Mike Douse and Philip Uys

ONE WORLD
ONE SCHOOL

Education’s forthcoming fundamental transformation
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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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1. **INTRODUCTION**

It started with a study. In mid-2016, a major international donor resolved to understand how its development aid programmes in the education sector could best take Information and Communications Technology (ICT) on board. The present authors – Mike Douse and Philip Uys – were contracted to carry out this substantial and interesting exercise. The expectation was that we would identify the kinds of ICT applications that worked well, develop some principles associated with those benefits, highlight the kinds of approaches that should be avoided and, based upon these findings, provide practical advice on how best educational authorities in the many countries supported by the development partner could be enabled to derive optimum benefits from this new and rapidly evolving technology. And, indeed, this expectation was shared initially by us two consultants ourselves.

Mike had been involved in education internationally since the 1960s, as teacher, head teacher, university academic, the foundation Director of Australia’s Disadvantaged Schools Program and, in recent decades, designing, implementing and evaluating international educational interventions, mainly for the European Union but also for the United Kingdom’s aid agency DfID, for UNICEF and the World Bank, and for some developing countries (such as the Sudan and Bangladesh) directly. Although he had taught secondary school Computer Science (along with mathematics and economics) in times long gone by, he was (and is) an educationalist rather than any kind of ICT specialist (as well as a published poet and, as will be returned to below, deeply involved in fostering school student debating internationally).

Philip was then a Director of the Division of Learning and Teaching at Charles Sturt University in Orange, Australia and an Associate Professor of Educational Technologies. He had previously been involved in technological innovation in Southern Africa, South Asia and the Antipodes, including the application of learning technologies and open education resources to enhance efficiency and quality; he is now a freelance consultant. Philip had published widely in these and related areas, including educational innovation and quality assurance, and had conducted consultancies for an array of development partners in a range of countries. Mike and Philip had worked together in Botswana for the British Council in 2003 and had maintained contact ever since then.

**An Absence of Evidence**

But, as Mike and Philip began to gather information on how ICT had been applied in schools and colleges from Calcutta to California, and from Port Harcourt to Port of Spain, an entirely unanticipated general finding emerged. Several hundred applications were encountered, ranging from the establishment of well-equipped computer rooms across entire national secondary systems in one Gulf State nation, through the development of self-taught English Language, Mathematics and Computer Science programmes, to an internet-based monitoring system for trainees on teaching practice in distant primary schools. Systems used by open universities were studied, applications within TVET were examined, the literature (reports, books, numerous journal articles and conference presentations) was scrutinised, and the publicity materials of the purveyors of hardware and software were perused.
We went through, and greatly admired, the Open Book of Educational Innovation (Licht, Tasiopoulos and Wastiau, 2017), welcoming its definitions and examples of ‘Technology-supported innovation’ and what it calls ‘ICT-enabled innovation for learning’. We have appreciated also its consideration of “teaching and learning processes that cannot be as easily implemented without technology, for example personalisation, authentic learning, social learning, peer-to-peer interactions, et cetera” (ibid). So much fascinating work in progress, very many claims of ‘success’, several hints at how some of these initiatives might make learning more enjoyable but, shining through this admirable compendium, glows the clear-cut message that, unless the underlying educational setting is overhauled, individual initiatives, no matter how innovatory, will not alter the fundamentally obsolete situation.

Three clear conclusions materialised:

• Just about all of the initiatives were expensive: so much so that, even were they to work brilliantly, they would be far from cost-effective and, in most instances, beyond the budget of the great majority of the world’s schools and education systems;

• Where success was reported – and there were many instances of such declaring – the claims, when examined closely, emanated from those conducting the innovations or endeavouring to market the equipment and/or the software involved: and

• Amongst all of the ICT educational applications reviewed, there was very little indeed that was objectively effective, let alone readily replicable.

As we reported, “…excited claims of effective ICT applications on learning abound but, in many instances, encountering convincing evidence proved as elusive as establishing concrete proof of clairvoyance”. Our inevitable conclusion was that “…we should no longer simply be talking and planning in terms of ICT assisting contemporary approaches and arrangements”. We ventured to take this further, notwithstanding the original parameters of our study as contracted. We began asking ourselves why isolated ICT initiatives had not succeeded and we concluded that modern technological-based approaches were unlikely to work well within an ancient teacher-led, examination-driven learning system.

Moreover, we started to consider what the overall – as opposed to the specific – educational consequences of ICT (along with AI) would be, recognising, as we put it in our discussion paper, that we were “…envisaging a thoroughgoing surge forward into a fresh dimension”. And we suggested for the first time that “… much as it is now possible to conceive all of the world’s libraries as the one worldwide library, so also, in a sense, all of its educational institutions may be conceptualised as the one universal or Global School”. Indeed, we stopped referring to ‘ICT’ and started talking about ‘digitalization’ (sic) and we entitled our report (Douse and Uys, 2017a): ‘The Impact of Digitalization on Development’ although, and maybe to meet some kind of contractual requirement, we kept the sub-title: ‘Using ICT in Education’.

Evolving Understanding

Mike and Philip continued to take forward the analyses of evidence and consequent realisations of their explorations of ICT in education worldwide, building upon and refining their rough ideas and amorphous conceptualisations as presented in their report to the international development partner in question. Through their long-distance conversations, and the additional evidence that they gathered and analysed, it became increasingly clear to them that:

• The starting point should be the overall ‘Digitisation’ of society worldwide;
• Once that had been fully explored, how best education should respond to that transformation should be Agenda Item Two; and
• This would undoubtedly involve a fundamental transformation of education, made necessary and possible by Digitisation.

These realisations went far further than anything that we had dared to write in our report although even those findings and recommendations were rather too radical to allow their immediate acceptance.

Around this time, Philip was preparing conference presentations and journal articles in areas such as ‘What students are saying about Technology Enhanced Learning’, ‘Open, Blended & Online Learning at Charles Sturt University’ and ‘The Use of Educational Technologies in Distance and Higher Education’. Mike had already published articles on education’s main objective being enjoyment and on maintaining the strict division between education and training, with titles such as ‘Learning and Laughter – and let the Livelihood come After’ (Douse, 2005) and ‘Chalkboards and Cheeseboards – Resisting the Workplace’s Colonisation of the Schoolroom’ (Douse, 2013a), together with his book An Enjoyment of Education (2014).

In 1972, with High Court Judge Adrian Roden, Mike had established the Australian Schools Debating Championships, a forerunner of the World School Students Debating Championships and, because of his known involvement as debater, judge and organiser, he was invited to contribute an article to a special issue of the Journal of Contemporary Argumentation and Debate, which he entitled ‘Digitisation, Education and Debating’ (Douse, 2018). Here Mike explored the significance of the debate, not merely as an interesting extra, nor even in terms of its learning and self-confidence spin-offs (and certainly not as “something impressive to have on your CV”, as one teacher was overheard saying). Mike argued the case for the researching, hypothesising, arguing, rebutting and questioning that an honest debate involves becoming, as will be reiterated in our penultimate chapter, below, “…the prevalent pedagogy. With Digitisation as catalyst, the debate now manifests the learning process. Proposition, Opposition, Synthesis: the hour is nigh”.

It was this coming together, with the initial report (or discussion paper) as catalyst, of ‘eminent technologist (and academic) with educational interests’ Philip and ‘international educator (and debater) with technological interests’ Mike that enabled these fairly obvious but hitherto uncharted explorations of Digitisation’s consequences for education to be mapped out. By mid-2017, the need to put our evolving insights to the test with fellow educators became urgent and, as we shall soon see, an Oxford opportunity soon presented itself.

A word regarding the word ‘Digitisation’ (and it will be noted that we prefer the British rather than the American spelling). We are using it here to mean the process of converting information from a physical format into a digital one: the essence of contemporary technology. It may well be that applying Digitisation to business or to manufacturing or, indeed, to

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1 Somewhat later, we posed a question (“Can anyone identify any application that has been shown, by objective evaluation, to contribute significantly and sustainably to student learning and also to be cost-effective and replicable?”) through the internet, in several ways and by means of a number of specific ICT/educational sites as well as general channels. We looked carefully at every response (some 20 were received within one month and they were still dribbling in as recently as November 2019) and the majority reiterated that ICT in education applications that were each of successful, cost-effective and replicable were rare to the point of non-existence.
education may properly be called ‘digitalisation’ but we choose not to go there and, of course we eschewed ‘digitization’, whether the intruding ‘z’ be a ‘zed’ or a ‘zee’.

Some others who contribute to the discussion use the term ‘post-digital’ (see for example Jandrić, 2018) but, as we regard the ‘process of converting information from a physical format into a digital one’ as a fundamental and future-proof feature of our lives rather than some temporary phenomenon, we consider the ‘post-’ to be redundant or even misleading. In a similar manner, we feel no need to describe the contemporary (Western) condition or ‘Age’ as ‘post-sanitation’ or ‘post-literacy’ as if these were historical phases that we have passed through and left behind.

**City of Dreaming Spires**

UKFIET, now calling itself ‘The Education and Development Forum’, provides (to quote from its website) a “pro-active forum for universities, non-governmental organisations, consultancy groups and professional associations to share ideas, knowledge and expertise” [we noted that this referred to institutions as opposed to individuals but were not deterred]. In September 2017, it held its biennial conference in Oxford. We had begun by urging the organisers to make ‘Education based upon Digitisation’ the conference theme but were neither disappointed nor taken aback when this was politely rejected in favour of ‘Learning and Teaching for Sustainable Development”. [This idea of conscripting education to achieve non-educational objectives, good or otherwise, is addressed in some detail and vehemence in our subsequent chapters.]

But we were allocated a conference session, of which we made good use. We called our session: ‘Digitisation, Learning and Teaching for Sustainable Development: Curriculum, Cognition and Context in the Digital Age’ (acknowledging not only to the overall theme but also the particular sub-theme of ‘curriculum, cognition and context’). But essentially we saw this as an opportunity to gain creative input from some of our fellow-educators (as opposed to their institutions) and, in addition to outlining our own evolving ideas, we sought to obtain their viewpoints on the educational consequences of Digitisation. This was the question that we asked, previously in our circulated abstract, during the session itself on a PowerPoint slide, and subsequently in our follow-up:

*Suppose all learners and all teachers, everywhere, were able to communicate with one another, easily, instantly and inexpensively. What would the educational implications be?*

This certainly focussed the attention, engendered an extremely lively and constructive session, and stimulated a very wide range of thoughtful ideas, including ‘top-quality confidential mental health counselling’, ‘inter-continental choirs’, ‘multilingual drama’, ‘one worldwide student representative council’ and very many others. It should be added that the responses also included ‘chaos’, ‘plagiarism and corruption’, ‘monopolistic online domination’ and ‘international cyber bullying’ – discussion of potential dangers and their negative potential is not avoided in subsequent chapters. The full set of suggestions by UKFIET participants is presented in the box below (see Uys and Douse, 2017c for the actual conference paper).
Each suggested implication – along with others that may readily be predicted – merits attention; the concluding BOLD one of ‘unimagined opportunities’ sums the entire list up. But probably the most significant outcome of our UKFIET conference session was the consensus regarding the profound educational significance of all learners and all teachers being able to communicate with one another “…easily, instantly and inexpensively”. Digitisation involves, in the minds of our fellow educators who attended our session, those significant and ‘…unimagined opportunities’ and with that we certainly concur. To the many great ideas, events and inventions emanating from Oxford (Alice in Wonderland, Morris Cars, the Four Minute Mile, Oxfam, Morse, the English Dictionary, Mrs Sarah Cooper’s marmalade, the Oxford Movement, the World Wide Web, Schrödinger’s Cat…) another had been added. From then onwards we confidently spoke and wrote that “nothing will ever be educationally the same again”.

**Perceiving, Publishing and Publicising**

Indeed we now recognised that that “Digitisation involves a pivotal leap in human potential as profound as the wheel in terms of development, as significant as the book in relation to information…” and this we engraved in several journal articles and uttered in various conferences, focussing on how (best and inevitably) education would respond to the unparalleled challenges, enabled to do so by that very same Digitisation.
We addressed, in turn, particular aspects of education, in each instance looking at the challenges posed by Digitisation, how Digitisation would enable those challenges fully to be met, and what the consequences would be. Each one in that series of articles had the phrase “…in the Time of Digitisation” in its designation, paying tribute to the title of Gabriel García Márquez’s novel *Love in the Time of Cholera* (but not necessarily to the book’s debilitative contents). These published articles addressed in turn:

- Educational Planning… (Douse and Uys, 2017)
- Educational Psychology… (Douse and Uys, 2018a)
- Secondary Curriculum… (Douse and Uys, 2018b)
- Convivial Pedagogy… (Douse and Uys, 2018c)
- TVET Teaching… (Douse and Uys, 2019a)
- Education and Democracy… (Douse and Uys, 2019b)
- The School Around the Corner… (Douse and Uys, 2019c); and
- Equity and Education… (Douse and Uys, 2019d).

In addition, both Philip and Mike have attended and addressed conferences including Mike’s November 2019 presentation to the World Conference on Online Learning, within the topic *Digital Age Consciousness, ‘Online Learning’ and the Global School*, which explained the redundancy of adjectives such as ‘Online’, ‘Distance’, ‘E-’ and ‘Lifelong’ in relation to education and learning (see Appendix, below, and Douse and Uys, 2019f). “In that ‘online learning’ and suchlike are “already inextricable and inseparable foundations of today’s learning and teaching”, that presentation explains that, by using such terms “…we are symbolically denying the fundamental educational transformation that is already occurring in many locations across the world” (ibid).

Our two hundred plus page book *The Global School: Education in the Time of Digitisation* [very much a paperback for the general reader2 as opposed to this present fully-referenced academic volume] was self-published last year (Douse and Uys, 2019d) and, along with the articles and conference presentations, has served to refine and popularise the recognition of education’s aforementioned forthcoming and fundamental transformation.

Certainly our well-founded recognition that nothing educationally will ever be the same again is increasingly accepted, along with a realisation that isolated ICT applications within an unchanged system are doomed to failure. But a widespread and official acknowledgment of the educational consequences for education worldwide of Digitisation, along with a clear understanding of what may best be

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2 Within six months of publication, the number of copies purchased, downloaded or kindled had run into the thousands (NOTE: not into the ‘tens of thousands’ but into the ‘thousands’) to the surprise and gratification (but, alas, not the material fortune) of its authors.
done to make the transformation early, optimally equitable and universally benign, is yet to emerge.

This present ‘ONE WORLD ONE SCHOOL’ book responds directly to that challenge.

**Chapters and Verses**

Following this introductory chapter, this book’s sub-title ‘EDUCATION’S FORTHCOMING FUNDAMENTAL TRANSFORMATION’ is focussed upon in Chapter 2. Based upon all of our insights to date, together with responses received regarding points made in earlier publications and presentations, this key chapter aims at explaining, describing and justifying what we see is an inevitable and – if handled properly – highly welcome holus bolus transformation of schooling worldwide, matching the Digital Age revolutions in, for example, banking, entertainment, manufacturing, politics, advertising, information, architecture and design, culture and social inter-action generally.

Whereas Chapter 3 is designated ‘ONE WORLD ONE SCHOOL’: this book’s main title. Here we offer a range of statements regarding the Global School, inevitably and regrettably imaginary and a few years ahead of their time. But they are aimed at indicating the kinds of activities that will occur, the perceptions and reflections of learners, teachers and facilitators, and at offering an insight into the kind of Global School that will eventuate. None may know precisely how it will materialise but assuredly it will in some form be made very manifest fairly soon.

Information and Digital Technology and Artificial Intelligence are focussed upon in Chapter 4: ‘ABOVE AI AND BEYOND ICT’. Building upon the already emphasised recognition that isolated ICT applications are not the answer, along with the realisation that Artificial Intelligence may only become the significantly beneficial answer with a well-informed restatement of the underlying question, this chapter lays the foundation for thorough considerations of Global School elements. Our world is massively changing through contemporary and coming technology: how, we ask, may AI and ICT best be applied in enabling an utterly transformed universal educational system optimally to serve Digital Age learners and their teachers?

Each of chapters five through eleven then addresses and takes forward a particular facet of that shortly forthcoming Global School. With that which we have already published and presented amongst the starting-points³, each chapter takes on board the reactions received, incorporating our further reflections on the issues involved, relating each specific element to the overall GS envelope, and offering our considered views from the several inter-related perspectives. They comprise:

- CURRICULORUM: What should be taught [from pre-school through to university postgraduate] and who should decide?

³ Some of the information, analyses and ideas in *One World One School* have been presented in our earlier publications, as listed in the annex entitled REFERENCES – RELEVANT EARLIER PUBLICATIONS BY THE PRESENT AUTHORS, below. Such items have, however, been refined, revised and added to substantially in *One World One School* in response to comments received and as our own understanding of education’s forthcoming fundamental transformation has expanded and clarified.
• AND GLADLY TEACH: How should that be taught – how should learning best be facilitated – what pedagogical principles apply – and what is the Global School teacher’s role?
• THE PSYCH OF ED: What should educational psychology involve within a universal, non-competitive, learner-directed education system?
• PLANNING THE UNPLANNABLE: How might that universal, non-competitive, learner-directed education system be planned for, managed, supported and evaluated?
• ÉGALITÉ ET FRATERNITÉ: Will the Global School embody democracy (‘Yes!’) and should it be used as a vehicle for spreading democratic ideals (‘No!’)?
• ‘VOCATIONAL’ AS OPPOSED TO ‘EDUCATIONAL’: Should the Global School be geared to the requirements of the labour market (‘No!’) and, if not, how should the ever-evolving needs of the worldwide Digital Age economy best be met?
• SPEAK UP AT THE BACK! How may we apply the ‘debate’ as the basic Global School methodology?

In earlier publications, our basic beliefs were set out as a set of sixteen Principles, for example:

Universal connectivity and worldwide inter-dependence are creating the Global School.

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

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

In our final chapter, entitled DEBATABLE CONCLUSIONS, true to our belief in ‘the debate’ as the basic learning experience, we present a number of topics for discussion – as debating motions with no ‘correct conclusions’ indicated or implied. Obviously, some of our earlier Principles would not, as then stated, lend themselves to disputation: for instance, an individual or a team called upon to oppose the self-evident proposition that ‘Digitisation makes necessary and feasible a fundamental reshaping of the entirety of education’ would justifiably feel very hard done by. But each of the debating subjects suggested in that concluding chapter offers opportunities for teasing out the desirable details and the imaginable intricacies of the forthcoming ONE SCHOOL for our ONE WORLD. As with all of education, the paramount objectives comprise enjoyment, self-fulfilment and understanding for its own good sake – of the Global School, of the learning and teaching experiences within it and, indeed, of this book itself and its contribution to the on-going debate.

Education in the Time of the novel Coronavirus

As One World One School was being finalised in March 2020, the novel Coronavirus/COVID-19 pandemic began to dominate the news, everyone’s conversation and both the local and the national personal and public health situations. Although the challenges of how best all students may keep learning effectively in times of acute disruption was focussed upon by ‘the global education community’, during March 2020, it was far from a high agenda item more generally. Even
the consideration of whether schools should remain open was addressed predominantly from the health and economic perspectives: ‘children seem not to be significantly harmed by the virus… if they are based at their homes then their grandparents would be affected… their parents – who may be health sector specialists – might have to stay away from their front-line jobs in order to look after them’ and so forth. The matter of whether or not the forthcoming examinations should be cancelled was ventilated, to a limited extent, but whether or not education was going to be delivered and enjoyed seemed very far down the list of priorities. It seemed as if schooling was regarded as a combination of child-minding and university selection: a perspective identified and criticised elsewhere in One World One School.

Thankfully, China, provided an enviable exemplification in this educational wilderness: they seem to have seized an opportunity and, as we shall now consider, reported upon their experiences. In the introduction to a very recent assessment of the ‘Chinese Experience in Maintaining Undisrupted Learning in COVID-19 Outbreak’ (Hunang et al, 2020), UNESCO Director-General Audrey Azoulay emphasised that “We are entering uncharted territory and working with countries to find hi-tech, low-tech and no-tech solutions to assure the continuity of learning”. As set out in that pertinent handbook, the Chinese Ministry of Education launched its ‘Disrupted classes, Undisrupted Learning’ initiative, “providing flexible online learning to over 270 million students from their homes” supported by many “vivid examples and touching stories” (ibid).

As reported by Huang and his team, the Chinese experience needed to address such challenges as:

- Internet connection can be unreliable if there are thousands of learners learning simultaneously;
- Some instructors can find it difficult to find online resources that are the most suitable in their teaching contexts because thousands of resources are published online;
- Several instructors and learners do not have the appropriate digital skills to teach and learn online. This can make the online teaching/learning experience inconvenient for them;
- Several learners lack crucial learning competencies, such as adaptation, independent study, self-regulation and motivation, which are key factors for successful online learning; and,
- Several instructors simply use direct instructions without considering important features of online learning, such as interactivity, social presence, and cognitive presence, resulting in unmotivating learning experiences.

It may be noted that several of these unsurprising obstacles are addressed in One World One School.

Similarly, based upon the Chinese practices to maintain undisrupted learning during COVID-19, the following seven core elements of effective online education in emergencies were highlighted:

- Ensuring **reliable network infrastructure**, which can handle millions of users simultaneously, is crucial to support smooth online learning experience without interruption when: (a) providing synchronous online teaching using video conferencing; (b) using (watching, downloading, uploading) interactive learning resources (videos, games, etc.); and, (c) collaborating with peers via social platforms.
- Using **friendly learning tools** is beneficial to learners in finding and processing information, constructing knowledge, collaborating with peers, expressing understanding, and evaluating learning effects in concrete ways. It is also vital that instructors avoid
overloading learners and parents by asking them to use too many applications or platforms. In this context, schools should coordinate between all the instructors to use consistent learning tools or platforms.

- Providing **suitable interactive digital learning resources**, such as online video micro-courses, e-books, simulations, animations, quizzes, and games. The criteria for selecting digital learning resources should include licensing, accuracy, interactivity, ease of adaptability, cultural relevance & sensitivity, and also the suitability of content, difficulty, structure, media, and organisation.

- Guiding learners to apply effective learning methods can be used individually or in groups. Specifically, the online instructional practice should involve **using online communities, via social networks**, to ensure regular human interactions and to address potential online challenges, such as learners’ perceived loneliness or helplessness.

- Promoting effective methods to organize instruction by **adopting a range of teaching strategies**, such as case studies, open debate and discussions, learners-led discovery, experiential learning, et cetera.

- Providing **instant support services for teachers and learners** on learning about urgent school and governmental policies, using effective learning technologies, tools, and resources and collaborating between the government, schools, enterprises, families, society, et cetera.

- Empowering the **partnership between governments, enterprises, and schools**. Specifically, the governments should also coordinate enterprises, schools, research institutes, and families to build smooth communication platforms to exchange urgent notices and to keep everyone safe [all taken from Huang, 2020].

These are indeed valuable lessons from very relevant recent and wide-scale educational experiences, echoed in One World One School. However, and indeed understandably, the COVID-19 public debate has been dominated by health (and survival) issues, with some concern certainly regarding economies, to the virtual exclusion of matters educational. Which of course parallels the humanitarian versus development dichotomy in crises and fragility aid generally.

We believe that, **educationally, the novel Coronavirus is an opportunity**. In relation to digitisation, we have emphasised – again and again – in the pages that follow that things can never be the same again. It could well be that post-pandemic, our world, our societies and our economies will be utterly transformed. [Spelling out the details, not to mention the timing, is, thankfully, beyond our present remit.] Given that ‘one universal school’, with all its challenges and benefits, is destined by the powerful combination of third millennium technology and the tangible/virtual duality of contemporary consciousness, it could well be that – for all its horrific aspects – the novel Coronavirus offers the catalyst to that development.

Amongst the bleak uncertainties, and as a welcome distraction from present anxieties, we are confronted by an unanticipated and probably year-long opportunity to design and deliver effective and stimulating online education for all. Let us use these COVID19 months imaginatively, positively and well, deploying creativity and resources in responding to the virtual/tangible reality of contemporary consciousness. At a national (before inevitably moving into the international) level, the steps might include:

- Developing, through consultation and soon, taking full account of the Chinese experience, a flexible, imaginative and comprehensive ‘Education in the time of The Novel
Coronavirus’ policy focused upon effective and enjoyable online learning over the coming months, and thoughtfully covering equity and security issues;

• Announcing and explaining that policy to learners of all ages and to the public generally, with justifications and implications, extending to scaffolding (for instance, the support of parents) as appropriate and wherever possible;
• Closing all educational institutions in the sense of learners no longer attending them in person;
• Ensuring that – as soon as feasible – every learner has (safe access to) appropriate devices and easy internet connectivity;
• Commencing online learning based upon existing materials;
• Building up these resources significantly and imaginatively merging local creativity and national standards…
• …while simultaneously upgrading teachers’ ability to explain, encourage, support and monitor student learning (working safely from their homes);
• While emphasising self-testing, fulfil current requirements for producing acceptable external assessment arrangements (i.e. grades at ‘school leaving’ and ‘matriculation’ levels); and
• Evaluate all elements of this ‘Education in the Time of Novel Coronavirus’ policy implementation, extending to its exit strategy enabling, once normalcy has returned (early-2021?) all education to be blended, drawing upon the lessons learned in these unusual times.

Let the proviso be made that, in these day-to-day dynamically fluctuating times, situations may change radically and, with them, the most apposite responses. Moreover, while it is easy to say that all learners should have access to appropriate devices and high-speed broadband, it is fully recognised that this would involve a massive albeit necessary investment. Similarly, designing, piloting and applying effective and attractive online learning materials, and optimising all teachers’ ability (and motivation) to use them well, would also necessitate the application of considerable human and material resources. Clearly, country by country, national leadership and institutional initiative would be vital contributions in making 2020 the year in which education – from pre-school through postgraduate – begins to move into the third millennium. And, while all of this is not yet the One World One School as set out, advocated and foreseen in this present publication, it does constitute a substantial and significant step towards its accomplishment, while responding directly and effectively to the special challenges of these dire times.
2. EDUCATION’S FORTHCOMING FUNDAMENTAL TRANSFORMATION

Digitisation is creating a new and entirely inter-connected world. This necessitates and enables utterly original understandings, approaches, arrangements and aspirations. The inevitabilities and the possibilities are now explained and explored here in One World One School, incorporating the recognition that we are in a time of unparalleled challenges and opportunities and that, as a starting-point, we can and must agree upon a fresh comprehension of what education is really for in the third millennium and beyond. Based upon that consensus, we shall, in the remainder of this book, suggest and set out what this means in terms of learning, teaching, curricula, pedagogy, institutions, administration, assessment, guidance, planning and financing.

This chapter addresses some of the general issues taking full account of human consciousness and outlining the evolving Global School while, as already foreshadowed, succeeding sections deal with the specifics. As already observed, the virtually general recognition that everything is transformed has yet to be matched by any fundamental reshaping of educational content, school organisation, classroom culture or institutional philosophy. Accordingly, with our heads in the cloud but with our feet firmly planted upon terra firma, let us explore how best that which is studied, mastered and enjoyed may respond to and be served by this emerging Digital Age and the learners and teachers therein (i.e. just about everybody in this learning world).

A World Transformed

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. The society in which the teachers and learners operate has altered radically—and will be characterised by on-going alteration. Similarly, the ways in which the transmission of information (and the terrifyingly wondrous vastness of readily-available data out of which, skilfully, such information may be derived) and the sharing of ideas and the stimulation of creativity may be achieved manifest a fresh educational era—a transition as epoch-shattering as that from feudalism to capitalism. The participative connectedness of all learners is something more than enabling development: it is development. But it has yet, with universally-enhancing, equity-accomplishing or profoundly humane consequences, to occur.

Carl Benedikt Frey considers that this phase of the 21st century is turning out to be very like the early-19th in the sense that technology is causing a great crisis of status, security and trust in institutions (Frey, 2017). Economic disruption is manifesting itself in personal insecurity, social disruption and political weirdness. As John Harris puts it, rather than trying to deny the future, convincing responses include the “kind of ameliorative social programmes such as… huge changes to education… a universal basic income… that allow them to make the most of huge change” (Harris, 2019). As he continues, “right-wing politicians send all the chaos into a kind of feedback loop” (ibid) and, quoting Frey, he concludes that “the short run can be extremely disruptive. And it can last for a very long time” (Frey, 2017).

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4 A small number of publications are considered to be of particular relevance and significance to One World One School and these are cited in the BIBLIOGRAPHY annex as opposed to the much longer set of general REFERENCES. Frey’s The Technology Trap is one such highlighted volume.
An entirely new paradigm has materialised and the educational challenges and opportunities are of a different dimension than hitherto and, accordingly, talk of curricula and of teaching and learning methodologies cannot be limited to, or even focussed upon, those situations prevailing or aspired to in particular countries or communities. As Foer suggests, “there has never been a better time to advance a vision for how to organise technology in a way that benefits everyone” (Foer, 2017). And, as will be discussed in subsequent chapters, this open and active participation has profound implications for the substance, creation and transmission of information, ideas and attitudes, and will be accompanied by an intensifying realisation of the possibilities of learner-directed curricula and learning-supporting pedagogies.

Far from transforming themselves in response to, and becoming best geared to serving digital age learners and teachers, most schools, organisationally, interactionally and architecturally, remain old-fashioned forced labour factories wherein (often unengaged and sometimes unwilling) learners are (frequently inaccurately and typically inefficiently) instructed by (usually underpaid and often underqualified) teachers. Indeed, some educational institutions across the world still exhibit much of the tradition, aspiration and culture of those expensive and exclusive boarding schools that housed the sons of the English elite, previously (and maybe, in some cases, currently) characterised by “…beasting, bullying, fagging, cold baths, vile food and paedophile teachers” (see Renton, 2017 for an interesting exploration of this phenomenon). Bullying may well have migrated to social media, corporal punishment may well have been superseded by psychological controls, the exam culture may appear to have replaced some games field humiliations but the plight of many learners remains physically and emotionally grim. When envisaging Digital Age scholastic institutions – extending to the universal school – this prior aspect of the educational reality must not be ignored.

