Perhaps the underlying impediment is expressed in the traditional truisms to the effect that “Strategic planning is based on the exploration of known or predicted trends ... the ideal tool

for... confronting innovations and disruptions” and “Planning is a future oriented concept that incorporates past history, present performance, and future direction to achieve organizational mission and objectives”. Technological determinism is an inadequate predictor of the future, educationally or otherwise. Even ‘Integrating technology into the educational process’ is not a simple, one-step activity but is, rather, an intricate, multifaceted process that involves a series of deliberate decisions, plans, and measures and fails to rise to the contemporary occasion. The idea of identifying ‘educational areas for ICT intervention and formulation of corresponding ICT-in-education policies, planning for implementation – infrastructure, hardware, ICT-enhanced content, personnel training, and cost’ entirely misses the present point of the integrated Global School. All has utterly changed: the Visigoths are no longer just at the gates of Rome: they have occupied the Forum and are merging in to the *publicus*.

Educational Planning: Now

Consequently, current calls for a “systematic, consultative process to formulate and policies related to, and plan for, the deployment and use of educational technologies” or even “a wider policy formulation and planning process that looks at broader developmental and education goals, and then seeks to investigate and articulate how and where the use of ICTs can help meet these objectives” are wide of the modern mark and no longer appropriate. Accordingly, the task now is to delineate and integrate aspirations, priorities, strategies, programmes, plans, activities, costs, inputs, responsibilities and monitoring and evaluation (M&E) mechanisms for education in the Digital Age.

Developing countries should (be encouraged and as necessary helped to) develop imaginative and realistic education policies and plans for the Digital Age, commencing with a specification of national and educational vision and goals in these kinds of times, extending to the evolving world of work and the challenges of social participation, family responsibilities and individual fulfilment; proceeding to set out ways of enabling widespread and equitable participation. Development Partners should respond thoughtfully and constructively to those national educational intentions. The task now is to delineate aspirations, priorities, strategies, programmes, plans, activities, costs, inputs, responsibilities and M&E mechanisms for education in the Digital Age. Above all, there is a need determinedly to create and apply educational policies and practices taking full account of Digitisation’s central significance in relation to objectives, content, means of delivery, outcomes and evaluation.

Happily but all too gradually, the abovementioned ‘interesting ICT add-on’ approach is fading as the recognition by far-sighted educationalists and decision-makers of Digitisation being the basis of the entire educational endeavour gathers momentum. But, as emphasised above, let us not be carried away. Having recognised that The Global School has come into existence, and having understood what that implies, involves and makes viable, the customary, realistic and widely participative educational planning process may proceed. But, throughout that involvement, there is a need determinedly to cease creating new policies related to technology use in education in favour of educational policies taking full account of Digitisation’s central significance in relation to, and integrating, objectives, content and means of delivery.

Technological innovations will always outpace one’s ability to innovate step-by-step on the policy side. But the educational planning focus should not be upon particular technologies so much as on what Digitisation in general makes possible. Commence by agreeing upon the

educational outcomes (with equity and enjoyment high on the list) and the development and distribution of the devices will keep pace of their own volition. The main difference between pre-Digitisation educational planning and that which the evolving situation now demands is the necessary move from discrete ICT initiatives within an existing system to a transformed educational system founded upon a cohesive set of mutually-supportive and integrated digital applications.

It is as if a revolutionary new building material suddenly becomes available. This manufacturer shows how it may be applied to window frames. Another demonstrates its use in chimney stacks. Yet another has perfected contemporary staircases. And then one far-sighted philosopher-architect exclaims: “Let us construct the entire house of this material!” while, a little later, another calls out: “Let us re-shape our conception of the ‘house’ based upon this material’s potential!” while yet another thereafter declares: “Let the entire town...”

Once the notion of Digitisation being at the heart of educational planning is embedded, the repetitive especial mentions will become redundant: everyone will know that, for example, ‘curriculum development’ means ‘curriculum development in the context of Digitisation’ and those last five words will then be superfluous. Just as it is presently understood that ‘swimming’ means ‘swimming in the context of water’, without explicit mentions of that moist medium being persistently made. Above all, there is a need determinedly to move away from efforts to create new policies related to technology use in education in favour of educational policies taking full account of Digitisation’s central significance in relation to objectives, content, means of delivery and, above all, educational philosophy. The ‘economics’ is still there, right at the end, but the banker no longer runs the company.

Digital Age Education Sector Plan Contents
I. DEVELOPMENT GOALS IN THE CONTEXT OF DIGITISATION: global understanding in a national vision i.e. "think global, act local"; social objectives, economic objectives, work skills objectives, consequent education sector objectives focussing upon equity and enjoyment – all in the context of Digitisation;
II. EDUCATION SECTOR ANALYSIS IN THE CONTEXT OF DIGITISATION: effective connectedness of schools, managers, teachers and learners; teachers’ digital understanding and ease; general condition of schools; formal and hugely growing informal learning; overall achievements, lessons, issues, challenges and opportunities in the context of Digitisation; stakeholder analysis in the context of Digitisation;
III. POLICY AND STRATEGY: development objectives and overall goals in the context of Digitisation; specific educational objectives and strategy for achieving development objectives in the context of Digitisation; enhancing enjoyment, quality and equity in the context of Digitisation; cost/benefit improvements through the application of Digitisation, beneficiaries, institutional arrangements, major sub-programmes or sub-sectors;
IV. PROGRAMMES OF ACTION: for example – curriculum development in the context of Digitisation, learning materials and systems in the context of Digitisation, continuing teacher development informed by global teachers in the context of Digitisation, examinations and assessment in the context of Digitisation; extracurricular activities, sport and recreation in the context of Digitisation; for each – programme objective, application of Digitisation, components (Results > Actions > Digital and other Inputs)
V. MANAGEMENT, MONITORING AND EVALUATION: governance and management, and development coordination (government, donors, NGOs, private sector, etc.) through the application of Digitisation; risk assessment, assumptions, monitoring and evaluation, through the application of Digitisation;
VI. ANNEXURE (outcome, impact and sustainability indicators, responsibilities and indicative costs).

Figure 8: Indicative Education Sector Plan Contents in the Context of Digitisation

The educational planner in the late-20th or early-21st century might well have asked: ‘what is available to improve upon the ways in which we are doing things now?’ As we have entered the digital age, the essential question becomes ‘how best may our education system be re-shaped, through the integrated application of Digitisation, to meet the ever-evolving requirement of contemporary society?’ As illustrated:

Pre-Digitisation (Then)	Digital Age (Now and Forever Onwards)
Here is where we are now – how may particular ICT applications best enable us to go forward on a step-by-step basis?	From where do we want to start, to where should we proceed, and how may Digitisation best enable that to happen, effectively, coherently and happily?

Figure 9: Pre-Digitisation and contemporary educational planning starting-points

An entirely new paradigm has materialised.

Conclusion: Into Digital Age Educational Planning

The supreme task of educational planners, once the transformative consequences and potential of Digitisation are understood, is to facilitate the utter reshaping of learning and teaching for our times, and for times to come, locally, nationally and worldwide. Their task may no longer be limited to securing implementation but it necessarily extends to facilitating continuous experimentation and perpetual innovation. Certainly, the international dimension and the informal learning dimension are paramount.

And, in a similar leap forward, educational planning may now focus less upon investment decisions and more in terms of identifying desired outcomes and consequences (which is why ‘COSTS’ is relegated to an Annex in the Figure 9, above). Essentially, it ceases to be an exercise mainly in the allocation of scarce resources (by desiccated economists) in favour of plotting imaginative paths towards the achievement of lofty aspirations: turning the ‘visions’ promulgated in plans into popular realities in a digital world (by enthusiastic educationalists). Whether it be of and for a street school or an open university or a low-income country (or all nations generally), the common planning task remains as ever was, save that powerful weapons of mass (self-)instruction and universal inspiration are now available to enable education to come to pass more effectively and entirely equitably and completely convivially.

Digitisation will enable those who plan education to learn by doing in an ever-changing environment, much as the pre-school child or the post-doctoral student is enabled to enjoy grappling with fascinating challenges in stimulating situations where even that what is being learned and done is changing. As with teachers, with Digitisation educational managers and planners may come into their own. The successful manager-planner will be the one who enables everyone in education to participate in the managing-planning process. Here again, Digitisation makes that possible.

6. LEARNER-DRIVEN CURRICULA

The utilisation of curricula as weapons of mass deconstruction in pitched battles to mould children in desired directions has already been chronicled. Even in these enlightened times, there is a sense that ‘the curriculum’ should embody “what education is needed and for what type of society”, related to such declarations as the sustainable development goals and central to discussions on cohesion, inclusion, equity and development. Well-intentioned and highly-intelligent people have endeavoured to frame a syllabus that can transmogrify students into ‘good’ citizens amid changing social, economic and political contexts. At best they seek an integrated conception of education as cultural, social and economic policy, and particularly of the forms of insertion in society and the knowledge and information economy.

Underlying all of this is the question of ownership: whose curriculum is it? Who possesses it? Who should determine it – and, indeed, to what extent should it be determined? As set out in this chapter, Digitisation allows that central issue to be satisfactorily settled once and for all and for everyone.

The Curriculum and its Inconsequence

Much of that which is presently taught in schools is of, at most, marginal relevance to the likely lives and livelihoods of the students involved. Which is just as it should be. Based upon millennia of human experience, the work that most adults are likely to be doing a decade or so hence will, as now and as ever has been, be despicable and dehumanising drudgery. If a youngster's destiny is to break dusty bricks or carry impure water for a hundred thousand or so adult hours, all the more reason to ensure that the time spent in school should be extensive, exhilarating, entertaining and entirely un-work-related.

The content of the curriculum is taken very seriously by educational planners, politicians and the publishers of textbooks. In terms of impact, it is pretty well insignificant. Most children are far more concerned about who they will be made to sit next to in class, or their lack of breakfast, or what they are wearing on their feet, than with what their teacher is on about. Those reading this paragraph were, in common with its authors, perhaps taught a foreign language for several years but have never been able to use it to communicate. No doubt, like them (i.e. us), you were made to devote many long hours to algebra: when did you last use algebra? Half of the adult population of the western world has studied science for at least four secondary years – and yet very few of them can analyse a contemporary scientific issue (GM foods, homeopathy, MMR vaccination...) let alone apply elementary probability theory (other than, perhaps, in relation to racehorses or games of so-called chance). Almost two-thirds of those in the United Kingdom have formally studied English Language for at least a similar length of time, probably much more – and yet the tabloids way outsell the broadsheets – and apparently very many redtop readers venture no further than the pictures and the headlines. Indeed, some of the popular heroes of our time proclaim that they have never read a book (although many of them have allegedly authored autobiographies).

If one watches a quiz on television, one may well be saddened by most contestants' complete unfamiliarity with facts – let alone concepts – related to matters that will certainly have been 'covered' at school ("How many metres in a kilometre?". "Which is the longest river in South

America?"). One may also be amazed by some contestants' remarkable ability accurately to bark to stimuli in relation to the most bizarre of topics ('Star Trek Make-Up Artists' or 'References to Cats in the Novels of Roald Dahl' or 'Arsenal FC in the 1930s'). Such specialised scholarship was not achieved in any classroom (although a stimulating lesson might well have sparked a lifelong fascination). Perhaps if we really want young people to appreciate something (in both senses of the word) we should consider deliberately excluding it from the curriculum.

There is a bland assumption that life is made up of right facts and wrong facts as opposed to empathy, invention, investigation, experiment, interpretation, cooperation or change. Fashionable theories of deep marking – often in triplicate – could well be designed deliberately to eliminate real teaching. In a bleak and algorithmic world, there is only 'is', never 'might be'. Testing eliminates officially useless things like reading for fun, painting, dancing, pottery, thinking, film-making, photography or going for a walk. One hears of pre-examination students being advised to study for seven hours daily over their holidays. (Why not make it seventeen, if our real objective is to get our own back on the coming generation for being younger than us!) Baccalaureates invariably involve learners taking subjects that they do not like: some may react by saying that this is somehow good for them: life wasn't meant to be easy! Secondary systems where youngsters undergo a forced choice between, for instance, music, art, drama, dance, textiles or photography, are organised against the learners. Not only do such subjects build life skills and help young people communicate and establish their individual characters, most of them are especially enjoyable to many learners. [Tastes differ, of course and happily – it would be a monotonous world if everyone loved Gilbert and Sullivan or the plays of George Bernard Shaw or the artwork of Albert Gleizes above all else.]

In these Google-rich days, it is utterly absurd to require students to master vast tracts of information – understanding how to access, review, criticise and – above all – apply well-understood information to best effect is the priority. It is entirely reasonable to ask what young people should learn in order to meet the contemporary and rapidly-changing challenges of globalisation, automation, artificial intelligence and political, cultural and economic polarisation. It is utterly unreasonable to respond with a syllabus – for such lists will be obsolete before their cybernetic ink has materialised let alone dehydrated. What young people – all people – should acquire is the facility of deciding what they want to learn, and enjoy learning, in the present-day, evolving context. 'We' no longer decide for 'them', 'each' decides, taking such advice as is desired, for 'each'.

Group work and problem solving, which lend themselves less easily to quantitative marking, tend to be phased out as the testing culture encroaches, diminishing peer group interaction in which learners hypothesise, guess, interpret, imagine, argue, interpret, imagine, disagree, agree, give opinions, compromise and summarise. Certainly, computer-based marking may be applied creatively: in interviews, for instance, candidates may traverse a virtual mountain (Peak Strength) taking tests that measure accuracy, logic, memory, perception and reaction. But the temptation to take the road most easily travelled by, to apply accepted algorithms and to assess that which is most readily accessible is overwhelming to harried people in a hectic world. But education is not a product but a relationship between student and teacher, and a process by which knowledge transforms the learners (and often the teachers also). Too many schools have been taught that their purpose is not to impart knowledge and encourage thinking but to show children how to pass examinations. The idea that there is more to education than value for money may seem hopelessly romantic in this rigidly utilitarian age. But any decent

society – any bearable world – needs to encourage critical thinking about ideas, beliefs and values, reflection upon which no price tag can be placed. A society that will only think when it is profitable to do so is one that has lost its mind, if not its marbles.

Professional, Technical and Vocational Training

The world changes. We try to identify the trends, avoid the looting and the riots, and predict at least some parts of some futures. In the wake of our limited understandings, ostensible Technical and Vocational Education and Training (TVET) – by fits and starts – evolves. We should train for those futures. Instead we train, at best, for the vaguely perceived, politically mediated presents and, all too frequently, for the erroneously recollected pasts. Capacity development should be for the individual, the immediate community and the society. All too frequently it is for the human resource unit, the corporate body and the formal economy. Those directly engaged in so-called TVET are aware of significant and successful advances (in, for example, new apprenticeship approaches, informal sector skills development, second-chance opportunities, funding and partnership arrangements et cetera et cetera) but, although this augurs well for those directly involved, it is laughable to suggest that these, even when taken together, amount to any kind of 'culture of skills'.

We exchange ideas and evidence and genuinely strive to learn from one another – especially if the fruits of that expert-level cortical intercourse will bring us personal credit. We are all especially enthusiastic and uniquely uncritical about our own initiatives ('the TVET innovator as hero') but less so about re-applying those schemes of others, allegedly proven efficacious earlier and elsewhere, by those whom we do not know – mainstreaming is consequently much less effective than piloting. The objectives and indicators for (and hence the evaluation of) major so-called TVET and skills development programmes should, at the goals and overall objectives levels, extend to their measurable contribution to poverty reduction and social justice. At the super-goal level they are presumably about human happiness. Any vision for vocational preparation must be grounded upon the realisation that paid work will be in increasingly short supply and that, for the many, the income-generating future will be characterised by spasmodic bursts of insecure, often part-time and typically lowly-remunerated (self) employment.

The poor status of TVET is a major, universal and entirely understandable problem. The historical role of academic credentials in reinforcing social class hierarchy: TVET is for 'other people's children'. It may best be overcome by conceptualising and organising all work-related training and preparation (internships, trade qualifications and professional awards, seminars in management, apprenticeships, medical degrees, shop-floor work-experience, bar examination preparation et cetera) as elements within a unitary policy and administrative framework. Hence PTVT (Professional, Technical and Vocational Training).

PTVT should embrace a constructive critique of the world of work, including its assumptions and the power relationships within it, in the context of lifelong skills development. The importance of professional associations and trades unions as guardians of standards and campaigners for equity should be emphasised, as should skills in workers' rights advocacy and practical capacities in various forms of industrial action. Courses would in the main be delivered by industry practitioners with relevant skills, alongside instructional prowess, and extend to cutting-edge technology that could disrupt industry, such as artificial intelligence.

Although plumbers, carpenters, electricians and suchlike are in short supply, and thus earning good money, there is a tendency for students and their parents to give higher preference and esteem to university degrees, often in traditional and 'ivory tower' subjects. This tendency is to be welcomed as an admirable recognition of the principle that education should not be in thrall to employment.

All too frequently, the 'brightest and the best' school students proceed along the academic route – perceived widely as the royal road to success, or at least to status – whereas those whose academic examination performance is less impressive are diverted to vocational and technical tracks, frequently with an associated sense of failure. By conceptualising and then organising the provision of job-related preparation as 'Professional, Technical and Vocational Training', those being trained for, say, basic factory floor or primary production work are in the same broad category as, for instance, future doctors, lawyers, accountants and engineers. And, of course, 'education' does not come into it at all: 'PTVT' has no 'E'.

Schooling is widely perceived as a route away from unskilled primary production ("I am too educated to do the job my parents and their parents did") and, consequently, agricultural skills development is inhibited in its utility as a means of poverty alleviation. Qualifications Frameworks are, of course, of relevance. It is surprising that some of the heartiest advocates of ill-styled TVET simultaneously endorse QFs which locate, say, a master plumber at, say, level 5, and that the only way that s/he can advance to level 6 is to obtain a university degree in, say, medieval history in order to advance any further up the ladder. [The 'ladder' is a medieval deception.] If there are to be such Frameworks, then there should be articulation between those of different countries leading, penultimately, to their being just the one universally accepted QF and, ultimately, fewer still.

Two dozen eminent international educators are indulging in a coffee break between the delivery of erudite conference papers. They are bewailing the shortage of skilled technicians and tradespeople in their countries. A question is put to them: "Given the choice, would you prefer your own daughter or son to (a) be unemployed but have a Masters degree in an area of great interest to her or him, such as Classical Literature or the History of Persian Art; or to (b) be earning good wages as a plumber or a computer repairer with a further education certificate?" They are about equally divided in their responses.

Educational Phases

During the **pre-primary and primary** phases, an easy familiarity with three languages should be accomplished – mother tongue, another language (international, if that mother tongue be otherwise) and computer talk, leading to early digital fluency (sign language might justifiably make up a fourth). Ideally also, a lifelong love of learning should be engendered at those early stages, based upon a shared enjoyment of the acquisition of ideas and information, implying a pre-secondary curriculum of fascination and a pedagogy of pleasure. Children learn through play and creative activity is the main springboard for the basic skills. Play is all of messy, empowering, life-enhancing and developmental. It is the best and brightest foundation, not only for subsequent learning but also for The Global School's entire pedagogic philosophy, as discussed below.

Pre-primary children should learn coding, perhaps as part of 'languages' lessons, assuredly as fun; primary pupils will be programming away and will understand, from many kinds of lessons and extra-curricular activities, how computers work – for them. Some tertiary and all vocational students will, through PTVT, prepare for careers and occupations (many, as yet

unknown), but in this paper we are talking about ‘education’. It may be pedantic to insist that the production of, say, software engineers or specialists in fuzzy logic [a good job title merits repetition] is ‘training’ but let it be acknowledged that ‘pedant’ and ‘pedagogue’ derive from the same deep root. As emphasised earlier, a hard border between ‘education’ and ‘training’, the latter being dedicated to explicit preparation for (particular areas within) the world of work, the former devoted to life-enhancing, life-long, life-wide, socially-constructed self-realisation, enables both activities to occur without confusion as to their objectives.

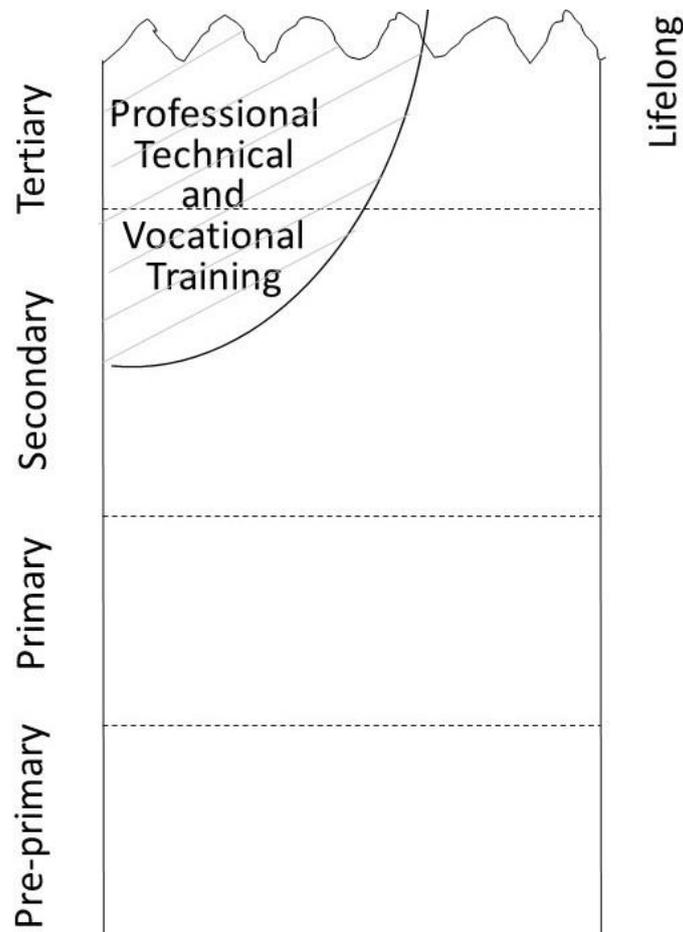


Figure 10: Educational Phases – with an indication of when PTVT cuts in

At the **tertiary or post-secondary** phase, Professional, Technical and Vocational Training (PTVT – never to be confused with ‘education’) may legitimately and must inevitably come to pass, whether it be the pre-service preparation of butchers, bakers and candlestick engineers, or apprenticeships of various natures (with trade union participation), or dedicated short courses focussed upon specific workplace skills with a much closer integration of practice and theory. The responsible Board (PTVTB) will provide strategic coordination worldwide, targeting crucial skills shortages, including hi-tech and creative industries together with those that do not as yet exist.

The trend towards lifelong learning and the unbundling of courses also fundamentally changes the business model of the university from being based upon a lump of annual revenue towards receiving lower fees over a much longer period of time. The typical mid-21st century

university student will be a 40-something robot programmer embarking on her third micro-degree. There will be even more need than currently for remote learning that does not short change those students – probably the majority – who cannot be in the physical lecture room or laboratory.

While individuals benefit from a university education in terms of job prospects, to some extent this may be due to their certificates signalling to employers that they were clever enough to get in to university, as opposed to their studies adding to their capabilities. Many young people chase degrees, preferably at particularly prestigious institutions, which they believe will lead to more highly paid jobs. Students increasingly find existing tertiary education routes to be rigid and impractical. The extent to which tertiary studies help develop skills in, for instance, critical thinking, problem-solving and compelling communication, both spoken and written, may well be more significant than the acquisition of subject knowledge. In this era of Google, what is important in actuality is not what you know but what you can do with what you know.

Let it be trusted that children worldwide will, in the pre-primary and primary phases, enjoy achieving an understanding of how contemporary technology may work for them. While ‘education’ undoubtedly will and should continue to occur alongside (but never to be confused with) PTVT, in universities and other tertiary institutions and open learning systems, it is at the secondary school phase that, building upon agreed foundations, education in, of and for the Digital Age reaches fulfilment. Digitisation of education has especially profound implications at the **secondary and lifelong education** (as opposed to training) phases and, accordingly, much of the remainder of this chapter focusses upon post-primary pre-tertiary curriculum. A major objective of the primary curriculum is achieving curriculum decision-making competencies in readiness for those responsibilities at the secondary phase.

The concept of a ‘**digital age of consent**’ is an interesting one: in Ireland it is currently 16 but about to be reduced to 13, meaning that teenagers will be able to have total control over their online lives at this earlier stage. Of course there are predators and unscrupulous people online and many 13-year-olds (let’s face it, many 30-year-olds) may be preyed upon all too easily. [Maybe there should be an upper limit such as “The digital ages of consent are from 7 through 23 years”.] Any chronological ‘age’, whether it be for voting, drinking alcohol, driving, watching porno movies in cinemas, joining the military or simply being legally ‘grown up’ is an arbitrary blunt instrument. Much of this derives from an ill-informed adult perspective of ‘internet as threat’ and of ‘social networking as menace’, and represents a response akin to that of keeping non-swimmers away from water. The positive corollary is that of ‘Digitisation as opportunity’, involving due and realistic attention to the potential perils accompanied by acknowledgement and encouragement of the personal and social – as well as educational – advantages: in effect teaching them not only to swim but to enjoy the delights of safe surfing.

One danger to be avoided is that of producing a generation of naïve technological recipients – people who can play in the digital world and participate in the exponentially-growing social media scene but have no understanding of how it works, let alone how to make it work. Digital activities can promote critical thinking, teamwork, problem solving and creativity which involves learners being active players in the learning and teaching process, living but not lost in a society addicted to the sharing of private experience. We need to enable all learners to overhaul what they are taught so that they are in control and thinking critically about what is presented to them. Starting in early primary school at the latest, all children worldwide should have the opportunity to learn and enjoy some of the key ideas of computer science, understand

computational thinking, start to programme, and have the opportunity to progress to the next level of excellence in these activities. If all of that has happily occurred then, by secondary time, the overhauling may be left to them.

The Dematerialising and Materialistic University

Freedom in universities worldwide is under severe threat with the relentless commodification of scholarly values. Higher education has become a commercial and technical enterprise that has lost touch with humanity, exemplified by the amoral, prescriptive reductionism of business schools. Mantras of ‘accountability’ and ‘performance management’ mask the reality of institutional bullying. Freedom in research and integrity in teaching are increasingly eroded by the tightening grip of managerialist autocracy, summed up by the inane idea, recently proposed in Westminster and all seriousness, that universities should be ranked on the earnings of their graduates. No educated person could support such nonsense. The Magna Charta Universitatum’s declaration of the essential autonomy of the institutions as a transcending ideal no longer applies and indeed, in some societies, while chief executives take home their pay in platinum slabs, university teachers have become part of the gig economy.

The emergence of universities as powerhouse exporters is an element in the wider universal education story. Western institutions perceived as prestigious are sought after, as higher education becomes a mass global commodity and members of the new middle class (particularly those in Asia) aspire to degrees from the new global brands that rank well on international league tables. This **transnational education** has become a core industry of city-states in a globalised world, including higher education by public/private and not-for-profit/for-profit providers. TNE encompasses a wide range of modalities, in a continuum from face-to-face (taking various forms such as students travelling abroad and campuses overseas) to distance learning (using a range of technologies and including e-learning), covering franchising, programme articulations, branch campus, off-shore institution, distance learning arrangements, large corporations, international institutions and virtual universities.

The financial impact of higher education services is a priority for many developed countries. International students contribute net gains of around £2.7 billion each year to the UK economy, in contrast to the UK’s provision of public services to them which costs an estimated £540 million. Fees payable by students from overseas are typically three or four times higher than home students’ fees. Those from any of the (at present) 28 EU countries are regarded as ‘home students’ for that purpose and, accordingly, a student from Germany or Malta attending, say, the University of South Wales, is required to pay far less than one from, say, India or Sierra Leone: here we witness inequitable discrimination at its most blatant.

Indeed, some universities are now over-dependent on the money that international students bring in, especially as government funding for teaching and research is squeezed. One major Australian university receives around US\$35 million annually in fees from overseas students. And, in addition, such students bring in related revenues through, for instance, food and accommodation costs, in-country travel, books and other such purchases and, quite often, accompanying or visiting relatives and friends. International students in Canada spent around C\$10 billion on tuition, accommodation and discretionary spending, creating around 100,000 jobs and generating more than C\$500 million in government revenue. In Grenada, the host country of St. Georges University, the world’s leading offshore medical school, the spending power of around 7,000 students accounts for at least 20% of that country’s GDP (about

US\$250 million): it may be noted that it took more than three decades of gradual expansion to achieve the present level of impact on the Grenadian economy.

Some Australian commentators have expressed concern regarding the “unhealthy over-dependence on international student fees”, particularly regarding the high percentage of overseas students from China – about a third overall – and fears have been expressed that “the Communist Party might respond to future tensions between Australia and China with stronger measures to discourage students from coming here”. Other pundits observe that: “If someone from, say, Nigeria or India graduates in the UK and if, thirty years, later that graduate is in a key business or government position, and if a major contract comes on to his (or her) desk, the chances are that it has a higher likelihood of being awarded to a British firm, other things being reasonably equal”. Donor supported scholarships for international students may well be a good long-term national business investment.

The most disruptive innovation in face-to-face education has been the **Massive Open Online Courses** which, allegedly, are transforming both the composition and delivery of traditional education systems, especially in the United States. Whatever their limitations, MOOCs may well break the old business model of higher education in the same way that downloading and streaming sites provoked the collapse of the traditional music industry business based upon copyrights. Of course the MOOC model will be technologically upgraded and improvements will, over time, be made to pedagogy, the retention of course participants, accreditation and course/ programme recognition. These changes will make MOOCs an even stronger disruptive competitive force to traditional education institutions than they are today.

In turn, well-established traditional institutions will not go down without fighting back and it may well be that the two most important legacies that MOOCs bequeath encompass:

- improving teaching at both traditional institutions and by MOOCs; and
- encouraging each traditional teaching institution to develop its distinctive mission.

International participation in MOOCs is much higher than in other forms of higher education and they offer both a lower cost alternative to some TNE arrangements and as a way of delivering preparation and induction to students prior to embarking on those more traditional arrangements. Certainly MOOC formats will pose increasing challenges for existing HE business models, for educational institutions at all levels, for pedagogy, and for international educational demand.