Contemporary Consciousness

Accorded recent notoriety by the South Korean pop phenomena BTS’s “Map Of The Soul” album (BTS, 2019), psychoanalyst Carl Jung’s concept of the collective unconscious refers to a segment deep in each of our minds that is genetically inherited rather than shaped by personal experience. According to Jung’s teachings, this collective unconscious is, as explained by Matthew Stein, “common to all human beings and responsible for a number of deep-seated beliefs and instincts, such as spirituality, sexual behaviour, and life and death instincts” (Stein, 1998). More recently and specifically, Stein explains how Map of the Soul is an album full of "longing and struggling for authenticity" with the band "breaking out of persona traps" in the final track and reaching an awakening (Stein, 2019).

In much the same way, the Global School (see below) embodies the perpetual duality of contemporary consciousness – the virtual and the immediate – reflecting an authentic educational awakening of the kind that only comes once every six centuries or so. The Global School offers a shared context of values for learners, teachers and technologies (from wooden rulers to robots). George Siemens (2018) has observed that “Technology is altering (rewiring) our brains. The tools we use define and shape our thinking”. Today’s teachers, whether in school or college are working with students whose entire lives have been immersed in the 21st century techno-media culture. Education’s forthcoming fundamental transformation is necessitated and made feasible by universal connectedness, biological/technological harmony and machine/human collaboration. It is no longer the
Jungian collective unconscious but a fresh authenticity born out of the universally shared experience that characterises the duality of third millennium consciousness.

As we peer into the techno-abys we are confronted by opaque political communication and asymmetrical social media platforms. The gig economy is not limited to Uber and Amazonian apps and transportation but extends to carers, cleaners, call centre operatives and clothing sweatshop workers worldwide. Working conditions, and deep-seated fears of what Bartlett (2018) calls “a post-human economy”, have the potential to entrench and exacerbate inequality – both within and between nations. As Alejandra Reyes (2016) points out “the pervasiveness of digital technologies in daily life is fundamentally changing the way individuals access and elaborate knowledge” in that they “have to process complex information, think systematically and take decisions weighting different forms of evidence…to continuously update their skills to match rapid technical change at the workplace. More fundamentally, in order to seize the new opportunities that digital technologies are opening in many areas, individuals have to develop the right set of skills to make a meaningful use of these technologies” (ibid).

Nicholas Carr is concerned that “an increased knack for mental multitasking comes at the price of our ability to think deeply” (2019). Extrapolating from the sagacity of Western philosophers such as Plato and Marshall McLuhan, and guided by recent, pertinent discoveries in neuroscience, he argues that the internet “physically rewires our brain to where we end up acting like computers – avaricious gobblers of information – and our grip on what it means to be human slackens” (Carr, 2019). Similarly, Brindle talks of our “fractured worldviews, competing fundamentalisms, weakening of social bonds, and distrust of one another” (Brindle, 2019) while Feuerman describes how we “negotiate our cities alongside a screen, or to a personal soundtrack: reality intermixed with a constant submersion and emersion from the virtual” leading to a “learned helplessness” (Feuerman, 2018).

Whereas Carl Jung talked of the mythical ‘collective unconscious’, the Digital Age creates the ‘universal semi-consciousness’ (our phrase) embodying the tangible/digital duality that characterises these petrifyingly exciting times. The wheel and the book have already been mentioned: Digitisation involves a pivotal leap in human potential as iconoclastic as anything dreamed up by the deepest analyst/therapist in terms of the human psyche. Piecemeal ICT applications have failed to rise to the challenge and, consequently, the last three decades of computers in learning have been characterised by disappointment, disillusionment and frustration – and this is explored in more detail below. What is called for now is an understanding of the Global, synergistic integration of technologies and learning experiences, seamlessly uniting digital and tangible learning. One World One School explores the implications of the contemporary mental condition in the context of evolving digital technology and universal connectivity and describes how education, inexorably occurring from birth and/or infancy through to senility and/or mortality, should and inevitably will be fundamentally transformed into what may be referred to as the ‘Global School’ (as dealt with below and in depth already in the present authors’ recent publications). These and other psychological, pedagogical, social and associated implications of this ground-breaking ‘Education embodying Digitisation’ reality are explored and welcomed.

**Lapsed Euphoria**

That hubristic hype around learning technologies around the turn of the millennium, ending in the trough of disillusionment, frustration and expired elation, offers an archetypical
example of a Gartner Hype Cycle (Fenn and Blosch, 2018) with the ‘Slope of Enlightenment’ only recently being perceived through the mists. As the OECD (2016) reports, “despite the huge potential of digitalisation for fostering and enhancing learning, the impact of digital technologies on education itself has been shallow. Massive investments in ICT in schools from K-12 and beyond have not yet resulted in the hoped for transformation of educational practices”. As that report continues: “Discussions about the potential of digital technologies in education today increasingly place the issue as part of a more comprehensive approach to innovation in education” (ibid). Many studies report at best ‘no-significant-difference’ in learning outcomes through the use of ICTs, and this reality will be taken further in Chapter 4, below.

As Sharma and Siwal recognise (2019) “Cost, Effectiveness, Equity, and Sustainability are four broad intertwined challenges which must be addressed when considering the overall impact of the use of ICTs in education” although their research, while highlighting the “…considerably different ICT expenditure levels within and between countries, as well as between institutions within countries” seems to confirm that while the “availability and usage of ICT is very imperative”, the “…impacts of ICTs on student learning outcomes” might just possibly become apparent if and when the applications were better organised.

Attempts at partial solutions, such as prioritising online learning to create new generation specialists, are akin to electrifying only a portion of a railway system or strengthening just a few of a major construction’s foundations. The absence of an integrated, wholehearted and widespread commitment to taking full advantage all of these possibilities has limited their individual development and restricted their prospective benefits: the potential contribution of Digitisation remains relatively untapped. Unless the entire educational environment is transformed in an integrated fashion, a few worthy novelties will not only appear out of place but their incongruity may damage the overall entity: education needs to be totally restructured with Digitisation as the cohesive force to achieve its potential and create previously unthinkable synergies. Moreover, what is occurring around us is a psycho-socio-cultural – as well as a technological – revolution and the educational transformation must necessarily embody all of those inter-related elements.

Alvin Toffler (of Future Shock fame) pronounced that “the illiterate of 21st century will not be those who cannot read and write, but those who cannot learn, unlearn and relearn” while Joke Hernes observed that “the passport to world citizenship has become @” (Hernes, 2006) and, as Edward Mendelson subsequently expounded, “human character changed on or about December 2010, when everyone started carrying a smartphone” (Mendelson, 2016). 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 (much as books were once regarded by our guardians as literally dangerous), leaving us unable to escape from the confines of failed philosophies and the mindless repetition of outdated practices.

In an interesting – and in very many respects inspiring – recent publication (Beard, 2018), our inability to nurture let alone harness ‘our incredible capacity to learn’ is thoroughly documented. Indeed, Alex Beard’s acknowledgment that “our schools are relics of an industrial era” and that an entirely fresh overall approach is necessitated parallels what the present authors have been saying for some years – and no doubt he and the Teach for All network have long been articulating that also, although we believe this to be the first time that
our pronouncement paths have crossed. We certainly and enthusiastically endorse his manifesto headings of ‘Learn Forever’, ‘Think Critically’, ‘Get Creative’, ‘Develop Character’, ‘Start Early’ (but not too early), ‘Grow Cooperation’, ‘Practice Teaching’ and ‘Use Technology Wisely’ (ibid) although we do have some reservations regarding ‘Build the Future’ if, as several readings seem to substantiate, this borders upon education as (well-intentioned) indoctrination. Moreover, his penultimate sentence truly distresses us: “Even economists agree that learning guarantees a return on investment” – what a bathetic ending to a brilliant (and bibliographically eligible: see annex) book! Nevertheless we utterly accept that “we are the system” and that we should “create a new blueprint for learning together” (ibid) and, of course, the Global School offers just that.

**Third Millennium Educational Objectives**

Across the entire span of human history (experts suggest that the subtribes Hominina [humans and biped ancestors] separated from chimpanzees some 4-7 million years ago – see Regers et al, 2015), ‘schools’ as such have been in existence for a relatively short period. Some primitive tribes undoubtedly passed on their collective wisdom through fairly formal arrangements (see Macbeath, 1952) and small groups of privileged children were tutored in ancient China and in Classical Athens and Rome. Indeed, the alma mater of one of the present authors was founded in 1096 in the precincts of Norwich Cathedral (as a conservatory for choristers and a pre-seminary for prospective priests and budding monks – none of which devotional roles had any attraction for Mike, the co-author in question). However, the emergence on any kind of significant scale of what most people these days would recognise as a ‘school’ began to occur in industrialising nations in the seventeenth and eighteenth centuries (see Boyd, 1921), to a great extent due to churches needing fairly (but not too) literate congregations and, more and more, the requirements of factories, shops and offices for some (but not too many) recruits to the workforce who could read and write (but not rebel).

As detailed elsewhere (for instance Douse, 2005), schools and the learners within them have been used, misused and abused for a wide range of essentially non-educational purposes. The Raj sought reliable Indians to help administer a vast empire (Dyer, 1996). Soviet donors contended with those of the West in weaponising education during the Cold War decades (Kanet, 2006). Missionaries continued to perform their God-given roles while international development partners, for a variety of reasons (ranging from inhibiting inward mass migration by enabling recipient country economic advances, through genuine altruism, to recruiting the best and the brightest for their own industries and research organisations) exerted their influence (and certainly still do). Making the child become a good Christian/ bureaucrat/ communist/ democrat/ worker/ academic [using all of those terms fairly loosely] may have given way to notions of citizenship, employability, entrepreneurship and environmental awareness. Nevertheless, the idea of the school as a factory wherein the raw materials (the learners) are moulded and manufactured (by teachers) into something desired and determined by authorities (governments) persists. Digitisation requires us all to recognise, review and reject this outdated arrangement and consign contemporary educational arrangements to the rubbish bin of history.

Such kinds of school, where children are ‘taught at’, where they are shaped into that which elders and others deem fitting, where they follow an externally-imposed curriculum and are categorised and selected by examinations, where they are made to follow ‘school rules’ and to attend and be attentive, and to behave or else – such institutions are utterly outdated, no
longer work and have no place in the Digital Age. They have existed for maybe half of one per cent of human history (based upon the figures offered above) and are an industrial age phenomenon (plus a few ecclesiastical connotations). In this contemporary world, characterised by connectivity, exemplified by immediacy and defined by self-determined information access, they are as outdated as are slavery, droit du seigneur and facsimile machines.

Needless to say, using schools in order to equip learners for the labour market is as antiquated and unacceptable as using them to produce fundamentalists of any flavour, adherents to any philosophy from Absurdism to Zenoism, or activists in the name of this or that political movement, or veganism or fine dining, or big game hunting or ecological sustainability [NOTE: ‘using them’ are the key words here. In Spring 2019, around 1.4 million of the world’s children took part in the climate crisis school strikes: no curriculum nor rectorial edict engendered that admirable initiative]. And, as taken further in subsequent chapters, maintaining a hard border between ‘education’ and ‘training’ (work-related skills development) may be regarded as a central and self-evident principle of education in the time of Digitisation.

What then is the nature and purpose of this education made necessary and possible by Digitisation? Recognising the individually empowering features of this evolving world society, and taking full account of contemporary technology and emerging universal consciousness, it is apparent that education must be self-fulfilling rather than in accordance with objectives external to the learner – no one’s agendas but their own. Similarly, the learning (and indeed the teaching) should be pleasurable. No more “…the whining schoolboy, with his satchel and shining morning face, creeping like snail unwillingly to school” as Shakespeare memorably put it in As You Like It (no gender inclusivity there). Education is about facilitating each individual’s interests and enthusiasms regarding the acquisition of information, the formation of concepts and the understanding of ideas. It should be directed by the learner with the teacher in support. It should no longer be “What should we teach them?” but, rather “What is it that I should like to understand?” It should be enjoyable. Being neither propaganda nor preparation, it should clearly have no connection whatsoever with the world of work. It should (and will inevitably) proceed, as already noted, from birth and/or infancy through to senility and/or death. And it will, by its very nature, paralleling the universality of contemporary consciousness, be a shared international experience, manifest in the Global School.

We hold those truths to be self-evident. And, bringing them together, it is declared that, from these times forward, and from the start of secondary onwards, **education should respond to the vocationally-unrelated requirements of the self-directed and well-informed learner, through the one worldwide institution, eschewing assessment and grading in favour of enjoyment and fulfilment.** As discussed below, *One World One School* proposes the debate as the basic learning methodology and, on that basis, the implications (as opposed to the essential substance) of that declaration are eminently debatable and examples of these motions are set out in the final chapter.
As emphasised and explained throughout this book, a fresh era has arrived, making feasible and vital utterly fresh forms of communal and participative learning, supported by convivial pedagogies, learner ownership and international bonding. The ‘school around the corner’ becomes an integral, fully networked and inter-connected element within the one universal Global School and continually reappears in unprecedented configurations. Indeed, it is all forms of educational institutions, everywhere, and this affordably accessible universal school gives impetus to optimal, practical, equitable and humane ways forward. Consequences of this inexpensive and inevitable educational revolution are now explored and some favoured ways forward are delineated.

Contemporary Challenges

20th century technology fragmented both society and the economy, replacing the mass production factory systems of the second industrial revolution with ‘flexibilisation’ (to borrow a term from the French), leading to the dominance – in ‘Western’ countries – of the service sector. The first array of machines wiped out well-paid jobs in manufacturing; the second is about to wipe out well-paid jobs in the service sector (see, for instance, Monbiot, 2016). Humans are (for the foreseeable future) more innovative and entrepreneurial than are machines, involving rich rewards for the creative few. Globalisation acts as a multiplier of trends, driven by the ICT revolution and the growth of the debt economy across borders. “Two-thirds of children now entering primary schools in the developed world will end up in careers that do not yet exist” (World Economic Forum, 2017). The conventional wisdom is that people will need to upgrade and re-focus their skills throughout their lifetimes. Learners should, it is argued, be work-ready when they finish each educational phase – learning for work; but education will also need to address prospering beyond employment – learning for life (see Douse, 2013a for a consideration of the need to resist the workplace’s colonisation of the schoolroom). It is in this situation, itself being profoundly affected by Digitisation, where the products of digitally-supported teaching, learning and research must survive and, if possible, thrive.

The 2030 Agenda for Sustainable Development addresses the tyranny of poverty and related worldwide inequities, deficiencies and volatilities, all of which are embodied within education. It includes the goal of “inclusive and equitable quality education and promoting lifelong learning opportunities for all” (United Nations, 2015). This aspiration has been widely discussed and already there is a sense that, as with the Millennium Development Goals, some welcome progress will be achieved but that this ambitious educational sectoral goal will not eventuate. One authoritative critic laments that “…even in 2040, not all will be achieved… only 83 per cent of girls and boys in low-income countries will complete secondary school… only 68 per cent will achieve learning benchmarks” (Klees, 2017). Klees goes on to suggest that “…internet access is a great educational tool… but there is little evidence that it will increase learning… and it is a costly add-on” (ibid). With which the present authors fully concur: applying ICT to education in the manner currently envisaged will continue to cost a great deal without paving the way towards Agenda 2030 achievement. Which is precisely why, we contend, education needs to be utterly restructured with Digitisation the cohesive force. As

5 Featuring a different Irish primary school every week, and involving music, quizzes and conversations with children and teachers, The School Around the Corner was a popular Radio Éireann programme from 1954, moving to television in 1961 and running until 1966. One of the present authors, with the cooperation of Teilifís Éireann, facilitated the adoption of this format by TV stations in three developing countries, offering an entertaining way of educating the general public about education.
one of us has suggested, “SDG4 aspirations may be met if and only if Digitisation is at the heart of national education plans and international educational cooperation. Until that occurs, optimism regarding SDG4 achievement cannot be wholehearted” (Douse, 2016).

Research published by the UNESCO Institute for Statistics and the Global Education Monitoring Report (UNESCO, 2019b) makes clear that “based on current trends, one in six children will still be out of school in 2030 and only six out of 10 young people will be completing secondary education”. As their report recognises, “business as usual for education must come to an end” (ibid). Moreover, “In low-income countries, just 79% of children will complete primary, 53% will complete lower-secondary and 26% will complete upper-secondary by 2030… only 4% of children from the poorest families complete upper-secondary school in low-income countries - and just 2% of the poorest girls - compared to 36% of those from the richest families… a large share of students do not achieve minimum proficiency in reading” (ibid). While the call to #Commit2Education is valid (UNESCO, 2019a), the Sustainable Development Goal for education (SDG 4), let alone the qualitative accompaniments, cannot be achieved through simply attempting to expand existing practices: educational evolution is not enough. Unless the challenge of Digitisation is realised, and the opportunities that it offers are seized, even the setting of targets for 2030 is naïve and vain.

Given the pace of change and that the types of skills in demand change rapidly, which shortens the shelf-life of those skills (World Economic Forum, 2016), it is generally considered that education will have to focus on capabilities such as information and digital literacy and 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. Such capabilities involve emotional and social intelligence and the ability to analyse situations and determine sensible ways forward. As also observed, contemporary learning “…is a holistic, integrating, creative, multidimensional and fluid phenomenon... more about what is going on inside a person’s head” (Scott, Coates & Anderson, 2008). Running through these considerations is the issue of what ‘quality education for all’ looks like on the ground and to what purpose is it aimed. As one commentator observes: “…in today’s world, (education must) 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” (Vivekanandan, 2017).

Essentially, education as presently ordered and practiced is failing to deliver the goals and targets as presently presented. While a fundamentally transformed approach may well achieve the educational SDG, that would be just an interesting spin-off. The Global School’s main achievement will be its effective responsiveness to learner-determined goals worldwide – an internally-experienced awakening as opposed to an externally-imposed reckoning.
Education as Awakening

We use the term ‘awakening’ in two senses. First, in recognising that Digitisation enables and necessitates the kind of educational leap forward that occurs only once in every thirty or so generations, resulting in the one universal educational institution (replacing the comparatively short-lived and unsuccessful experiment with large numbers of separate and frequently competing schools). Such schools, geared to preparation for adulthood, based upon externally imposed curricula and teacher-centred pedagogies, sorting out rather than serving their students, are antediluvian, consequent upon the flood of possibilities arriving by the tides of contemporary technology, expertly navigated by teachers, planners, educational philosophers, far-sighted world citizens and, above all, by learners increasingly conscious of, and increasingly demanding worldwide educational support appropriate to the Digital Age. Responsive to those imperatives, the Digital School, as addressed below, offers the second kind of awakening. This involves a realisation, occurring as the primary or preparatory phased concludes, that education is something to be enjoyed, to be controlled by the learner, to be supported by the teacher, to be shared, and leading – rather than to a good job or to being a good citizen – to self-fulfilment and understanding: essential a human and personal objective as opposed to a socially-imposed or an economically determined one.

This two-fold awakening has revolutionised both “learning to learn from the cognitive point of view and learning to live together from the social point of view” (to use the distinction utilised by, for instance Tedesco et al., 2013). As such, it necessitates challenging the prevailing views of schools and teaching and assessment and evaluation and curriculum, if the Digital Age version is to emerge. As in life beyond schooling, the distinctions between the concrete and the cybernetic shall wither away. 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. It may be anticipated, and welcomed, that learner power will overcome this last night of the professorial oligarchs.

As Andrew Webb makes clear, while “employers constantly cry out for empathy, communication, teamwork, agility, flexibility, and the ability to design and make solutions to multidisciplinary problems, a traditional education barely offers students any of that” (Webb, 2019). Children now have, as he points out, the world’s information in their pocket, the wherewithal to make sense of it, synthesise and use it as and when they need it and, above all, a sense of confidence in their abilities to tackle problems and communicate with adults and each other. That, states Webb, is what work will be in the future, the human things that machines cannot do, as practiced at Agora, his ‘changemaker’ school with “no classes, no classrooms and no curriculum” (ibid). As described below, the Global School goes even further: ‘work’ is assuredly evolving rapidly but we sever the connection between education and training – indeed we annihilate the dangerously growing subservience of schooling to skills development. Let those employers continue to cry out, and let those good things that Webb recognises be enjoyably applied within the Global School where learning is an end in itself – a true awakening utterly unrelated to the alien world of work.

Let it be recognised also, as part of this awakening, that ‘Online Learning’, Distance Learning’, ‘E-learning’, ‘Lifelong Learning’, ‘Mobile learning’ and the like are dysfunctional second millennium century classifications [see our Appendix for an historical diversion on
these and other such category errors]. When we use these terms, we are focussing upon particular elements of an integrated whole as if they had isolated existences. For when we discuss ‘education’ we are already and inevitably talking about those incorporated ingredients. Many recognise that the substance, practice and consequences of education can and should – because of the Global School structure – become much more equitable, ethical and enjoyable (and far less competitive, test-oriented and world-of-work-dominated). And this, we contend, is the only truly democratic education, situated in Digitisation: learner-led, universally participative, non-discriminatory, inclusive and fun. By no means the End of History – more, at least educationally, the Overcoming of Geography.

The Global School

Let us draw an analogy. For over two millennia, there have been numerous discrete libraries, each tied to a physical location, each providing valued services (predominantly books) to their particular customers. Relatively recently, there have been inter-library loans, and then faxed, and then emailed exchanges of material, constituting the late-20th century ‘Wow!’ But, with Digitisation, it is sensible to conceive of just 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 (soon to be) fully-connected and networked worldwide educational institution. Reflecting the emerging duality of consciousness – the virtual and the immediate – this combination will be so commonplace as to become unnoticeable. The Global School incorporates, integrates and builds upon the 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.

The Global School, as envisaged by the present authors, 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, indeed, all schools in one: an international community of teachers and learners; an expression of worldwide connectedness, consciousness and cooperation; a shared understanding rather than a set of buildings.
Once it is recognised that all learners and all teachers are in the one universal school, everyone’s education – and thus every individual life – may develop what Amartya Sen called ‘capabilities’ (Sen, 2002) manifesting the right “to feel (and be) of value, to engage in society (worldwide as well as locally) and to have a stimulating, thriving and uniquely self-fulfilling life”. 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 which not only embodies ‘power to the learners’ but has the potential to empower the worldwide impoverished multitude.

Universal connectedness not only makes the Global School necessary, feasible and inevitable. It offers also an opportunity (an extremely rare opportunity) 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 malignly powerful. This – the Global School – will, as already emphasised, indubitably come to pass: precisely how and when it does so, and exactly what form it should best take, remain to be witnessed (and debated).

Over four decades ago, as Foundation Director of Australia’s Disadvantaged Schools Program (one of the present authors) pondered, along with his colleagues, on how the leading (“Great Public” i.e. “Wealthy Independent”) schools could assist those serving that nation’s most underprivileged communities. Some years later, assessing the UK’s Assisted Schools Programme, we wondered how well-funded private colleges could sustain and mentor the most poorly-maintained schools (Douse, 1985). And, over many more recent years, working with development partners supporting education in some of the world’s humblest and most fragile communities, we considered how successful schools in developed countries could somehow link up with those serving the poorest of the poor, inter-continentially and beyond all borders.

Such well-intentioned conjectures are no longer relevant. School-to-school linkages and partnerships are as outdated as spirit duplicators and three-metre Encyclopaedias Britannica. Contemporary technology makes feasible – nay essential – an entirely fresh and utterly integrated approach. With Digitisation, it is no longer a matter of this well-endowed school assisting this struggling school. Amalgamation has overtaken assistance, all schools everywhere have become The School. Entirely appropriately, development partners including the World Bank, USAID and the European Union, are directing resources to enable all educational institutions to experience the internet and reach for the Cloud – universal student access is the immediate priority, integrated participation is the inevitable concomitant.

For Digitisation is not just central to the debate on effective and equitable education worldwide: it is the debate. Considerations of, for example, Sustainable Development goals, universalisation, student assessment, vocational skills development along with personal fulfilment and enjoyment make sense only in the context of Digitisation. Young people’s lives are founded upon not only a vast and expanding range of ever-more-amazing computerised devices but also the encompassing digital environment, to an extent that earlier generations missed out on. Education, inevitably taking account of and applying this energy, is becoming not just more effective but different in its essence. And this crucial recognition depends upon an appreciation of the Global School.
It is the “whole school approach” made manifest for the digital age – for the present continuous “now” as depicted below:

Our perceptions of its essential components of the above are as boxed below:

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<thead>
<tr>
<th>Global School elements as currently envisaged</th>
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<tr>
<td>• Learners: active, engaged, for life, committed to personal development, information and (of course) digitally literate, mobile, collaborating, sharing their learning globally – speaking up across the world;</td>
</tr>
<tr>
<td>• Connectivity: rapid, reliable, uninterrupted and affordable (free) access;</td>
</tr>
<tr>
<td>• Teachers: well-prepared (academically and GS-specific) and well-led professional educators, delivering, facilitating and assessing digitally-supported learning, and guiding, supporting and counselling the learners, sharing their teaching materials globally;</td>
</tr>
<tr>
<td>• Devices: appropriate mobile appliances for every learner (as there will be rapid changes in handling, versatility, on-line support methodologies and cost minimisation);</td>
</tr>
<tr>
<td>• Software: attractive, 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 (but similarly unspecifiable here, as there will be a massive surge in the availability and ineffable variety in the nature of such materials);</td>
</tr>
<tr>
<td>• Inclusion: all learners, full- and part-time, on-campus and distant, irrespective of age, gender, beliefs, abilities or disabilities, are welcomed and individually catered for;</td>
</tr>
<tr>
<td>• System: geared to optimising learner-driven learning through, for example, continuous professional development of teachers, participation of family and community, development of new curricula in response to learner demand and enjoyable fulfilment in lifelong education; and</td>
</tr>
<tr>
<td>• Quality Assurance: robust, far-sighted, comprehensive and convivial oversight, maintenance of standards, meeting of criteria, advice and encouragement – by fellow-teachers seconded to QA roles for specified (e.g. 3-5 year) periods.</td>
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Professor Klaus Schwab has explained that “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” (Schwab, 2018). And so it is with the Global School.
But let it be admitted that welcoming all learners irrespective of background, gender, previous knowledge, age or other such factors, to the lifelong Global School offers much potential but involves getting beyond the banners and being judged by practical consequences.

Creating a worldwide educational institution, with local manifestations, that is characterised by fellowship rather than fear, and that is inclusive rather than categorisive, and cooperative rather than competitive, involves a major cultural transformation. Just as any number of people may enjoy and benefit from watching a play, visiting a mountain resort, cheering on their sports team, reading a novel or debating a proposition, so also may a multitude of learners, in various situations and locations, relish shared and challenging educational experiences without being graded, beaten, rewarded with trophies or held up to ridicule. Such is the pleasant, participative and purposeful educational institution that Digitisation makes feasible and essential.

These materialisations, in turn, have their own far-reaching implications and, while much of the detail must be determined in practice rather than advance, it is the case that, as the Global School – the universal lifelong educational experience – eventuates, selective schools, private education, trans-country comparisons and national league tables will joyfully become redundant and recognised as such. In the same happy manner, with just the one worldwide educational institution, as the manifestation of child abuse that is compulsive testing is consigned to the asylum of educational psychoses, so also may odious trans-country comparisons by such as PISA, along with trans-country comparisons and national league tables become redundant. The only testing will be aimed at proving private feedback to the particular learner and confidential (friendly and positive) diagnostic guidance to the specific teacher.

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. As One World One School consistently reiterates, 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. Digitisation makes it all possible, while achieving a specified degree of digital equity (by a particular date) provides not only a SMART objectively verifiable indicator (OVI) but also the optimal strategy.

Further explanations and implications of the Global School are available in relation to curriculum (Douse and Uys, 2018b), pedagogy (Douse and Uys, 2018c), educational planning (Douse and Uys, 2018c), educational psychology (Douse and Uys, 2018a), education and democracy (Douse and Uys, 2019b) and generally (Douse and Uys, 2019d and 2019f). The conceptualisation of all educational institutions being integrated elements of the one universal organisation illustrates the emerging situation, with details undoubtedly spectacular but as yet unknown exactly. Precisely how and how soon its appearance will occur remain to be determined, but let none doubt that the Global School is wondrously upon us.

**Educational Economics in the Time of**

Those seeking the present authors’ paper with this title will be disappointed. It is nowhere in their ‘…in the Time of Digitisation’ collection but, upon the reflection of the thwarted seekers after EdEcon enlightenment, they should not be too surprised. In the forthcoming situation, where the aims of education exclude workforce preparation, and where regarding it as an
investment with future earnings as the return is outdated, the postponing of immediate consumption in the expectation of future benefits paradigm may be discounted. As traditionally understood, ‘educational economics’ becomes meaningless with the advent of the Global School: the adjective and the noun no longer make any sense together: ‘oxymoronic’ is a wonderfully descriptive word.

Which is not to deny that important economic questions remain to be asked and, as far as possible, answered. Notably: why should families and individual learners ‘invest’ in education if the linkage to well-paid work is no longer there? Why should governments and/or international organisations support education processes, institutions and systems if there is no intended correlation with economic growth? Why should donors support education in developing countries? Where will the money come from to pay the teachers (significantly more than they are remunerated now)? Essentially, how can there be education of the kind anticipated when the economic incentives are no longer apparent? There are and will continue to be very many teachers. Paying each of them an attractive salary (good teachers will never be paid what they deserve) involves considerable expenditure. When governments, international donors and families regarded this as linked with productivity, getting a ‘good job’ and national development, a simple justification seemed obvious. But we now recognise that education should not be regarded as an economic investment. From where, how and why, should the funds for paying teachers decently materialise?