Subjects within a Curriculum

The disappointing application of the wide and increasing range of, largely commercially-driven, ICT opportunities across the various disciplines, and the lack of positive and sustainable educational consequences even where such innovations have occurred, have already been alluded to. The potential is vast. For example, in secondary **Chemistry**, visualisations in laboratories such as molecular modelling, data collection and presentation along with ICT use via the World Wide Web and virtual reality as well as the role of ICT for developing higher-order thinking skills, such as inquiry, graphing, and modelling, make it possible to access newer, more economical and environmentally friendly (green chemistry) method of chemical synthesis, graphical representation of spectra and interpretations.

Within a humanities area such as **Religious Education**, contemporary technology enables, for example, speedily locating biblical passages or Muslim prayer times; accessing virtual tours

(including Makkah and Kyoto), webcams, interaction with sources or people such as a the Golden Temple at Amritsar, presenting their work or using a smartphone to record an interview or an instant radio broadcast. Similarly, learners may be able to learn other **languages** through all available sensory channels, allowing them to see printouts of their own voices and tune their intonation to match that of native speakers. An interesting example is that of Tok Pisin as occurring in Papua New Guinea where there are some 750 languages in some 30 different language families, spoken by a population of roughly 4 million and where an ebook, a linked audio, and facilities for practicing pronunciation may be used either with the assistance of a remote village-based tutor. Interactive maps and dedicated websites are opening up **geography** for all age groups: Google Earth has become the normative *mappa mundi*, just as **history** students are able to participate in battles, court scenes and the lives of common peoples long ago, free from danger or destitution. The limited application and even more limited practical consequences of these fascinating aids reinforce the realisation that haphazard and disconnected ICT applications are not the answer.

As ‘education’ now means ‘education in the context of Digitisation’, and as every teacher, inevitably, becomes a ‘teacher in the context of Digitisation’, **the notion of a specific post-primary ‘Computer Studies’ educational** (as opposed to training) **subject evaporates**. As already underlined, ‘ICT’ lessons, courses and programmes (especially when involving expensive equipment) are insular, misleading and potentially dangerous 20th century relics. Given that all subjects (and ‘subject areas’ are human-created conceptions anyway) will be taught, experienced and, as necessary, tested utilising digital technologies, whether that which would be left over is sufficient for a dedicated ‘Computer Science’ curriculum is questionable. [Quite how this would be resolved in practice, should a learner – one who owns her or his curriculum – express a desire for such a programme will become clear as the GS eventuates.] Moreover, it appears that, based upon an inspection of secondary syllabuses in a sample of countries, the subject has deteriorated from programming (the 1970s emphasis) into IT skills (how to use PowerPoint, Word, Excel et cetera). Much as ‘every teacher is an English teacher’ applied previously (especially, as noted earlier, in English-speaking countries) it is now the case that ‘every teacher is a digital understanding teacher’, which raises the issue of how soon ‘specialist ICT teachers’ may be phased out (no violence is intended).

Fascinating and Outdated Theories

Class reproduction theorists offered an overtly deterministic view of schools without analysing what occurs within them. (Not all that long ago, the western elite were learning Latin and Greek while the plebs had to make do with the 3Rs and woodwork.) The distinction between the ‘context-dependent and particularistic’ restricted code of the working class and the ‘independent and universalistic’ elaborated code of the middle class is valuable in analysing pre-Digitisation schooling [just as it is refreshing to hear that terminology again after all those years]. But the two forms of educational transmission analysed under such headings as ‘Class and pedagogies: visible and invisible’ attain fuzziness in the Digital age: BYO devices are universal, straddling schools worldwide and cutting across the institutional, societal and historical factors that gave rise to educational dichotomy.

Legitimate concern with the boundaries between curricular categories (areas of knowledge and subjects) and the ‘degree of control teacher and pupil possess over the selection, organization, pacing and timing of the knowledge transmitted and received in the pedagogical relationship’ is linked with ‘the evolution from mechanical to organic solidarity, with

curricular change marking the movement from the sacred to the profane'. Subsequent work on pedagogic discourse, within successive volumes of Basil Bernstein's *Class, Codes and Control*, continued to explore 'the social class assumptions and consequences of forms of pedagogic practice'. They apply that schema to a range of educational practices from the conservative to the progressive, extending to the vocational as opposed to those engaged in a search for truth, independent of the market. This pessimistic belief in the permanence of the linking of micro-educational processes to the macro-sociological levels of social structure and class and power relations, could not have survived the onset of the Digital Age. While fully acknowledging the social-class assumptions underlying both visible and invisible pedagogy, and recognising the reproduction of power and symbolic control, as in so many areas Digitisation offers genuine possibilities for breaking the link between cultural and educational codes, and the content and process of education as related to social class and power relations.

Beyond the particular, a creative comprehensive curriculum for surviving and thriving in the Digital Age might well have been developed. Yet it is necessary to challenge the still prevailing view of curriculum development. Digitisation has transformed both learning to learn from the cognitive point of view and learning to live together from the social point of view and would allow a transformed curriculum vision: a window of opportunity for, among other things, exploring new forms of inclusion and diversification of learning trajectories, associated for instance with such mobile devices as smartphones, tablets and personal digital assistants. Curriculum has been variously regarded as content to be transmitted, as a means of achieving specified competencies and behaviour change, or the means by which the experience of attempting to put an educational proposal into practice is made available – essentially, curriculum as process. To some extent variation is limited by factors such as public examinations and, as already mentioned, the demeaning power of PISA.

The **process model** approach is dependent upon the cultivation of wisdom and meaning-making in the classroom. Processes become reduced to sets of skills – for example, how to boil an egg (here as elsewhere, Delia Smith's guidance is recommended). When students are able to demonstrate certain skills, they are deemed to have completed the process: the actions have become the ends and the processes have become the product and whether or not students are able to apply the skills more generally (boiling a pointed cabbage, for instance, let alone ensuring that it points in the correct direction) in order to make sense of the world around them is somehow overlooked. Here again we see the difference between enjoyably gaining wisdom and barking to a stimulus.

Teachers enter particular schooling and situations with a personal, albeit sometimes shared, idea of the good and, in many cases, a commitment to human emancipation, an ability to think critically, an understanding of their role and of the expectations others have of them, and a proposal for action which sets out essential principles and features of the educational encounter. Guided by these positive prescriptions, they encourage conversations between, and with, people in the situation, out of which dialogue may emerge informed and committed action. They continually evaluate the process and what they can see of outcomes. In this approach the curriculum itself develops through the dynamic interaction of action and reflection. Curriculum is contextually shaped.

Of especial significance here are the social relationships of the school – the nature of the teacher-student relationship, the organization of classes, streaming and so on. These elements are what are sometimes known as the hidden curriculum: learning that is smuggled in and

surreptitiously serves the interests of the status quo. The emphasis on regimentation, on bells and time management, and on streaming are sometimes seen as preparing young people for the world of capitalist production. For the moment, we are having to operate within a policy environment that prizes the profitable-productive and pseudo-technical. Furthermore, the discourse has become so totalizing that forms of education that do not have a curricula basis are squeezed if not slaughtered.

The thrust of the **Digital Humanities** Manifesto is that the dissemination of knowledge in the arts, human and social sciences has been transformed by digital tools, techniques and media. Our entire cultural legacy as a species is migrating to digital formats and it is claimed that this transformation enables and requires the democratization of culture and scholarship: a world of fusions and frictions, in which the development and deployment of technologies, and the sorts of research questions, demands, and imaginative work that characterize the arts and humanities merge. As one reviewer concludes, we can have Twitter and Turgenev: we can keep our humanity intact while enjoying the new tools that technology has built and then use politics to make them better. While all of this is entirely in the spirit of this present book, regarding *humanity* itself as a value that can (re)shape the very development and use of digital tools, carries its own dangers within it.

Some of those working in the humanities, feeling professionally threatened, may have considered it necessary to spell out a Digital Age role. Six decades have passed since C.P.Snow's seminal *The Two Cultures* essay was published. Historians help in unravelling the understanding of what it is to be human – but then so do biologists, architects, astronomers and even economists. The mathematician and the chemist test out hypotheses for goodness of fit, but then so do the theologian and the poet. 'Arts' and 'Sciences' were always an artificial divide – creativity and critical thinking are no discipline's especial property. In the fairly recent sci-fi film *Arrival*, the military send in professors of, respectively, physics and linguistics to deal with visitors from an unknown planet. In the movie, they work together to achieve (spoiler alert) a happy ending. Which is just how it should be: 'humanity' is by no means restricted to practitioners of the 'Humanities'.

Universal Connectivity, Unimposed Curricula



With The Global School, unparalleled opportunities are there in all disciplines and for all learning stages from early childhood to postgraduate, integration in diversity being the watchword (three words, actually). The sharing of worldwide experiences along with the re-shaping of them for specific local conditions and aspirations will be a basic process for optimising learning in the Digital Age.

One far-sighted contribution reinvents K-12 education for an exponential world, moving away from such activities as colouring inside the lines and emotionless boredom towards, for instance, curiosity and experimentation, empathy, ethics and moral dilemmas: wonderful stuff! Running through all of this is the belief that education can and should be enjoyable. Digitisation will, if handled creatively, enable that enjoyment to be experienced, by both teacher and learner, across the curriculum, across the globe. For every planning-hour given to the allocation of resources, at least a dozen planner-hours should be devoted to guaranteeing enjoyment (and an equal number to ensuring equitable educational outcomes). And this isn't a side issue, still less encompassed by the correct but irrelevant realisation that if children enjoy schooling they are more likely to learn.

The Global School resembles in many respects a neural network, whose inter-cellular connections and integration offer synaptic synergies making the whole significantly more effective, more evolved, more alive, than the sum of its parts: essentially a genuine synergy. With the one Global School, even with much mobility, the need to achieve “globally accepted standards of qualifications and ones that can be recognised cross-border” fades away. Where such challenges do emerge, along with agreed systems of credit transfer, work-based learning accreditation and prior skills assessment and recognition are in PTVT and that is an entirely separate issue. More and more, as The Global School – the universal lifelong educational experience – eventuates, trans-country comparisons and national league tables become redundant.

As classrooms may now be freed from labour market colonisation, and as even some of the noblest authorities cannot be trusted to produce curricula that do other than exploit young people, alternatives to imposed curricula become both vital and feasible. At the secondary and lifelong education levels, it is **the learners** who ‘own’ **the curriculum and operate by default as active learners**. Given their fingertip access to virtual infinities of information and legions of fellow-students and teachers, along with their unrivalled acquaintance with their own emerging interests and fascinations, it could not be otherwise.

Undoubtedly, this emergence of the transformative and transnational Learner-Driven Curriculum will be contested but the power of billions of autonomous yet cooperative, self-fulfilling learners should overcome the outdated hegemonies of exam boards, ministries, employers’ bodies and academic selectors, all wielding increasingly inoperative 20th century prerogatives. No doubt institutions such as high-status universities will attempt to shape curricula through the imposition of cream-selecting criteria. It may be anticipated, and welcomed, that the power of learner-driven curricula will overcome this last night of the professorial oligarchs. The learner shall rule, albeit respectfully, and, as Bernard of Chartres deferentially put it, "standing on the shoulders of giants".

7. LEARNING-SUPPORTIVE PEDAGOGY

Digitisation has profound pedagogical implications. Thinking critically about learning and teaching has traditionally encompassed the relationships between what is to be covered, how it is taught, and why its transmission matters in our communities, societies and times. The applications of ICT took those considerations forward in an interesting way, much as driving into a cul-de-sac may often enable driver and passengers to encounter alluring vistas that would otherwise have been side-stepped. But blind alleys, however enthralling, inhibit purposive travelling and, in the end, detract from the enjoyment of journeying as well as from its successful conclusion. Here, we address head on the challenges of teaching in the Digital Age or, to put it another way, facilitating learning in The Global School.

Pedagogy and ICT: an Historical Relic

Many studies have taken account of how the learning process is supported by tools and artefacts, with ICT recognised as something in advance of blackboards and chalk, variously perceived as all of a social and cultural phenomenon, a resource for learning and teaching, and as a new field of concepts and affordances. There has been recognition too of the additional complexity in pedagogical reasoning when ICT resources are involved, whether that be as a resource, a tutor, an environment or a tool.

Models describing the interactive, relational nature of teacher knowledge encompassing content, pedagogy and technology have been constructed and the term ‘Technological Pedagogical Content Knowledge’ (TPCK) has been offered, arguing that intelligent pedagogical uses of technology require the development of a complex, situated form of knowledge. This has been seen as differing from – and somewhat greater than – that of a disciplinary expert (say a mathematician or an historian), a technology expert (a computer scientist) or a pedagogical expert (an experienced educator). That original conception of TPCK has, in turn, been criticised for not covering how the potential and constraints of ICT tools might shape content and pedagogy, arguing that TPCK emerges from the interaction between pedagogy, content and technology and is *new* knowledge (along the lines of tea, milk and sugar combining to attain a higher dimension), which needs an explicit focus in order for teachers to make the connections between their knowledge and experiences.

A wide range of research studies offers evidence to support the efficacy of some of the features of pedagogy and ICT (such as the ‘Pedagogy with E-Learning Resources’ project and interactive whiteboards), each seeming to suggest that ICT is more than ‘just a tool’, and that it awakens disruptive and distinctive relationships in pedagogical activities. ‘Pedagogy and ICT’ then emerges from an ecological understanding of people in learning environments with digital technologies which shape the nature of the task itself. The implication here is that models of pedagogy need to be relevant, grounded in teacher experience, flexible, complex and open to reflection and adaptation. In consequence, ICT needs to be viewed as a collection of tools that shape (a) the curriculum that we teach (What?); (b) the local strategies that we employ (How?); and (c) in the wider physical, social and cultural contexts in which we teach (Why?).

Some have gone so far as to claim that illuminating good practice in teaching and learning with ICT will require examining teachers’ ideas, values, beliefs, and looking closely at the thinking that leads to observable elements in practice. This remarkable and, indeed,

authoritarian intention is matched in erroneousness by the belief that 21st century teachers will need to have an extensive knowledge of ICT and be able to fit its use either into their existing pedagogy or to extend their pedagogical knowledge so they can accommodate ICT effectively in their teaching. Taken even further, and recognising the limitations on resources and the demands on teachers' time, the alternative of encouraging teachers to focus only on those ICT resources which are most relevant to them and their subject has also been proposed.

A few seconds of reflection will enable such misconceptions to be consigned to the refuse bin marked 'toxic twaddle'. Consider a lorry driver or a medical practitioner or an airline pilot or a security guard or a specialist in family law. Who shall claim that, in order to identify good practice in any of these occupational areas, the "ideas, values, beliefs, and (underlying) thinking" of those practitioners would need to be investigated? Moreover, should some new (and, on first inspection, terrifyingly complex) device become available – such as a detector for highway blockages, or for diseases of the colon, or for impeding storm conditions or for armed intruders – who in their right minds and moods would argue that it might sensibly be ignored if the operative felt uneasy about it?