Some analysts assert that “…most people in the future will not need to work, at least in the ways in which we continue to think about work/human labour” (Webster and Ivanov, 2019), concluding that “…humans will have to see their relationship to the job market differently and there will have to be an appropriate political response to the new economic landscape with changes in taxation and new ways of ensuring economic and political stability”. Others are more pessimistic, challenging the economic ‘dogma’ that technological development enhances wealth and life standard concluding that “…the progress of robotics, AI and new digital technologies will have (negative effects) on the employment, tasks and skills of workers of industrialized countries” (Lovergine and Pellero, 2018).

No doubt the teacher-machine relationship with evolve exponentially, with interesting economic implications. Computers can now work things out for themselves, proceeding by trial and error to develop their own programs according to their needs – in what Martin Ford calls “a process of Darwinian natural selection” (Ford, 2015). We now have computers that, in Ford’s words, have “progressed beyond the control – and even comprehension” of the humans who designed them. Ford seems sure that, despite all those other premature warnings, this time computers really are poised for world domination. And, he wonders, “…how will people have enough money to support the mass consumerism on which any remaining jobs might depend?”

Similarly worrying, Jerry Kaplan in his guide to wealth and work in the age of AI (2016) sums up the situation in his book’s title ‘Humans Need Not Apply’. In an interesting and penetrating (although not completely convincing) consideration of automation and the future of work, Aaron Benanav takes issue with the “Silicon Valley titans, techno-futurists, left-wing social critics, and even a long-shot presidential candidate (who argue) that we are living in an age of rapid technological automation, heralding the technological overcoming of work as such” (2019). Taking this further, Benanav contends that “we are not living in a new age of automation” and that those who claim we are comprise “late capitalist utopians… (and that)
by critically investigating what they say, we can build our own account of what abundance is, and how we might achieve it” (ibid).

As Sonia Sodha observed, work evolved from being simply a means to an end for the vast majority, to an end to aspire to in itself. “As recently as fifty years ago, everyone assumed that the working week would get shorter as society became more prosperous… many environmentalists argue that we should be embracing a produce less/consume less lifestyle… (but) a shorter working week for those who need it most (such as people working in warehouses and call centres) implied a labour market where the low-paid have more rights and bargaining power” (Sodha, 2019). Sarah Besky and Alex Blanchette, along with other contributors to ‘The Naturalization of Work’ series, explore how a changing planet affects the nature of labour (Besky and Blanchette, 2018) offering “glimpses into unusual, uncomfortable, and potentially transformative combinations of austerity politics and animal domestication, environmental exploitation and performances of stewardship, and productivity and worklessness in play in the world today” (ibid).

Fernando Alcoforado addresses the need to restructure the education system in all countries of the world “as a consequence of the profound changes that are occurring in the world of work due to the technological advance, especially with the use of artificial intelligence in productive activities” (Alcoforado, 2019). As will be evident to all who have read this present book thus far, we go along with much but not all of this: it is not the re-formation of the world of work that necessitates education’s restructuring but rather the underlying revolution caused by Digitisation which not only alters work but also necessitates and makes possible education’s fundamental transformation. One of the central features of the Global School is that it is responsive to learners’ interests and in no way directly responsive to the world of work. Incidentally, we appreciate four of Alcoforado’s six ‘trends of the education system of the future’ [those relating to Classrooms; Personalised learning; Free choice; and Emotional Quotient] but our readers will not be surprised to learn that we take issue with his assertions regarding “Practical applicability… (and) The student evaluation system” (ibid).

Universal Basic Economic Transformation

Universal Basic Income has the potential to be the frame- and game-changing solution to a whole set of economic and political problems. The fundamental UBI idea is simple, and is summed up in the title of Annie Lowrey’s excellent primer, *Give People Money* (2019). A guaranteed regular cash payment for every citizen, unconditionally and for life: enough to provide psychological and practical security, and enough to prevent destitution, but not enough to be a disincentive to work. Recent decades have seen a ‘catastrophic loss of worker power’, as Lowrey writes – a systematic attack on organised labour, and a corresponding reduction in pay, security and working conditions. UBI would, quite simply, make it easier for workers to say no (ibid). Eminent novelist John Lanchester (2019) makes the UBI case, noting that many of the current trends in automation and globalisation seem certain to exacerbate existing problems of income stagnation and inequality, and observing that:

“… our system is characterised, more than anything else, by inertia… Only a crisis – actual or perceived – produces real change. When that crisis occurs, the actions that are taken depend on the ideas that are lying around. That, I believe, is our basic function: to develop alternatives to existing policies, to
keep them alive and available until the politically impossible becomes the politically inevitable”.

Along similar lines, in their ‘Radical Proposal for a Free Society and a Sane Economy’, Philippe Van Parijs and Yannick Vanderborght describe:

“…the disruptive technological revolution, brought about by the computer and the internet; the globalisation of trade, migration and communication; a fast-growing worldwide demand running up against the limits imposed by a shrinking pool of natural resources and saturation of our atmosphere; the dislocation of traditional protective institutions, from the family to labour unions, state monopolies and welfare states; and the explosive interactions of these various trends” (Parijs and Vanderborght, 2017).

While, as Lanchester recognises, “…not everyone believes in the coming AI Jobpocalypse, [see Chapter 4, below] but everybody who has studied the question is sure that the biggest growth area in employment in the developed world is going to be care, especially care of the elderly” (ibid). Unwaged and underpaid work can be ameliorated by UBI, which gives a direct cash sum to unpaid workers, underpaid women and unremunerated carers. At the same time, UBI would have the effect of ‘desacralising paid work’: of making it clear that there are other forms of work than paid work, and that work is not the only basis of worth, and that it is not true that any job is always better than no job.

Srnicek and Williams (2016) see that as one of the most positive features of UBI, which represents a profound break with our culture’s deeply imbued ideas about the innate and redemptive virtue of paid work. It is fitting that the first mention of something like UBI comes in Thomas More’s Utopia. “Let’s stop hanging thieves”, one of More’s characters argues, advocating that “…instead of inflicting these horrible punishments, it would be far more to the point to provide everyone with some means of livelihood, so that nobody is under the frightful necessity of becoming first a thief and then a corpse” (More, 1516). Four centuries on, our current economic system downgrades the importance of unpaid work, most of it done by women. If something of that magnitude is, for the first time in human history, seriously addressed, then a challenge of similar magnitude – enabling teachers to live decently – may also be taken successfully on board.

Daniel Susskind (2019) recognises that digitisation has changed everything, realising that moving society’s centre of gravity away from waged labour will require visionary ‘leisure policies’ on every level and in all sectors, including education, and emphasising that the puritan work ethic is rapidly becoming obsolete and that the question ‘What will people do all day?’ is beginning to have positive connotations. As he observes, at present “…joblessness tends to create loneliness, lethargy and dysfunction” in that one’s occupation provides “self-worth and social status… we have been trained too long to strive and not to enjoy” (ibid). But how, Susskind asks, will that evolve in what he calls an “age of leisure and abundance”? Our contention, throughout One World One School, is that education, widely defined and utterly unrelated to the (rapidly diminishing) world of work is the ideal and inevitable response. If education is to become truly relevant to third millennium lives it must first be decoupled from the world of work and then become self-directed from as early in people’s lifetimes as is feasible.
Undoubtedly, our world community will be fundamentally disrupted by technological and associated developments. Much of that is beyond – although deeply related to – our specific educational focus. But the issue of how, in a world where teachers will be reasonably well-rewarded, and where the idea of education being some kind of investment (private or social) in future financial returns has been recognised as ridiculous, the whole thing will be paid for is certainly a significant and difficult conundrum. In pondering the possibilities, our readers should please consider the following statements:

- If something very close to all of the world’s population are demanding education for its own non-material sake, it will be very hard for decision-makers at all levels from local to universal to fail to respond to the cost implications of that demand;
- Economic development is not any kind of end in itself but essentially a means towards the higher goal of human happiness: if donors genuinely want to respond to the needs of the least developed communities in the least developed countries, then they should give wholehearted support to that direct hedonistic highway; and
- Education becomes accepted as a higher purpose than employment or remuneration – although the Global School involves no payments, the ‘cost’ in terms of time and of earnings opportunities lost, though real, is minimal in comparison with learning’s enjoyment and fulfilment,

and all of this will be occurring in the context of socio-economically-transformed societies in an inter-connected world, hopefully paralleled by enhanced understanding of the Digital Age, with paid work desacrilised and multifarious AI-supported desirabilities operational. And this fairly fundamental issue is returned to as a debating subject in our final chapter.

Indeed, recognising that so much of well-informed understanding may involve through the clash of ideas, we envisage the spirited advocacy of alternative interpretations as a basic learning methodology – applicable also to the statements set out in previous paragraphs. This fundamental debate-based pedagogy, involving all participants – not just the competitive few along with those with speech impediments – embodies the well-informed exchanges of ideas – a mind-expanding experience and a honing of judgemental skills, eclectic, interrogative and principled – as the learner-originating educational process increasingly mirrors the enjoyable oratorical cut-and-thrust (see Douse, 2018). Learning, whether through debates, preparing for debates, reflecting upon debates, evaluating debates, or otherwise, is neither tranquil consensus nor uninterrupted communication. Rather, it is a never-ending search, a fulfilling journey rather than a prescribed destination. In a wondrously complex universe, it could not be otherwise.
3. ONE WORLD ONE SCHOOL

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.

Petr is engaged in a debate with half a dozen other learners spread across the world. The theme is whether or not Albert Gleizes deserves to be recognised as a major artist. His paintings are shared and analysed and Petr makes a presentation on his 2012 treatise on Cubism and on his influence on the School of Paris. The definition of ‘major artist’ is disputed as is the contention that a treatise, even if it is the first ever on Cubism, can have any bearing on its author’s standing as an artist. From time to time the teacher throws in questions and sometimes acts as chair, ensuring that only one learner speaks at a time. But all participants are very much involved, studying the paintings, listening and watching one another, and making their contributions. A consensus is reached: ‘Gleizes was an important artist and a major influence’. The 4-hour session, well-prepared for in advance, was thoughtful and stimulating.

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 countries, let alone particular educational institutions, as each is an integral element within the Global 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”.

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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!”

**Kurt** recollects that his own schooling was very traditional: uniforms, houses, prefects, detentions and other punishments – including beatings for serious offences, compulsory games, a limited set of traditional subjects, marks and class orders and the constant competition: getting a good matriculation was the overall objective. When he became a teacher, some things were beginning to change: corporal punishment had been abolished and the discipline was less severe. Now, as a grandparent, he is familiar with and generally admires the Global School. “I like the fact that the initiative comes from the student. One youngster may say that she wants to learn physics in relation to music (as my granddaughter Ona does) and another desires to do Latin, classical history and the Roman plays of Shakespeare (as does Robin my grandson). They have the curriculum that responds to their preferences, fellow-learners from all over the world, and teachers ready to help them. And I do mean help – no punishments, no public exams, just self-tests and positive feedback. I wish I was beginning my education now!”

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 link in with a follow-up GS course”.

Pallini is one of a group of parents, spread out over several countries, with a child with ‘special educational needs and disabilities’. “As parents, we are centrally involved, exchanging information with one another and giving advice. There is no bureaucracy – the Global School specialists, some with SEND children themselves, others with experience and special skills in teaching such children, are always helpful and supporting.” Pallini’s 12-year-old daughter has the language and number skills of a typical 6-year-old. “For some activities, including physical education and some games, she joins a class of learners of her own chronological age. For others, she sits with a small group and receives direct tuition. At home, she enjoys working away on her laptop. Sometimes we use picture cards and attractive materials to show what she can do – this is never stressful and regarded by her as fun. She is never given tasks that are too hard for her to do and any testing and assessment is for me and her teachers, so that she can be given encouragement and the right kind of guidance and support.”
“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, but restricted to those learners who choose to take these modules – nothing is compulsory. 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.”

Having been born in Finland, and having lived there for all his forty years, Teemu has never
encountered a situation where families are allowed to pay school fees in order to give their
children an unfair start on the ladder: in fact, he disputes that there is a ladder. “I see refugees
coming here to Helsinki and just carrying on with the same learning that they were receiving
in camps in Kenya and the Sudan. And they are in the same learning groups as Finnish – and,
spread all over the world, Dutch, and Australian, and Bolivian, and Zambian – students, no
school uniforms, and no streaming by ability, and that is as it should be”. Where he does see
a difference is in relation to national examination: “we used to have an important one at 18
but now even that has gone, and that’s both logical and very good. Education should not be
constant competition, any more than loving our lakes or enjoying a movie should be some
kind of race. Learning is a communal experience, appreciating more and more about this
wonderful world that we all share, and it is hard to understand why it used to be seen as
something else.”

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”.

Within her education department (in the national capital of a South American country), Alicia
has the task of encouraging educational equality, seen in terms of equitable participation.
“Good internet access has been achieved across the country” she reports, “and members of
disadvantaged groups have been helped with personal devices and with links to Global School
groups and facilities. As there are no public exams or achievement records, our aim is for
everyone to get optimum benefits from what the GS offers. This means knowing about all the
topics that can be studied, linking up effectively with the system, attending classes both in
person and virtually, working well with the allocated teachers and, should their particular
interests not be reflected in any existing modules, understanding how fresh courses can be
requested and developed”. At present, while girls and boys have, on average, similar
participation levels, more mature women than men are engaged in GS programmes. With
learners from disadvantaged communities, their participation rate is lower than the national
average although, learners with physical disabilities have – somewhat surprisingly – a slightly
higher level of GS involvement. Alicia and her team monitor all of these developments,
reporting to her Minister and linking up with the GS internationally, feeding in the comments and suggestions received from teachers and learners in her country.

Two teams of four, from all continents, are debating whether ordinary people’s living conditions improved during the **Industrial Revolution**. This is a formal and structured debate with each of the eight speakers allowed ten minutes along with time for questions, audience contributions, summings-up and a vote. The teacher gives a brief and positive evaluation and then sends general (to all present) and specific (to each main speaker) comments a day or so later. After a week has elapsed, all involved participate in a constructive review of the debate, the teacher encouraging them to stand back from it and draw their own general lessons. A further debate is planned and preparatory reading and team discussions commence.

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 the **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. Nothing – not even attendance – is compulsory: students select their courses and the teachers then 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 including songs in a dozen languages, with instantaneous sub-title translation) which will be available on-line for everyone interested to enjoy. Learners in Australia (based at Moriah College in Sydney) and Ireland (at 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) provided privately to each learner – 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, a GS adviser 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”.

Edna Grant and two colleagues are responding to several learners’ requests for a module which they have provisionally titled ‘Heroes with Feet of Clay?’ Earlier (pre-GS) curricula, developed when every country had its own compulsory history and civics syllabus, allowed national icons, such as Napoleon or Washington or Churchill, to be glorified uncritically. Once the one education system became universal, through the GS, there was a growing demand for an international perspective to be applied: all learners worldwide will be sharing in assessing the contributions (good and bad) of any particular leader and specific national allegiances would no longer apply. Edna quotes Nesrine Malik’s claim that “There is no mainstream account of a country’s history that is not a collective delusion” (Malik, 2019) and goes on to explain how the module focuses on a dozen famous figures, setting out their approaches and achievements objectively, and stimulating debates on each one’s national and international consequences. “They don’t all have feet of clay”, Edna observes, “which is why we keep the question mark. But learners are keen to explore this whole issue of ‘national heroes’ and this module, after it has been piloted and finalised, will enable them, informed and encouraged by their teachers, to do so in an open worldwide way”.

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 that trend or take any necessary further action to enrich it.”

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 eliminated”.

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Although they are entitled to do so from the age of thirteen, surprisingly few teenage learners worldwide choose **PTVTB pre-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 and many GS 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 interests, requirements, styles and aspirations 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. Given that nothing is graded and that feedback is private to each individual learner, the motivation for copying is diminished. “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 often involved in the same learning groups (albeit separated by vast distances). We have checks, without engaging in over-surveillance, and these are supported by face 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, modules 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: this arrangement is evolving radically but it is uncertain where it will end. The ITF (made up of seconded teachers) 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 mum 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. But I think they’re getting it. Gradually.”

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, as would be expected, 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 the 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 PTVTB courses then.”

“At the outset”, explains Choo Lee of the World School Students Association (WSSA) “many critics prophesised 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 of earlier times 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 myself where, from day one in grade one it was 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: the trend is for primary/preparatory to be for everyone but, once the capability to transition to secondary has been achieved, for everything thereafter to be entirely optional. There was a movement to make language and mathematics compulsory but those advocating that lost the argument. So now, from secondary onwards, it is up to each individual learner. 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.
4. ABOVE AI AND BEYOND ICT

One World One School is about education in the context of Digitisation. It is not about contemporary technology and its consequences for education – and the distinction is imperative. Accordingly, it is apposite that, although things technological have certainly been touched upon already, they have not been deeply explored until now: it is education that has to come first. This chapter provides further evidence regarding the pointlessness of attempting to apply third millennium approaches within 20th century systems. It offers some further insights into what a universal educational institution seamlessly integrating the virtual and the tangible might look like, presenting a technical accompaniment to the imagined individual impressions of Chapter 3. It addresses the dangers head-on, notably the challenges to be undoubtedly encountered as artificial intelligences is fused with surveillance capabilities, arguing that vigilant familiarity is the best defence. It recognises that AI can offer personalised education for all, maximising the potential of every learner, but also that many will feel some sense of dread in encountering such realisations. It is time, therefore, to talk about technology, before continuing with our consideration of education.

Hard Working Definitions

Information and Communications Technology (ICT) is an umbrella term covering such devices as radio, television, cellular/mobile phones, computer and network hardware, software and satellite systems, as well as the various services and applications associated with them, such as videoconferencing and language learning tapes. Educational Technology (EdTech) is, quite simply, the application of technology to enhance education. Artificial Intelligence (AI) is the ability of a computer or a computer-enabled robotic system to process information and produce outcomes in a manner similar to the thought process of humans in learning, decision making and solving problems (this definition is drawn from Vijay (2017) – see below).

Digitisation (integrating AI and ICT and providing a distributed model for their use) represents a pivotal leap in human potential which we have already described as profound as the wheel in relation to development and as significant as the book in the context of education. Through the assimilation and interconnection of all elements of the now digitally-based educational environment, hitherto impossible synergies are created and the entire learning and teaching system is utterly transformed.

Essentially, ICT is a second millennium conception having, in the past, contributed, to some extent, to improved educational delivery and administration. Similarly, pre-digital EdTech added something of value to traditional teaching and learning practices. Those times are forever gone and entirely new educational circumstances, challenges and possibilities have arrived.

While Vivek C. Vijay, the author of that above definition of AI, is clear in his own mind about its nature and potential, his confusion of education with workskills development, and of lifelong learning with reskilling, invalidates much of his subsequent argument. Thus, he claims that “Moving on from a formal education, which accounts for the initial years of an individual… employees need an enabling environment to transition into and out of jobs… the goal is to incentivise lifelong education and up-skilling” (Vijay, 2017). Here we see an individual, a unique human being, spending a decade or so being educated and then finding destiny as a worker, presumably ceasing being educated in the interests of keeping up with
evolving skills. Much as a caterpillar stops eating, hangs upside down from a twig or leaf and spins itself a silky cocoon or mouls into a shiny chrysalis, radically transforming its body, eventually to emerge as a butterfly (top job) or a moth (other).

Much wider than either ICT or Educational Technology, Digitisation now makes feasible and inevitable an entirely different dimension of communal and participative learning, embodied in the conception of the Global School. With Digitisation, it is now practicable and necessary to think of there being but one (soon to be fully-connected and networked) worldwide educational institution, integrating the wide range of relevant AIs and ICTs in a coherent fashion. Only by recognising, planning for and promoting this evolving development may education’s worldwide potential for social well-being and human happiness be fully fulfilled.

And, as already emphasised, we are talking about education in the context of Digitisation as opposed to contemporary technology and its consequences for education: our starting point is what schooling may and must now become – once that is agreed, the subsidiary (albeit vital) question is how best may technology make that happen.

**ICT’s Contributions and Limitations**

A typical list of examples of ICT applications aimed at improving teaching and learning outcomes might include:

- Interactive radio instruction in Chinese;
- Mobiles for classroom audio and teacher development videos;
- eReaders and tablets to support early literacy;
- Remedial Computer-Assisted Learning programmes in mathematics;
- Assistive technologies for learners with hearing disabilities;
- Virtual reality geographical, geological or archaeological excursions; and
- Electronic portfolios.

Further instances may readily be drawn from the pages of relevant journals. [For example, an article in a recent educational journal (Calam and Dolotallas, 2018) concludes that “Multi-Mouse Mischief Technology can improve students’ performance in Mathematics”.

In contrast to those examples, several current initiatives suggest (but do not as yet entirely exemplify) the potential of Digitisation (which integrates the ICTs and makes their use possible in a distributed fashion) as opposed to isolated ICT applications. For instance,

- A ‘Granny Cloud’ of teachers – life-sized projected images – have been operating out of the UK into schools in India and South America for over five years; in turn, tutors from Calcutta and Chittagong guide learners in Berlin and Birmingham.
- In Uruguay, through video, English is taught to first graders by teachers from the Philippines. A pilot study found that videoconferencing and laptops raised the children’s scores in English significantly, as well as the English-language proficiency of the Uruguayan teachers” (World Bank, 2016).
- The World Links for Development Programme has worked with Ministries of Education in more than 20 middle- and low-income countries to link classrooms to the internet but also to one another. European Schoolnet is another project that fosters long term online connections among classrooms across borders.
Collaborative technologies such as wikis and shared online document systems (that allow for collaborative modification, extension, or deletion of content and structure) support teamwork and cooperative learning and break the distance barrier (Bonk, 2016). 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 (JISC, 2012).

Clearly, if applied intelligently, each of these applications might well be effective and valuable on a limited scale and in favourable conditions. ICT can increase access to information, make content more accessible, and create new channels for delivery and support (JISC, 2012). Its sensible application can also reinforce content that is learned in educational institutions (for example Eneza - the most widely used mobile education platform in Africa, reinforced with local content in Kenya) and help learners to consult with teachers or learn new material (World Bank, 2016). It can also bridge reality digitally and make learning more immersive (Bonk, 2016), and it can enhance reflective practice, support asynchronous and synchronous communication, and engender personalised learning.

*Translaty* enables one to become “able to communicate in any foreign language in seconds overnight” (or, at most, over the nights and days that it takes the genius high-tech pocket-size device to be delivered). Its distributors claim that “you can instantly become ‘fluent’ in more than 40 languages with this genius device!” and, while that is clearly contestable, the consequences of this inevitable facility have profound and positive potential contributions provided it is embedded within transformed educational arrangements (similar products are doubtless available). As a universal institution, the Global School thrives upon the absence of language barriers [the Tower of Babel origin myth may be referred to at Genesis 11:1–9] while enabling the wonderful variety of tongues, dialects, cultures and literatures to be enjoyed by those learners expressing such interests.

Unquestionably, ICT can sometimes be a powerful albeit often expensive tool to improve access and equity in education, enable the delivery of quality learning and teaching, and boost teachers’ professional development as well as educational management, governance and administration. But even amongst the sets of accounts of reportedly and (partially) successful ICT interventions, typically as submitted by their originators, some instances of frustrated expectations are evident, often with contributing factors identified. For example, noting that Saudi Arabia is among the “many developed and developing countries (that) have invested heavily in the ICT sector in education”, Albugami and Ahmed report that “the progression has often been disappointing”, noting current challenges such as “the lack of space, resources, maintenance, a lack of ICT skills among schools, along with a lack in ICT training and a lack
of clear ICT policies” (Albugami & Ahmed, 2015). This is apparent at the post-school level also. Dr Maria Fragkaki (2019) recognises that in both West and East, Technology Enhanced Smart Learning has been limited to “…sporadic innovative initiatives”. She adds that, while “…Deep Learning Theories, Critical Pedagogies, on the edge eLearning and blended technological environments and Open Educational Resources (could) provide university students and academics the field to flourish and meet the challenges of the post-digital era, utilised pedagogically under a critical-reflective and creative perspective (with) curricula with global cultural values and an empowering culture, creating a fair, deliberated and sustainable future for all... academics and graduates do not have the strength and the deep knowledge to be active and critical-reflective educators, learners and citizens” (ibid).

Both of the present authors are familiar with Google Classroom and with its current application for learning English at the university level in Bangladesh, including the praise being heaped upon it by those associated with its implementation. However, a major evaluation of its impact (Islam, 2018) identified a range of problems encountered, including the learners’ “lack of proper technological knowledge about Google classroom... unwanted technological issues... lack of private messaging option, barrier of using Google classroom having e-mail address with different domain, cheating option for learner and problem with the auto-update of homepage…” (ibid). Nevertheless, Md. Islam concluded that “some technical issues have been traced out which can be eradicated to make Google Classroom more user-friendly… (and) some challenging issues faced by the Bangladeshi learners while using Google classroom for teaching English” (ibid). This is very typical of so many evaluations of ICT applications, notably those by objective researchers operative amongst enthusiastic implementers: ‘it isn’t yet working well but might do so if A, B and C are marginally adjusted’. Who dares to recognise that ‘this can never work well until the overall system is transformed’? Google Classrooms do not fit snugly into 20th century schools.

These and many other illustrations of ICT applications are interesting and, within restricted contexts, valuable in their ways. Also focusing upon universities, Kisanjara provides “an integrated model for measuring the impact of e-learning on students’ achievements…” reporting that “Indicators such as student engagement, student cognitive, performance expectancy, students’ control, student satisfaction, student enjoyment, students’ self-esteem and students’ confidence on e-learning system have positive significance relationships with students’ achievement” (Kisanjara et al, 2017). An even more crucial factor might well be ‘context’: when blended learning is the norm within an integrated digitally-based overall educational experience, the impact and sustainable outcomes are likely to be vastly different from a situation wherein ICT-based learning is something that students do on Tuesday and Thursday afternoons.

Based on studies in South African schools, Gudmundsdottir concludes that “The potential of ICT to enhance curriculum delivery can only be realised when the technologies have been well-appropriated in the school… educators are not effectively integrating such technologies in their pedagogical practices” (Gudmundsdottir, 2010). This is, more recently, supported by Ariam Moges, Founder of Kenya’s Global Project Lead, who observes that “Considering all the money that’s been dumped into technology without producing any wins, it’s time we act on investing in human potential as our top priority if we expect to make progress and deliver
on the promise of technology’s ability to amplify real learning” (Moges, 2018). ‘Teacher technophobia’ is not the problem: the challenge is, as Moges makes clear, that of designing and delivering forms of professional development that are”…incremental and iterative, continuously building on new skills and responsive to teachers’ needs and areas for growth” (ibid). Here again, the wide ‘Education in the context of Digitisation’ transformation is needed, as opposed to piecemeal ICT-specific half-measures.

TPACK is a conceptual framework that integrates technology, pedagogical, content, and knowledge in one unit on the arguable but not self-evident assertion the “educators who want to apply technology in education must master each of those three areas” (Utama, Sajidan, Nurkamto and Wiranto, 2019). These authors use TPACK as a framework to analyse the Technology Learning Cycle (TLC) model “…whose syntax begins with awareness, exploration and filtration, learning, personal and professional application, sharing and reflection”, concluding that this TLC model “…separates the components of technology knowledge (TK) from content pedagogical knowledge (CPK)… thereby having “an impact on the obscurity of the use of technology used in learning while using the TLC model” (ibid). As with so many earnest endeavours in this area, the verdict of ‘not proven’ shines through the confusion.

Perhaps the most conclusive and damning evidence of the limitations of isolated ICT applications was that provided by the Organisation for Economic Co-operation and Development. Its Education Director, Andreas Schleicher, makes clear that the reality in schools lags considerably behind the promise of technology and that “the real contributions ICT can make to teaching and learning have yet to be fully realised and exploited”. The OECD study indicates that “students who use computers very frequently at school do a lot worse in most learning outcomes… (and there are) no appreciable improvements in student achievement in reading, mathematics or science in the countries that had invested heavily in ICT for education” (Schleicher, 2015). Our contention is that this clear and costly deficiency results directly from applying 20th century methods within an evolving 21st century setting: The ‘Education in the context of Digitisation’ conceptualisation supersedes all notions of ‘ICT’ as something separate and nothing, educationally, will ever be the same again [although we shall say that more than once].

**Active and Blended**

Active learning, comprising students doing things and thinking about what they are doing, involves and engages learners in the learning processes and provides greater agency to learners while also requiring thought and reflection about the learning taking place (Uys, 2017). Similarly, the definition of ‘learning spaces’ (or learning environments) extends “beyond “classrooms laboratories, workplaces, green spaces and a variety of other locations – both offline and online” (Uys, 2019a) – in other words, everywhere.
Educational technology can indeed be used to create active connections for blended learning by supporting and enabling active learning, thus playing a key role in creating effective blended, online, face-to-face, digital or physical learning environments. The fundamental precondition is that educational technology is employed within an active learning framework, based on the tenets of constructive alignment, thus leading to student engagement and ultimately effective learning and learner success. Educational technology by itself is not “education’s silver bullet” but should be located within “the essentials of teaching and learning: theory, pedagogy and emergent trends in the research” (Veletsianos and Moe, 2017). These processes may be summarised as illustrated:

![Diagram](image)

In the online dimension of blended learning environments, a myriad of educational technologies are available to support active learning (see Bonk and Graham, 2019). Learning management systems (LMSs) in themselves provide a variety of technologies. MOODLE, the largest open source LMS internationally, provides facilities for
- collaboration on online and mobile devices (groups, forums, wikis, glossaries);
- for interaction (games, forums, chat, messaging, online-conferencing);
- for communication (messaging, announcements, calendar);
- for assessment (assignments, quizzes, grading/marking, feedback, assignment submission);
- for managing resources (pages, book, bookmarking), and for learner management. (The Moodle Plugin directory in March 2019 had more than 1,500 listed plugins.)