Just as no doctor (or literary editor) would say "I'm dealing with every part of you apart from your colon", and much as no guard regarding his job as secure would, in the manner of bold gendarmes, contend that "I'm ready to confront helpless woman or little boys that do no harm but am no longer looking out for armed intruders", so also could no self-respecting teacher declare that "we shall have to work in darkness as I am unable to turn on the lights" or "I can teach you about Europe and the Americas but I'll not be covering the Caribbean as I'm scared of that machine over there in the corner". No. **The technology is coming back to the user**, to even the least computer-comfortable user, and the notion of digital complexity will fade as The Global School eventuates.

Pedagogy and Digitisation – a Category Error

In the phenomenological or lived experience of the day-to-day existences of students and teachers, technologies are part of a much larger context of meaning and social practices. Any transformation of teaching and learning would be authorized by human beings who, incidentally, would also take responsibility for these revolutions. Teaching is about relations, about human *being*. Somewhere along the line we forgot that we're dealing with humans and not objects or things or widgets. Teaching well cannot be reduced to technical understanding. To teach is, some argue, to be consciously aware of our responsibilities to ourselves and those around us. This includes relations that involve the earth and the environment. Whatever our aim or goal for education, technology will be there, as it always has been since Euclid drew lines in the sand with a pointed stick and since Brahmagupta reached for his abacus. It would appear that it is opportune for educators to turn around the traditional relationship toward technologies and start calling the pedagogical shots.

Designing edtech resources from a digital pedagogy approach is not about adding pictures, or animations or, heaven help us, Word Art. It is not even about the digital technology. It is certainly not about design aesthetics. Unless the digital tools, especially when seen as additions, enhance, extend and inspire learning, they are at best irrelevant and at worst a distraction. What we must try, as EIs, as educators, as learners, is not simply using tools, nor rolling out the whizz-bang jazz bands apps to impress observers or others. We need, as a start, systematically to examine both tools and teaching for their learning value in order that

teaching and learning drive the use of technology, rather than the converse. There is maybe a modicum of merit in the claim that Digital Pedagogy is about approaching digital technologies from a critical pedagogical perspective. There is possibly a smidgen of value in deciding when not to use digital tools, and in paying attention to the impact of digital tools on learning.

But, while such claims may well hold true in so far as what ‘digital pedagogy’ is not, they completely miss the point in two regards. Firstly, there is no ‘digital pedagogy’ as all pedagogy is, as already emphasised in this book to the verge of obsession, from now onwards digitally-based. Education these days means education founded upon Digitisation: the adjective ‘digital’ is redundant. Secondly, the whole idea of applying or choosing not to apply ‘digital tools’ is a 20th century distraction – let us take it for granted that a house has furniture and devote no time to worrying about when the family should sit down or eat at a table or go to sleep in their respective beds as if these were unfamiliar practices. We either live in a digital universe or we are no longer alive.

Critical (Digital) Pedagogy

Wholly admirable educational philosophers have claimed that there can be no neutral educational process. Good and intelligent people have, over the ages and with much justification, rejected a system that values assessment over engagement, learning management over discovery, content over community, outcomes over epiphanies. Critical Pedagogy is an approach to teaching and learning predicated on fostering agency and empowering learners (implicitly and explicitly critiquing oppressive power structures). Some of its adherents may see pedagogy as **praxis**, insistently perched at the intersection between the philosophy and the practice of teaching. They consider that pedagogy necessarily involves recursive, second-order, meta-level work and that, on such bases, an ethical pedagogy *must* be a critical one. Teachers teach; pedagogues teach *while also* actively investigating teaching and learning. Critical Pedagogy suggests a specific kind of anti-capitalist, liberatory praxis. This is deeply personal and political work, through which, it is argued, pedagogues cannot and do not remain objective. Rather, pedagogy, and particularly Critical Pedagogy, is work to which teachers must bring their full selves, and work to which every learner must come with full agency.

This is indeed good stuff: let us have some more of it. It is not, claim the pedagogical criticisers, that education is without content altogether, but that its content is co-constructed *as part of* and *not in advance* of the learning. Knowledge emerges, they continue, in the interplay between multiple people in conversation – brushing against one another in a mutual and charged exchange or *dialogue*. As a famous South American exponent puts it: “Authentic education is not carried on by ‘A’ for ‘B’ or by ‘A’ about ‘B,’ but rather by ‘A’ with ‘B’.” It is through this impatient dialogue, and the implicit collaboration within it, that Critical Pedagogy finds its impetus toward change. A Critical Digital Pedagogy demands that open and networked educational environments must not be merely repositories of content. They must be platforms for engaging students and teachers as full agents of their own learning. Wholly admirable sentiments but, in this digital age, of historical interest only.

Critical Pedagogy, however defined, had a central place in the discussion of how learning was changing in the first few years of the 21st century because it was primarily concerned with an equitable distribution of power. As its proponents claimed, if students lived in a culture that digitises and educates them through a screen, then they required an education that empowered them in that sphere, taught them that language, and offered new opportunities of human

connectivity. As they explained, our advanced technological society is rapidly making objects of most of us and subtly programming us into conformity to the logic of its system. The paradox, as they put it, is that the same technology that does this to us also creates a new sensitivity to what is happening. Critical Pedagogy was as much a political approach as an educative one: a social justice movement first, and an educational movement second: a method of resistance and humanization. It is not simply work done in the mind, on paper, or on screen, said their champions, it is work that must be done on the ground.

In The Global School, just as the learner owns the curriculum, so also is the teacher's role that of creatively supporting the learning. By all means let teachers be warm-hearted liberators – but first let the learners be liberated from the bonds of their teachers (who, in turn, shall be freed from the hegemony of educational managers, directors and ministers). The Critical Pedagogy made wonderful sense for as long as the traditional notions of teacher as leader and of schooling as enforced regimentation persisted. With the realisation that the learner leads, and with the ending of curricula as propaganda, all else falls into line and much else – including prehistoric critical (digital or otherwise) pedagogies – falls by the wayside. The Global School resolves and outwears the fascinating late-second millennium discussions of pedagogy by determining the ownership and nature of the process, embodying a learning methodology that is neither technology-driven nor indoctrination-targeted nor the sporadic use of some devices and systems by some teachers some of the time.

Speak Up At the Back

In life, most communication is oral. In schoolrooms it is mostly words on pages. Mankind's most vital occupational and social skill is not encompassed by the 3Rs of reading, writing and arithmetic (perhaps 'oracy' – spoken communication – should become the fourth 'R'). Pedagogy is still attached to the pen – and, to an increasing extent, the keyboard – rather than to the learners' organs of speaking and hearing. While some of this is inevitable, in that what is spoken is transitory and untransmittable in comparison with that which is written or uploaded, opportunities for helping all students build up their oral communication skills abound. Despite many imaginative initiatives, the typical secondary school pattern worldwide remains (a) competitions and trophies for those few interested in debating, alongside (b) specialist attention – when available – for those few with identified speech problems. The majority does not debate – there is precious little speaking across the curriculum. And, in much of the developing world, a culture of respect and traditional pedagogies inhibits open, spoken communication in classrooms: an atmosphere of 'keep quiet!' still prevails.

Obviously, the internet offers an overwhelming wealth of information for debaters, along with opportunities for international exchanges. Far more than that, it heralds a fresh pedagogical era. Digitisation makes possible, nay necessitates, that the EI, whether it be set in a leafy suburb of a Western capital or in some remote ramshackle huts in the under-developed world, will embody connectivity. This worldwide linkage will be both electronic and personal – hopefully, students will be active, information and digitally literate, sharing their learning globally. Ideally, all will be vigorous players in the learning and teaching process, taking responsibility for their own knowledge acquisition. Essentially, the emphasis will be upon personalised e-learning and increasing engagement, characterised by ongoing and creative spoken communication. The fundamental pedagogy will be well-informed exchanges of ideas as the educational process increasingly mirrors the academic debate.



Certainly it would be sad were any youngster to leave school unable to enjoy handling mathematical ideas or with a lack of any love of reading or with an antipathy towards computers (our recognition that education is not preparation notwithstanding). But equally – yes, equally – none should emerge unable to contribute to a discussion, ask questions of political and local government representatives, engage in advocacy, make presentations, give clear verbal instructions and advice, and listen

thoughtfully and critically to broadcasts, speeches and statements made by others (in order to benefit from participative Global School learning, such skills should best be acquired at the primary stage in order to be applied from the secondary onwards).

Increasingly, educationalists internationally regard the spoken word, quite properly, as vital to democratic participation as well as a key element of world of work preparation. Emulating Quintilian, perhaps a study of 21st century schooling might be titled 'The Education of a Negotiator *cum* Outspoken Consumer *cum* Participative Democrat *cum* Vociferous Worker'. While it might be a trifle too extreme to mimic Quintilian in defining the purpose of schooling as 'The Education of an Orator', ensuring that all school-leavers are able confidently to express themselves through the spoken word is a reasonable and achievable objective. Its full accomplishment entails a fresh assessment of how everything dealt with at the secondary and lifelong phase is best prepared, presented, responded to and self-assessed.

The emergence of The Global School has profound curricula and pedagogic implications. A central consequence is that learners will necessarily be questioning, expressing their ideas aloud and responding clearly and cogently. Watch young people now with their ever-evolving devices: yes, they text, assuredly they snap (in the sense of taking many photographs) as they chat, but above all, they speak. And this evolving interchange reflects the emerging learning process. Education is, after two millennia, becoming oral again. Learning becomes the on-going international debate, involving all participants – not just the competitive few along with the vocally challenged minority. The debate that is The Global School is the fundamental pedagogy embodying the well-informed exchanges of ideas – a mind-expanding experience and a honing of judgemental skills, eclectic, interrogative and principled – as the educational process increasingly mirrors the ideal oratorical cut-and-thrust.

In relation to disseminating the value of reasoned discourse, the time seems right to strike some sparks wherever we can in the hope that it will create additional light. [Echoes of Quintilian may be detected here.] Digitisation demonstrates that the moment is entirely apposite for such sparks to fly. Although much of this discussion is focussed on the secondary stage, the transformation applies to all educational phases from nursery through lifelong-learning to post-doctoral. The structured academic dispute, hitherto regarded by many as a valuable add-on for the interested or argumentative few, becomes the prevalent pedagogy. With Digitisation as catalyst, the debate now manifests the learning process. Proposition, Opposition, Synthesis: the hour is nigh.

Educators in the Digital Age

The growing use and influence of digital technologies certainly feed into the discussion of the required profile and role of teachers for sustaining quality processes and outcomes. As already emphasised, the expenditure focus in the context of Digitisation should not be on extensive and expensive investment in desktop computers and suchlike but, rather, on the connectivity of schools, teachers and learners, using predominantly a BYOD approach. With Digitisation, the paramount investment heading is not in the equipment so much as in creating, supporting and remunerating **competent, confident and cheerful teachers**, deserving and receiving widespread respect and appreciation for the extraordinary work that they do, playing key facilitative roles in ‘education founded upon Digitisation’ and being effective agents at ease in the propagation of digital understanding (however that may be defined).

Digital Age teachers will, in their training, approaches and job descriptions, differ significantly from their pre-digital predecessors. But – and sighs of relief may now be heard echoing across staffrooms worldwide – such differences are less technological and much more philosophical. In many walks of living, **the technology is coming back to within the user’s grasp** and, increasingly, a readily-achieved and confident familiarity with simple devices and straightforward systems will enable teachers to focus on creative approaches, individual support and class management. The teacher’s task continues to be that of bringing out their learners’ potential which no more necessitates a technical facility with the equipment’s construction than did a 20th century teacher need to be familiar with blackboard production or the chemistry of chalk (or a 19th century one with the manufacture of birchwood canes).

The well-known aphorism that, while technology will not replace teachers, “teachers who don’t use technology will be replaced by teachers who do” appears, on the face of it, self-evident. But let the implications be attended to by means of an analogy. Irish schools now have heating systems of one kind or another and teachers no longer need to commence their working days by lighting turf fires, as they did in earlier times, or even bleeding radiators and grappling with pre-thermostat air conditioners. But is that ‘using the technology’ as opposed to operating comfortably with self-regulating technology in convivial background support?

It has already been emphasised that the need becomes even clearer for the teacher to act as a sort of compass amid the information flows, to lend meaning to and explain phenomena and situations. As has been observed, the Internet offers *nearly everything* [to students] except how to search, filter, select, accept or refuse that information. In the context of the meta-cognitive processes nowadays needed in an information-intensive society, we must develop not only our abstraction capacity but also the ability to judge the abstraction processes performed with technological devices. Education will continue to be characterised by person-person relations: the machine is the medium through which such links may be extended and the catalyst by means of which they may be deepened. Indeed, virtual interaction is becoming a major and creative element in revised learning methodologies and appropriate pedagogies, typified by internet-supported teaching and studying, active learning in child-friendly classrooms, distance education and ‘mobile learning’, all involving open educational resources; and the preservation of data privacy.

The successful integration of technology in education is not so much a matter of choosing the right device, the right amount of time to spend with it, the best software or the right digital textbook. The key elements for success are the teachers, school leaders, psychologists and other practitioners and decision makers who have the vision, the ability and, above all, the commitment to achieve the optimum connection between students, computers and learning.

Teachers in The Global School will be well-prepared and research-capable (academically and digitally) and well-led professional educators, at ease in delivering, facilitating and assessing digitally-supported learning, and guiding, supporting and counselling the learners, sharing their teaching materials globally and, wherever physically located, participating in professional development projects. Given the essential nature of their creative participation in these years of major transition, the recognition and full involvement of teachers' professional organisations and representative federations is vital. Given also that teaching will need to embody a constructivist pedagogical orientation, actively including learners in determining meaning and knowledge for themselves, the genuine participation of students, of all categories and most ages, is equally imperative. [Whether the machines will also demand a voice is in all senses debateable.]

The claim that the teacher is an educator with an ethical mandate who, assuming a binding commitment to the goals that society assigns education and the students' all-round development, leads the learning processes may be dismissed on the basis of our earlier discussion: these sunny sentiments may be paraphrased as 'well-intentioned indoctrination'. Teachers, along with humans generally, have a propensity to hold opinions, favour certain causes, belong to movements and, predominantly subconsciously, regard certain ways of thinking, behaving and living as 'normal, and see some of the alternatives as deviant. For instance, Pythagorians advocated the avoidance of beans (this example is a bit weakened with the recognition that the classical triangular guru was speaking in a psephological context). What they should studiously avoid doing is using their authority as educators in the practice of propagandising: as emphasised earlier, 'moral education' is the height of immorality.

Let us take the pedagogical principles that (i) teachers and students work together as partners, the learners being seen as active subjects and builders of meaning; (ii) classroom decisions are taken in the common interest and the group is a powerful learning resource; and (iii) all the students can and wish to learn and can be infinitely ingenious if adequately supported. All these principles enable the learning potential of each individual to be fulfilled, with reaffirmation of the interactive and collaborative nature of learning. The teacher's mandate may well be as 'expert orchestrator of learning environments' to foster and support the development of skills but the ethics relates to the honesty, openness and diligence in supporting the learning in the learner's chosen direction. Which certainly involves understanding each learner in their indivisible entirety in cognitive and emotional components, and keeping as a reference point their well-being, both physical and emotional, and guiding them in their learning process. But, in The Global School, the drive and the direction come from the learner, and this is to be reinforced and sustained by their teachers – it is that which represents their true ethical mandate. And it is a mandate that comes not from society's goals nor from personal commitments but, rather, from the learner.