Many of these technologies are accessible by mobile devices that can be used offline, and further support other off-line use – thus supporting active learning in face-to-face environments. In face-to-face environments there are educational technologies available to conduct polls in classrooms; group-work through online participation in class; the use of smartboards; augmented reality; virtual reality; movable computer displays; flexible furniture; shared writing surfaces; and simulations like intelligent paramedic patient dummies. Using such educational technologies creates blended environments where face-to-face and online activities are integrated. Honeycutt & Glova (2014) underline that, “at its core, the flip means shifting the focus from the instructor to the students”, in that the flipped classroom in the blended learning environment, be it integrated, face-to-face or online, is about focussing on activities by the learners “to construct knowledge, connect with others, and engage in higher levels of critical thinking and analysis” (ibid). Which is precisely what
the Global School incorporates – but within an integrated, learner-led, technology-supported and seamlessly-blended educational environment.

![Figure 3: Break out groups seamlessly connecting on-campus and on-line learners](image)

**Artificial Intelligence and Education**

As with many of the ICT applications, the impetus for AI in the classroom seldom comes from the teachers, let alone the learners. As Elaine Garcia explains,

“The rise of technology within the education sector over the last few decades has been astounding… a number of the technologies which students consider to be core to their studies today were rejected at first by a large number of academics and teachers… we frequently saw such tools being driven by technologists or IT departments who were pushing to see technology being used persuasively within the classroom, without necessarily considering their pedagogical purposes… implementing technologies simply for the sake of introducing new technologies” (2019).

While recognising that, for example, IBM Watson, Third Space Learning and Duolingo Chatbot are already being used in a few schools, as Dr Garcia concludes, “what is yet to be answered is how AI will be able to replicate the empathy and creative thinking that are a key part of a teacher’s role within the classroom or how the replacement of teachers altogether by AI will be pedagogically advantageous to learning” (*ibid*).

A report for the UK Department of Education (Zaidi, 2018) similarly noted that

“there has been little consideration given to the ethics of how AI should be used in education” adding that “there is poor information, little explicit learner, employer or provider demand and high development costs to develop an AI algorithm that is tailored to a particular course… (it is) also difficult for
potential customers to distinguish between ‘good’ AI and ‘bad’ AI… (and a) lack of explicit demand among providers and employers for AI products…”

Such information can be provided – for a price. Those willing and able to pay USD $3,900 for a 90-page study (QY RESEARCH, 2018) of ‘Artificial Intelligence in the Education Sector development in United States, Europe and China’, in which the ‘key players’ include IBM, Microsoft and Pearson, may receive marketing insights covering “…language processing, reasoning, planning, and cognitive modelling… educational games… AI services through mobile devices, implementation of collaborative learning model, and facilitation of the improved course designing activities”.

The tectonic plates are certainly shifting and, as well as potential benefits for the many, there are massive profits to be made by the few. According to Charles Fadel (2019), what is happening now is similar to the 17th Century and the Age of Reason when learning shifted from grammar and logic to maths and science. We certainly agree with him that “The rise of automation and artificial intelligence is recasting how education and learning is taught, including how and what teachers teach, how information is gathered and communicated, and what and how students learn” and we recognise some value in his observation that that “…rather than seeing technology and education as a being in a race against each other, with educational developments lagging behind technology’s quantum leaps… educational bodies must lead the way in showing how the two can be integrated” (Fadel, 2019).

Unfortunately, the current condition of educational systems worldwide lends itself to free-for-all exploitation. Those who face learners on a day by day basis long for convivial devices that (a) decrease their administrative burdens, (b) support their teaching, and (c) enthuse, stimulate and entertain their classes. Even the most dedicated of technologists and the most altruistic of educational entrepreneurs will not concentrate upon those objectives at the expense of cost-recovery plus. Unless the AI is developed in response to the requirements of learners in the soon to be fundamentally transformed universal educational situation, it will be vain.

As the ‘Dublin Declaration’ that emerged from a recent World Conference on Online Learning (Brown, 2019) put it:

“Questions of who is telling the online learning story, what they are telling, and why, and who benefits most, remain crucial to harnessing the transformative potential of digital technology in the service of a quality education for all. In this respect, the conversations emerging from Dublin remind us to also ask whose story is not being told and whose voice is missing or misrepresented” (ibid).
[For ‘online learning’ please substitute ‘AI in Education’ as the same principles apply – and refer also to our Appendix, below, regarding the outdated terminology.] AI offers a potentially incalculable and immensely positive contribution to enjoyable and effective learning, provided it responds to and builds upon the methodologies and values of the emerging Global School. If allowed to occur as it is haphazardly happening at present, the consequences will be much as those of programmed learning half a century ago: a sad proliferation of discarded machines in storeroom cupboards worldwide, learning still limited and as inequitable as always, and a small number of grossly enriched investors sunning themselves on exclusive beaches.

**Digitisation – Beyond AI and ICT**

Husbands (2012) lists a range of research studies offering evidence to support some of the features of pedagogy and ICT (such as ‘The Interactive Education Project’, The Pedagogy with E-Learning Resources Project’ and ‘Validating a model for pedagogy and ICT across phases’) indicating that “ICT is more than ‘just a tool’, and contributes disruptive, distinctive, relationships in pedagogical activities”. Models of pedagogy need to be relevant, grounded in teacher experience, flexible, complex and open to reflection and adaptation (Loveless *et al.*, 2008). Even within traditional schools, significantly different approaches to pedagogy and ICT will emerge from an understanding of ICT as a mere contrivance to mimic a familiar task, rather than an “ecological understanding of people in learning environments with digital technologies which shape the nature of the task itself (Luckin, 2008). We certainly agree that technologies understood as “processes to be developed and not as tools to be applied should be part of a renewed vision of the curriculum and of pedagogy” (Aguerrondo, Vaillant *et al.* 2014).

Despite the evidence that isolated ICT applications produce little of value educationally, and even less that proves replicable, recommendations are – as we have already noted – almost always of the order ‘do it again, have more of it and do it better!’ A major international study of the use of digital devices and the internet in education (OECD, 2016) established – as all objective and substantial studies tend to do – that

“…the introduction of digital technologies in schools has not yet delivered the promised improvements of better results at lower cost. There is only a weak, and sometimes negative, association between the use of ICT in education and performance in mathematics and reading, even after accounting for differences in national income and socio-economic status”.

But, despite what is described as a ‘sobering picture’, the report, along with other OECD publications, urges an overcoming of the digital divide and a greater integration of digital technologies with teaching and learning. “Gaps in the digital skills of both teachers and students” are amongst the cited explanations, along with

“the focus on technology and connectivity… difficulties in locating high-quality digital learning resources and software, a lack of clarity over learning goals, and insufficient pedagogical preparation on how to blend technology meaningfully into teaching” (OECD, 2016).
And yet the well-intentioned advice is – even after that ‘sometimes negative association’ – along the lines of ‘sort out the problems, build teacher capacities, integrate!’

Similar findings and equally pusillanimous conclusions have been drawn in relation to adult learning. Ecorys and Bertelsmann Stiftung (2015), in a substantial exploration of the current provision and take up of ICT-enhanced learning, including open educational resources, found that the benefits of ICT and Open Educational Resources (OER) are “widely acknowledged amongst policymakers and practitioners as effective ways to:

- Extend and diversify the provision of learning;
- Enable provision to be tailored in terms of content (by making learning available in smaller units), and time and place (by disconnecting learning from traditional learning settings); and
- Widen access, building on conventional distance learning techniques and providing new forms of non-traditional learning”.

However, Ecorys et al acknowledge that “widespread and major effects on teaching and learning are still awaited (and the) full potential for enhancement, engagement and wider access is still to be realised” (ibid). Here again – and let us recognise that there is much of value in this well-researched report – the central recommendation relates to ensuring that the educators are “fully skilled and knowledgeable in the innovative use of ICTs and OER… (and) stronger coordination and policy exchange (is needed) to drive faster developments at Member State level” (ibid). In other words – ICT isn’t delivering the goods so let’s have more of it. How long must education wait until it is acknowledged that incremental approaches are worse that useless in the entirely fresh situation that Digitisation has created?

Even claims regarding increased classroom participation, let alone better educational achievement, linked with Wiki, Twitter and other social media platforms have proved impossible to pin down. No doubt Tablets can enable collaboration, just as Smartphones offer easy information access, much as some apps may, for instance, help students create efficacious schoolwork *cum* social life balances and, indeed, the likes of YouTube, Khan Academy and numerous other fora provide wondrous and free resources. But, as we continue to emphasise, these are merely a few friendly oases in an alien desert. Instead, in the authors’ considered opinion, we should be considering how best education should, through Digitisation, serve and help shape learners’ understanding and appreciation of our new and ever-evolving world.

Accordingly, 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 the same way, ‘ICT in Education specialists’ are now superseded by ‘Education specialists’, which title implies a confident familiarity with Digitisation and its educational implications; and ‘education’ now means ‘education in the context of Digitisation’ – once one mentions ‘Education’ one is already discussing ‘Digitisation’ [see the Appendix for an historical excursion amongst these medieval terms].

But perhaps the clearest illustration of the chasm between ‘applying ICT’ and ‘basing everything upon Digitisation’ is the contrast between where and by whom the considerations commence. On the one hand, a head teacher or an administrator looks at a range of equipment or systems (or glossy catalogues) and asks “which of these will improve my school, as it is already operating?” All too frequently, the marketing ploys of EdTech companies weigh
heavily upon the decision. Upon the other hand, the question is: “Given that all learners and all teachers worldwide are now in contact with one another, what are the educational implications and how may they best be met?”

**Isolated Applications in Search of a Framework**

Although the potential for digital technologies to transform ways of organising the curriculum, teaching, learning and the school environment has been celebrated since the 1970s, the “profound changes hoped for have not materialized and, to a great extent, these digital devices and resources are very often used as new means of transmitting content and reproducing approaches of traditional education” (UNESCO-IBE, 2014). By and large, the educational experience of ICT has been **four decades of disappointment**. Some teachers reorganise the delivery of the curriculum, but “the majority use ICT to add to or enhance their existing practices” (Loveless, 2008). Rather than educational systems, and schools within those systems, transforming themselves into Digital Age institutions, we have isolated early-21st century innovations misplaced in 20th century settings: the anachronistic adrift in the archaic.

It is as if contemporary automobiles were still plodding only those routes trodden by horse-drawn vehicles a couple of generations previously. 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 educational inclusion based on the necessary changes regarding the curriculum, teachers and underlying pedagogy” (UNESCO-IBE, 2014). Essentially, ICT is a second millennium conception, whereas AI is a current and rather frightening phenomenon not yet widely understood. Unless the entire environment is transformed in an integrated fashion, a few worthy novelties will not only appear out of place but their incongruity may damage the overall entity, missing the vital opportunity for synergies to occur. Only by recognising, planning for and promoting wholehearted Digitisation-based transformation may education’s worldwide potential for communal well-being, human happiness and, indeed, democracy be fully fulfilled.

Glaeser, Ponzetto and Shleifer argued that “across countries, education and democracy are highly correlated” claiming that “schooling teaches people to interact with others and raises the benefits of civic participation, including voting and organizing”. They go on to contend 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” (Glaeser et al, 2006). 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. [As already gleefully recognised, 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 of Edward Glaeser and his National Bureau team.]

Undoubtedly, contemporary technology has already accelerated the debate regarding what education is for. Vivekanandan argues 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” (Vivekanandan, 2017). Another desirable capability, apparently, is “information literacy… including the ability of learners to search for information and separate high-quality sources from low-quality ones” (World Bank, 2016). Here again, the proscriptions are as outdated as they are well-intentioned: setting out desirable skills, capabilities and attitudes negates the entire notion of the evolving Global School.

Major initiatives continue to embody the Add-On approach. Over recent decades, ICT has been applied not only in support of learning and teaching but also where education is being planned, managed, supported and measured. An archetypical instance is that of the Educational Management Information System (EMIS) and, with varying installation and maintenance experiences, sometimes involving the application of vast resources over several decades, EMISs are now being used to provide accurate and timely data to inform educational planning and policy development.

Another emerging example is that of learning analytics, the measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimising learning and the environments in which it occurs. It is regarded as a tool for (a) quality assurance and quality improvement; (b) boosting retention rates; (c) assessing and acting upon differential outcomes among the learner population; and (d) enabling the development and introduction of adaptive learning.

A variant of this, academic analytics, is used to develop strategies for learning and administration and to improve educational planning and management. It is also applied to identify at risk learners and to plan better interactions with them. Academic analytics includes learner profiles, performance of teaching staff, quality of course and subject design, and resource allocation.

Plagiarism-checking systems can be used for learners’ educative use and also by teachers (e.g. Turnitin). The European Commission’s new SELFIE [Self-reflection on Effective Learning by Fostering Innovation through Educational Technology] tool offers a detailed description of what it takes for educational organisations to be digitally competent. Piano Nazionale Scuola Digitale, the Italian Strategy for Digital Schools, according to a recent study (OECD, 2015b), attempts to mainstream “new models of school organisation, new products and tools to support quality teaching… (and) inventing new pedagogic and organisational practices”. Ireland’s current Digital Strategy for Schools (DoES, 2015) is involved in “modernising the curriculum, to embed digital learning” again implying that ‘what is now’ is the appropriate starting-point and, albeit visionary, still regards Digitisations as helpful support as opposed to fundamental transformation.

There is, as a recent study (Crouch and Montoya, 2016) sets out, a “global multiplicity of strong initiatives in generating better data on learning outcomes” including the Global Alliance to Monitor Learning (GAML), the World Bank’s SABER system, the Assessment for Learning (A4L) initiative, the learning assessment recommendations of the Commission on Financing of Global Education, and “interesting discussion documents from the background work done by the Centre for Global Development for that Commission”. For a politico-educational establishment obsessed with measuring, comparing, selecting and sorting learners out generally, contemporary technology offers “a range of opportunities for developing tests
that are more interactive, authentic and engaging” (Stacey and William, 2013). For all the talk of inclusion and equity, education as presently practiced is, as already noted, mainly about choosing who should proceed to the next stage up and who should be cast adrift. [Perhaps something with a high Artificial Intelligence quotient (AIQ) will soon explain the limitations of the testing philosophy to fallible human planners.]

Far from merely applying this or that isolated AI or ICT application, the rapidly evolving situation demands and allows across-the-board (peaceful yet absolute) revolutions, already apparent in many sectors (such as communication, banking, entertainment, defence, information, retail and security – never to forget friendship and romance) but, alas, not yet manifest in education. A recent Economist editorial (12th September 2019) recognised that “as computers and connectivity become cheaper, it makes sense to bake them into more and more things that are not, in themselves, computers – from nappies and coffee machines to cows and factory robots – creating an “internet of things”. Entitled ‘Chips with Everything’, it cites a fifteen-year forecast of “a trillion connected computers, built into everything from food packaging to bridges and clothes”, mentioning the consequences for business, buildings, machinery, agriculture, ownership, information, competition and “how the world works” generally. Everything but ‘education’ in fact, which is excluded from this thoughtful consideration of “the second phase of the internet” (ibid).

Similarly, Anthony Seldon observes that “Education has been the Cinderella of the AI story – largely ignored in the literature and by governments, companies and educational institutions worldwide. This needs to change rapidly: AI could be the Princess Charming or the Ugly Sisters in education” (2018). As he reports “a succession of booklets on the impact of AI published in the last three years have all but ignored education” (ibid). Seldon quotes the observation of Margaret Boden (the world authority in the field of artificial intelligence who even has a robot named in her honour) that “the application of AI in schools and universities has been relatively ignored but needs our urgent attention” (Boden, 2018). Indeed. But it is education in the context of Digitisation (embracing all of AI and ICT and beyond) that needs to be the approach: first, change education – then apply the best of those innovations in a comprehensive and integrated way.

Complexity Beyond Comprehension

This is the context in which Digital Age education must operate but it has yet to be thoroughly thought through on that basis. As George Soros recognised (2014) “The complexity of the world in which we live exceeds our capacity to comprehend it”, and his thoughtful consideration of natural and social phenomena, wherein us “fallible human beings are not merely scientific observers in social systems but also active participants in the system themselves” (ibid), is relevant to our present consideration. We are, in One World One School, discussing change – a fundamental educational transformation no less. And in our actions we may influence that change, in a manner that (at least for most of human history) predicting the weather does not bring snow. As Soros puts it, “The symmetry between prediction and explanation is destroyed because the future is genuinely uncertain, and therefore cannot be predicted with the same degree of certainty as it can be explained in retrospect” (ibid).

Throughout One World One School we have acknowledged that our specific expectations regarding the Global School (such as how the phenomenon of the qualified teacher’ will in some form persist) cannot be predicted in detail with a high level of certainty because,
amongst other factors, our particular conceptualisations, plus our entering into the action armed with these speculative models, may itself influence the evolving actuality. Certainly all of the evidence makes clear that something along the lines of what we are calling the Global School will come to pass; but when it will have fully arrived and what precise form it will take may certainly be affected profoundly by our predictions and preparations. In mid-Wales it will for certain snow sometime soon – but how heavily it does so precisely when remains moot, just as whether we have purchased overcoats, carry umbrellas and have fixed our roofs in readiness most definitely lend themselves to human intervention.

And so, while we certainly agree that the sequential system of education is outdated, we do not associate this with “an economic environment that is heavy on automation and deskillling of jobs and where skills gain and lose value within a few years” (World Economic Forum, 2018). Rather, we advocate a flexible and universal learning environment (the Global School), responsive to learners’ interests and enthusiasms, nothing at all to do with ‘continuous skill improvement system’, and that is not only lifelong but impervious to whatever is happening, or is not happening, in the world of work. The love of learning and the ability to learn, to handle information expertly (‘information literacy’ and/or ‘computer comfortability’ and/or ‘digital fluency’ – call it what you will – see below) and to enjoy mastering digital tools may well be amongst the competencies that individual learners set out to acquire as ends in themselves. Within the GS, a large part of education will involve stimulating and underwriting enthusiasms.

As the Director of UNESCO’s International Institute for Educational Planning put it: “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 (Hernes, 2002). The realisation that this digital development is much more than mere devices implies that it 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. It has been prophesised, for example, that the dynamic economies of this 21st century will be founded upon massive agglomerations of people. While routine tasks (widely defined) will be performed by machines, it is projected that economic activity will be driven by myriad face-to-face interactions – teaching, healing, caring – that may only be done by people living in large urban areas. This, those who foresee it contend, requires people being able to move quickly, cheaply and in large numbers. All of which seems to ignore the reality that, more and more, people working (or indeed learning) together no longer need to be sharing the same workbench or classroom.

**Intelligence, Machines and Us**

Are we heading towards an AI apocalypse or may machines, envisaging whatever comes after superconducting quantum computers, possessing an almost infinitely greater knowledge (and understanding) of everything than us humans could ever hope for, be safely and obediently pressed into our effective service? Perhaps brain-computer-interfaces, incorporating safe, small, wireless and long-lasting cortical implants – following on from hearables (smart headphones) – 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” (Hawking, 1988).
2018a). Linking that with his comments regarding developments in Artificial Intelligence evolving into a “new form of life that will outperform humans” (Hawking, 2018b), it becomes apparent that even how best to go about predicting the future is utterly unknowable: doing what is technologically possible is not always though the correct ethical approach.

Callum McGregor (2019) talks of ‘wirelessness’, raising a further challenge concerning “signals and detection… learning analytics and adaptive platforms that track, profile and learn from students’ activities in order to ‘personalise’ their education”. According to McGregor, both brainwave signals indicating task attention and engagement and DNA signals that ostensibly predict educational attainment, achievement and intelligence are “simultaneously made up of biologically embodied processes, socio-culturally embedded activities and socio-technically encoded computation” [the present authors are unconvinced regarding McGregor’s claim that research in these ‘precision’ sciences is an urgent priority for future educational scholarship].

Arwa Aleryani explores the extent to which AI will replace human employees, concluding that these “applications will lead humanity to better life and support. All that we need is to drive the new generations' attention to the new technology and AI skills and the qualifications from an early age” (Aleryani, 2019), although the need to ‘drive the attention of digital natives’ appears unnecessary. A recent consideration of ‘ethical AI’ (Pavaloiu & Kose, 2017) concludes wisely that “the process of teaching the machines to be more human-like may have a positive impact upon humans and translate into people becoming more human-like themselves”. In other words, exploring robot rights, rules and regulations necessitates and enables humanity to review, rethink and realign our own values and behaviour, looking simultaneously at machines’ and humans’ responsibility and contribution to society at a deeper level. Already, AI makes decisions that passeth human comprehension. Constricted by our dystopian trepidations, maybe we fail to explore how, within an ethical framework, it may join us – nay lead us – in meeting humankind’s chief challenges: curing Alzheimer’s, overcoming climate change, solving the Goldbach conjecture, identifying optimum construction materials and developing ideal transportation methods, for example. Or even in the arts: some say that consciousness is necessary for creativity (du Sautoy, 2019) but, let us face it, we are talking about an exponential enhancement of technology – surely nothing is impossible.

Olga Kraverts also claims that AI can help solve some of our world’s most vexing problems – day-to-day communication, climate, health care, transportation, loneliness – but, as yet, we have been thinking of technologies employing machine learning and big data involving some cognitive functions and a great deal of high-speed routine. This will be superseded soon and, as Dr Kraverts affirms, “its real magic will be technology that adapts to people… (offering) not only major boosts to economies but will prove profoundly transformational for humans and humanity” (Kraverts, 2017). In this context, UNESCO’s $50,000 ‘ICT in Education’ Prize for 2019 on the theme of “The use of Artificial Intelligence to innovate education, learning and teaching” exacerbates the misapprehension further. As emphasised throughout One World One School, the entirety of education needs to be transformed fundamentally in the context of contemporary technology: isolated ICT or AI interventions are by no means the answer but, rather, indications that those concerned – UNESCO included – have yet to understand the question. As an element within the transition to the GS, attention might well be focussed on how best to shape and accelerate the incorporation of AI to bestow the gift of time to currently hard-pressed teachers, rescuing them from the endless pursuit of pointless paperwork and the
compilation of mainly meaningless data, enabling them to focus on genuine learner stimulation and support – more on that later.

Chollet (2019) notes that “Over the past hundred years, there has been an abundance of attempts to define and measure intelligence, across both the fields of psychology and AI”. He and his Cornell colleagues proceed to express “a new formal definition of intelligence based on Algorithmic Information Theory, describing intelligence as skill-acquisition efficiency and highlighting the concepts of scope, generalization difficulty, priors, and experience” (ibid). Chollet’s contention is that, by such means, fair and general intelligence comparisons between AI systems and humans may be made. It will be interesting, in the not too distant future, to compare this approach to those applied by robots in defining intelligence from their perspectives.

Considerations of cyber-physical societies in which citizens’ daily lives will be enhanced through increasingly close collaboration with AI systems (for instance, Japan’s “Society 5.0” initiative – see Gladden, 2019) suggest that social scientific analysis of past societies may shed unexpected light on what is referred to as ‘posthumanisation’. Paradoxically, the anticipated “super smart” cyber-physical society appears likely to be more ‘human-centred’ (Harayama, 2017) than current societies with the “rapidly expanding quantities and kinds of social robots, artificial agents, and other artificially intelligent entities that… are able to learn, decide, and act for themselves in increasingly autonomous ways (Government of Japan, 2016).

The human becomes a part of the environment and the environment becomes an extension of our nervous systems. We now use gestures and fingers to indicate what we want on a computer; the next step is smartphone technology; and then biological sensors taking orders directly from our brains – brainwaves become electrical impulses which are translated into commands. Imagine the efficiencies once we can tap directly into the brain. And then the computer can anticipate what we want and send information seamlessly at the speed of thought. Our minds become our wireless interface with the world. Myriad applications transforming the way that we live, controlling our environment, knowing where information can be found. Electronic telepathy. As the synthetic human Adam put it in Ian McEwan’s delightfully subversive new novel Machines Like Me:

“…a brain-machine interface is efficient and cheap, you’ll become a partner with your machine… open-ended expansion of intelligence, and of consciousness generally… instant access into everything known but more important to each other individual nodes of the subjective will merge into an ocean of thought of which our Internet is the crude precursor. As we come to inhabit each other’s minds, we’ll be incapable of deceit…” (McEwan, 2019).

The frequent focussing on, recording, sharing and contemplating images brings a hitherto absent reflection dimension to everyday experiences: a continual ‘What-If’. Philip Howard refers to “Pax Technica – the vast web of internet-connected devices that, together, create a
network of stability” and notes that “many of us will be barely aware that so many objects around us [he refers to estimates of ‘fifty billion devices and objects’] have power, are sensing, and are sending and receiving data” (Howard, 2017). 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. While other sectors – as already mentioned – are undergoing wholehearted digitally-based makeovers, this is yet to occur in the education sector.
5. **CURRICULORUM**

Was it what the learner wanted to learn? 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. ‘Worth’, as we shall see, has nothing whatsoever to do with work skills. Imposed curricula insult the reluctant recipient. ‘Learned well’ shall not be subjected to marking, grading or passing/failing. And ‘enjoyment’: well that should be pretty clear. Accordingly, the requirement from now onwards is for a creative, comprehensive and cosmopolitan learner-driven curriculum, determined, owned and enjoyed by the students and guided by their teachers. How this may best be achieved, by, of and for the learners, is now discussed.

**Whose curriculum?**

It is relatively easy to recognise that Digitisation changes everything but somewhat more difficult to understand just what, in practice, that means for the curriculum and, as will be addressed in subsequent chapters, for its optimum delivery. What are the consequences for the curriculum of education’s forthcoming and fundamental transformation into the Digital Age? What should be taught [from pre-school through to university postgraduate] and who should decide on that syllabus? Education, as opposed to training, should be self-fulfilling, worthy in itself and, above all, fun. Digitisation is not merely a coming-together of contemporary technologies but a confluence and synergy of possibilities for human fulfilment. As such, it necessitates challenging prevailing views of curriculum and, underlying all of that analyses, determining its proper ownership, if the Digital Age version is to emerge. And it is Digitisation, and the universal connectivity which it embodies, that makes learner ownership feasible and inevitable. So let us look at the curriculum in that bright new light.

Doubtless, some kind of ‘creative comprehensive curriculum for surviving and thriving in the Digital Age’ may be developed, but this temptation should be resisted. For instance, many may have found it important (or even fun) to come up with some kind of Sunrise Baccalaureate with a pattern of:

- Four compulsory subjects comprising: one’s own language, mathematics, information technology and a science; and
- Four optional subjects selected from: another language, more science, social, arts and humanities disciplines.

Such may be scribbled upon the back of envelopes, much in the way that many gain enjoyment by choosing, say, the all-time international cricketing eleven or, as the Scout movement’s founder suggested (as a means of warding off impure thoughts), a football team of the “fattest boys that you know” (Baden-Powell, 1908). There are several good reasons for avoiding the attraction of compiling such kinds of secondary leaving exam requirements, quite apart from Old BP’s well-intentioned injunctions. For instance, why put so much emphasis upon STEM subjects when these are what the robots do best? Or why this fascination with examining and grading and selecting? Or, above all, why prepare for the third millennium that, above all else, calls for and enables individual agency and that embodies and celebrates each learner’s distinctive uniqueness, with second millennium arrangements trapped in discrimination,
uniformity and compulsion? Away with standard patterns of examinable subjects, to the guillotine with *le bac*, let us now leave it to the learners.

**The pre-Secondary Phases**

This is, essentially, the time of preparation – a few enjoyable and stimulating years of enabling each child to become ready for self-directed learning. Playful exploration of our wonderful world shall be the initial emphasis, with worldwide communication and international understanding developing through imaginative cultural, sporting and ecological activities. That there are externally-imposed learning objectives at that stage needs no apology. Some children will be ready, academically and emotionally, to move out of outside educational direction at the chronological age of 10 years (or even earlier); others may not be ready until well into their teens. That is no kind of problem – it is not a race and certainly there are no testing, grading or other forms of enumerational child abuse at these or any other Global School phase. Ease with other people (actual and/or virtual), curiosity and the ability to daydream, along with the desire and confidence to go on learning for the rest of your life: developing those kinds of characteristics are paramount. When a particular pupil shrugs off the well-intentioned mentorship straightjacket and declares ‘I am now ready to take responsibility for my own learning!’ – it is then that self-directed secondary and beyond education may and must begin.

Alongside and giving coherence to all of that is the emphasis on **readiness**. Let it be trusted that children worldwide will, in the pre-primary and primary phases, have fun achieving an understanding of how contemporary technology may work for them, along with such safeguards, supplements and subtleties as caring and enlightened adults deem appropriate. We concur entirely with former UK Children’s Laureate Michael Rosen’s contention that “play is a fundamental human right (and)... should not be seen as an ‘add on’ or as an ‘extra’” (Rosen, 2019). Indeed, what is rightly regarded as the basis of early childhood education, and is recognised as an important primary years’ foundation, continues as the binding energy of education thereafter: ‘play’ transmogrifies into ‘enjoyment’ as education’s driving force once self-directed learning commences (see, for example, Douse, 2014). New Zealand now formally targets wellbeing as a policy objective: at the very least we should all now target (and measure) enjoyment as the paramount educational objective. The happiness revolution (Layard and Ward, 2020) could well begin in the classroom.