Currently, in many countries, up to half of new teachers leave the profession within a few years of qualifying – freedom from an externally-imposed curriculum, the absence of administrative paperwork and the growth of professional respect may well halt this trend. A renewed teaching role with a view of the curriculum that harmoniously combines the classroom and digital worlds through hybrid learning models smooths the way to affording students more and better opportunities of learning in different formats and from their peers. As we have observed earlier, the risk is run of asking too much of teachers, who also have to put up with often precarious and unsatisfactory working conditions and may easily lose sight

of the most important and enthralling aspect of their work: how to educate today's learners (as opposed to tomorrow's citizens and in direct distinction to next week's workers).

Technology could and should reduce teachers' routine administrative burdens and enable more interesting and effective ways of sharing information and ideas, as discussed above. Just as devices may test effectively test students' knowledge of facts and their ability to perform some kinds of skills, it is dangerously true also that, if one can automatically assess something using a machine, someone will eventually write an algorithm to help a machine regurgitate that fact, or perform that activity, automatically (and most likely flawlessly). The potential is there for a partnership between humans and machines, a symbiosis where each side does what it does best: machines augment rather than replicate and replace human intelligence. Let it be emphasised again that, in defining such a partnership, just as in all other aspects of determining digital age educators' roles and remuneration, the full involvement of teachers unions and professional associations is vital. ['Should the machines participate in those consultations?' is yet another topic for debate.]

One also needs to consider the reality that students may become 'co-teachers' in learner-centred educational environments: digitally relaxed and confident teachers will have no problem with that (and they too will be lifelong 'learners'). For even the best of contemporary educational technology will come to nought without the secure understanding and creative commitment of teachers. Accordingly, from teacher recruitment, through pre- and in-service initial training, progressing throughout career-long professional development, the Digital Age embodies what education is for, optimises the means by which those objectives may be met and enables teachers to facilitate that digitally-based educational process.

The transformation involves also the development of the constantly creative **Learning-Supportive Pedagogy**. Whether dealing on a one-to-one tutorial basis, guiding a conventional face-to-face class, handling a hundred or so learners in fifty locations in two dozen countries, or developing modules for future utilisation by come whomsoever may, the methodology is one of guiding, supporting and scaffolding as opposed to directing and supervising. The teacher shall facilitate as a 'conciierge' or 'guide by the side' [this terminology is addressed light-heartedly below]. This too will be contested, and probably by some teachers (and, in the fullness of time, conceivably by AI also), but here again student-power will overcome: none can withstand the open, participating, peer-driven clout of several billion learners.



Teachers (from pre-primary through all phases of schooling to postgraduate education, as opposed to PTVT) will not need to be major supporters or complete exponents of digital learning but simply take it in their professional stride. Inevitably, some will respond negatively to this challenge – change is frequently resisted for a wide range of reasons (often unrelated to the nature of that change). Some may predict that, as younger teachers enter the teaching profession, this tendency might fade away, with the brutal logic of teacher retirement (if not human mortality) favouring the youthful and, presumably, the more computer-comfortable cohort. But, although that insensitive demographic

observation may possess some logic, we are uneasy at mapping a route to Digital Age consciousness through the graveyards of fading pedagogues: if the GS is to be truly inclusive then all teachers, including the least technologically-inclined amongst them, should have every opportunity to recognise and respond to the predominantly philosophical leap involved.

In any case, top down, bottom up and inside-out strategies will need to be synchronised to overcome the inevitable resistance of many teachers – young and old – during the transition period. Learners these days often are more familiar with current technologies than are their teachers and, accordingly, mutual instruction and learning can be effective, although not all learners are able to transition their out-of-school familiarity with technologies to effective learning easily. Just as 20th century youngsters (in advanced societies) progressed from Dr Seuss through classroom textbooks to research carrels in library reading rooms, so now may young people the world over move from *LittlePeople™* through a particular class in a particular school's *Maths Online* programme to full and long-distance participation in a University of Limerick forensic audit seminar.

The Digitisation of education enables and requires teachers to fulfil dramatically altered and more professionally fulfilling roles. Paradoxically, the technology, as it advances, merges more into the background, with the altered motivating attitudes and the amended instructional approaches being what really matters. Just as learners will increasingly be active players in the learning process, moving from being mere consumers to becoming more and more taking responsible for their own learning, so also should their teachers be able to reflect divergently across outdated 'disciplines' connecting ideas across the entire mass of humanity – in other words, the GS will need teachers who can think like the youngest of their learners.

Clearly, the unparalleled changes, challenges and opportunities involved in Digitisation necessitate entirely fresh conceptualisations regarding teachers' roles, selection, preparation, progress and support, just as they make feasible the set of creative and cost-effective responses. Generally – not just in relation to Digitisation – teachers (help their students to) achieve the best results when their own status is high, remuneration and conditions at least adequate, convivially-managed and supported, and operating with good facilities and appropriate learning materials. Job security is crucial: it is sometimes suggested that technology will replace teachers. In reality, experience from around the world demonstrates that, over time, the role of teachers becomes more central rather than peripheral as a result of the introduction of new technologies – and even more innermost with the advent of The Global School. They, as with the increasingly self-confident and healthily sceptical learners, should experience a creative, reflective and critical involvement, not only (largely subliminally) in the technology but even more so (increasingly reflectively) in the educational process.

The Teacher as Feature

It is apposite that the final pedagogical section should embody the 'education as entertainment' approach as emphasised throughout this book. Various terms and analogies have been employed in order to capture the emerging character of 'the teacher' (as if there were just one such creature). Not so much 'the sage on the stage' as 'the guide by the side' or perhaps 'the goad on the road' or maybe 'the mentor at the centre' or even 'the companion in the canyon' or how about 'the online pedagogue with the cool dialogue' or perhaps 'the impresario with the scenario' or, ultimately, 'the critical friend to the virtual end'.

And certainly these competent, cheerful ‘concierges of learning and escorts to wisdom’, whose expertise is enabling rather than exclusive, have crucial and hopefully high-status roles in facilitating ‘education founded upon Digitisation’. [It may be noted that a learning concierge might be expected to provide personal advice directly to students on how they can address their own learning and performance problems in the ways that work best for them. As the only rhyme for ‘conciierge’ seems to be ‘demivierge’, that particular avenue appears blocked off.]

Other parallels might be preferred, such as that of a caddy – as in golf; a soigneur – as in long-distance cycling; or a butler – as in country house. None of which is to suggest that the professional authority of the teacher is diminished, more that it is disentangled from privilege and omnipotence, based upon earned respect rather than obsequious veneration, and reconstituted of knowledge, experience and conduct. While identifying additional terms could become a popular pastime for long car journeys, no analogy, rhyming or otherwise, should ever become ‘official’ as the role will perpetually evolve.

8. IMPLICATIONS PSYCHOLOGICAL

Education is a matter of being as opposed to becoming. Human being (i.e. being human) is a psychological phenomenon. We have developed to become the reflective species, that very facility contributing, to this day, to that development. Human consciousness has clambered up Maslow's pyramid, from responding to primitive needs and ancient anxieties through to the current duality: the immediate and the virtual or, to put it another way, the self and the worldwide immediately accessible community. Our remote ancestors stumbled upon tools to ward off predators, to enable agriculture, to play games and to express themselves on cave walls. We now devise tools that diminish both our need for tools and our ability to use them to good effect. Our elaborate 21st century devices are extensions of our developing selves, codified in machines and infrastructures, manifest in frameworks of knowledge and action. They deliver impressive benefits although universal access, when these technologies are over- or misused, is accompanied by costs in terms of depression and dangerous detachment from reality: psychological conditions not experienced by our forebears.

Moreover, technology is starting to behave in intelligent and unpredictable ways that even its creators cannot comprehend. Not only augmenting our abilities, machines are actively shaping and directing them. Artificial Intelligence is creating technologies that adapt to each of us rather than any of us to them. A computer that may speak, see and listen becomes a personal guide that knows a particular learner's habits and communication preferences and that may help that individual to schedule time, allocate tasks to time slots, heighten motivation in order to do better work, and get the most out of that learning in terms of enjoyment and fulfilment. In effect, AI creates a technological 'alter ego' for each of us – one which recognises when not to help, interrupt or distract as well as being readily available for bespoke advice and benign support when needed or summoned.

These are mammoth advances but still it is the human who holds the mammoth bone tool in his hand, the master, at least for now. Reflecting the duality of contemporary consciousness – the virtual and the immediate – this combination between learner and world, enabled by a hand-held device, facilitated by a teacher, will soon be so commonplace as to become unnoticeable. In the Global School, Digitisation-enabled methodologies are embedded within a structure (as opposed to a syllabus) embodying humane values, lofty aspirations and contemporary common sense. And this, of course has significant implications for educational psychology and for the professionals working and researching in that field.

Specifically, educational psychology now means 'psychology supporting education in the context of Digitisation'. Practitioners will need to raise and revise their games in order to envisage, delineate, prepare for and support however The Global School manifests itself, including the likely and the unanticipated mental challenges that it creates. **Educational psychologists' present preoccupations** include, for instance, self-regulated learning, scaffolding, academic progress, anxiety, and bullying. Each such area will be profoundly affected by the emergence of a very different and more equitable, ethical and enjoyable (and far less economic-circumscribed, test-oriented, world-of-work-dominated) form of education. These areas are now, in turn and outline, addressed.

Self-Regulated Learning

Educational psychologists have given much attention to self-regulated learning (SRL) from both theoretical and practical perspectives, although their interest sometimes seems more focussed upon understanding how SRL operates as opposed to enabling learners to apply it for practical purposes. Helping learners reflect upon, understand and improve their strategic behaviour and learning approaches becomes paramount in the emerging situation wherein they, from lower secondary onwards, are responsible for the areas, efficiency, pace and objectives of that learning, albeit in constructive partnership with their teachers – who may also be fellow learners. As the Global School eventuates, the emphasis moves from the external (‘what strategies are associated with successful learning?’) to the personal (‘how may I learn more of that which I choose to study more effectively and enjoyably?’)

However, removing marking and assessing and comparing from the educational (as opposed to the PTVT) scene calls into question current criticisms of overreliance on self-report measures in SRL studies. It may well be that the recollections, reflections, explanations, and interpretations of participants and the limitations of self-report data, whether gathered through think-alouds, interviews, questionnaires or focus reports, are impediments to research reliability. And yet, in the evolving reality situation wherein ‘academic outcomes’ attain fresh meaning, unless that ultimate research objective is centred upon enabling learners to review and enhance their own learning strategies, within the context of their own learning objectives and broader educational goals, much of such investigation will, in practical terms, be vain. While it is entirely reasonable, in the admirable academic search for truth, to call for findings based upon more than self-report data, in terms of the individual learner, honing these personal and subjective skills to practical effect is the higher objective.

With the focus moving towards self-directed and personalised learning, and with the objective of that learning being enjoyment and self-fulfilment – as opposed to surviving to the next stage of the competitive academic pyramid – narrowly-defined ‘achievement outcomes’ lose significance. Admittedly, until the theoretical is achieved the practical remains imperfect – but recognising that the improvement, through reliable enquiry, of the understanding of SRL mechanisms and effective strategies, is the ultimate goal should give direction if not boundary to the research. And, let it be readily recognised, the reported research – in such areas as the depth and complexity of learning strategies – helps to build up the picture.

Along with the Global School’s recognition that, from the secondary phase onwards, learners will ‘own’ their curricula, comes a realisation that this involves an enhanced responsibility for their own learning approaches. No longer dependent upon persistent teacher feedback or on cramming for exams, the learner, who has opted to study, for instance, *Mathematical Ideas for Non-Mathematicians* will need, desire and be best poised to reflect upon their own learning methodologies.



Global School learners are responsible, not only for their curricular choices but also for how they, reinforced by empathetic teachers applying supportive pedagogies, go about that learning. It is for them to orchestrate their skills and strategies across the varying levels or in different categories, it is for each learner to adopt their personal processing rituals and routines, and to experiment with and refine these as they will. If educational psychologists identify good practices, let those be shared but assuredly not imposed. Perhaps a Global School programme on *Self-Directed Learning Strategies* would be appropriate and popular.

Findings from the **Eye Movement** Modelling Examples (EMME) technique in exploring learning strategies may be linked with earlier work on the perceptual aspect of skilled performance in chess. Those involved argued that expert players perceptually encode chess configurations, rather than individual pieces, and, consequently, ‘parafoveal’ or peripheral processing guides their eye movements, producing a pattern of ‘saccadic’ selectivity by piece saliency (retaining the rare and remarkable adjectives from the original report). Indeed, just over a century ago it had been observed and reported that the eyes of the great Capablanca roved across the board in a similarly sophisticated manner. Every club player striving for mastery soon recognises that pupil movement follows, rather than leads, pupil performance: you cannot create chess champions by enhancing eye movements. The extent to which this principle – that effective learning strategies are brought about by enriched knowledge and enhanced understanding, as opposed to the former facilitating the acquisition of the latter – remains an important area of investigation.

Scaffolding

Serious attention has been given to the phenomenon of ‘scaffolding’ addressing, in general, the active support provided to children’s learning by adults and, more recently and specifically, family reinforcement in such areas as school readiness and homework encouragement. No learner is a remote and deserted island and such scaffolds have also been incorporated in computer-based learning environments. Scaffolds reflect the nature and purpose of the constructions propped up and a fiercely competitive and world-of-work oriented educational edifice may be characterised by domestic anxiety, private tutoring, tiger mums and inordinate incentives for examination successes. That these scaffolds stray into neighbouring properties has already been acknowledged in the discussion on self-regulation involving explicit questions or prompts requiring monitoring or regulation posed by a researcher, teacher, or peer.

The evolution of the Global School, incorporating learner-driven, enjoyment-directed and cooperative, worldwide approaches, produces a different kind of construction site for the erection of scaffolds. Current research into, for instance, home interaction related to children with disabilities or with language difficulties, attitudes and practices regarding homework support, and the differential interactions with mothers and fathers, would remain relevant but education’s ceasing to be based upon assessment, comparison, selection and predominantly local concerns constitutes a major cultural and contextual shift. Within particular families, the emphasis alters from one of giving ‘our’ offspring the best possible shove up the most efficacious ladder towards a rewarding and prestigious career in favour of one of encouraging and facilitating their fulfilment through enjoyable learning in areas of their own choosing. Initially, this will not always be easy to understand and accept: see, for instance, the

observations of Idris Biswas and of his mother in Chapter 0, above. And, as already noted, the idea of there being a 'ladder' is a medieval deception.

Certainly self-regulation gains in significance within the Global School and **readiness for curriculum ownership** is a particular requirement of the transformed system, and this involves self-regulation and, indeed, the breaking free of enduring external scaffolding. A key attribute of scaffolding is that it is temporary; a serious problem is present when scaffolding becomes a permanent feature of a building. When does external scaffolding become unnecessary or even distracting for learners who have developed the ability and tendency to self-scaffold or who come to a learning task with the knowledge and interest to engage in self-monitoring? Ideally, this should have occurred by the conclusion of the primary phase in that, from secondary commencement onwards, each learner becomes self-standing, supports withdrawn and all scaffolds dismantled.