Prior to commencing secondary, [as recently scribbled on the back of an envelope] an easy familiarity with three languages should be accomplished – mother tongue, another language (international, if that mother tongue be otherwise) and computer talk (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. At this foundation Global School phase, from kindergarten through to secondary readiness, all of the pedagogic tools involved in ‘education in the context of Digitisation’ are at each teacher’s disposal: the only difference between then and that which comes after is the unavoidable imposition of an externally imposed preparatory curriculum – the learners are enabled to walk before they require no further encouragement to run.

**The University in the Time of Digitisation**
Universities are in part PTVT centres and in part educational institutions. But those who attend them specifically in order to become lawyers, doctors, accountants, nurses and software engineers gain also what some referred to as a ‘liberal education’ just as those who seek primarily the ‘university experience’ may well – as a practically valuable spin-off – find themselves becoming more marketable job-wise. Inevitably, there will be high-level training centres offering accredited, relevant and high-quality training. Hopefully, there will always be communities of scholars extending the boundaries of knowledge; necessarily, the former should not dominate let alone exterminate the latter. As Stefan Collini puts it, “we exercise true democratic accountability, not by trying to subordinate universities to the current favoured form of economic policy, but by ensuring that they are enabled to concentrate upon their principal task of extending and deepening human understanding, because it is from the successful pursuit of that task that, in the long term, society as a whole derives the greatest benefit” (Collini, 2018).

Universities are, as are so many other veritable institutions these days, businesses: even those most sheltered from market forces are generally expected to be commercially responsive and market relevant. The most prestigious are akin to hedge funds with their endowments running into billions – and their Vice Chancellors paid in the millions – and, in such circumstances, expecting ethical enrichment is unrealistic. Who shall be surprised should sharp practices be engaged in to attract high fee-paying international students or, as a blatant marketing ploy, to award first class degrees to those deserving but second or third? Who, despite all the talk of protecting our intellectual inheritance, will wonder when history and literature courses are scrapped in favour of STEM or business programmes? Who, recognising the flagrant marketisation of higher education, believes that the higher purpose of drawing out the best from each student may truly be served? Who, seeking equity and fairness, believes that the underprivileged have truly equal and affordable opportunities, based upon their talents and aspirations, to study in their academic areas of choice? Who does not acknowledge that, as presently constituted, universities are deliberately biased selection mechanisms, reproducing inequalities between geographical locations, between social classes, and from generation to generation?

Let that be taken further. What has evolved to a substantial level over recent decades in relation to the university as a business is, as an element in that commercial enterprise, attracting fee-paying students from overseas. There are, for example, medical schools on Caribbean islands, geared to producing medical practitioners entitled to practice in the USA, and making substantial sums for the national economies from doing so effectively [by such means, a bright youngster from a moneyed Kano family becomes a doctor in Seattle by way of Georgetown, with Grenada benefitting in the process]. Transnational higher education has become a major industry and, in a linked and competitive world, how could such displays of entrepreneurial initiative not come to pass? There are, as ever, dangers. China provides more than a fifth of the United Kingdom’s 450,000 overseas students while British campuses overseas, in locations such as Uzbekistan and Bahrain, are important income-generating outposts. All of which dependence opens the universities – and the sector – to political pressure, including overseas funding for dubious projects (such as those Confucius Institutes – now closed down in many American colleges), and consequent restrictions upon that freedom of expression upon which the institutions ultimately depend. For instance, when the Canadian government urged Saudi Arabia to release women activists from jail, the rich gulf country’s scholarship programme to Canada was withdrawn. Academia certainly benefits from international support, save when the price includes a diminution of its fundamental values.
It is opportune to recount an anecdote. While sitting in a group of five international educationalists about to be honoured by a prestigious South-East Asian university, one of the two present authors (not Philip) enjoyed hearing a venerable and distinguished scholar⁶ telling a large group of graduands that

“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”.

His listeners appeared a bit baffled by that hedonistic wisdom but clapped politely. Each audience member was on the point of becoming a qualified success, forthcoming earning capacity having been achieved at the cost of enjoyment postponed.

In so far as the fundamental One World One School approach is concerned, learners who have, from the onset of Secondary onwards through Lifelong, determined their own curricula, will – as an offshoot as opposed to an objective – be fully familiar with the learning opportunities that a university offer, along with the facility of choosing between them. Their Global School experience, before, after and, indeed, during, their university participation, would also have facilitated their computing facility and hopefully enabled those higher institutions to apply Digitisation intelligently in their teaching. Surprisingly, this is not presently the case. For example, a major investigation of digitalisation in German higher educational institutions (Bond, 2018) reveals that “both teachers and students use a limited number of digital technology applications for predominantly assimilative tasks”, going on to suggest strategies for HE institutions “in order to support the broader use of educational technology for teaching and learning purposes” (ibid). That finding confirms the authors’ experience in a range of countries: with a few praiseworthy exceptions, university teachers are failing to realise, let alone seize, anything like the full potential of contemporary technology as an integral element of the learning that they facilitate. Global School alumni will make that happen.

Much valuable work has been carried out regarding internal quality assurance at the higher education level (see for instance UNESCO, 2018b). The general principle is that an individual university appraises key aspects of its own procedures, practices and outcomes and then some external body – maybe good people from another university or a well-intentioned national commission – assessing the in-house assessment and agreeing on the necessary remedial action. This approach, in whose favour there is much to be said, assumes that the university’s objectives are clear enough to be turned into SMART indicators: the UNESCO publication referred to a couple of sentences ago includes ‘graduate employability’ in its sub-title, for example. While the possibilities lend themselves to substantial deliberation, there is an underlying assumption that there will forever be individual higher educational institutions, separate, autonomous and balancing cooperation between with competition against one

⁶ According to the programme, he was ‘Dr Vasudevananda Saraswathi’ (apparently a famous name) and the quotation is as taken down by Mike at that time. The honoured guest’s notes, which he offered to share, employed a non-English alphabet (or ‘abugida’). The use of the word ‘whence’ and the “difference (of degree)” phrase were especially memorable.
another. This entire issue of the role and nature of ‘the university’ in the time of Digitisation, addressed in the debating subject THAT THERE WILL SOON BE BUT ONE UNIVERSAL UNIVERSITY (Chapter 12, below), merits further exploration, beyond but closely related to the Global School. The present authors will not shirk from participating in that voyaging.

Subjects and Subjugation

A recent paper by these present two authors (Douse & Uys, 2018b) reviews the potential of Digitisation in particular subject areas. Online study aids and intranet resources herald great changes for the future of English (or, indeed, French, Spanish, Chinese, Irish, Bangla, Tok Pisin or other mother tongue) teaching, participatively building a visual dimension to the curriculum. 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. Interactive maps and dedicated websites are opening up Geography for all age groups; History students will be able to participate in battles, court scenes and the lives of common peoples, free from danger or destitution. Physical education and sport, including the coaching of teams and individual athletes, and in relation to class instruction, health education and the design of sports facilities and equipment may be supported by contemporary technology. Extra-mural pursuits, for example oratory and debating (Quintilian, circa 95 AD; Douse, 2018), may flourish with, as emphasised below, debating predominating across all subject areas. With the Global School, the opportunities are there in all disciplines and for all learning stages from teenager or younger through to aged (yet intellectually alert) adult, integration in diversity being the watchword. 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.

Alice O’Keefe (2020) makes the entirely valid point that “…young people are questioning the value of an education system with priorities that seem out of whack with the world around them” calling for an education system that “…prioritises not traditional academic learning but rather ‘the four Cs’: critical thinking, communication, collaboration and creativity” (ibid). It is difficult to disagree with her call to teach children to understand their minds and bodies, encouraging them to have contact with nature, helping them to negotiate relationships with others, fostering excellent communication skills, and nurturing creativity. Where we differ is in our recognition that, to be meaningful, effective and honest, the decisions to explore these crucial elements of life must come from each individual child as opposed to being imposed by well-intentioned adults.

One far-sighted contribution to the curriculum debate “reinvents K-12 education for an exponential world”, moving away from “…Irrelevance, Unimagination, Colouring Inside the Lines and Emotionless boredom” towards “Storytelling/Communications, the exploration of passions, Curiosity & Experimentation, Persistence/Grit, Technology Exposure, Empathy, Ethics/ Moral Dilemmas, The 3R Basics (Reading, wRiting & aRithmetic), Creative Expression & Improvisation, Coding, Entrepreneurship & Sales, and Language” (Diamandis, 2016). That we like, along with our own recognition that objective knowledge [based upon hypotheses, proofs and reproducible experiments] is possible, just as myriad interpretations and alternative implications are debatable. Running through all of this is the belief that

7 Perhaps UNESCO’s Member States’ late-2019 endorsement of the Global Convention on Recognition of Qualifications concerning Higher Education for “the more than 220 million students (UN data) enrolled in higher education worldwide” is a step in this direction.
education can and should be enjoyable, which might be termed "fun" in popular language (see also Douse, 2005 and 2013a). 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; whether an equal number should be dedicated to ensuring equitable educational outcomes is considered in our Equity and Planning sections, below.

‘Subjects’ are man-made constructions (we use the term ‘man’ in its derivation from manus [Latin: hand] rather than with any gender-loaded connotation). Bringing together the ‘begatitudes’ of Matthew 1.2 through 1.16 and the wonderfully impossible constructions of M.C. Escher, it may be conjectured that Religion is a sub-set of Philosophy which in turn is a sub-set of Language, which itself is a sub-set of History, which is a sub-set of Economics, which is a sub-set of Geography, which is a sub-set of Geology, which is, of course, a sub-set of Religion. Other trees may be planted but the serious points are that the entirety of Knowledge is indivisible (and that too appears to have Religious connotations) and that each individual learner is entitled to name, store and interlink each element of the whole (on a provisional basis) in the manner most convivial at any particular time.

Beyond the formal curriculum, some secondary schools offer a range of activities. According to its prospectus, Haydock High in England provides “a huge richness and variety of extra-curricular activities… recently including zoos, art galleries, theatres, geography field trips, castles, study visits to France, Spain and Iceland, ski trip, science club, drama productions, Art, choir, band, dance and media”. This would seem to be the exception. A central problem worldwide, exacerbated in some countries by the exam culture, in others by poor teacher morale, is that the availability and take-up is often very low, for instance: “…in the UK, two in five secondary pupils don’t take part in any extra-curricular activities” (Sutton Trust, 2017). Digitisation may enable true co-curricular purposes to flourish for instance through global digital interactions (the Global School extra-curricular is very far from being just extra) to the extent that the distinction between ‘on the curriculum’ and ‘outside the curriculum’ withers away.

The Curious Case of ‘Computer Science’

Whether there should continue to be a discrete secondary school (i.e. GS) subject area labelled, ‘Computer Science’ (or suchlike) is questionable. Given that all curricula will be set “in the context of Digitisation”, and that all subjects 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 dubious. 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, computer engineers or specialists in fuzzy logic 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 (Douse, 2013a).

Based upon an inspection of secondary Computer Science syllabuses in a sample of countries, it seems that the subject has deteriorated from programming (the 1970s emphasis) into IT skills (how to use PowerPoint, Word, Excel et cetera), proficiencies that, it is contended, are better acquired and applied as practical elements within other subjects. Much as “every teacher is an English teacher” applied previously (especially in English-speaking countries) it is now the case that “every teacher is (becoming) a digital literate/fluent teacher”, which raises the issue of how soon “specialist ICT teachers” may be phased out. And, although education has nothing at all to do with the world of work, it is interesting that graduates from A-level computer science courses persistently have the highest unemployment rates (McInerney, 2019). As “education” now means “education in the context of Digitisation”, it follows that separate secondary “ICT lessons” (especially when involving expensive ICT equipment!) are meaningless, misleading, potentially dangerous, 20th century relics. Having “Computer Science” as an educational course, or as a secondary examination subject, is archaic. But designing and delivering modules, responsive to learners’ interests: now that is education!

**The Distraction of Relevance**

We are talking here about ‘education’ but let it be recognised also that, at the tertiary or post-secondary phase, Professional, Technical and Vocational Training (PTVT) may legitimately and must inevitably come to pass, whether it be the pre-service preparation of doctors, lawyers, accountants and engineers, or apprenticeships of various natures, or dedicated short courses focussed upon specific workplace skills (see Douse, 2013b and Chapter 9, below). While education (unrelated to work-related skills development) undoubtedly and inevitably will and indisputably should continue to occur, alongside but not 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 elementary foundations, education in, of and for the Digital Age for the first time reaches fulfilment. Accordingly, while our present focus is upon post-primary non-PTVT curricula: PTVT has its own section within One World One School (chapter 9, below), much as a book dealing with fish might possibly devote some pages to amphibians in order to underline the contrast.

As has already been discussed, 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. Artificial Intelligence, machine learning, invisible algorithms and companion technologies offer great growth opportunities but, as well as creating many high-paying jobs and positive spill-over effects for the more fortunate, the threat of producing billions of insecure, low-skilled, low-waged, low-regarded jobs worldwide must be recognised and should be either resisted or, more realistically, responded to creatively. While the fourth industrial revolution offers, for instance, new functions in information technology, analytics (big data) and Research and Development (R&D), the application of robotics will make some shop-floor and other current entry roles redundant, and unless businesses and governments understand and face up to the challenges, “nearly half of developed country jobs will disappear with neither trace nor replacement, with women facing twice as many redundancies as men” (Schwab, 2016). Conceivably, those displaced could find new work in areas where the human element is
crucial, such as caring for the old, the young and the vulnerable. These needs are vast and are presently, to a large extent, met by relatives, volunteers and the poorly-paid: in wealthy countries they are often migrants from poorer ones: how may that change?

Industry, commerce, research and academia, worldwide, urgently require relevantly skilled or readily trainable workers, looking in vain to conventional education systems to deliver them. However, just as economic growth is a pre-Digital Age obsession, so also may schooling no longer explicitly prepare people with specific discipline knowledge for situations in which they will need frequently to upgrade their skills, especially when the nature of those skills are unknowable and the mechanics of transformation unfathomable. Education has for too long been misdirected by macroeconomists and interfered with by industrialists – it may now come into its uncompromising own. Moreover, given that tomorrow’s labour market skills demands are increasingly characterised by uncertainty, the vital distinction between ‘education’ and ‘training’ may, as already stated more than once, valuably become a hard border (see Douse, 2005).

Franklin Foer sees the consequences proceeding even further, colonising the human mind itself: “Solitary genius is replaced by the wisdom of the crowd, the networked mob enforces conformism… algorithms make it impossible to think for ourselves” (Foer, 2017; quoted by Tarnoff, 2017). Our earlier admonition to keep our feet firmly upon the ground applies here – advances likely to be more than one decade into the unforeseeable future should not unduly distract us now – although today’s students will undoubtedly enjoy exploring the possibilities.

Towards the Transformative Curriculum

The fresh situation should, at the very least, allow and necessitate a transformed curriculum vision: exploring new forms of inclusion and diversification and involving on-going innovation and experimentation in teaching and learning strategies. Being able to access vast volumes of data, and having to be able critically to select and intelligently to re-assemble so that usable information may be engendered offers great opportunities along with unprecedented challenges. Current limitations include factors such as public examinations, employers’ and tertiary institutional requirements, teaching to the test and the demeaning power of PISA. Contemporary policy environments prize the productive and the technical, with educational activities outside the syllabus being squeezed out (as with the extracurricular in the previous section): 20th century emphases adrift in early third millennium waters.

The perniciousness of PISA (Programme for International Student Assessment) cannot be over-emphasised. Its focus on league tables, country rankings and its celebration of "winners"; successful learners, successful schools and successful education systems influences educational debates and educational policy at a global scale and, according to Svien Sjøberg, assumes that “the quality of a nation's education system can be reduced to a single, universal and global metric – independent of that nation's history and culture, values and ideals underpinning the school system” (2019). Through PISA and PISA-related projects, the OECD “...globally exert power and influence on educational debates, policy and governance... (constituting) implicit epistemic governance” (Sjøberg, 2019).

Svien’s Fellow-Finn, Pasi Sahlberg, characterises the current PISA-driven educational reforms “…by the acronym GERM (Global Educational Reform Movement), typified by privatisation, market driven reforms, free school choice, competition and test-driven
accountability... Finland has remained immune, but other Nordic countries have moved to adopt policies that are close to GERM" (Sahlberg, 2019). As both Sjøberg and Sahlberg maintain, PISA is essentially a political project and, as they warn, its expansion into schools and school districts, kindergarten, adult education and education in developing countries “needs to be followed with great concern, likewise the close connection between PISA/OECD and global, commercial actors in the strongly emerging field of Edu-business, like Pearson and McGraw-Hill Education” (Sjøberg, 2019).

Curriculum has been variously regarded as content to be transmitted, as a route towards 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” (Stenhouse, 1975): essentially, curriculum as process. This model depends upon the cultivation of wisdom and meaning-making in the classroom, all too frequently, as Grundy suggests, becoming “reduced to sets of skills... the actions have become the ends; the processes have become the product. Whether or not students are able to apply the skills to make sense of the world around them is somehow overlooked” (1987). Praxis occupies the intersection between the philosophy and the practice of teaching, with the contextually-shaped curriculum evolving through the dynamic interaction of action and reflection: It is not that education is without content altogether, but that its content is co-constructed as part of and not in advance of the learning (Stommel, 2014). Digitisation necessitates and enables a transfer of curriculum ownership and, with new proprietorship, considerations of process and praxis become superfluous, as discussed below.

The thrust of the Digital Humanities Manifesto was 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 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” (Digital Humanities, 2008) While this is very much in the spirit of One World One School, 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 academics working in the humanities, probably 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 and the Scientific Revolution (1959) essay appeared but, as implied above, “Arts versus Sciences” was always an artificial disagreement. Creativity and critical thinking are no discipline’s especial property: 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. As a reviewer (of Foer, 2017) concludes, we can have Twitter and Turgenev: “…we can keep our humanity intact while enjoying the new tools technology has built and use politics to make them better” (Tarnoff, 2017). 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 that movie, the linguist and the physicist work together to achieve (spoiler alert) a happy ending. “Humanity” is by no means restricted to practitioners of the “Humanities”: arts and science specialists share our common humanity.
More pertinent than the alleged arts-science dichotomy is the underlying issue of class. Reproduction theorists, such as Bowles and Gintis (1976), offer an overtly deterministic – albeit convincing – view of USA schools, setting out how the system embodies and perpetuates the exploitation of one class by another. Taking this forward into the area of curriculum, Basil Bernstein’s 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. But the two forms of educational transmission analysed in “Class and pedagogies: visible and invisible” (Bernstein, 1977) attain fuzziness in the Digital Age. Bernstein’s 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’ would not have survived the onset of Digitisation. This offers genuine possibilities of breaking the link between cultural and educational codes and the content and process of education related to social class and power relations (see Bernstein, 1973). Universal connectivity straddles schools worldwide and cuts across the institutional, societal and historical factors that gave rise to pernicious socio-educational discrimination.

**Education as Preparation**

Learners long for education. Instead, nine-tenths of them are fobbed off with job preparation – and discriminatory job preparation at that. 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 universities, 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.

As we have just observed, economies worldwide look in vain to today’s education and pre-service training systems to deliver the kinds of job market entrants that they now need. 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, as we have already discussed, robots are not yet that good at that. But most of the subjects officially emphasised in contemporary education – mathematics, technology, sciences and languages – are precisely those where robots will increasingly bring about redundancies. Contemporary computers are far less competent in, for instance, the creative arts – an area that is presently underemphasised in schools across the world.

As also underlined in the above discussion, the current education cum skills development system fails drastically to prepare learners for the world of [largely meaningless, insecure, poorly paid] work. The vast majority of young people are being lulled into subservience, distracted by job market distortions, robbed of genuine education in favour of job readiness fabrications. The myth of educational input being justified by economic returns is exploded with the realisation that education’s true objectives are mainly non-material. Far from education being a preparation for the world of work, the only reason for working hard, for getting a well-paid job and for accumulating wealth is to be able to obtain the best possible
education. What young people – all people – should be helped to acquire is the facility of deciding what they want to learn, and to enjoy learning, in the present-day, evolving context. ‘We’ no longer decide for ‘them’, ‘each’ decides, taking such advice as is desired, for ‘each’.

**Education as Indoctrination**

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 (UNESCO, 2017), 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” (*ibid*). Those who currently advocate that school curricula should be focussed upon, for example, livelihoods or social justice or – the current fad – sustainable development, are good people but, despite (and in a sense because of) their goodness they are in cardinal error. This use of schools to achieve religious, military, ideological, empire-governing, developmental or environmental outcomes, no matter how well-intentioned, is akin to using them in the production of chimney sweeps or child soldiers.

Curriculum design associated with the building of more just societies, as opposed to remaining enclosed in the logic of corporate interests, remains a noble aspiration but, even were it feasible, it is self-defeating – learning should never be a vehicle for the teacher’s (let alone the government’s) morality. Thus, a trio from Arizona State University’s Mary Lou Fulton Teachers College point out convincingly that the “education-for-economic-growth paradigm cannot persist if it is in conflict with environmental sustainability” (Goebel, Fischman and Silova, 2019): it is where they maintain that “education has a role in tackling climate change and the global sustainability crisis” (*ibid*) that the fundamental misconception is illustrated. The claim that the teacher is “an educator with an ethical mandate… an expert orchestrator of learning environments to foster and support the development of skills” (OECD, 2013) is true only in so far that the “ethics” prohibit the proselytising: fostering skills is fine, provided that no-one’s purposes, beyond those explicitly of the learner, are being served. When the wish to explore environmental issues arises from the learner, that enthusiasm must be attended to; when it derives from an official syllabus or the ideals of a committed teacher, then it must be ignored. It is good that Digitisation offers an escape from education as indoctrination, manipulative or benevolent, albeit bringing with it heightened opportunities for exploitation (for, in our enthusiasm, we shall not be naïve). Moreover, 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.

**Whose Curriculum?**

The “hidden curriculum” involving “…examinations and the social relationships of the school – the nature of the teacher-student relationship, the organization of classes, streaming…” (Jackson, 1968) is of significance here. Just as the emphasis on regimentation, on bells and time management, and on streaming by perceived ability are sometimes seen as preparing young people for the world of capitalist production, in the sense of the medium being the message, the technology may currently be recognised as refining the learning objectives.
Indeed, what has characterised curricula from Platonic time onwards is the unchallenged external ownership. Even if teachers and technologies exert some influence over that which is laid down, the laying is conducted by politicians, bureaucrats, academics and sundry pressure groups. With Digitisation, such external ownership may be laid aside. The driving force and assumed justification for national curricula have been a country’s assumed right and duty to apply education in the production of productive workers and good citizens. Moreover, those educating to build the Nation-State or to train human resources for economic development “…seem to have exhausted their capacity to mobilize the interest of the various social actors and are unable to meet the new demands” (Jackson, 1968).

As classrooms may now be freed from labour market colonisation, and as even the noblest authorities cannot be trusted to produce curricula that do other than exploit young people, and given that all learners and all teachers worldwide are now in contact with one another, alternatives to imposed curricula become both vital and feasible. Experiments with pupil-led (or leaderless) schools have not been unbridled successes. 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. Contemporary incentives – places in prestigious colleges, praise, glittering prizes, promises of good jobs, avoiding punishment – would give way to deeper and more personal motivations: pursuing enthusiasms, understanding aspects of the physical and intangible world, enjoying the quest for knowledge and wisdom.

Accordingly, it is the learners who “own” the curriculum: given their fingertip access to virtual infinities of information and legions of fellow-students, along with their unrivalled acquaintance with their own emerging interests and fascinations, it could not be otherwise.

The International Dimension

There is, at present, a general acceptance of curricula that reflect the autonomy of “national societies in forging a sustainable way of life respectful of the various identities and strengthening local cultures, valuing their responses to the challenges they face” (UNESCO, 2014). National governments jealously guard their idiosyncratic domestic curriculum mandates, sometimes devoting relatively huge resources (in terms of their populations) to developing, for instance, bespoke history syllabi reflecting their country’s (perceived) unique struggle for freedom and especial identity (An entity as small as the six counties of Northern Ireland has to have two such syllabi embodying competing versions of the historical reality). Religious Education curricula are similarly regarded by national decision-makers as especially distinctive and, in many countries, languages are another area of political concern (Ireland has long devoted vast educational resources to the futile dream of becoming an Irish-speaking nation). Moreover, as already recognised, governments worldwide perceive their roles in using curricula to produce productive workers and good citizens, however those (presumably overlapping) categories are perceived.

Digitisation, symbolised by the Global School, signals a sharing of learning experiences and a coming together of classroom cultures. 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” (Tedesco, Opertti, & Amadio, 2013) remains as yet unproven. What is already evolving is an increased internationalisation of courses and qualification. Already, learners in many cities worldwide, as well as in refugee camps, Antarctic tents and retirement home libraries, study for some form of international baccalaureate, some higher qualification, or a Massive Open Online Course (MOOC) purely based on interest, from beyond their particular country or geographical location. As teaching and learning are increasingly occurring across the walls of particular educational institutions, the autonomy of individual schools and systems may fade as worldwide connectivity comes to characterise the post-primary non-training experience. Moreover, this movement towards the one universal educational institution might well, thankfully, make national league tables obsolete and (deserving of yet further mention) odious comparisons by such as PISA redundant.

Post-primary education is now an undoubted international pursuit with its cosmopolitan curriculum determined by learners from the leafy suburbs of Western cities, from slums and shanty towns and from remote developing world villages. In that the learning agenda may emerge from learners’ interests and enthusiasms, a matching teacher-guided and learner-determined process may evolve in parallel, again arrived at from the worldwide rather than the national level. Undoubtedly, institutions such as high-status universities will attempt to shape curricula through the imposition of cream-selecting criteria: this should be, in time, overcome by pure and powerful learner power. Whereas reaching school might have involved a 20-minute walk and then a 20-minutes bus ride, the learner in Broken Hill may link up with her teacher in Barcelona in under 20 seconds, meeting up with fellow learners in mutually convivial locations outside rush hours and in their own good – extremely good – time.

Education Transformed

As Stewart Marshall observes “The prevalence and adoption of ICT tools in education has often been guided by utopian perspectives without proper research to understand the schooling context and teachers that ICT development needs” (Marshall, 2018). Until recently, ‘ICT and Education’ policies and plans have made good sense. This no longer holds true. The requirement now is for Education Plans and Policies that absolutely acknowledge the centrality of, and are fully focussed upon, Digitisation. The challenge is not to improve existing national education systems in and for this Digital Age – the necessity is to transform the entirety for our and future times worldwide. The paramount objective is for all learners (i.e. everyone) readily and effectively to receive and benefit from connectivity, devices, software, skilled enabling and sympathetic encouragement.

Accordingly, 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 ICT can help meet these objectives” (World Bank, 2016) are no longer appropriate. 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. ICT, and even AI, are not enough: a fresh educational era has been entered and we should no longer simply be talking and planning in terms of their assisting second millennium approaches and arrangements. Of course, as ever, education should be focussed upon the child
[or, more generally but less evocatively, the learner – 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/learner becoming more complex, challenging and, hopefully, enjoyable and fulfilling. Accordingly, the task now is to delineate and integrate aspirations, priorities, strategies, programmes, plans, activities, costs, inputs, responsibilities and M&E mechanisms for education in the Digital Age.

Clearly, ICT has failed to deliver the anticipated surge forward in secondary educational practices and outcomes. This is, as already discussed, in large part due to the dependence upon isolated supplier-designed ICT applications in particular aspects of specific subject areas by those teachers who happen to be interested, as opposed to any kind of overall transformation of the entirety of education, as necessitated and made possible by contemporary technology. With Digitisation, we should no longer simply be talking and planning in terms of this infusion of ICT or that concoction of AI assisting ever more outmoded approaches and arrangements. An entire overhaul is called for, embodying contemporary technology in its connectivity, organisation, curriculum content and research, and in innovation, learning methods and management. Such a holus bolus renovation is necessitated and enabled by Digitisation, including the emergence of what, for all intents and purposes, may be regarded as the Global School. Its particular manifestations in relation to what is to be learned—the thrust of this present paper—comprise the emergence of the transformative and transnational Learner-Driven Curriculum.

As Her Majesty’s former Chief Inspectors of Schools, Christian Schiller, is reported (Williams, 2018) as claiming: the best educational research amounts to ‘follow the child!’ and, as home schooling guru John Holt put it: “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”, as quoted and commented upon by Sally Williams (ibid). It may be added that organisations such as My Online Schooling already offer “the English National Curriculum from Key Stages 2 and 3 right through iGCSEs and A-levels” along with “after-school clubs”, described on their website as “a rich, inclusive and accessible education where pupils feel supported and, most importantly, enjoy learning”. From transition from primary into secondary and onwards, and through life thereafter, the curriculum is possessed by the learners. And this open and active participation has profound implications for the substance, creation and transmission of information, ideas and attitudes, and will be accompanied by an intensifying realisation of the possibilities of learner-directed curricula and learning-supporting pedagogies.

As already emphasised, the internet heralds a fresh pedagogical era. Digitisation makes possible, nay necessitates, that the educational institution, whether it be set in the well-to-do environs 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, Global School education will emphasise personalised E-learning and increasing engagement, characterised by ongoing and creative spoken communication. To which we shall assuredly return.
6. AND GLADLY TEACH

The Global School resolves and outwears the fascinating late-second millennium discussions of pedagogy by determining the ownership and nature of the process, necessarily 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. Given that the curriculum is to be led by the learners, each of whom will decide what she or he wants to enjoy understanding, how should that be taught – how should such learning best be facilitated – what should become the teacher’s role – indeed: what is a ‘teacher’? Let us start with that last (and most important) question.

Who Shall Teach?

The Learner-determined curriculum is matched by the convivial and constantly creative Learning-Supporting Pedagogy: as now addressed. And thus, for teachers, these are the most exciting times since Socrates (see below). But is the definition of a ‘teacher’ as one with recognised professional credentials still valid in the Digital Age? And – given that the Global School is a worldwide institution – are those required qualifications and capabilities universal? Or is a more radical approach required – with, say, all of those of good character, competence and complete commitment to teaching (within the Digitisation context) being allowed and enabled to do so. We think not. We are committed to the concept of the ‘qualified teacher’ and that those recognised by the GS as such – and no others – are teachers: no grey areas, no uncertainties, the same the whole world over. Taking that further, we consider that One World One School involves worldwide standards and universal recognition: whether she or he comes from Tahiti, Teheran or Tennessee, the credentials, the code of conduct, the working requirements and the continuing professional development arrangements will be identical.

What then should be the formal requirements of the Global School teacher? [Now where did we put that envelope?] Bearing in mind that the discipline knowledge of teachers will become less important in a content pervasive (online) world, here – purely for purposes of discussion – is one possibility:

• Content understanding to at least Masters’ degree level or equivalent (what is required here is the capacity to find, synthesise, criticise and utilise that information, to apply relevant analytical techniques, to carry out research and maintain critical contact with the frontiers of knowledge in that particular broad area); and

• Demonstrated facility with GS values and methodologies (engendering enjoyment, facilitating, guiding, supporting, encouraging, all aspects of debate management, the provision of feedback and other relevant capabilities) supported by an understanding of relevant social sciences (e.g. psychology, sociology, educational philosophy and history). The latter will need to be constantly revisited and enhanced. The former – the high level ability to understand, intelligently explore and be creative within the chosen areas – may also be deepened and extended. Each teachers’ span of competence and excellence will move beyond traditional subject areas towards ranges of knowledge fields, reflecting learner-determined curriculum priorities. Perhaps the ‘great artist’ or the ‘famous statesperson’ meets the first (content) criterion: the second (GS facility) criterion would still need to be met. (It should be noted that especial computer-related skills are not specified, any more than a teacher in the 1990s would have had to demonstrate the capabilities of marking a register, turning on the lights or knowing every pupil’s name within three days of the start of term).
Who then shall decide that this one is a teacher and that this one is not? We very much hope that the Global School will not have an over-heavy bureaucracy. Accordingly, we believe that an international panel of experienced teachers – none serving in that authorising role for more than, say, three years – should apply the agreed criteria. Once the recognised credentials have been obtained and competencies demonstrated, and possibly after a probationary period – under mentoring and guidance – has been satisfactorily completed, the accolade of ‘teacher’ will be awarded. Furthermore, we strongly believe in the need to address the varied nature of contexts, and the interplay between learning and teaching and the settings in which it occurs. One of the worldwide standards for teachers will be the ability to support learners successfully, effectively and enjoyably in more than one context, locally, at a distance, and a dynamic mixture of the two.

Similarly, we see the supervisory role (extending to any disciplinary actions) being performed by fellow-teachers. In terms of ‘inspection’, the objective should be to provide independent, well-informed, non-judgemental and practically useful feedback to each individual teacher being scrutinised: building up a body of applied research, evidence and capacity development to help learning and the overall GS system to evolve and improve. And, of course, this will all be occurring within the Digitisation context – quite what that precisely involves remains to be experienced but certainly the human teacher (supervisor, teacher educator and inspector) will be supported and even guided but definitely not hampered or over-ruled by technology – and it is not too fantastic to conceive of the robots themselves being inspected but, hopefully, not needing to be disciplined.

And perhaps that is not too far-fetched. Earlier this year, scientists announced that they had created the first living robots using stem cells from frogs. Even without venturing into the fascinating realm of those xenobots (xenos: Greek for ‘strange’; robot – originally coined by Czech playwright Karel Čapek from the word for ‘forced labour’), it is increasingly apparent that contemporary technology is enabling the emergence of thinking (and conceivably feeling) creatures (or creations) with legitimate interests that require protection. Who then shall decide whether this machine is a teacher and this one is not?

**The Compleat Teacher**

Ben Johnson claims that, “when people hear the word ‘teacher’, mental images of their own student experiences… an instructor in traditional teaching mode: standing in front of the class talking, writing, or pointing in front of a chalkboard or whiteboard” (Johnson, 2019). [We add that, when children are asked to draw a teacher, a man with a cane is still frequently portrayed.] Johnson proposes that we consider instead the term **learning engineer**. And, while we agree that “creating a school culture that focuses on student learning as the centre of everything” (*ibid*) is an admirable albeit locally limited aspiration, we sense that the suggested name change is not going to catch on.

Digital Age teachers will, in their training, approaches and job descriptions, differ significantly from their pre-digital predecessors – teaching is no longer largely a matter of crowd control. 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. As discussed in further detail below, 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 a Bring Your Own Devise (BYOD) approach. With Digitisation, the paramount investment heading is not the technology so much as creating, supporting and remunerating competent, confident and cheerful teachers, deserving and receiving widespread respect, 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 – see below).

The teachers’ 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). 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 already becoming a major and creative element in revised learning methodologies and appropriate pedagogies, characterised by internet-supported teaching and studying, active learning in learner-friendly classrooms, distance education and mobile learning, open educational resources – and the necessary struggle to preserve of data privacy.

Once incorporated within Digital Age consciousness, and its title corrected, UNESCO’s ‘ICT Competency Framework’ may still play a pivotal role in informing aspects of the design of all future teacher professional learning opportunities (UNESCO, 2008). While the preparation and lifelong upgrading of teachers will encompass training in digital understanding and information fluency, through workplace learning as well as in dedicated teacher educational institutions, it is emphasised that this is broad-spectrum continuous professional development, a universe and an age away from specific ‘ICT training’. As an OECD (2015a) report puts it,”

“…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 and other decision makers who have the vision, and the ability, to make the 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 participating in professional development projects. Given the essential nature of their creative participation in these coming years of major transition, the recognition and full involvement of teachers’ professional organisations and representative federations is vital. And, as explored below (Chapter 8) the successful educational planner will be the one who enables everyone effectively to participate in the planning process: here again, Digitisation makes such participation possible.

Teaching in the Digital Age

The Digitisation of education enables and requires teachers to play dramatically altered and more professionally fulfilling roles. Clearly, the unparalleled changes, challenges and
opportunities involved in Digitisation necessitate entirely fresh thinking 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 status is high, remuneration and conditions at least adequate, convivially-managed and supported, and operating with good facilities and appropriate learning materials. A determined drive to achieve on-paper effectiveness through standardised, scripted lessons, implausible AI applications and remote school management, misusing technology to create mechanical, mindless and test-oriented education, demonstrates the danger (referred to earlier) that Digitisation could, carelessly handled, benefit edu-business more than children in the classroom.

In a recent South African study, Dlamini & Mbatha (2018) stressed the need, not only for “in-service professional development activities in the use of ICT for teaching, in teaching in multicultural environments, and in classroom management” but also in relation to “the role of school management and administration in the adoption and integration of ICT tools in education”. Reflecting our earlier observations, they concluded also that “despite the huge investments into ICT infrastructure by government, inequalities in ICT competencies among teachers remain” asserting that “The most important conclusion is that the investments being made are politically motivated and that teachers are being side-lined in the decision-making processes and preference given to political visions” (ibid). This is by no means a South Africa specific phenomenon.

Job security is – and, for the foreseeable future, will remain – crucial and, for that, amongst many reasons, the involvement of teachers and their professional and federation representatives in guiding the evolution of the Global School is vital, just as the inclusion of workers’ rights and advocacy is a crucial curriculum element in that it offers the opportunity for those with the vocation to teach to come into their own. Those GS teachers, in addition to having a suite of basic technology-related skills, will take on new and often more sophisticated duties and responsibilities in ways that will challenge the existing capacity of many educational systems to prepare and assist them over time, until the Global School is fully established.

Undoubtedly, some teachers will resist the requirement to become digitally-supported professionals and learning-supporting change agents (OECD, 2015a). This response is true of people generally, with some seeking to resist the relentlessness of immersive technology, often rejoicing in their digital illiteracy, 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” (Scott, 2015). However, the good news is, as already emphasised, that technology is rapidly coming back to the user; there may be rejoicing in staffrooms worldwide with the recognition that the new skills required of Global School teachers will require much more pedagogical innovation and ‘guide by the side’ role evolution than any form of high-tech wizardry.

Just as every teacher will now become confident in the evolving Global School setting, so also will all varieties of supportive technologists become ‘educational specialists in the context of Digitisation’. David Woo analyses the literature on “learning technologists, educational technologists, e-learning technologists, information and communications technology coordinators and information technology coordinators”, highlighting the tension between
cohesiveness and incoherence in operationalising categories of educational technology professionals, and concluding with “the question of whether such categorization is necessary and worthwhile in an age of technological and professional change” (Woo, 2015). Essentially, anyone involved in education from now onwards, whether learner, teacher or supporter, will necessarily and happily be immersed in ‘Education in the context of Digitisation’ as that has become the universal background.

In a digitally networked world, information overload from reputable and other resources will be widespread. A recent manifesto on coming to terms with free speech in our increasingly connected planet (Ash, 2016) recognises that, “because of mass migration and the internet, much of the world now lives in a permanently connected ‘cosmopolis’… for good or ill, freedom of expression flows easily across frontiers”. While the Global School manifests that free-flowing connectedness, each individual’s desire for some solitude should somehow be respected. As James Brindle puts it, in a far-sighted and thought-provoking volume, “Our technologies are extensions of ourselves, codified in machines and infrastructures, in frameworks of knowledge and action. Computers are not here to give us all the answers but to allow us to put new questions, in new ways, to the universe” (Brindle, 2018). Far from destroying memory, technology is reshaping the forms of memory that we rely upon. Let the learners ask questions – their teachers will know how to help them locate the answers.

The proposed way forward should, it is suggested, embody these three principles:
• Focus upon the vast and ‘unimagined opportunities’ (and potential pitfalls) of active technology and universal connectivity: the Global School;
• Let the learners lead, followed closely by their digitally comfortable teachers, then the educational managers, and (at arms-length behind them) the development partners, philanthropists and EdTech companies; and
• Strive, determinedly and wisely, for the Global School that embodies world citizenship, universal inclusion, critical thinking skills, a love of learning and a continuous and shared learning culture.

While literacy and numeracy are undoubtedly essential, third millennium thriving demands somewhat more than reading and counting. Focussing, as tests worldwide tend to so, on readily measurable elements of language and mathematics, inevitably devalues everything else from food to athletics, from relationships to play. The generation that should finish secondary school by 2030 is now entering primary classrooms. But the world will be embarrassingly off-track in ensuring that all girls and boys complete free, equitable and quality primary and secondary education by 2030 if current trends continue. The prospect of failing this generation is all too real.

The 2030 Agenda’s objectives, along with any aspirations of similar nobility, may be achieved if and only if the massive potential of ‘Education in the Context of Digitisation’ is understood and harnessed. How best to accomplish and support this is not only the fundamental 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 labelled, for want of a definitive designation, ‘The Global School’. Its prospectus remains to be delineated but its indispensability and, indeed, inevitability are indisputable.
Pedagogy and ICT: an Historical Relic

Whether ICT is perceived as a social and cultural phenomenon, as a resource for learning and teaching, and/or as a new field of concepts and affordances for learning and teaching, there are, as pointed out, pedagogical implications (Loveless, 2008). David Perkins’ concept of ‘Person-plus’ (1993) describes people’s thinking in partnership with others and with the help of tools and artefacts, ranging from “from notebooks and pencils to databases, multimedia presentations and Twitter” in the surrounding environment. The ‘Technological Pedagogical Content Knowledge’ (TPCK) model embodies a recognition that the “intelligent pedagogical uses of technology require the development of a complex, situated form of knowledge…” which is seen as “…different from and greater than that of a disciplinary expert (say a mathematician or a historian), a technology expert (a computer scientist) and a pedagogical expert (an experienced educator) (Koehler et al, 2007). A critique and extension of the concept of TPCK is offered by Angeli and Valanides (2009) who argue that it “emerges from the interaction between pedagogy, content and technology and is new knowledge, which needs an explicit focus in order for teachers to make the connections between their knowledge and experiences”. We see that interacting set as Global School teacher competence.

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” (Webb, 2002). A few seconds of reflection will enable such remarkable and, indeed, authoritarian 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?

Within the particular subject areas addressed in passing earlier, and despite a widespread recognition of the potential grand-scale benefits of ICT applications, it is reported that most chemistry teachers “still see ICT as exclusively the affairs of those in computer science department (and) lack the basic computer literacy and numeracy” (Dori, 2013). If this be true of a science subject, it is reasonable to assume that such (self-perceived) deficiencies will be even more in evidence amongst non-science teachers. In the United Kingdom and far beyond, the road to the successful integration of ICT in Religious Education has not been easy for many teachers, with inappropriate use of the equipment and software identified as the most frequent weakness. A vast and supplier-driven array of technologically-advanced devices are, from sport in general, utilised for physical education in schools. In language learning, where Tok Pisin was our example, as in new cross-disciplinary courses, interesting ICT initiatives are promptly forthcoming. Opportunities in extra-curricular areas, other than sport, are underused in that there is tragically little learner participation. Nor, as already addressed, have literature searches in any mainstream secondary teaching area unearthed evidence of significantly increased learner performance (or, less frequently assessed, student enjoyment) associated with the utilisation of ICT or indeed – although the literature is more meagre – of AI.

The use of contemporary technology has a limited impact on teaching and learning in instances where teachers fail to appreciate that interactivity requires a new approach to pedagogy and lesson planning. Many teachers still fear some forms of technology, which prevents their making good use of them in their teaching. Some reorganise the delivery of the
curriculum, but “the majority use ICT to add to or enhance their existing practices” (Loveless, 2008). As Kenan Malik points out more widely, the vital question is not ‘Is technology good or bad?’ but ‘How should we organise ourselves as citizens to make the best use of technology?’ (2019). As he continues, “the fear that technology can be used against our interests is leading to us, as users, having less control of the technology we use and to be more estranged from it (and) if we fail to learn how to use it to our advantage we fall into the hands of those have mastered it” (ibid). This is true generally, and also specifically in relation to education.

As Maureen Robinson emphasises (2019), the fourth industrial revolution offers exciting opportunities for teachers, “not only the immediate and personal prospect of finding fulfilling employment, but also the broader and long-term responsibility to provide leadership in this complex conversation”. As she continues, skills such as “innovation, information literacy, being curious, critical, analytic, working in interdisciplinary ways, teamwork and cognitive flexibility cross human and technological domains and in themselves require particular forms of pedagogy” (ibid). We very much agree that “there will need to be a huge upskilling of educators”, but emphasise again that teachers will not need to become whizz-kid technologists. And, provided that the approach does not stray into well-intentioned indoctrination, her mention of debates on “social justice, ethical agency, democracy and the like” (ibid) are endorsed and, indeed, taken further below.

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…” (Infodev, 2007) misses the present point. While having some value in relation to word processing, presentation software, interactive video, simulations and modelling, these fragmentary props are concentrated on portions of particular subject areas and utilised by those teachers with an affinity with technological innovation. Rather than educational systems, and schools within those systems, transforming themselves into Digital Age institutions, we have isolated early-21st century innovations misplaced in 20th century settings: a variety of the fairly contemporary vehicles stuck in the mud of medieval cart tracks. And that, as we have already submitted, is a major explanation for contemporary technology’s failure to meet expectations: neither the educational systems nor most of the managers and teachers within them are ‘digitally comfortable’ and, consequently, each is resistant to the incorporation of isolated ICT intrusions, no matter how powerful the research and marketing behind them.

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). 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 and supporting as opposed to directing and supervising. This approach will also doubtless be contested, and by some teachers also, but here again learner-power will overcome. The teacher shall facilitate.

Andrew Rossow’s (2019) thoughtful consideration of skill-sets required by today’s students is held back somewhat by his writing them off as “the workforce representatives in the early to mid-2020s”. Hence, his recognitions of the value in having a coding skill is justified by its
being required “in almost any corporate tech position” (*ibid*). Nevertheless, his observations regarding 5G networks helping make online classrooms a reality, educating through ‘gamification’ and having a personalised system of learning make good sense – in themselves, as opposed to getting a more impressive CV. As already clarified, education as preparation has had its day, even in such terms as equipping young people for the green technology jobs of the future. 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. The Digital Age embodies overall transformation.

Happily but all too gradually, the above-mentioned ‘interesting ICT add-on’ approach is fading as the recognition by far-sighted educationalists and decision-makers of Digitisation’s being the basis of the entire educational endeavour gathers momentum. But, as also emphasised above, let us not be carried away. Many teachers will tend to teach as they themselves were taught, until it dawns upon them that current generations of learners are not learning as they (the teachers) used to learn. As forthcoming job requirements are unknowable, and as misusing schools to produce “good citizens” is historically untenable, secondary curricula should and shall emerge from learners’ enthusiasms, evolving beyond process and praxis. Undoubtedly this will be contested but the power of billions of autonomous, self-fulfilling learners should overcome the outdated hegemonies of exam boards, ministries, employers bodies and academic selectors, all wielding increasingly inoperative 20th century prerogatives. Empowerment will apply only – and being full agents will apply if and only if – what is studied and how it is to be mediated emerges from the learner. It is the latter, guided by the former, who chooses what to enjoy learning, within convivial frameworks supported by the teacher.

**Pedagogy and Digitisation – a Category Error**

The introduction to a thought-provoking Hybrid Pedagogy series (Kruger-Ross, 2013) claims that “Digital Pedagogy is precisely not about using digital technologies for teaching and, rather, about approaching those tools from a critical pedagogical perspective”. While this is true as far as what ‘digital pedagogy’ is not, it rather misses the point in two regards. Firstly, there is no ‘digital pedagogy’ as all pedagogy (even a teacher talking directly to a learner or a group of learners in, say, South Asia and South America, debating an issue in Scandinavian history) is from now onwards digitally-based: education these days means education founded upon Digitisation: the adjective ‘digital’ is superfluous. Secondly, the whole idea of applying or choosing not to apply ‘digital tools’ is, as explained above, 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 on chairs, or eat at a table, or go to sleep in their respective beds, as if these were unfamiliar practices.

Margaret Cox and her colleagues recognise that what they call the ‘pedagogy of ICT’ should be understood within a broader framework of educational practice and that “illuminating good practice in teaching and learning with ICT will require examining teachers’ ideas, values, beliefs, and the thinking that leads to observable elements in practice” (Cox, 2003). As already discussed, they err in claiming that this will “require the teacher to have an extensive knowledge of ICT and to 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” (*ibid*), just as the notion of ‘acceptable values’ has already been repudiated. Similarly mistaken is the view that “the majority of teachers (will need to) extend their range of uses of ICT
substantially... an alternative approach might be to encourage teachers to focus only on those ICT resources which are most relevant to them and their subject” (Brown, A., 2015). As Kruger-Ross puts it “Teaching well cannot be reduced to technical understanding… I want to see educators turn around the traditional relationship toward technologies and start calling the pedagogical shots” (Kruger-Ross, 2013). Elsewhere in this paper it is emphasised that all teachers are now ‘teachers in the context of Digitisation’ – just as ‘education’ now means ‘education in the context of Digitisation’ (as we keep saying). Accordingly, ‘pedagogy’ now means ‘pedagogy in the context of Digitisation’ and, consequently, the second and third words in the subtitle ‘Pedagogy and Digitisation’ are redundant.

Critical (Digital) Pedagogy as Worthy Anachronism

Stommel, echoing Paulo Freire, claims that “pedagogy is not ideologically neutral.” (Stommel, 2014). Critical Pedagogy is an approach to teaching and learning predicated on fostering agency and empowering learners (implicitly and explicitly critiquing oppressive power structures). In his forward to Freire’s Pedagogy of the Oppressed, Richard Shaull writes that “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 is that the same technology that does this to us also creates a new sensitivity to what is happening” (Shaull, 1968). 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” (ibid). On the basis that Critical Pedagogy is primarily concerned with an equitable distribution of power, Pete Rorabaugh asserts that “If students live in a culture that digitizes and educates them through a screen, they require an education that empowers them in that sphere, teaches them that language, and offers new opportunities of human connectivity” (Rorabaugh, 2012). As made clear earlier, that is to be achieved at the GS primary stage, building upon children’s familiarity with the digital aspects of their environment.

It is necessary to proceed further in order to confront the actuality. Sean Morris makes the point that “…designing edtech resources from a digital pedagogy approach is not... simply using tools, nor rolling out the whizz-bang jazz bands apps to impress students or observers… (but) systematically examine both tools and teaching for their learning value. In this way, teaching and learning drives the use of technology, rather than the converse” (Morris, 2014).

As already emphasised, seeing ICT as a tool to be applied piecemeal, as opposed to recognising Digitisation as necessitating and enabling overall transformation, explains the disappointing consequences of the application of contemporary technology to date. The real requirement is for creative, reflective and critical immersion by self-confident learners and digitally-comfortable teachers in the entirety of the new integrated, educational world created by Digitisation, rather than dabbling as outsiders with isolated bits of the technology. ‘Pedagogy and ICT’ is a failed 20th century anachronism.

Critical Pedagogy sees itself as much a political approach as it is an educative one. As Sean Morris writes, it is “a social justice movement first, and an educational movement second” (Morris, 2014). Accordingly, it is claimed that Critical Digital Pedagogy must also be a method of resistance and humanization… not simply work done in the mind, on paper, or on
screen… it is work that must be done on the ground” (Stommel, 2014). Empowerment will apply only – and being full agents will apply if and only – what is studied and how it is to be mediated emerges from the learner. 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 – interfere with content and process beyond their legitimate roles as advisors to those who play and thus control the learner roles. Whether educational processes and content should or could be neutral is by no means a new issue (see, for instance, Freire, 1968 and, indeed, Douse, 1973). What is undoubtedly new is the learner autonomy brought about by instant universal connectivity. It is the learner who now occupies the driving seat; the teacher offering guidance – "the guide by the side" - (as opposed to direction – "the sage on the stage") and refraining from determining the destination.

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” (Hybrid Pedagogy, 2013). Critical Pedagogy, while seeing itself as much a political approach as an educative one was predicated on fostering agency and empowering learners (implicitly and explicitly critiquing oppressive power structures). It is now recognised, and will be embodied in the GS, that not only is objective knowledge possible, its acquisition by learners, supported by positively neutral teachers, is essential. Some of the CritPed adherents may see pedagogy as praxis, insistently “perched at the intersection between the philosophy and the practice of teaching” (ibid). 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” (Eichsteller & Holthoff, 2011). Teachers teach; pedagogues teach while also actively investigating teaching and learning.

Critical Pedagogy suggested a specific kind of “anti-capitalist, liberatory praxis” (Freire, 1968). As “a social justice movement first, and an educational movement second” (Morris, 2014), it is claimed that Critical Digital Pedagogy must also be a method of resistance and humanization… not simply work done in the mind, on paper, or on screen… it is work that must be done on the ground” (Stommel, 2014) and, echoing Freire, Stommel claims that “pedagogy is not ideologically neutral” (ibid). All of which 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, everything – 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. As already underlined, and as opposed to getting educated in order to get a good job, one gets well-paid employment in order to have the time and resources to further one’s education (refer again to Diagram 2, above).

Educators in the Digital Age

An oft-remembered aphorism is that “learning facts from memory or solving problems alone in an educational institution are terrible ways of learning… in no country is such a curriculum fit for purpose” (World Bank, 2016) is undeniable in the evolving condition of collaboration,
group work and digital resources. As has already been noted, learners may participate in materials development for (or with) one another in distant countries, learning from one another and from globally distributed teachers. More and more, educational delivery and planning becomes an international, as well as a national, pursuit – and, as already emphasised, one of educational aspiration as opposed to economic allocation: and this will be returned to later (Chapter 8, below).

Another well-known aphorism that, while technology will not replace teachers, “teachers who don’t use technology will be replaced by teachers who do” (Trucano, 2015) appears, on the face of it, self-evident – so let it be examined more closely. 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. Irish teachers unable to manipulate the heating systems may well be frozen out by those who can. But is that ‘using the technology’ as opposed to operating with self-regulating technology in background support? [And, in any case, the learners will be able to operate the equipment, set up the worldwide connections and locate the relevant evidence.]

As José Moran emphasises, in a consideration (in Spanish) of ‘the Education we want: new Challenges and how to get there’, no single model to education should be adopted but “working with challenges, with real projects, with games, seems the most important path today (and) can be done in many ways and in different contexts” (Moran, 2014). As he points out, the articulator is the teacher whose new role “is more complex than the previous one of transmitting information (and) needs a preparation in broader skills, beyond the knowledge of the content, how to adapt to the group and each student; plan, monitor and evaluate meaningful and different activities” (ibid). As Moran makes clear,

“...The most interesting and promising model of use of technologies is to concentrate in the virtual environment on what is basic information and in the classroom on the most creative and supervised activities…. the role of the teacher as manager of processes rich in meaningful learning… mediators, they can use the near resources, simple technologies such as those on the cell phone, a camera to illustrate, a free program to gather images and have interesting stories, and students to be authors, the protagonists of their learning process... inspiring and motivational educators” (ibid).

Indeed, who shall say that this teacher is excellent and that one far below par? Recognising that “test-based accountability has found limited support among the educators being judged”, William C. Smith and Aaron Benavot noted also that “Extermally-driven, results-oriented accountability have undermined trust and done little to improve learning or reduce disparities”. They advocate “Structuring collaborative spaces for increased voice in policy making and evaluation process… (which can) provide stability as political and economic circumstances change… help articulate collective goals for education and increase the likelihood that they will be met” (Smith & Benavot, 2019).

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 tomorrow’s citizens” (Amadio et al, 2014) although we would say how to support today’s learners in educating themselves. Likewise,
the need becomes even clearer for the teacher to act as a “sort of compass amid the information flows” (Savater, 2012), to lend meaning to and explain phenomena and situations: as summarised earlier – less satrap, somewhat more SatNav. Given the essential nature of their creative participation in these years of major transition, the recognition and full involvement of the teachers’ professional organisations and representative federations is vital. ['Should the machines participate in those consultations?’ is another topic for debate – which fundamental pedagogic activity is addressed in our concluding chapters.] 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 learners, of all categories and ages, in advancing this pedagogical evolution and in constantly renewing and redesigning the Global School is imperative (and inevitable).

**The Teacher as Feature**

It is apposite that the final section in this pedagogical chapter 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 super 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 ‘concierge’ that we can think of 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 a 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.
7. THE PSYCH OF ED

The Global School manifests a universal, non-competitive, learner-directed system and this root and branch reforestation of education, in whatever manner it manifests itself specifically, will have substantial implications for the contributions and significance of educational psychology professionals. A selection of their current areas of interest, drawn from topics addressed in recent issues of relevant journals (thereby constituting a reasonably representative, if not a statistically random, sample) is now considered in the light of those forthcoming and fundamental educational changes associated with Digitisation.

Happy and Glorious

Reflecting Jean-Jacques Rousseau’s recognition that “the child must feel free and happy during the course of education” (1762), not to mention Professor Veenhoven’s cheerful claims (see below), presented with all of the evidence and authority that the World Database of Happiness may confer, the Global School emphasises that education must be enjoyable of itself. The long and winding road to pleasure by way of skills, credentials, employment, productivity, income and wealth may and should frequently, be short-circuited – schooling should predominantly be fun. This relegates test-obsessed, performance-comparison-driven schooling to the dark (i.e. pre-digital) ages and offers an escape route away from education as indoctrination (whether, as discussed above, aimed at political, religious, military, exploitative, egalitarian, status compliance, colonialist or environmental goals). As made clear in earlier chapters, over the pre-primary and primary stages, children should be enabled to become educationally self-directed while, at the secondary and later, including lifelong, educational phases, the learners ‘own’ the curriculum and the pedagogy is learning-supportive, seamlessly incorporating digital and traditional methodologies. Just as nothing, educationally, will ever be the same again, so too will the roles and achievements of educational psychologists evolve, paralleling the overall transformation.

For example, in the Global School, Digitisation-enabled methodologies are embedded within a structure embodying humane values, lofty aspirations and contemporary common sense. 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, makes clear that schooling cannot explicitly prepare people for specific 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 master digital technologies and to handle information expertly, and to make good choices on what best is to be learned by them and how, are the kinds of competencies required. Virtual and face-to-face learning will be happily and seamlessly integrated, whether within what are currently termed ‘flipped classrooms’ or even happier variants that will evolve in response to learners’ aspirations (‘lopsided laboratories’ or ‘collapsed conservatories’, for example). Reflecting the emerging duality of consciousness – the virtual and the immediate – such combinations will be so commonplace as to become unnoticeable. Moreover, citizens/consumers/learners/teachers/workers/people the world over will participate in, influence and enjoy the multifarious and largely unforeseeable experiences that will undoubtedly occur – and education will reflect and respond to that actuality, not as selective preparation but as reflective understanding.
Specifically, educational psychology now means ‘psychology understanding and supporting education in the context of Digitisation’. Practitioners will need to raise and revise their games in order to envisage, delineate and prepare for whatever a well-rounded education in this Digital Age consists of. Our contention is that it will be embodied in the Global School but, in humility, we acknowledge that various variants are possible. But, in any case, the point reiterated above (that ‘nothing educationally will ever be the same again’) will assuredly apply. So let us now explore some possible implications for the psychology of education of this ground-breaking reality.