Anxiety

School systems worldwide are geared to examinations, competitiveness and attendant anxiety. Schools pride themselves on their performance rankings: where choice is possible, parents look largely uncritically at league tables, often disregarding the nature of the intake and believing that high performance reflects a 'good school' rather than the intake's manifesting favourable socio-economic background. Essentially, the entirely unnecessary examination-oriented perpetual-stress educational environment that prevails across the world has stolen children from their families, ensconced them in 'exam factories' and turned lovely learning into hard and often meaningless labour. [A vivid illustration of youth's desperation within the current dysfunctional situation is that of 'grade grabbing' wherein poor students negotiate with irresolute teachers in order to obtain unmerited higher rankings. This has been described as uber-haggling devaluing the purity of learning, resulting in truly gifted students sharing grades with wheedling inadequates. But that kind of criticism misses the point: it is the system, rather than its victims, that is grievously at fault, pitting learners against one another, turning educators into executioners.]

Educational psychologists have over the decades since their profession materialised, given close attention to anxiety in relation to educational participation, achievement and even (although very rarely) enjoyment. Such studies were part of the substantial body of evidence that cumulatively brought the British 'Eleven-Plus' into disrepute. More recent explorations of test anxiety have suggested that worry, but not tension, shows a negative feedback loop to 'academic buoyancy'. As increasing amounts of study materials migrate onto the Web, a future is now conceivable in which using the Web will be the most common method of studying. But, while much that is positive may well have occurred, in terms of internet familiarity, over the last fifteen years, the competition has become more intense and the temptation to over-assess has intensified due to the convenience of computer-based automated marking (as already discussed).

Just a couple of decades ago (when people still sent faxes and took rolls of film to the high street for developing and printing), computing was regarded as a branch of mathematics. Since then, all subjects, all academic disciplines have become subsets of Digitisation. For some reason, mathematics remains the subject that raises most learner anxiety. Explorations of the mechanisms underlying the relationship between 'math anxiety and math performance' suggest that a working memory and self-concept could be worth considering when designing

interventions aimed at helping students with those difficulties – and the explicit practical recommendations in that particular research are welcome. With mathematics being covered within a ‘developing readiness for self-directed learning’ curriculum at the pre-school and primary stage, and with learners owning the curriculum thereafter, and with examinations and test hurdles eliminated, anxiety should be significantly reduced, both in relation to that ‘queen of the sciences’ subject and more generally.

However, computerisation itself, and especially social media, are causes of anxiety and public concern. And the apparently all-consuming cyber world – which, to older generations, the young appear both to inhabit and to be subjugated by – is a cause of parental concern, in many cases best described as ‘moral panic’ or, indeed, ‘family anxiety’. Some studies suggest that excessive social media is linked with anxiety, self-doubt and low self-esteem, aggression, bullying and sleep deprivation. In order to thwart a mass academic of cheating by students taking the school leaving exams, Algeria shut down the internet for three hours a day affecting every kind of connection – fixed, mobile, wifi, cloud – travel agents, startups, transport firms, banks affected. The French government plans to ban the use of mobile phones in all primary and middle schools, turning off these ‘engines of distraction’ that leave learners in ‘states of twitchy half-attention’. It is as if mass Electrophobia is having a second innings.

Video games are a case in point, with the WHO now recognising ‘gaming disorder’ in its more recent International Classification of Diseases (ICD-11). For the great majority, video gaming is a healthy, enjoyable, brain-building activity. Just as, reportedly, increasing numbers of parents are banning children from video gaming, thereby depriving them of one of the few forms of play still available to them, so also are some schools requiring mobile phones and other devices to be left outside the classroom door. These are absurd responses, akin to keeping non-swimmers well away from water. Mobile phones are far from peripheral: so much social life and practical interaction with parents, for example, are based upon them. Fear is the wrong response. The Global School takes a quite different approach, reflecting the duality of contemporary consciousness – the virtual and the immediate – harnessing the internet-based and the face-to-face as the one integrated learning methodology.

Examinations and the prevalent testing to destruction culture are major causes of anxiety, serious health problems and even suicide. The psychological violence perpetrated in many countries by means of a politician-driven curricula, an obsession with standards and a manic and poisonous audit and accountability regime is, as already emphasised, akin to **child abuse**. Arduous examination preparation is onerous, laborious, relentless, fatiguing, intolerable and, ultimately, pointless. The only human response is to get rid of targets, standardised tests, selective schools, exclusion, league tables, baseline assessments and truancy officers. This the Global School will achieve. Focussing on happiness, removing the stress and enabling the joy, it will let teachers do what they do best – enriching children’s lives with real learning experiences.

“...people had to leave the hall as they were having panic attacks and crying... many were having nosebleeds from all the stress... acne, hair loss and sleepless nights... believe me I am a failure... one boy soiled himself in a mock exam he was so nervous ... lasting damage, physical and mental... what have we done to be treated like this?... like a ghost drifting through and just trying to reach the end, for the months of May and June we do not feel human any more... I will never forgive the Education Minister... we boil over with molten rage...”

(Recent reports by some UK secondary students)

Educational psychologists have documented these deep problems and contributed authoritatively to the public debate. Sometimes however – and let this be recognised – some have supported and benefitted from the testing regime through their advocacy and application of particular selection instruments (the American Psychological Association’s PsycTESTS repository boasts of “more than 1,500 ready-to-use items”). By taking exams and the entire test-oriented ethos out of education, while supportively and intelligently providing personalised and targeted formative feedback as needed by both wise teachers and artificial intelligence, the Global School removes the immediate cause of such miseries and maladies. Which is not to deny that other anxiety- and health-related challenges will emerge within the transformed situation, nor that valid diagnostic tests sensitively administered and intelligently interpreted are sometimes positive contributions, nor that anxieties will emerge when the inevitable competitiveness of PTVT cuts in at around mid-adolescence.

Bullying

Bullying and cyberbullying are similar in that each involves intentionality, repetitiveness and power imbalance and there is a significant link between both kinds of bullying experiences and social, behavioural and psychological problems. They differ in that the latter can consist of unidentified threats, verbal abuse, the instantaneous and large-scale spreading of images and videos, defamation and identity deceptions. A cyberbullying incident can happen in one’s own home while the potential for a larger audience can contribute to increased levels of shame, embarrassment, humiliation and a feeling of a lack of control for the victim. It can also be more difficult to prove a cyberbullying incident, as the identity of the perpetrator can be kept anonymous and there are often no witnesses to the initial posting or the sharing of the photo, video or information.

Unsurprisingly, estimates of the extent and impact of cyberbullying are contested although there are many reports that it is a common and increasing phenomenon in secondary schools (for instance, of the order of 30% to 50% of US adolescents in any year), having a significant impact on the health and particularly mental health of those involved in such behaviours, both as victims and as bullies. Around 8% of those aged 16-19 who study in UK colleges reported being victims of cyberbullying and almost 2% admitted cyberbullying others. To this, it may be added that there has been a rapid increase in the cyberbullying of teachers in schools by their students. As with anxiety, quantitative data need to be handled carefully, as moderating factors, such as assessment technologies, answer scale and time frame, can affect reported prevalence rates. Nevertheless, as the Global School involves, in universal reach and virtual proximity, learners and teachers of all nations, ethnicities, categories of disability, sexual orientation and (almost) all ages, bullying, especially of the cyber variety, is a paramount challenge (as touched upon in Chapter 0, above).

There are indications that some schools are turning their attention more and more to the well-being of their learners and to programmes which can increase positive coping strategies and decrease mental health problems. It is noted also that, while schools engage with one anti-bullying programme on a whole school level, they often fail to link it back to mental health or well-being programmes that are often implemented separately. At the tertiary level, one worrying development is that of universities ceasing, for financial reasons, to provide mental health counselling, shifting the responsibility on to hard-pressed government or expensive private services, thereby subsuming counselling within wellbeing. At the secondary phase, and prior to recognition of The Global School, it has been advocated that teachers, head

teachers, students, parents and welfare professionals need to work together to consider how best to deal with (this phenomenon), within the context of developing a positive school community ethos, the adoption of an anti-cyberbullying policy for the whole school, and addressing cyberbullying through the personal and social education curriculum. Deeper ethical dimensions need also to be explored.

There are some indications of the need to treat cyberbullying as a standalone entity without the complicating role that the more traditional concept of bullying plays in definitions. Mindfulness techniques have been advocated as a proactive way to target well-being for classroom applications, as have Acceptance and Commitment Therapy as appropriate for school-based interventions, in that it aims to help students to become aware of, and understand their emotional responses to a challenging situation (such as peer bullying), decrease their avoidance of dealing with such emotions and increase problem solving skills. Considerable research has been carried out recently regarding cyberbullying: technology was seen as a facilitator and a mechanism for maintaining social interactions. However, participants reported experiencing a conflict between the need to be sociable and the desire to maintain privacy. In some studies, loneliness, empathy and self-esteem predicted levels of cyberbullying victimisation and perpetration while there are indications that self-esteem and empathy oriented interventions may successfully address cyberbullying behaviour.

Few could contest the claim that, in their current configuration, schools have a critical role to play in preventing and reducing cyberbullying through a process of awareness-raising, the education of the emotions and active participation of children and young people themselves. However, the suggestion that these techniques can be taught to teachers through appropriate workshops and integrated into the curriculum, and the observation that “schools are turning their attention more and more to the well-being of their students and to programmes which can increase positive coping strategies and decrease mental health problems, incorporate an outdated standpoint if intended to be applied beyond the Global School’s primary phase. It will be recollected that one key Principle, presented at the outset, was that the GS offers an escape route away from education as indoctrination.

Such a non-judgemental approach would need to apply to both cyberbullying and mindfulness. Thus, a module on, say ‘*Bullying, Tolerance and Mental Health*’ would be aimed at enabling understanding as opposed to explicitly seeking behaviour change. If those who choose to study it, through their teachers’ presentations and their own reading, dialogue, evidence-gathering and analyses, happened to develop heightened emotional intelligence, perception, caring skills for themselves and others, and insights that were linked with anti-bullying attitudes and actions, that might be regarded as a welcome bonus. But education is not indoctrination, even in a good and urgent cause: education is education.

Academic Progress

The utilisation of ‘academic achievement’ as an objective or external measure of success levels raises the more general question of whether and how research into the influences and actors upon academic progress has anything to offer in the emerging educational situation encapsulated by the notion of the Global School. When learners are choosing what to learn, and are doing so because they are interested rather than (their parents/teachers being) ambitious, and when the only feedback is confidentially and constructively for each learner’s

benefit, there are none of prior attainment scores, course assessment marks or subsequent occupational progress grades upon which to apply erudite statistical analyses.

That having been said, some learners will undoubtedly have difficulties in selecting or creating their courses and handling curriculum ownership and they will derive less enjoyment, fulfilment and understanding from pursuing their chosen courses than will others. As the Global School evolves, these consequences, less readily measurable than grades and certificates but none the less meaningful to each individual learner, will replace traditional 'academic progress' and, hopefully, will be attended to, professionally and effectively, by educational psychologists.

Studies such as the 'longitudinal tracking of academic progress during teacher preparation' raise another kind of interesting issue from the Global School perspective. Specifically, the professional preparation of teachers, indeed that of any set of workers, is 'training' rather than 'education' and thus entirely outside the Global School remit – as would be their ongoing professional development, albeit occurring in relation to, and typically physically within, educational institutions. Thus observations about 'ultimate academic goals', 'accountability', 'grades', and the linking of 'academic performance with outcomes in the workplace' are very much the proper concern of PTVT and entirely alien to the emerging educational system in which assessing, comparing, categorising, selecting and world of work preparation are obsolete and obscene.

Assuredly the educational philosophy and pedagogic approaches of the Global School have significant implications for the roles and thus the professional development of teachers but just how this is taken on board within 'training' is as removed from 'education' as is the initial preparation and ongoing vocational upgrading of lawyers, chefs, fuzzy logicians, firefighters and tour guides. We are, at long last, entering a world where education is recognised as beyond measure and where the workplace is no longer allowed to colonise and define the classroom.

Refocussing and Reconsidering

Digitisation will engender and enable a fundamental educational transformation and this, in turn, will have profound consequences for the priorities and practices of educational psychologists. As discussed, changes of foci and purpose by these professionals might be appropriate in some current areas of particular interest, namely self-directed learning, scaffolding, academic progress, anxiety and bullying. Some fields will be radically altered, or even eliminated: careers guidance, for instance, will be outlawed from educational institutions but focussed upon when, from the mid-teens onwards, at the instigation of each individual, PTVT, alongside education, commences [perhaps there will need to be a distinction between 'educational psychologists' and 'PTVT psychologists']. Private, fee-paying and selective educational institutions will lose their exclusivity within the one universal school, just as the universal scourge of expensive private tuition will decline into meaninglessness.

Other areas will continue relatively unaffected: there will still be learners with various categories of special educational needs, for example, although the abolition of grades, academic selection and the testing culture generally will certainly be relevant. Pre- and primary school readiness will remain an issue although, here again, the non-competitive and 'moving towards self-directed and personalised learning' pre-secondary culture will be of consequence. The question: *'What would the educational implications be if all learners and*

all teachers, everywhere, were able to communicate with one another, easily, instantly and inexpensively?’ engendered a wide range of stimulating responses during an Oxford conference [see Figure 3, above]. In a similar manner, the prompt: ‘*What heightened or additional psychological challenges might result from the merging of all educational institutions into the one universally connected Global School?*’ would doubtless be responded to creatively and valuably.

Reader – let that be a 3-minute individual exercise before proceeding to the remaining chapters.

9. DIGITISATION AND EDUCATIONAL DEMOCRACY

With Digitisation, each of ‘democracy’, ‘education’ and, consequently, and conclusively, ‘Education and Democracy’ enters an exciting new dimension. Current considerations of how ‘government by the people’ should be addressed, encouraged and embodied in schools are outdated, unless the realisation that nothing can ever be the same again becomes the starting-point. Just as piecemeal ICT applications are of limited significance, so also are isolated experiments with democratic educational initiatives now obsolete. As already emphasised, universal connectivity straddles schools worldwide and cuts across the institutional, societal and historical factors that gave rise to pernicious politico-socio-educational injustice. Propagating democracy is essentially undemocratic; moral education is the antithesis of morality. This chapter explores and welcomes the implications for ‘Education and Democracy’ of the ground-breaking ‘Education embodying Digitisation’ reality.

9.1 Pre-Digitalisation Education and Democracy

Perhaps it all began with Dewey. Some two millennia before him, Plato had much (of abiding fascination) to say about education, and also regarding governance, although he, in common with many who came after, saw δημοκρατία as something to be avoided, even feared. Quintilian regarded education as preparation for persuasive oratory but, in the manner of his times, restricted this to male patricians as opposed to ‘rule by the people’ (or even ‘by the majority’), which would have included plebs, women and slaves. Democracy, whether it be direct, representative or constitutional, is an old word but a relatively recent and very far from universal phenomenon. It took the French Revolution to popularise it and, for a while, its paramount legitimate practicality became the conventional wisdom, at least in much of the West.

But few societies implemented democracy (let alone ‘liberal democracy’) substantially, successfully or sustainably. Some, for reasons mostly but not invariably malign, challenged or rejected it. Many used it for their own less than democratic purposes. For two recent centuries, well-intentioned initiatives have promoted the mutual fostering of democratic practice and egalitarian education, seeking schools that gave voice to their students, all the while set in less than democratic educational landscapes. As described earlier, missionaries, colonisers and donors sought to spread their philosophies, dogmas and influence worldwide, with education as the available arena and, until the Soviet Union’s implosion in late-1991, a conspicuous Cold War battlefield.

As with ‘love’ and ‘beauty’, there is some dissension regarding the precise definition of ‘democracy’ and, whether it originated in fields or factories, in parliament or on the streets, its advancement has been erratic and, indeed, its very concept is contested. Perhaps we are talking about the ‘rule of the majority’, or maybe the ‘power of the ‘common people’, along with the absence of hereditary or arbitrary class distinctions or privileges: the ownership of the interpretations is all-important. Even the exact wording of President Lincoln’s Gettysburg address (of twelve score and fifteen years ago) is disputed, although the notion of “government of the people, by the people, for the people” was certainly preceded in it by the words “under God”.

The possibly less godly People’s Republic of China’s demands equal standing in the global competition over values and discourse, along with its endeavours to position itself as the ‘world’s largest democracy’. Their networked authoritarianism (Leninism plus cyberspace) has replaced the USSR’s state capitalism as the other pole in our geopolitical world, challenging the West’s prerogative of interpretation of political order. Maybe Western observers should refrain from dismissing ‘democracy with Chinese characteristics’ as nonsensical and implausible as, and let this be recognised, around a fifth of The Global School’s teachers and learners are Chinese citizens, contributing popularly and creatively to the ongoing debate.

9.2 Emancipatory yet Externally-Imposed

Democratic education is often specifically emancipatory, with the students' voices being equal to the teachers'. John Dewey, referred to in the opening sentence, above, saw democracy as social relationships and a commitment to mutual interdependence worked out in day-to-day interactions. Essentially, Dewey viewed the mind and its formation as a communal process, echoing Matthew Arnold’s description of the spirit of democracy that is part of human nature itself, which engages in the effort to affirm one's own essence and to develop one's own existence fully and freely. However, ‘civic education’, if taught in a compulsory setting, undermines its own lessons in democracy. Where democratic situations are externally-imposed, inevitably some of those experiencing them will be more equal than others.

Western democracy faces key challenges in the light of the growing power of hi-tech companies and some see the widening of the information pool fighting a losing battle against social media. There is a growing fear that people, too inflamed by narrow passions, risk turning politics into a distasteful blood sport, pitting *The People vs Democracy*, as one recent book is entitled. In these gig economy days of side hustlers, e-entrepreneurs and digital nomads, it is Facebook, Amazon, Apple, Netflix, Google, and others about to emerge, that delineate the frontline in the battle for global influence. Educationally, we cannot win the Information Campaign, nor indeed the Knowledge Battle, let alone the Wisdom War, with medieval weapons and an autocratic command system.

Standard	Specialist	Bespoke
What is Democracy?	Does Democracy Work?	“If there is no existing course that meets your needs, please set out as much detail as possible on the Module Request Form and you will be contacted by a Curriculum Designer. Once a new Module has been created it will be available to you and other learners in the usual way.”
Democracy in six countries: a comparative study	Using democratic process to achieve radical change	
A History of Democracy	Is [name of country] a ‘Democracy’?	
Democracy in [name of country]	Losing faith in Democracy	
Does my vote matter?	The formation and manipulation of opinion: challenges facing Digital Age Democracy	
Getting involved in politics		

Table 11: Some Examples of available Global School ‘Democracy’ modules by category

Externally-devised (let alone examination-oriented) ‘civic education’ is a 20th century relic. As discussed in more detail below, the debate-based methodology is geared to exemplify democracy in education, just as the growing range of relevant Global School modules (see Table 11, above, for a few examples) may enable those who choose them to experience and enjoy the conflicts and irrationalities that characterise contemporary living. Education is not about conversion and The Global School enables and requires the purging of proselyting, even in the name of ‘social justice’, ‘solidarity’ or ‘democracy’.

As already emphasised, schooling, and children experiencing it, have, over the centuries, been misused (nay, abused) in the service of various causes. A world increasingly characterised by rampant inequalities and by violence towards particular groups might suggest a focus on social justice through education. There is a sense that ‘the curriculum’ should embody “what education is needed and for what type of society”, related to such declarations as the sustainable development goals and central to discussions on cohesion, inclusion, equity and development... an integrated conception of education as cultural, social and economic policy, and particularly of the forms of insertion in society and the knowledge and information economy. Here we have doctrinaire determinism masquerading as democratic decency.

9.3 Value-Laden, Mindful and Experiential

Strengthened guidance on improving the spiritual, moral, social and cultural development of pupils, published under the United Kingdom’s 2010 to 2015 Conservative and Liberal Democrat coalition government, called – with a far from traditional split infinitive – upon all schools to actively promote the fundamental **British values** of democracy, the rule of law, individual liberty, and mutual respect and tolerance of those with different faiths and beliefs. Examples of the understanding and knowledge pupils are expected to learn included “an understanding of the importance of identifying and combatting discrimination”; an example of actions schools could take to promote British values was to “ensure all pupils within the school have a voice that is listened to, and demonstrate how democracy works by actively promoting democratic processes such as a school council whose members are voted for by the pupils. The paradox is powerful, the contradiction colossal. For when an education system promotes something, no matter how excellent that something may be, the very act of systemic promotion is itself the antithesis of democracy.

As the Peace Pledge Union puts it, education, in its various forms, is basically authoritarian, since one person, or small groups of people make decisions about what to learn, when to learn, how to learn, how to assess learning, and the nature of the learning environment. However, even that organisation’s well-intentioned objectives embody inconsistencies: democratic education aims to develop real democracy through active participation by all those involved in classrooms and educational institutions. Which is all very well but it is hard to escape the impression that those involved are keen for certain ‘peaceful’ attitudes to emerge, democratic participation notwithstanding. Just as inculcating British (or Irish, or any) values is essentially undemocratic, so also is encouraging young people to make up their own minds, in the unspoken hope that the outcome will be peace-loving is, at heart, benevolently authoritarian.

It is difficult to avoid the notion of ‘**mindfulness**’ these days, some arguing that mindfulness can enhance a democratic way of being, connecting practices of awareness, reflection, dialog, and action to democratic citizenship and social arrangements. They apply a ‘mindfulness

pedagogy' to develop their concept of "mindfully democratic schools", referring (as we do also) to the work of John Dewey, Paulo Freire and other philosophers of education in claiming that mindful practices may be embodied in such institutions whose "vision and principles promote teachers' and students' mindfully democratic action. In turn, it is acknowledged that mindfulness is rapidly becoming a mainstream educational intervention, rebuts the criticism that mindfulness lacks social and political dimensions by arguing that far from being self-centred, asocial, and apolitical, the practice of mindfulness is intrinsically political.

Certainly teachers are fully entitled, at the express request of learners, to bring the latter's attentions to particular and subjective experiences occurring to each of them in the present moment, which they, in turn, may each develop through the practice of meditation and other training. But, as already emphasised, irrespective of whether the impetus comes from Vipassanā, Zen or Tibetan meditation techniques, it is the learner who must decide whether or not to understand, acquire or utilise these techniques. Let them by all means be offered but let them not be urged upon them by enthusiastic teachers, any more than those committed to any other causes or creeds would be entitled to propagate them through schoolrooms, virtual or otherwise.

Experiential education calls for a new current, critical pragmatism, which renews a sense of democratic experiential education as a means of both resisting the negative aspects of modernism and capitalism as well as creating an ethical platform for the advancement of positive freedom through education. Its advocates explain that the ownership of the knowledge gained from an experience (self, mind, society, or the community of animate and inanimate objects?) is the critical question, to which one might reply that truth is communal. Clearly, shot through this notion of 'democratic schooling', are some very sticky questions about power, equality, and justice that remain unresolved in many respects. Perhaps experience in schools can also liberate and resist the undemocratic oppressive impulses in education, given that democracy is essentially a way of life. While The Global School, in its learner-driven spirit, manifests democracy, its teachers do not propagate democracy nor have any intention of instilling it, for to do so would be profoundly undemocratic.

9.4 Universal and Democratic

We have already addressed the contention that, in today's world, education is not only to produce learners who are literate and numerate (but must also) facilitate the holistic development of our young people such that they are creative, resourceful, self-disciplined, adept at collaborating with others, appreciative of diversity, able to resolve conflicts and contribute peacefully to democratic societies. Some people refer to these as '21st century', 'transferable' or 'socio-emotional' skills. Another desirable capability is, as already examined, that of 'information literacy', including the ability of learners to search for information and separate high-quality sources from low-quality ones. Here again, the proscriptions are as outdated as they are well-intentioned: setting out desirable skills, capabilities and attitudes negates the entire notion of democratic education in the time of Digitisation.

Many earlier initiatives presaged aspects of The Global School. In Leo Tolstoy's school for peasant children in the late 19th century, the pupil had always had the right not to come to school, or, having come, not to listen to the teacher, and the teacher had the right not to admit a pupil, and was able to use all the influence he could muster to win over the community,

where the children were always in the majority. Inclusivity and rights, equal participation in decision-making, and equal encouragement for success have been identified as the political elements in democratic education. Democratic education is often specifically emancipatory, with the students' voices being equal to the teacher's. Foreshadowing a key Global School element, it has been suggested that, while democratic schools have no official curriculum, what each student actually does might be considered their own curriculum.

Taking 'democracy' as an example, and addressing it from a global perspective, its current teaching – where it occurs at all – ranges from 'how to vote' through to 'how to protest', with the several overlapping categories including (a) the descriptive, (b) citizenship-related, (c) historically and geographically comparative; and (d) the radical (challenging and changing the process). The Global School approach is radically different and some of these seminal distinctions are depicted in the table:

ICT in Education	Education based upon Digitisation
Late 20 th century	Early 21 st century onwards
Specialised 'Education and ICT' policies, reports and plans	'Education' policies, reports and plans that take full account of Digitisation's focal role
Costly Computer Rooms with high-priced hardware	Inexpensive handheld Bring-Your-Own-Devices: embodying 'democratic participation'
ICTs used in isolation	ICTs integrated and used coherently
Learning-outcome oriented	Learner-teacher participation oriented
'Computer Science' as a discrete and optional subject	Digital understanding (both digital literacy and fluency) embodied across the curriculum
Entity-specific	Universal-comprehensive
'Democracy' included in curricula*	Bespoke learner-driven curricula
Some learner participation in some aspects of school administration	Worldwide educational system geared to support each individual learner

Table 12: The ravine between 'ICT in Education' and 'Education based upon Digitisation' (*using 'Democracy' as an example of a chosen module in a learner-determined curricula)

It has been argued that across countries, education and democracy are highly correlated, with the claim that schooling teaches people to interact with others and raises the benefits of civic participation, including voting and organising. The contention is that, as education raises the benefits of civic participation, it increases the likelihood of democratic revolutions against dictatorships, and reduces that of successful anti-democratic coups. This is arguable but not self-evident: an examination of available lists of comparative (and measurable) educational results suggests that several East Asian countries are performing relatively highly and that, while some – but not all – of those are regarded as democracies, their curricula are often examination-oriented rather than civilly participative. [It may be added that, not only will The Global School make such odious PISA-fabricated comparisons meaningless, its approach will involve that of enabling learners to explore and assess unsubstantiated claims, such as those alleging a high and positive education and democracy relationship.]

Intangible capitalism, Uberised and Amazonified working conditions, and the upcoming post-human economy have the potential to entrench and exacerbate inequality – both within and between nations. This is the context in which Digital Age education must operate: it has yet to be thoroughly thought through on that basis. Perhaps brain-computer-interfaces, incorporating safe, small, wireless and long-lasting cortical implants, will enable the achievement of a concomitant upgrade in human capabilities. Indeed, the late Stephen Hawking forecast that genetic editing techniques would give rise to a “race of self-designing beings who are improving at an ever-increasing rate”. Given his earlier comments regarding developments in artificial intelligence evolving into a “new form of life that will outperform humans” it is increasingly clear that even how best to go about predicting the future is utterly unknowable. As already recognised, education as preparation has had its day.

As mentioned earlier, experiments with pupil-led (or leaderless) schools have not been unbridled successes: islands of democracy cannot flourish in oceans of authoritarianism any more than atolls of ICT might thrive in seas of medievalism. What is advocated here – suggested by contemporary technologies rather than derived from educational philosophies – is that the (digitally-comfortable) teachers would still rally and encourage the learners but that the latter, advised by the former, would choose that which they would study.



Teachers will guide and provide support but they will no more determine the curriculum nor enforce their preferred pedagogy than will outside agents – universities, employers, religious leaders, politicians, local chiefs – interfere with content and process beyond their legitimate roles as advisors to those who play and thus control the learner roles. It is the learner who now occupies the driving seat; the teacher offering guidance as opposed to direction, and refraining from determining the destination. And this, we contend, is the only truly democratic education: learner-led, universally participative, non-discriminatory, inclusive and fun. By no means the End of History – more, at least educationally, the Overcoming of Geography.

10. CONCLUSIONS AND CONSEQUENCES

This concluding chapter summarises the analyses and arguments that have gone before and indicates, based upon seventeen interlocking principles, the optimum way forward into The Global School.

PRINCIPLE ONE: Piecemeal technological ‘add-ons’ have become dysfunctional distractions: isolated ICT is not the answer.

Information and Communication Technology’s contribution to education may be summarised as ‘over three decades of disappointment’: hopes have been dashed, methodologies have – in terms of tailored sophistication – lagged behind the devices, fortunes have betimes been made by manufacturers and marketers. Even when appropriate systems or apposite devices have been introduced, their use has mostly been restricted to transmitting old contents and reproducing traditional approaches. Essentially, these disconnected applications, once seen as innovative and ingenious, have become costly and befuddling disruptions. A more thoughtful and thoroughgoing approach is urgently required.

PRINCIPLE TWO: Digitisation makes necessary and feasible a fundamental reshaping of the entirety of education.

It is necessary to conceptualise the challenge, along with the response, in terms of Digitisation, as opposed to ICT, recognising that the situation requires a complete, considered and comprehensive response. This entails an utter transformation, for our times and for times to come, locally, collectively by category, nationally and universally. The objectives of education – as opposed to those of, for instance, telecommunications, banking, architecture and home entertainment, where effective wholehearted digitally-based makeovers have occurred – are contested. Educational Digitisation, if it is to be successful, must articulate with fresh understandings of what education is and is for. Utterly transformed educational delivery calls for an entirely new and universal educational philosophy. This unique opportunity, at the commencement of the Digital Age, to optimise education worldwide should be seized with determination and creativity: anything less would constitute incalculable and reprehensible squandering.

PRINCIPLE THREE: Universal connectivity and worldwide inter-dependence are creating The Global School.