Self-Regulated Learning

Educational psychologists have given much attention to self-regulated learning (SRL) from both theoretical and practical perspectives (see Schunk & Greene, 2018 for an up-to-date overview) although their interest – taking that particular compendium as an indication – seems more focussed upon understanding how SRL operates as opposed to enabling learners better to apply it for practical purposes. A consideration of future directions for research on depth and regulation of strategic processing (Alexander, 2018) addresses such questions as the association between the cognitive and the metacognitive (see also Coertjens, 2018) and the influences of depth and regulation upon academic performance. Contributors to the Special SRL Issue of the British Journal of Educational Psychology (March 2018) come close to consensus on the desirability of enabling “students of all ages and backgrounds to manifest those thoughts and behaviours indicative of deeper processing with regularity, regardless of the task or domain with which they are engaged… such depth of processing is intertwined with the regulation or monitoring of performance and tied to better learning or task outcomes (Alexander, 2018).

While it is assuredly the case that “learning is ultimately a complex, multifaceted, and dynamic process that cannot be fully represented by any one theoretical framework, set of beliefs, or cluster of processes” (Alexander, 2018), the call for educational psychologists “to richly and accurately describe certain dimensions or mechanisms of that process in such a way as to enlighten students, teachers, educational leaders, and policymakers” (ibid) is well-made and, in respect of enlightening learners, attains especial poignancy in the evolving Global School situation. Enabling learners to reflect upon, understand and improve their strategic behaviour and learning approaches becomes paramount in the emerging situation where in 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 the criticisms of “overreliance on self-report measures and spotty connections to academic outcomes” (Alexander, 2018). No doubt 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” (ibid) are impediments to research reliability and, in that context “the total reliance on self-report data remains problematic” (ibid). And yet, in the evolving reality situation wherein ‘academic outcomes’ attain fresh meaning – of significance purely as private feedback to individual learners – unless that ultimate research objective is
centred upon enabling learners to review and enhance their own learning strategies, in the context of vast data resources and within the context of their own learning objectives and broader educational goals, much of such investigations will, in practical terms, be vain.

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 strategies. No longer dependent upon persistent teacher incitements or 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 approaches. While it is entirely reasonable, in the admirable academic search for truth, to call for findings based upon “more than self-report data… not solely reliant on the recollections, reflections, explanations, and interpretations of study participants” (Alexander, 2018), in terms of the individual learner, honing these personal and subjective skills to practical effect is the paramount 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 research, of the understanding of SRL mechanisms and effective strategies, the ultimate objective should give direction if not boundary to research.

The Global School integrates digital and traditional forms of learning, to which some SRL studies are especially relevant. Deekens et al observes the obvious in that “many of today's learners use the Internet as a key source of information both in and out of school” (2018) and his study of SRL in computer-based learning environments suggests that “students who enacted more frequent monitoring also enacted more frequent deep strategies resulting in better performance on academic evaluations” adding that “the more learners invoke monitoring, the more likely it is they realize the need for better strategies, and then implement them” (Deekens et al, 2018). Responding to that conclusion, Alexander advocates that “metacognitive monitoring and deep strategy should be taught in tandem, to increase the likelihood of learners enacting both” (2018). This advice – inferring that ‘taught to learners upon demand’ is intended – gains increased significance in the Global School situation, although the means of enabling these techniques to be communicated in an effective yet non-evangelical manner will require much thought. GS learners are responsible, not only for their curriculum but also for how they, reinforced by empathetic teachers applying supportive pedagogies, go about mastering it. It is for them to orchestrate their skills and strategies across the varying levels or in different categories, it is for each (secondary and onwards) learner to adopt their personal processing rituals and routines, and to experiment with and refine these as they will.

Yet the reported research helps to build up the picture. One study (Moos & Bonde, 2016) examining the effectiveness of embedding self-regulated learning prompts in a video designed for the flipped class model, indicates that “participants who receive the embedded prompts engaged in more SRL processes (e.g., activating prior knowledge, monitoring understanding and controlling the video)... the embedded prompts enhanced instructional efficiency, as evidenced by the significant difference in learning outcomes and non-significant difference in mental effort”. Marton & Säljö’s consideration of Qualitative Difference in Learning (1976) describes an attempt to identify different levels of processing of information, relating that to the identification of “basically different conceptions of the content of the learning task” and
describing “the corresponding differences in level of processing in terms of whether the learner is engaged in surface-level or deep-level processing”. An exploration of learning strategy convergences (Fryer & Vermunt, 2018) indicated “strong connections between processing and regulation strategy changes across first-year university experiences”. [Some, including the present authors, find the notion of ‘the Asian learner’, which Fryer & Vermunt report as “widely accepted”, somewhat disturbing.] Winne’s exploration of how a ‘levels-sensitive’ approach might be implemented in research about self-regulated learning (2018) suggests that “the levels construct may not be particularly useful for distinguishing among processes… SRL per se is not a deeper kind of processing. Instead, it is processing more complex – deeper – information about a different topic, namely "processes for learning". The applicable findings and practical implications of SRL research should be made convivially available to the entire multitude of selfs. Perhaps a Global School programme on ‘Self-Directed Learning Strategies’ would be appropriate and popular.

The application of the Eye Movement Modelling Examples (EMME) technique (Scheiter, Schubert & Schüler, 2018) in exploring learning strategies (suggesting that “those with a substantial base of content knowledge did not follow the recommended eye-tracking pattern when integrating text and visual media”), may be linked with earlier work on the perceptual aspect of skilled performance in chess (Charness, Reingold, Pomplun, & Stempe, 2001). They explained 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”. 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 similar manner (Daily Colonist, 1918). Every club player striving for mastery soon recognises that pupil movement follows, rather than leads, pupil performance: you cannot create chess masters 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’ (see, for example, Wheeler, 2018 and Yuill & Carr, 2018 and also, for the concept’s classical origins, Wood, Bruner & Ross, 1976) addressing, in general, the active support provided to children’s learning by adults and, more recently and specifically, family reinforcement is 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 (Azevedo, Cromley, Winters, Moos, & Greene, 2005). That study uses Microsoft Encarta materials on the circulatory system – as did Deekens et al (2018) but modified to test the effects of three kinds of scaffolds embedded in the computer-based learning environments. Scaffolds reflect the nature and purpose of the edifices 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 (Yuill & Carr, 2018), 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 good career in favour of one of encouraging and facilitating their fulfilment through enjoyable learning in areas of their own choosing.

Certainly self-regulation gains in significance: 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. As Wheeler asks: “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?” (2017). Ideally, this should have occurred by the conclusion of the primary phase in that, from secondary onwards, each individual learner becomes – at each one’s specific and well-informed request – self-standing, supports withdrawn, scaffolds dismantled, enabled always by empathetic teachers and, if and as necessary, consummate educational psychologists.

Anxiety

Educational psychologists have over the decades since their profession materialised, given close attention to anxiety in relational to educational participation, achievements and even (although very rarely) enjoyment. One earlier discussion of ‘General Emotionality’ lead to “the conclusion that anxiety questionnaires are likely to measure (i) the likelihood of being threatened by the external world, and (ii) a specific way of reacting to such threat” (Frost, 1968), so that quantitative data needed to be handled carefully (see ‘Bullying’ below). Such studies as those of Sarnoff et al (1959) were part of the substantial body of evidence that cumulatively brought the ‘Eleven-Plus’ into disrepute, although that particular investigation found no correlation between Test Anxiety Scale (TA) scores and nearness in time to, or performance in, the 11+ examinations. More recently, Putwain et al (2015) explored test anxiety in relation to ‘academic buoyancy’ concluding that the “worry, but not tension, shows a negative feedback loop to academic buoyancy”.

A more recent study (Justica-Galiano et al, 2017) explores the mechanisms underlying the relationship between ‘math anxiety and math performance’, specifically testing the “simultaneous mediating role of working memory and math self-concept” and establishing that both of those mediators appeared to contribute to explaining the relationship. This suggests to those researchers that a “working memory and self-concept could be worth considering when designing interventions aimed at helping students with math anxiety” (ibid) and the explicit practical recommendations are welcome. Within the Global School, 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 memory techniques re-shaped by information access advancements, and
with examinations and test hurdles eliminated, anxiety should be significantly reduced, both in relation to that ‘queen of the sciences’ subject and generally.

Pierre Bourdieu’s notion of ‘cultural capital’ has been frequently quoted recently and subjected to various interpretations, often reflecting the user’s preconceptions. Thus, (according to the Civitas thinktank8) ten things that every English Year 2 child should know comprise: “Tap dancing; Louis Pasteur; rabies; mosques; Hansel and Gretel; Atlantic Ocean; extinct animals and fish; Great Wall of China; dinosaur bones; and Roald Amundsen” [Interesting challenge for Year 10 children: ‘weave these ten things into a speech, a short story or a 10-minute playlet’]. England’s Office for Standards in Education’s (Ofsted’s) intention to assess ‘the essential knowledge and cultural capital that they need to succeed in becoming well-rounded, informed citizens’ (as reported by Mansell, 2019) as part of its inspection checklist, has inevitably been criticised by some as “cementing cultural conservatism, writing off the experience of working-class pupils... ill-defined (and) a misunderstanding of what the term even means” (ibid). Whether you welcome this move, or consider it to be a “crude, reductionist model of learning that is both authoritarian and elitist” (ibid) may, to a large extent, depend upon your prior feelings regarding Ofsted (see Douse, 1996 for an early consideration of that instrumentality). For present purposes, let ‘inspection’ be restricted to ‘are the children happily learning?’ and let ‘standards be focussed upon ‘is the teachers effectively supporting that learning?’ and let league tables and suchlike be relegated to the lowest possible (and entirely unreported) division.

Just a couple of decades ago (when people still sent faxes), computing was regarded as a branch of mathematics (or, in the USA, of ‘math’): since then, all subjects, all academic disciplines have become subsets of Digitisation. And that – 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’. Video games are a case in point, with the WHO now recognising ‘gaming disorder’ in its more recent International Classification of Diseases (ICD-11). Psychologist Peter Gray’s response is that “for the great majority, video gaming is a healthy, enjoyable, brain-building activity” (2017). Just as, reportedly, increasing numbers of parents are banning children from video gaming, thereby, as Gray observes, “depriving them of one of the few forms of play still available to them” (ibid), so also are many schools requiring mobile phones and other devices to be left outside the classroom door. 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.

Macauley, in his exploration (2003) of the effects of web-assisted learning on anxiety, particularly for ‘novice adult students’, notes that “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”, although his work with “two groups of 30 postgraduate students” indicated to him that those who “used the Web recorded significantly higher anxiety levels than those who did not” (ibid). But, while much that is positive may well have occurred, in terms of internet familiarity, over the years since Macauley’s fieldwork, the competition has become more intense and the temptation to over-assess has intensified due to the convenience of computer-based automated marking.

8 https://civitas.org.uk/about-us/
Alice O’Keefe (2020) reports that research released by the departments of health and education in Northern Ireland found that “the pressure to achieve at school is one of the biggest threats to children’s mental health. The pressure is getting to teachers, too, with 5% reporting lasting psychological problems, up from just 1% in the 1990s. This is hardly a picture of an environment likely to build resilience” (ibid). Examinations and the prevalent testing to destruction culture are major causes of anxiety, serious health problems and even suicide. As recently reported by some UK examinees:

“…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… lasting damage, physical and mental; 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” (Weale & Holmes, 2018).

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 exploring 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 from around mid-adolescence.

**Bullying**

Drawing heavily upon a recent meta-analysis of bullying and cyberbullying (Foody et al, 2017) it may be summarised that bullying and cyberbullying are similar in that each involves intentionality, repetitiveness and power imbalance and a significant link between both kinds of bullying experiences and social, behavioural and psychological problems. They differ in that the latter can consist of threats, verbal abuse, the large-scale spreading of images and videos, defamation and identity threat. 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 make it 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 sharing of the photo, video or information” (ibid).

Hunter et al (2007) examined the extent to which peer-victimization and bullying are empirically similar, relating that almost a third of pupils aged between 8 and 13 years attending mainstream Scottish schools “reported experiencing peer-victimization, and of these 38.1% (11.7% of whole sample) were categorized as victims of bullying”. West documents that
“7.9% of those aged 16-19 who study in colleges in England reported being victims of cyberbullying and 1.9% admitted cyberbullying others” (2015). Bevilacqua et al are amongst those who report that “bullying and cyberbullying are common phenomena in schools (having) a significant impact on the health and particularly mental health of those involved in such behaviours, both as victims and as bullies” (2017). Similarly, Kyriacou & Zuin (2016) add 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. Foody et al suggest that moderating factors, such as assessment technologies, answer scale and time frame, can affect reported prevalence rates (2017). 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, the understanding (leading to the reduction and eventual elimination) of bullying, especially of the cyber variety, is a paramount challenge.

In a subsequent publication (Foody & Samara, 2018) the point is made that “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” while noting that “schools engage with one anti-bullying programme on a whole school level and do not link it back to mental health or well-being programmes that are often implemented separately”. There are some indications of “the need to treat cyber-bullying as a standalone entity without the confounding role that the more traditional concept of bullying plays in cyber bullying definitions” (Grigg, 2012). Mindfulness techniques (see Chapter 9, below) have been advocated as a proactive way to target well-being for classroom applications (Roeser et al, 2018), as have Acceptance and Commitment Therapy as appropriate for school-based interventions, as “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” (8).

Considerable research has been carried out recently regarding cyberbullying (O’Neill & Dinh, 2015; Livingstone & Smith, 2014; in addition, the Cyberbullying Research Center offers substantial resources and suggested strategies). Betts & Spenser observe that “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” (2017). Brewer & Kerslake suggest that “together, loneliness, empathy and self-esteem predicted levels of cyberbullying victimisation and perpetration... (there are indications that) self-esteem and empathy oriented interventions may successfully address cyberbullying behaviour” (2015). Kyriacou & Zuin advocate 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” (2016). Deeper ethical dimensions need also to be explored.

Few could contest the contention 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” (Cowie & Colliety, 2010). However, the suggestion that “these techniques can be taught to teachers through appropriate workshops and integrated into the curriculum” (Foody & Samara, 2018) 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” (ibid), incorporate an outdated standpoint if intended to be applied beyond the Global School’s pre-primary and primary phases. A key GS principle, presented above, is that it offers an escape route away from education as indoctrination: that being so, propagating even the best of causes is an alien, impermissible and ultimately self-defeating tactic.

A GS learner-led 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. If those who choose to study it, through their teachers’ presentations and their own reading, dialogue, evidence-gathering, analyses and debating, 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 again we emphasise that education is not indoctrination, even in a good and urgent cause: education is education.

One phenomenon that straddles anxiety, bullying, mental health and other educational psychological categories is that of boarding. Across much of the developing world, children are housed in dormitories in order that they may access what is seen as effective education: although the accommodation and general provision is usually meagre, the schooling – often provided by dedicated members of religious bodies – is sometimes worthy. However, in some Western countries, the children of the elite are packed off to prestigious boarding schools at an early age wherein they typically encounter bullying, paedophilia and a prevailing culture of abuse – breeding, for some (including many who rise to high office), lifelong emotional duplicity and psychological damage. The Global School, although responding to the needs of the widest possible variety of learners, along with the multifarious requirements and conditions of families worldwide, will be on the alert to identify and outlaw every kind of potentially exploitative situations, including the herding of children into loveless and dangerous boarding institutions, whether for reasons of prestige, misguided benevolence, convenience or family breakdown (or, indeed, the exploiters’ own psychological disorders).

**Academic Progress**

Some education psychological studies, including many of those looking at SRL, are linked with test performance and examination results. For example, Fryer & Vermunt (2018) measured deep and surface approaches to learning and modes of regulation by Japanese learners at the beginning and end of their first year at college, establishing “a positive association between depth and frequency of strategy use, on the one hand, and regulatory behaviours and academic outcomes on the other”. A wider exploration of the “research into the additive, interactive, and specialized effects of goals on school functioning” (Liem, 2016 – whose study looks beyond ‘culturally Western settings’) talks of “academic achievement and effort/persistence” and reveals “a specialized effect on academic achievement and notable interactive effects on cooperative learning”.

This utilisation of ‘academic achievement’ as an objective or external measure of success levels raises the more general question of whether and how research into 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 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 curricula and will derive less enjoyment, fulfilment and understanding from pursuing them than will others. As the Global School evolves, these consequences, less readily measurable than grades and certificates but none the less meaningful, will replace traditional ‘academic progress’ and, hopefully, will be attended to professionally and effectively, by educational psychologists.

Studies such as Corcoran’s ‘longitudinal tracking of academic progress during teacher preparation’ (2017) 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 (debatably – see below) ‘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 betimes physically within, educational institutions. Thus Corcoran’s 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. 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.

The Psyh of Ed Transformed

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. The extent to and manner in which the Global School, as envisaged by the present authors, eventuates may be a matter of conjecture but, at the very least, the consideration of the consequences of that archetypal form of ‘education based upon Digitisation’ will stimulate constructive contemplation regarding roles and priorities responsive to these unquestionably unparalleled times.

As discussed, changes of foci and purpose by educational psychologists 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 and, in good time, wither away, just as the universal scourge of expensive private educational 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 to them. Pre- and primary school readiness will remain an issue although, here again,
the non-competitive and ‘moving at their own pace towards self-directed and personalised learning’ pre-secondary culture will be of consequence.

And, of course, these examples, along with the more detailed imaginings in previous chapters, are founded upon the present authors’ forecast of what is most likely to eventuate. Which may well be, in its particulars but not in centrality and significance, contested. We believe that the Global School – or something very much like it – is upon us. We trust that these conjectures regarding the radically changing roles of educational psychologists as Digitisation unfolds across education worldwide will be of interest, relevance and value even to those who, at least for the time being, do not in all regards share our particular vision.

**Technology and Biology: Who Shall be Master?**

As Petar Jandrić (2018) points out “There is no such thing as ‘purely digital’ dialogue or ‘purely analogue’ dialogue; the first has clear biological aspects and the second is always informed by the first. Situated within the powerful dialectic ‘between physics and biology, old and new media, humanism and post-humanism, knowledge capitalism and bio-informational capitalism’ (ibid), technology’s culturally determining role is not only in the feats of data processing or earth-moving that it helps us achieve but also in the ideas it generates about itself, and us. The dream of a computer system with godlike powers and the wisdom to use them well is a theological construct, not a technological possibility, even as quantum biology is understood alongside the onset of 5G virtual reality. As Kenneth Gergen has put it, “the aim, then, is not that of producing independent, autonomous thinkers – mythical creatures at best – but of facilitating relational processes that can ultimately contribute to the continuing and expanding flow of relationships within the world more broadly” (Gergen, 2009).

Lacković invites teacher and learner to explore the “profusion and connectedness between the body and the mind, the image and the concept, the artefact and the dialogue, the art and the science, the technological and the human” – challenging the distinctions of real and technological that “construct some curriculum materials and approaches as natural and others as, well, not natural” (Lacković, 2018). Living in a world in which digital creativity is taken for granted as it intertwines with human behaviour, Petar Jandrić and Peter McLaren (2017) suggest that critical pedagogues need to engage with this challenge. As Tom Chatfield declares, “Biology and technology have to stop fighting each other and merge for mutual evolutionary benefit… harnessing technology for the evolution of consciousness … ultimately biology and technology (should) merge and deliver … total holistic self-awareness within the eternal now of its happening” (Chatfield, 2016). As Mendelson observed, “every technological revolution coincides with changes in what it means to be a human being, in the kinds of psychological borders that divide the inner life from the world outside” (Mendelson, 2016).

These are mammoth advances but still it is the human who holds the mammoth bone in his/her hand, the master/mistress, at least for now. 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 evolving selves, codified in machines and infrastructures, manifest in frameworks of knowledge and action in a deeply personal yet universal way. The psychology is the biology and the education the unifying pathway.
8. PLANNING THE UNPLANNABLE

Given that Digitisation has profoundly transformed both the objectives of education and the means of their achievement, the requirement from now onwards is for an all-embracing and visionary strategy matching and embodying our entirely altered environment. Essentially, humanely-inspired and digitally-comfortable educational planners should creatively ponder upon how best entirely to re-structure the whole of education in order to serve and help shape our utterly-transformed and ever-evolving world. Specifically, educational planning now means ‘educational planning founded upon Digitisation for the Digital Age’. But how might that universal, non-competitive, learner-directed education system be planned for, managed, supported and evaluated?

Digital Age Educational Planning

In the year 2001, as a new millennium commenced, it was the case that, 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 was identical: to mobilise available resources in order to achieve the agreed (or implied) objectives in a pleasurable and stimulating setting. But we are now talking about the one universal school within which each individual educational institution is an integral element – and between which the barriers are vanishing. 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. Assuredly, as already discussed, much more learning will be self-directed and, equally indubitably, teachers’ functions will alter profoundly, taking on ‘concierges of learning and escorts to wisdom’ roles. 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. 

We are now undoubtedly in VUCA circumstances, characterised by volatility, uncertainty, complexity and ambiguity (to utilise Lemoine’s acronym of 2014), exemplified by (almost) universal Digitisation. The Ford Focus of one the present authors has more microprocessors than had the university where he taught in the early 1960s (and other scholars, 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, pictures, information gathering and friendships and, as Yeats put it, ‘This is no country for old men’, at least in terms of antediluvian self-perceptions.

Klaus Schwab, the Founder and Executive Chairman of the World Economic Forum, 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” (Schwab, 2016). 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. As he points out, “We do not yet know just how (the Fourth) 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” (Schwab, 2016). It is entirely understandable that the underlying goal of organisations such as the World Economic Forum is to be reassuring regarding the continuing availability of paid employment. Thus Schwab rejoices in the likelihood that “increased demand for new roles will offset the decreasing demand for others” (World Economic Forum, 2018).

“The inherent opportunities for economic prosperity, societal progress and individual flourishing in this new world of work are enormous, yet depend crucially on the ability of all concerned stakeholders to instigate reform in education and training systems, labour market policies, business approaches to developing skills, employment arrangements and existing social contracts” (ibid).

Statistics such as unemployment and GPD growth continue to be reported regularly, with major consequences for the legitimacy of governments. However, in a world of widespread employment insecurity and rising economic inequality, these statistics no longer easily describe the overall health of the economy, let alone the well-being of the community. 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 (high walls and restless seas notwithstanding). This does not necessarily involve physical migration, as workers may cooperate across hemispheres: young adults (and precautious teenagers) in high-rise unsafe Dhaka buildings design websites for embryonic Western entrepreneurs while their elder siblings work in nearby call centres attending to the orders and problems of wealthier and similarly distant customers. As with just about everything else, educational planning, including investment and expenditure, vision and mission, may – nay must – be now conducted in the context of creative interaction across nations, continents and oceans.

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 – as One World One School has emphasised throughout, transformations in the objectives, content and approaches of education. Planners will need to raise their game in order to envisage, delineate and prepare for whatever a well-rounded education in this Digital Age consists of. Starting from where we are now and moving hesitatingly and inchmeal more or less forward is the wrong response, just as regarding education as mere ‘preparation’ has always been dangerously misguided. The entirely fresh socio-cultural-technological situation would be ill-served by mere extension to existing educational planning arrangements.

Robert Mansell (2019) questions whether “digital technological innovation… (signifies) societal progress and the promise of equitable and sustainable societies” recognising the widespread “concern that innovations in areas such as artificial intelligence, algorithmic computation, and machine learning and their applications are being introduced in a manner that suggests, at least to some, that humans may lose their authority over the future pathway of digital technologies” (ibid). His response is that “critical interdisciplinary engagements could influence digital economy policy makers to consider alternative digital technology innovation pathways and more proactive policies that could yield a better future” (Mansell, 2019). Involving reputable and far-sighted experts from such fields as “economics, the economics of technological innovation, and critical (authorities in) technology and society”
(ibid) could, as he recognises, help to reshape the mainstream of digital economy policy making, “even if the main focus of policy makers remains on competition and on the rate of economic growth” (ibid), encouraging what he calls the ‘mediation of hope for a better future’. Certainly, his calls for “debates about the future of artificial intelligence and the digital ecology and its implications for individuals and society” (Mansell, 2019) are entirely congruent with the thrust of One World One School although, as already noted more generally, his omission of ‘education’ as a central element in his considerations of societies and their equitable evolution in this time of Digitisation is predictably lamentable.

**Economics and Enjoyment**

Educational planning as practised to date, has predominantly been an economic exercise, admittedly with educational content but constricted and defined by local resource parameters. The absence of an *Educational Economics in the Time of Digitisation* article by the present authors has already been alluded to. 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” (UNESCO, 2014), 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?’ As already emphasised, the notion of educational input being justified by economic returns is recognised as mythical.

If investment in education is ultimately justified by a four-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 digital, global courses and resources and formal and informal learning, all such speculation may cease. While human capital theory has fallen thankfully into well-earned disrepute (see, for example, Curtin, 1996) 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... (the foremost) justification for multilateral and bilateral aid to education” (UNESCO, 1970).

*Figure 4: Deferred Gratification and Present Enjoyment: alternate (non-exclusive) routes to Happiness through Education*
Digitisation throws that traditional ordering of priorities into welcome disarray. 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: the need for a hard border between ‘education’ and ‘training’ has been stated a number of times already. 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 (Douse, 2005), guiding learners to developing life-long and life-wide capabilities. Digital Age society, evolving with the transformation of work and the world economy, no longer needs or may be allowed to regard education as a subset of job skills development: the Global School breaks free from that misunderstanding and enables education to regain its true role and an entertaining enabler of self-fulfilment – and it is for educational planners to enable that speedily to occur.

Most education plans, and educational sections of national plans, emphasise the inclusion of all learners, full- and part-time, on-campus and distant, irrespective of age, gender, beliefs, abilities or disabilities. Similarly, most development partners provide especial support in terms of access and full educational participation for those in less developed countries, fragile and post-war societies, and countries in transition, ethnic minorities, and for women and girls, those with disabilities and disadvantaged groups generally. Yet, as we shall soon explore (see Chapter 9, below), education, as presently practiced, is the enemy of equity. At the slogan levels, diversity is admirable and inequity detested. In practice, ‘meritocracy’, originally coined as a derogatory term (Young, 1958), is deliberately embodied in many national plans and educational practices. Enforced ‘student selection’ may now thankfully be discarded to the scrapheap, along with that damaging oxymoron ‘educational economics’, as learners participate digitally and informally in global educational opportunities.

ICT has been perceived – all too often accurately – as over-expensive. With the creative application of ubiquitous and relatively-inexpensive hand-held (i.e. mobile) devices connected to the “cloud” or with pre-loaded content and systems, a long-overdue move away from high investment solutions may and must eventuate. Central coordination and planning can facilitate effective use of digital manufacturing technologies in schools (Bull, 2016). Digital textbooks may serve as the bases for traditional face-to-face classes, online courses or degrees, or for MOOCs, 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. 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 educational institutions worldwide to achieve full internet and cloud participation (by say, 2022) will have substantial cost implications, and it is recognised that mobile access can be a considerable expense for those in developing settings! It is recognised too that a majority of the world’s primary and secondary schools are without electricity, but manually operated computer systems are 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, Digital Understanding, Digital Comfort

Considerable attention has been given to the nature of ‘digital literacy’ (or indeed ‘digital literacies’ (Lankshear & Knobel, 2008), with talk of “digital skills, digital fluency, digital capabilities, digital competencies, digital intelligence, and so on”, not to ignore the earlier use of “digital understanding” (Uys, 2017). The consensus emphasis is upon the ‘digital agency’ of individuals in terms of their development as digital citizens and digital workers (All Aboard, 2015; Beetham, 2017; Belshaw, 2015; Carretero, Vuorikari & Punie, 2017). As Bhatt reminds us, any attempt to define [digital] literacies need to be “…located as part of social practices and occur within culturally constructed instances or literacy events” (2017). Which brings us back to Marc Brown’s blog post which concludes that “…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” (2017). The New Media Consortium’s Horizon Report (Alexander et al, 2016) 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”. 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?’” (All Aboard, 2015), this absence of closure should not be allowed to distract educational planners indefinitely.

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. Armed with that 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. Neither UNESCO’s consideration of the basic structure of plan documents (UNESCO, 2006) nor the Global Partnership for Education’s plan appraisal guidelines (GPE, 2015) refer to Digitisation at all [word searches for ‘digital’ or indeed ‘ICT’ draw blanks]. While this may be just about forgivable in respect of the earlier document, it is alarming in relation to current advice from a prominent educational funding channel conduit cum would-be trend-setter.

Similarly, advertising materials for training in ‘Strategic Education Planning’, from those who should appreciate the presence and promise of Digitisation (see, for example, the International Centre for Parliamentary Studies website) 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 recently commissioned “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” (UNICEF, 2017). 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. Taking the UNESCO schema as standard, it may be summarised as illustrated:

<table>
<thead>
<tr>
<th>Traditional Education Sector Plan Contents</th>
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<tbody>
<tr>
<td>I. SECTOR ANALYSIS: general context, system description, situation analysis (achievements, lessons, issues, challenges and opportunities: PEST and SWOP), stakeholder analysis;</td>
</tr>
<tr>
<td>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);</td>
</tr>
<tr>
<td>III. PROGRAMMES OF ACTION: for each sub-programme - programme objective (Statement and description of the programme), Components (Results &gt; Actions &gt; Inputs/ Resources);</td>
</tr>
<tr>
<td>IV. MANAGEMENT, MONITORING AND EVALUATION: governance and management, development coordination (government, donors, NGOs, private sector, etc.), risk assessment and assumptions, monitoring and evaluation</td>
</tr>
<tr>
<td>V. COSTS: recurrent and capital, disbursement schedule</td>
</tr>
<tr>
<td>ANNEXURE: input timing; output, outcome and impact indicators; responsibilities.</td>
</tr>
</tbody>
</table>

Figure 5: 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 trend … the ideal tool for… confronting innovations and disruptions” (Pisel, 2008; Hinton, 2012) and “Planning is a future oriented concept that incorporates past history, present performance, and future direction to achieve organizational mission and objectives” (Richardson, Jenkins & Lemoine 2017). Even the realisation that “Integrating technology into the educational process is not a simple, one-step activity. It is an intricate, multifaceted process that involves a series of deliberate decisions, plans, and measures” (Infodev, 2007) which fail 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…” (ibid) misses the pivotal pertinent point of the integrated Global School. All has utterly changed: the Visigoths are not just at the gates of Rome: they have occupied the Forum.