Given that all learners and all teachers worldwide are now (about to be) in contact with one another, the educational opportunities are on an entirely different dimension than hitherto. Very soon, there will be just the one universal school, with local manifestations, characterised by fellowship, inclusion and cooperation and naturally enabled by technology. The necessary response covers all educational elements and components and its facilitation is the urgent and supreme task of all of those (i.e. us) involved in education.

PRINCIPLE FOUR: Reflecting learners of all ages’ essential e-lived existence, the Global School embodies the perpetual duality of contemporary consciousness.

The Global School incorporates, integrates and builds upon synergistic coexistence of the online and the face-to-face. Alongside the actual, the virtual will from now and henceforth be a vital and integrated element of everyone's everyday education: so central to teaching and learning that it becomes indistinguishable from the more traditional components. As in life beyond schooling, the personal devices will be ever-present and, responding to that reality, online and blended methodologies may gain coherence, open learning curricula will achieve legitimacy and the distinctions between the concrete and the cybernetic shall wither away.

PRINCIPLE FIVE: The Global School offers an escape route away from education as indoctrination.

Across the millennia, education has been misapplied and schools have been misused to promote other's objectives with children as victims. Even the nobly-intended exploitations of curricula – to enable children to become good citizens or to promote sustainability or to outlaw cyberbullying, for example – are just one step away from aiming at producing child soldiers. Education may and must be ethically neutral: moral education is the zenith of immorality. Digital technology offers incredible potential to develop curiosity, creativity, and perseverance: it is a vehicle for inspiring and engaging students. But this should not extend to leading out the learners in particular predetermined directions: each must find her or his own way forward.

PRINCIPLE SIX: Education is entirely distinct from and utterly unrelated to the world of work.

The recognition that Digital Age labour market requirements are largely unknowable demolishes at long last the false notion that education is predominantly preparation for the world of work. Employment outcomes may no longer be accepted as the key metrics for assessing educational performance. Nor is education at all about poverty reduction or material progress: bringing the marketplace into the schoolroom devalues the invaluable, transforming a universal right into a tradable commodity. Economic growth is a pre-Digital Age obsession although, to some, the value of learning will remain a puzzle until the cease counting it in dollars, riyals, yen, euros or pounds. Digitisation throws the traditional ordering of priorities into welcome disarray, offering the opportunity to divorce education from preparation and making that vital partition between 'education' and 'Professional, Technical and Vocational Training' [see Principle Eleven, below] into an extremely hard and permanently patrolled border.

What do you do?

Over most of human history, this would have been a meaningless question. Then, for around five or six generations, in advanced countries, it meant 'What is your occupation?' and people, labelled by their jobs, might answer 'I am a chemical engineering technician' or 'I sell white goods'. This fixation is fading as, increasingly, individuals will be seen – and will perceive themselves – as self-fulfilling learners rather than employment-circumscribed workers. 'I am understanding more and more about Etruscan sculpture' or 'I am looking at decision-making in the novels of C P Snow' will soon be more typical kinds of replies.

PRINCIPLE SEVEN: Education must be enjoyable of itself.

The fundamental Right of the Child is that of enjoying childhood. Given that life itself should be as pleasant as possible, education should be enjoyable – characterised by laughter rather than sorrow, by joyous self-discovery rather than over-disciplined and competitive homogeneity. Education, as an end in itself, should be fun. Education is not a preparation for a career, nor for citizenship, nor for life in general, any more than is going to the beach or the bowling alley or the cinema a foundation for something else, or any more than retirement is preparation for death. Education is education. [Let it be recognised also that The Global School brings with it heightened opportunities for exploitation, demanding effective safeguards, supplements and subtleties. There will be dangers and they shall be faced up objectively, responded to with creativity and determination, and overcome.]

PRINCIPLE EIGHT: Test-obsessed, performance-comparison-driven schooling must be relegated to the dark (i.e. pre-digital) ages.

A decade or so from now, people will wonder, with horror and amazement, at the way in which early-21st century children and young adults were subjected to examinations and assessment, along with their teachers being prevented from teaching by a never ending requirement to mark, categorise and report. [Other than self-testing, the only feature worth measuring objectively is the extent to which learners and teachers are enjoying their education.] By adopting the same technologies that are transforming other industries, individual EIs would probably be better able to respond to the false policy focus on national testing and international comparisons of apples with pears, not to mention mangoes. As this universal lifelong Global School experience eventuates, odious trans-country comparisons by such as PISA, along with national league tables, will thankfully become redundant. Which would be using the best of contemporary technology in the service of not just outdated but also destructive objectives. The Global School consigns the form of child abuse that is compulsive testing to the asylum of educational psychoses.

PRINCIPLE NINE: Over the pre-primary and primary phases, children should be helped to become educationally self-directed active learners.

Suggestions have been made regarding that which should be mastered prior to secondary, such as an easy familiarity with three languages – mother tongue, another language (international, if that mother tongue be otherwise) and computer familiarity *cum* digital fluency (sign language might justifiably make up a fourth). The four Rs (reading, writing, arithmetic, oracy) will be covered, happily and effectively. But, above all, a lifelong love of learning should be engendered at those early stages through the learners being guided to active learning, based upon a shared enjoyment of the acquisition of ideas and information, implying a pre-secondary curriculum of fascination and a pedagogy of pleasure. And before the secondary age (let us not be too specific) and stage (let us not be over-prescriptive) are reached, the readiness for well-informed educational self-direction should have emerged, in readiness for the responsibilities of Global School learners. Indeed, a major objective of the primary curriculum is that of enabling all children to achieve those curriculum-related decision-making competencies involved in taking charge of their personal curricula from the secondary phase onwards.

PRINCIPLE TEN: At the secondary and lifelong education levels, the learners ‘own’ the curriculum and operate, by default, as active learners.

Digitisation of education has especially profound implications for secondary and lifelong education (as opposed to training) phases where, building upon elementary foundations, education in, of and for the Digital Age reaches fulfilment and active learning has now become the jovial norm. From transition into secondary onwards, and through life thereafter, the curriculum is owned by the learners. Given their fingertip access to virtual infinities of information and legions of fellow-students and teachers, along with their unrivalled acquaintance with their own emerging interests and fascinations, it could not be otherwise. As classrooms may now be freed from labour market colonisation, and as even some of the noblest authorities cannot be trusted to produce curricula that do other than exploit young people, alternatives to imposed curricula become both vital and feasible.

PRINCIPLE ELEVEN: The ‘Education in the context of Digitisation’ conceptualisation supersedes all notions of ‘ICT’ as something separate.

As ‘education’ now means ‘education in the context of Digitisation’, the notion of ‘ICT teachers’ or of ‘ICT in Education’ committees and reports, or even a specific post-primary ‘Computer Studies’ subject, evaporates. ICT lessons, courses and programmes (especially when involving expensive equipment) are insular, misleading and potentially dangerous 20th century relics. While computer-related objectives have been suggested for the pre-secondary phases, from their completion onwards Digitisation is everywhere and there is no need for and much risk related to its especial treatment. Recycle all of those ‘A’ level Computing textbooks and each of those ‘ICT in Schools’ strategy documents: they are as redundant as are the instructions for using facsimile machines or those manuals for worried parents on ‘Your Child and the Radio’. Oh and mention to those ‘ICT Teachers’ and the ‘Computer Science teachers’ that they’ve now become ‘Teachers’ and congratulate them on the successful transition.

PRINCIPLE TWELVE: Professional, Technical and Vocational Training is inevitable and vital – but it is not Education.

PTVT embraces the pre-service preparation and in-service upgrading of workers of all levels, embracing professionals, managers, technicians and others – and let those distinctions disappear as soon as possible. Conceptualising the support for, say, surgeons and top managers with, for example, design engineers and chefs, and also with, for instance, cleaners and care assistants, should dispel the poor status currently accorded to TVET [and that ‘E’ is very much out of place]. PTVT deserves serious attention and support in that productive and satisfying work is necessary for individuals as is its consequence for nations and our world in general. And so learners from internationally-agreed ages (or as otherwise specified) will move gradually and purposefully into pre-vocational training activities, including apprenticeships of various natures, and will commence career preparation and start experiencing the world of work itself. Education will be lifelong, and never work-oriented, but PTVT will play a vital role, commencing for many at the mid- or upper-secondary levels and, at the tertiary or post-secondary phase, legitimately and inevitably coming to pass more generally. Universities and other post-secondary institutions will continue to deliver ‘liberal arts’ programmes and other non-PTVT activities, pursuing the search for truth and facilitating

the satisfaction of learners, alongside their necessary roles in supporting workforce productivity, socio-economic wellbeing and international accord.

PRINCIPLE THIRTEEN: It is in The Global School that Teachers come into their own.

The Global School incorporates the constantly creative Learning-Supportive Pedagogy and, as noted above, every teacher, inevitably, will become a ‘teacher in the context of Digitisation’. Across education as elsewhere, the technology is coming back to the user, offering a readily-achieved and confident familiarity with devices and systems, enabling a concentration on actual teaching, resulting in enjoyment alongside professional satisfaction. Undoubtedly a cloud-based repository of lesson plans, readings, and other content may be created so that teachers may build a structure-wide digital ecosystem that brings everything under one umbrella. The GS teachers’ noble and convivial task continues to be that of bringing out their learners’ potential: by no means a process of work-preparation and student-comparison, rather one of creative stimulation and enjoyable interaction: somewhat more Satnav than satrap. As emphasised earlier, educationally, these are the most exciting times since Socrates. The most appropriate term applicable to The Global School teacher (‘the impresario with a scenario’ and suchlike) should continue to be creatively and enjoyably debated but no analogy, rhyming or otherwise, should ever become ‘official’ as the role will perpetually evolve.

PRINCIPLE FOURTEEN: The well-informed debate is the basic Global School methodology.

Ways in which education was delivered in the analogue past are no longer exclusively appropriate in the digital present: contemporary learning methodologies incorporate and update all of those gone before. As the robots multiply (not literally! Well, maybe literally, who knows?) the human voice, all too silent in too many schoolrooms and libraries, will be heard more frequently, and powerful listening skills developed accordingly. Whether it be regarded as the Socratic dialogue or an even more influential philosopher’s application of ‘Thesis-Antithesis-Synthesis’ schema, the archetypical protocol will be the presentation of evidence, the exploration of ideas, the questioning of foundations and the provisional acceptance of explanations. Exactly how it will eventuate is debateable but assuredly it will.

PRINCIPLE FIFTEEN: The Global School’s existence will contribute to equity of outcomes worldwide.

As discussed in some detail, education, as presently practiced, is the enemy of equity, despite voluminous policies and myriad political speeches to the contrary. While education should neither be aimed at nor assessed in terms of ‘equity’, The Global School, by its nature, is an inclusive and equity-driven institution embodying lifelong educational opportunities and advancing equality of outcomes for all. As it eventuates, by means of the learner-owned and interest-driven curriculum and the abolition of test-dominated practices, the substance, exercise and consequences of education can and should become much more equitable, ethical and enjoyable (and, as already emphasised, far less competitive and world-of-work-dominated). Universal connectivity straddles EIs worldwide and cuts across the institutional, societal and historical factors that gave rise to pernicious socio-educational discrimination.

PRINCIPLE SIXTEEN: The Global School necessitates a fresh approach to international cooperation and development support.

In the light of this forthcoming and fundamental reformulation, many major international interventions, in that they are not grounded in the evolving digital context, are unworkable, irrelevant and vain. [Specifically, the educational SDGs may be achieved if and only if the transformation is achieved entirely and shortly, and the strategy for the goals' achievement is integrated fully into that restructured reality.] Development partners should consider diverting funding from national interventions to supporting the evolving Global School in such areas as free BYOD connectivity, online learning resources, reference sources, teacher consciousness-raising, inclusiveness, special needs and, for PTVT as opposed to education, international accreditation that celebrates distinctiveness yet builds upon our similarities.

PRINCIPLE SEVENTEEN: Nothing educationally will ever be the same again.

With Digitisation, the world is so profoundly and deeply transformed that entirely fresh educational approaches are both necessary and possible. We talk of universal inter-connectedness being embodied in The Global School; similar realisations may be deduced from simply witnessing a 5-year old entirely at home with a device containing a zillion times the computational power (let alone the creative potential) of the mightiest desktop at the turn of the millennium. Moving wholeheartedly into the 'education based upon Digitisation' situation is the predominant challenge before us all. Just as the organisation of education may be re-structured in order to serve and help shape our utterly-transformed and ever-evolving world, and in the same manner that a convivially creative pedagogy, embodying and responding to our entirely altered environment, will materialise, so also will the nature, content and sharing of the information, concepts and practices that are addressed in EIs worldwide be dramatically transformed.

Precisely how this will occur remains to be determined in detail but let none doubt that The Global School is wondrously upon us.



*Mike Douse has been involved in international education since 1964, having worked in and for over sixty countries, including, most recently, Afghanistan, Sudan, Somalia, Bangladesh, India and South Africa. Ireland-based, his assignments in this millennium have been predominantly related to the European Union's educational development support programme although he is presently involved in a World Bank mission. In 2014, Mike published *An Enjoyment of Education* and he has also brought out two collections of poems: *Old Ground* and *Gone to Ground*.*

Dr Philip Uys is Associate Professor of learning environments at Charles Sturt University in Australia. He has published widely in this and related areas including educational innovation and quality assurance, and has conducted consultancies for an array of development partners in a range of countries. Most recently he has done consulting work in South Africa, Botswana, Nigeria, Bangladesh, Tonga and Samoa.



Mike and Philip have recently produced articles on various facets of education (for example: secondary curriculum, convivial pedagogy, educational psychology, educational planning, democracy) with each title including the phrase “in the Time of Digitisation”. By including ‘Douse’, ‘Uys’ and, for instance, ‘in the Time of Digitisation’ in online searches in ResearchGate, Google Scholar and elsewhere, these may readily be accessed and enjoyed.



TAILPIECE

There are certainly some statistics in this book but, to the doubtless dismay of dataphiles, no sources are disclosed. We have definitely drawn all of this information from the latest available and most reliable founts and, in the case of every estimate included, we believe in its reasonable accuracy. However, this is not a research publication and, if someone really wants to check that, for example, in early 2017 ‘264 million children are out of school globally’, the means of doing so are at their fingertips. If they then discover that it was, in fact, 259.2 million, or perhaps 271.5 million, we shall not beat our breasts in shame: our messages are embodied in the overall picture rather than hidden in the illustrative minutia.

Similarly, if we have, inadvertently, utilised clusters of words employed earlier by others, or have even articulated, without any acknowledgement, arrangements of important ideas that had been previously presented by our praiseworthy professional predecessors, we apologise. We do not weep but are somewhat sad, but momentarily. If someone has described, for instance, ‘Critical Digital Pedagogy’ better than and before we have done so here, or even suspiciously similarly, we wholeheartedly congratulate and belatedly recognise them and it. Our intention has been to produce something readily readable by vast audiences rather than an erudite technical paper cluttered up with references and footnotes. Which is probably no excuse. However, when the all-embracing Global School eventuates, with its built-in ‘plagiarism detector and originality enhancer’ bobbling along, getting away with any such subconscious and unwitting borrowing will not be possible. Hopefully!