Educational Planning: Now

Until recently, discrete ‘ICT and Education’ policies and plans have made good sense. This no longer holds true. Today’s requirement is for Education Plans and Policies that absolutely acknowledge the centrality of, and are fully focussed upon, Digitisation. Those responsible for ‘education’ should embody in their mandate the recognition that ‘education’ now means ‘education in the context of Digitisation’ and that separate ‘ICT and Education’ (or even ‘AI and Education’) documents (especially when developed in relation to the looming large-scale
procurement of ICT or AI equipment!) are meaningless, misleading, potentially dangerous, 20th century relics. Similarly, ‘ICT in Education specialists’ are now superseded by ‘Education specialists’, which title implies a confident familiarity with Digitisation and its educational implications: ICT, and now AI, have become transparent as it permeates everything that has been, and is "education". That is the key factor in optimising educational planning and management in the Digital Age – the realisation that the ‘Digitisation of Education’ is ‘Education’.

The notion of the Global School embodies a recognition that the world has changed dramatically and, as already observed, in at least two senses, for good. 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.

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 (5G and beyond, virtual reality and elsewise) contact with institutions, teachers, learners, counsellors and materials providers worldwide. Obviously, without imaginative planning and effective support, this could be chaotic distraction. Alternatively, as should happen in the Global School, information and ideas would 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 explored. Once the realisation that each pupil is a valued and proactive participant in the one worldwide collective is appreciated, the success of Agenda 2030’s Sustainable Development Goals – or of whatever set of aspirations are agreed upon – may well – as a welcome offshoot – occur.

Trucano argues that “technological innovations will always outpace one’s ability to innovate on the policy side” (2012). But the educational planning focus should not be upon particular technologies so much as on what Digitisation in general makes possible. In the current situation, 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.

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 in this country are doing things now?’ As we have entered the digital age, the essential question becomes ‘how best may our worldwide education system be re-shaped, through the integrated application of Digitisation, to meet the ever-evolving requirement of contemporary international society?’
As tabulated:

<table>
<thead>
<tr>
<th>Pre-Digitisation (Then)</th>
<th>Digital Age (Now and Forever Onwards)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Here is where we are now – how may particular ICT applications best enable us to go forward, in this country, on a step-by-step basis?</td>
<td>From where do we want to start, to where should we proceed, and how may Digitisation best enable that to happen, on an international basis, effectively, coherently and happily?</td>
</tr>
</tbody>
</table>

*Figure 6: Pre-Digitisation and contemporary educational planning starting-points*

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 while later, another calls out: “Let us re-shape our conception of the ‘house’ based upon this material’s potential!” while yet another declares: “Let the entire town…” An utterly new paradigm emerges:

**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 (including outcome, impact and sustainability indicators, responsibilities and indicative costs).

*Figure 7: Indicative Education Sector Plan Contents in the Context of Digitisation*

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.
How may we best apply our available resources to enable our education system to meet our national economic and other priorities?

How may we best enable learners and teachers from our country to participate fully and enjoyably in the Global School: what must we provide in terms of communication systems, devices, hardware and support for the disadvantaged? How may our national economic and other priorities be reworked and redirected to enable everyone in our country to gain optimum pleasure and fulfilment from GS education?

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 dimensions are paramount. Moreover, this movement towards the one universal institution (the Global School) enables education to 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.

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 box above). Essentially, it ceases to be an exercise involving the allocation of scarce resources (by desiccated economists) in favour of plotting imaginative paths towards the achievement of lofty aspirations: turning the ‘visions’ long and wishfully promulgated in plans into popular realities in a digital world (by enthusiastic educationalists). One of the world’s three greatest economists ever declared that “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” (Keynes, 1933). 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 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 in stimulating situations where even that what is being learned and done is changing. As with teachers, within the Global School, educational planners (who will most likely be teachers on medium-term secondment) may now come into their own.
9. ÉGALITÉ ET FRATERNITÉ

Perhaps it all began with Dewey. Despite the *educare* enlightenment slogans, education systems remain geared to providing compliant labour to increase the wealth of a few, tailoring people to the workplace, and engendering the false notion of education as human resource investment. Education, as presently practiced and as already noted, is the enemy of equity, despite voluminous policies and myriad political speeches to the contrary. At the slogan levels, diversity is delightful and inequity abhorred. In practice, and in educational institutions and processes everywhere, categorisation and rejection are rife. While the nature, content and delivery of education should neither be aimed at nor assessed in terms of ‘equity’, universal connectivity – as underlined earlier – straddles educational institutions worldwide and cuts across the functional, societal and historical factors that gave rise to pernicious socio-educational discrimination. These issues are focussed upon, in the context of Digitisation, in this chapter.

Talking of Democracy

Some two millennia before democratic John Dewey, anti-democratic 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. As we shall explore in more depth below (Chapter 11), 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, a few 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. 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. These times are now well behind us. We referred earlier to the Overcoming of Geography as opposed to the End of History. As all learners and all teachers worldwide are (about to be) in contact with one another, the opportunities are of a different dimension than hitherto, comprehensively shared as opposed to discriminatorily segregated. This emerging everybody’s educational institution, this worldwide lifelong learning community, which we refer to as the Global School, elevates considerations of ‘Education and Democracy’ into a fresh and exciting dimension. Universal connectivity and worldwide inter-dependence come together within an evolving structure embodying humane values, lofty aspirations and contemporary common sense.

With Digitisation, each of ‘democracy’, ‘equity’ and ‘education’ enters an exciting new dimension. Current considerations of how ‘government by the people’ and ‘equal
opportunities for all’ should be addressed, encouraged and embodied in schools are outdated, unless the much-mentioned realisation that nothing can ever be the same again becomes the starting-point. That forthcoming and fundamental transformation is made necessary and possible through contemporary technology and embodied in the Global School as a structure embodying (rather than an institution disseminating) educational equality and democracy. Propagating democracy is essentially undemocratic; moral education is the antithesis of morality. The need from now onwards is for a convivial learning-supporting pedagogy, delivering the creative learner-driven curriculum, with – as we shall explore below – the open, well-informed and on-going debate as the fundamental methodology. The substance, practice and consequences of education may now – through the GS’s construction rather than its activities – become much more equitable, ethical and enjoyable (and far less competitive, test-oriented and world-of-work-dominated).

<table>
<thead>
<tr>
<th>Question</th>
<th>Suggested Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Will the Global School embody democracy?</td>
<td>Yes. Everyone across the world may fully participate and share equally in the GS’s opportunities and evolution.</td>
</tr>
<tr>
<td>Should it be used as a vehicle for spreading democratic ideals?</td>
<td>No. Indoctrination of any kind – even with the noblest of intentions – has no place in education.</td>
</tr>
<tr>
<td>Will all GS learners worldwide have equal educational opportunities?</td>
<td>Yes, as far as the technology and human ingenuity can allow. Every teacher will be equally available to every learner.</td>
</tr>
<tr>
<td>Will there be equal outcomes between all categories of GS learners?</td>
<td>Probably, in that GS consequences will relate to learner satisfaction and personal fulfilment and thus no longer lend themselves to quantitative academic comparisons.</td>
</tr>
</tbody>
</table>

Figure 9: Democracy and the Global School

Deep Disparities in the Digital Age

As already recognised, worldwide educational participation and performance today are characterised by rampant inequality. This not only reflects unequal involvement in and benefits from technology (in the past referred to as the “digital divide”) but also embodies age-old imbalances between and within nations, perpetuated by unjust systems and discriminatory practices. The democratisation of virtual reality is not without its dangers – some commentators think of little else. 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. Equity, digital or otherwise, is not their objective.

It would be naïve not to recognise that earlier expectations that social media would enable the billions to become global village citizens have sadly proved fanciful. Dishonest, deviant and predatory behaviour are intensified by the internet and magnified through the anti-social intrusions of social media. Potentially, we are at the threshold of an era of worldwide democratic relationships – but entering and enjoying that emerging epoch will need to be accompanied by wise precautions and an appropriate global regime to govern the multifarious social and information networks is easier said than enacted. Thus Brindle talks of “our fractured worldviews, competing fundamentalisms, weakening of social bonds, and distrust of one another” (2019). Before leaving the IMF, Christine Lagarde reported that “since 1980, the top 1% globally has captured twice as much of the gains from growth as has the bottom 2%” (Lagarde, 2018). Guy Shrubsole states that “half of England is owned by 25,000 landowners
less than 1% of its population” – noting that “a few thousand dukes, baronets and country squires own far more land than all of middle England put together” (Shrubsole, 2019). How may there be digital – or any other form of – equity when such underlying inequity prevails?

Shoshana Zuboff vividly explains (2019) how Google, Facebook and other global tech companies have gathered data on each of us and enabled these to be used to predict, to influence and to modify our behaviour. News (presumably un-fake) provided by Zuboff to the effect that “In 1986, 1% of the world’s information was digitised. In 2013, it was 98%.” is chilling if and only if you encounter it in the context of Brave New World neo-totalitarianism. For researchers, authors, pub quiz practitioners and those keen to settle friendly arguments swiftly, it is wondrously positive (see our earlier point about there now being just the one universal library). Zuboff warns against the “deeper, destructive predations of surveillance capitalism” (2019) which is “profoundly undemocratic as it is exploitative… ignorance of its operation is one of the central strategies of this regime… more and more people, disturbed by the fractious, alienated and trustless social sphere it generates, are seeking alternatives” (ibid). But, as she adds, we can have the digital without the surveillance, the advanced technology without the adverse imposition. The Global School cannot avoid being established within the economic, social and political (as well as technological) condition of our age. In that the billions of learners and teachers participating will have every opportunity to understand these forces, widespread ignorance may be overcome. And in that the GS itself will be in no sense a surveillance instrument – more a benevolent educational colossus as opposed to a profit-seeking tech giant – all involved may be users without being used. Education, although an end in itself, may well have positive spin-offs in terms of digital self-defence and in the slaying of paternalistic nudgers.

The Digital Age embodies overall transformation. As already discussed, isolated experiments – with ICT or with educational institutions – are no longer appropriate, nor indeed feasible. The Global School not only embodies ‘power to the learners’ but, by the nature of its formulation, has the potential to empower the worldwide impoverished multitude. Considerations of education and/or democracy that are not based upon the digital reality are vain. Astra Taylor explores what a ‘democratic internet’, as opposed to an “empty Silicon Valley dummy”, would look like (Taylor, 2013) observing that “…the utopian potential of the net is real (but) the underlying economic conditions haven’t changed. The same old business imperatives, the same old incentives that shaped the old model and made it so problematic are still with us” (ibid). Clearly, ‘digital equity’ is an empty aspiration unless every set of humans has comparable agency and involvement as opposed to vastly differing levels of mastery, naivety, proprietorship and manipulation. Lack of connectivity makes digital technologies difficult for the majority of many populations, while the high costs of data and voice bundles make them unaffordable. There also are persistent digital divides across gender, geography, age, and income dimensions within every country.

For UNICEF, “equity means that all children have an opportunity to survive, develop, and reach their full potential, without discrimination, bias or favouritism” (2014). As we have just observed, the noble aim of ‘digital equity’ cannot be achieved in isolation nor, indeed, is such parity an end in itself, although highly desirable. The underlying injustices (notably educational imbalances) must first be remedied, thereby providing a clear goal for digital inclusion. The necessary three-fold strategy, therefore, is

• Global School participation For All, fully embracing Digitisation, leading to
• Educational even-handedness which, in turn, promotes
Digital equity.
Consequently, the immediate aim is to encourage the world (bilateral, national and charitable
donors, private companies, non-government actors and committed individuals) to provide the
necessary support to enable everyone everywhere to become self-directed Global School
learners and/or learner-directed teachers.

Thomas Piketty (2014) in highlighting the significant increase in social inequality and the
return of patrimonial capitalism galvanized the Global debate. In a more recent publication
(Piketty, 2019) he challenges us to revolutionize how we think about politics, ideology, and
history. He exposes the ideas that have sustained inequality for the past millennium, reveals
why the shallow politics of right and left are failing us today, and outlines the structure of a
fairer economic system. Our economy, Piketty observes, is not a natural fact. Markets, profits,
and capital are all historical constructs that depend on choices. Piketty explores the material
and ideological interactions of conflicting social groups that have given us slavery, serfdom,
colonialism, communism, and hypercapitalism, shaping the lives of billions. He concludes that
the great driver of human progress over the centuries has been the struggle for equality and
education and not, as often argued, the assertion of property rights or the pursuit of stability.
The new era of extreme inequality that has derailed that progress since the 1980s, he shows,
is partly a reaction against communism, but it is also the fruit of ignorance, intellectual
specialization, and our drift toward the dead-end politics of identity. Once we understand this,
we can begin to envision (sic) a more balanced approach to economics and politics. Piketty
argues for a new “participatory” socialism, a system founded on an ideology of equality, social
property, education, and the sharing of knowledge and power. Capital and Ideology is destined
to be one of the indispensable books of our time, a work that will not only help us understand
the world, but that will change it.

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, particularly between the industrialized and developing world. Brains with
implanted silicon chips have been mentioned – contrary-wise, human bodies have been
embedded into algorithmically-controlled enterprises. 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. And it is education (though certainly not in its present form) that may act as
catalyst, with the humblest of humans being able to ‘learn’ their way out of disadvantage and
the most impoverished sharing and enjoying lessons equally with the most privileged.

Pre-Digitalisation Democracy and Education

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 sixteen 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” (see Conant, 2015).

Noting the (possibly less godly) People’s Republic of China’s demands for an equal position in the global competition over values and discourse, along with its endeavours to position itself as the ‘world’s largest democracy’, and challenging the West’s prerogative of interpretation of political order, Holbig and Schucher (2016), argue that Western observers should refrain from dismissing ‘democracy with Chinese characteristics’ as nonsensical and implausible. Their entirely reasonable approach is that “an examination of the underlying demands for discourse power would appear necessary, not only from the perspective of a pluralistic approach – which as such takes alternative worldviews seriously – (but that) the factual power of the normative must also be taken into account if such alternative governance discourses and values are to be introduced internationally as power resources” (Holbig and Schucher, 2016). It may also be added that around a fifth of the Global School’s teachers and learners are Chinese citizens, and even more of Chinese origins, contributing popularly and creatively to the ongoing debate.

Democratic education is often specifically emancipatory, with the students' voices being equal to the teachers’. John Dewey, referred to in this chapter’s opening sentence, saw democracy as social relationships and “a commitment to mutual interdependence worked out in day-to-day interactions” (Dewey, 1916). A century on, Hopkins (2018) investigates whether “issues such as school governance and pupil voice facilitate Dewey’s notion of democratic education”, considering the “connection between concept and application and how this can influence the incorporation of the theoretical and the practical as part of children’s learning in a given curriculum” (Hopkins, 2018). 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... to develop one's own existence fully and freely" (cited in Honan, 1981).

Waghid (2014) regards ‘democratic education’ as an “educational ideal in which democracy is both a goal and a method of instruction... it can include self-determination within a community of equals, as well as such values as justice, respect and trust”. However, there is much merit in Portis’ claim that “civic education, if taught in a compulsory setting, undermines its own lessons in democracy” (2003). As philosopher-educators from Aristotle to A.S. Neill (1966) have put it “democracy must be experienced to be learned”. Similarly, while Article 12(1) of the United Nations Convention on the Rights of the Child mandates that children be able to “have input on all matters that affect them”, its authors then weakened this fine sentiment by adding the get-out clause that “their input will have limited weight in accordance with the age and maturity of the child” (United Nations, 1989). Where democratic situations are externally-imposed, inevitably some of those experiencing them will be more equal than others.

James Miller (2018) recognises that “A wave of populist revolts has led many to lose faith in the wisdom of people power” but goes on to claim that “such eruptions are essential to the vitality of modern politics” (Miller, 2018). He surmises that there is a growing fear that people, “too inflamed by narrow passions, risk turning politics into a distasteful blood sport, pitting The People versus Democracy, as one recent book (Monuk, 2018) is entitled. Alarmingly illiberal political programmes (Miller cites those of contemporary Poland, Hungary and the Philippines – many others might readily have been mentioned) are ‘democratic’ in the sense
that their perpetrators were elected: we may no longer take it for granted that the future is liberal and/or democratic. As Miller points out, “the democratic project, both ancient and modern, is inherently unstable... while widely admired, it is, in its liberal form, an embattled ideology” (2018).

Assuredly, citizens are not as well informed as those propounding democratic theory would like them to be. Monuk (2018) recognises that civic education “has been declining for decades, because it does not easily fit curricula that rely heavily on standardised testing” and argues also that it “can be crucial in helping young people to manage disagreements and recognise other citizens as legitimate opponents in democratic conflicts”. While these comments are undoubtedly valid, 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 ?, below, for a few examples) may enable those who choose them to experience and enjoy the conflicts and irrationalities that characterise contemporary living.

Education: the Great Unequaliser

School systems everywhere, geared to selection, rejection, competitiveness and fashionable theories of deep marking – often in triplicate – are major causes of anxiety, serious health problems and even suicide, on the part of teachers as well as of learners, as addressed in Chapter 7, above. Schooling worldwide is characterised by misery, boredom, bullying, deceit, anxiety, humiliation, brutalisation, ethnic – and many other types of – discrimination, religious – and many other forms of – indoctrination, sexual – and many other kinds of – exploitation. It should not be like that. In terms of each of human happiness, good behaviour, freedom from exploitation and overall well-being, education, as presently practiced, is not working – and Information and Communications Technology has, on balance, maybe made it worse (see, for example, OECD, 2016).

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. Digital equity is both of limited value in itself, as well as logically impossible, unless enabling some greater goal, namely equitable educational involvement. So let it be emphasised that Digitisation offers a setting wherein convivial educational arrangements (i.e. the Global School) may result in an end to the reproduction of educational inequality from generation to generation.

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. 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. 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. With universal devices and connectivity, ‘search’ works the same, for both the distinguished computer-shy professor and the teenaged digital savvy. Moreover, 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, comprehensively shared as opposed to discriminatorily segregated. Only by recognising, planning for and promoting this evolving development may education’s worldwide potential for communal well-being and human happiness be fully fulfilled.

With Digitisation, once the far-reaching possibilities are comprehended and the challenges faced, learners and teachers may come into their own within an inclusive and equity-driven framework embodying lifelong educational opportunities and advancing equality of outcomes for all. With the Global School, we are now looking at all learners everywhere, educating not only for diverse skills and recognising complex needs but taking full account of neurodiversity in education, as opposed to ‘autistic spectrum disorders’ labelling. Four decades ago in the UK, the authoritative and well-intentioned Warnock Report claimed that the goals of education are “…the same for all children… to enter the world after formal education is over as an active participant in society” (Warnock, 1978). Forty years on, there is a widespread recognition that education, formal or otherwise, is a lifelong pursuit, a widening acceptance that schooling should not be reduced to a market, and an expanding understanding that inclusion is about all of us rather than those belonging to particular groups (girls, refugees, Roma, the ‘disadvantaged’…) or categorised as ‘special’.

Digitisation both necessitates and makes possible a change in the organisation as well as access to and the delivery of education, offering the potential – by eliminating quantitative assessment in favour of personalised feedback – to equalise learning opportunities and outcomes in favour of economically and/or demographically/or otherwise disadvantaged communities. It 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 a network for altruism. 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. Embracing all learners into the lifelong Global School offers much potential but poses many fresh challenges for all directly or indirectly involved in education (i.e. everyone), involving getting beyond the slogans and being judged by practical consequences.

Towards a Strategy

Given that there is much inequity, generally as well as digitally, it is necessary to distinguish means from ends and to delineate feasible pathways towards appropriate goals. While Dineva Snejena and Nedeva Veselina make the arguable but far from self-evident point that “E-learning enables equal access to quality education” (2018), ‘access’ has always been the wrong word. We are really talking about full, voluntary and enjoyable participation, at a similar level on average, across all sets and subsets. Which means equity between men and women, old and young, Swedes and Somalis, paupers and billionaires, city-dwellers and rustics, and between primary drop-outs and post-doctoral geniuses. But, as already emphasised, how may taking part in anything (learning, yachting, book clubs, debating, golf, aeronautical engineering…) be universally equitable in these rampantly unequal circumstances? Even were it feasible to provide everyone across the world with devices, systems and affordable access, the underlying disparities would persist in that the several
groups’ grossly unequal ability to participate effectively would still characterise the reformed situation. Giving every athlete spikes would not lead to their all crossing the finishing line simultaneously.

Figure 10: The Pre-Digitisation (Dark Ages model)

Figure 11: The Global School (Digital Age model)

Part of the confusion arises from regarding digitisation as, if not an end in itself, then as a means towards productivity, profits and prosperity – both individually and nationally. But, at best (and as illustrated in Diagram 1), enhanced earnings, economic development and increased Gross National Product (GNP) are but means to the ultimate ends of human happiness, personal fulfilment and communal well-being. And it is education that is not so much the ultimate enabler as the manifestation of that culmination. As Professor Ruut Veenhoven, the Director of the World Database of Happiness (what a heart-warming responsibility!) put it: “(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 … (and their societies) are the most lenient and focus more on developing autonomy than on giving priority to obedience” (Veenhoven, 2010). Long before that, Henry Sidgwick (1874) had asked “what is the point of education if it doesn’t lead to greater happiness?” [To be precise, the great nineteenth century utilitarian moralist specified ‘higher’ education, but he would indubitably have allowed us to extend the scope of his sagacious aphorism for our present higher purpose.]

Economic growth is a pre-Digital Age obsession. Robots may not pay taxes [although those who employ them might well be made to, with that funding being applied to set up dignified and secure jobs of the kind a humane society requires] and robotisation disproportionately affects those in the lower-income regions of the globe’s major economies. Beyond that, as
already addressed, the concept of work is being transformed. The ‘gig economy’ involves a labour market where many are working for an algorithm and it is characterised by ‘indirect’ employees of Facebook, Deliveroo and suchlike, consisting largely of short-term contracts posing as self-employment (the Ken Loach film Sorry You Were Out depicts this sorrowful situation desperately and dramatically). Poorly-paid, traumatic, soul-destroying and psychologically damaging work is enabled by globalisation, neoliberal economics, sociopathic corporations, global tax avoidance, automation, political disruption, platform power. John Noughton, who has explored these issues in much depth, notes that “digital technology, in almost every area of its deployment, has become an amplifier of inequality” (Noughton, 2019), pointing out, with convincing examples, the derisory amounts of tax that tech companies pay in the territories where they make colossal profits. A GS offshoot may be that situation’s remediation: the Global School’s direct responsibility is to enable it to be fully understood, by ever learner who seeks such understanding.

Enabling the Inexpensive Revolution

Just as video-based learning was the fad of the 1950s, and much as programmed learning machines were optimistically and expensively delivered to some schools in the 1960s, and in the same way that language laboratories were installed in the 1980s, dedicated ‘computer rooms’ replete with many exorbitant desktops have been established more recently. Providing schools with expensive computer hardware is of very limited value – and (as already discussed) may have negative educational consequences. The rejection of high investment solutions is long overdue; expensive, imported responses are now as redundant as much last-century machinery is obsolete. Piecemeal technological ‘add-ons’ have, as emphasised throughout One World One School, become dysfunctional distractions: isolated ICT is not the answer while insular AI is incongruously inappropriate. As we have made clear, Digitisation makes necessary and feasible a fundamental reshaping of the entirety of education. 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. Let the system be reconstructed first and then integrate the best of contemporary applications – build the house before putting in the furniture.

Figure 12: A computer lab has become a piecemeal and outdated approach
Du Toit points to the challenges face by most countries “in measuring the impact of investments in infrastructure, massive roll-outs of teacher training initiatives, and usage in the classroom” (2015), going on to consider “different types of learning (i.e. basic education approach, knowledge acquisition approach, knowledge deepening approach and knowledge creation approach)” concluding that teacher training and ICT usage “need to be viewed within a larger system where the teacher is central to several conceptual domains including ICT in education policy, curriculum development through the provision of digital content, ICT-enabled pedagogy, ICT infrastructure, and organization and administration at schools” (Du Toit, 2015). Dr Maria Fragkaki (2019) sets out the challenges that Higher Educational Institutions in the East (Palestine, India and Turkey) are facing in adopting technologies and educational change, notably the lack of infrastructure and connectivity and in theoretical issues the lack of a liberated culture, empowering philosophy and updated knowledge on emerging pedagogies, methodologies, digital technologies and experiences.

Benjamin Herold reports that, according to a new, USA-wide survey conducted by the Education Week Research Centre, “educators remain sceptical that new technologies will transform public schooling or dramatically improve teaching and learning… less than one-third of America's teachers said edtech innovations have changed their beliefs about what school should look like” (Herold, 2019). A large part of the problem is that, as Harvard’s Jal David Mehta explains (in that same Ben Herold article), "Most edtech is pretty conservative, in the sense that it meets an existing need, not a future-oriented vision… It's not surprising that teachers don't see such tools as fundamentally changing their views about what schools should be doing and how students should be learning” (ibid). One reason is that government schools are generally compliance-based bureaucracies with decisions made at the top, “then reinforced by layers of supervisors and managers who view their primary responsibility as making sure the people below them avoid mistakes” (ibid). As Anne Petersen, 18F's director of experience design added, once again in that same Ben Herold article, "Buying the latest and greatest [technology] doesn't work if it isn't introduced the right way" (ibid).

The USD $3,900 study (QY RESEARCH, 2018) of ‘Artificial Intelligence in the Education Sector development in United States, Europe and China’ has already been mentioned. Even without spending anything of that kind, the very notion and nature of that research indicates that massive multinationals are entirely aware of yet more rich pickings awaiting them should the educational decision-makers still be captivated by high-cost so-called solutions. As already made clear, enabling individual connectivity through inexpensive handheld devices is the advocated way forward: with the creative application of such ubiquitous and relatively-inexpensive devices connected to the "cloud" or with pre-loaded content and systems, a long-overdue move away from high investment solutions may and must eventuate.

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.
Most products, services, models, expertise and research related to ICT (and now, even more so, to AI) use in education have until now come from high-income contexts and environments and, consequently, ‘solutions’ enabled by technology have been imported and ‘made to fit’ in environments that are often much more challenging. Digitisation is, essentially, cost-effective in enabling the equitable access of students as consumers and an equitable provision of content. That realisation will inevitably have profound consequences for educational planners (and development partners seeking to support national educational policies and plans). No longer should any well-meaning donor, still entrapped in the 1990s, offer to provide ‘desktops for all’. Accordingly, as addressed earlier (Chapter 8), educational planning may now focus less upon investment decisions and more in terms of identifying desired outcomes and consequences. In many low-resource communities, the appropriate technology is, as we have said, the one that people already have, know how to use, and can afford: the mobile phone, presently the most important platform in the world. However, almost 60 percent of the world’s people are still offline (McKinsey & Company, 2014) and cannot participate in the digital culture or economy in any meaningful way. Overcoming that disparity is a sensible starting-point on the road to equity: doing so in order to enable full Global School participation gives added meaning to the investment.

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 Sustainable Development Goal 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-level interventions to supporting the evolving Global School universally in such areas as free BYOD connectivity, online learning resources, reference sources, teacher consciousness-raising, inclusiveness, special needs and for international recognition (as opposed to accreditation) that celebrates distinctiveness yet builds upon our similarities.

Andrew Gibbons wonders what it means

“… for the classification of a community as needing philanthropic intervention so as to ensure each child is connected to a digital device in order to have a chance, rather than what does it take to promote and organise the social and political world in such a way so as to make access to devices inconsequential or at least less consequential for school outcomes (and to keep in mind the problem of stressing any kind of relation between school outcomes and access to digital devices)” (Gibbons, 2016).

But, as we see and describe the situation, these are not the alternatives. Firstly, we now regard ‘school outcomes’ in terms of non-competitive learner fulfilment. Secondly, we recognise that the virtual and the actual are mutually supportive elements of contemporary consciousness, embodied in the one (very consequential) Global School. Thirdly, whether the interventions are philanthropic or otherwise, enabling everyone, worldwide, to participate on an equal footing is (a) extremely challenging, and (b) undoubtedly worthy.

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. That over-priced, imported response is now redundant and the machinery antediluvian. Moreover, as Edward Carr (2011) and others have so effectively pointed out, the kind of development most likely to promote its intended beneficiaries is that which they are allowed the opportunities to devise. These are Global School characteristics: learner-driven, universally participative and affordably accessible.

The Coming Struggle

Not only are there significant opportunities for dramatically improving the content and delivery of education worldwide, there are also potential dangers and many challenges that must be understood and responded to in order that the Global School be managed effectively in a networked fashion (Uys, 2001), for the benefit of those who profit educationally as opposed to financially. Not only in developing countries is it possible that those most likely to benefit are those who already enjoy many privileges – this should be met by enabling the most disadvantaged to participate freely in the Global School and to support their involvement. Digital re-colonisation cum imperialism could occur through the dependency of developing countries. Similarly, where education is considered a mere commodity, technology may easily become a tool of exploitation (Tarafdar and Alam, 2001): this too should be understood and resisted by lawmakers and planners.

Plagiarism (breaking copyright and the theft of intellectual property), anomie, trolling and bullying could, in the absence of compassionate vigilance, occur. Cybercrime will continue to flourish unless and until cybersecurity is augmented, including its being thoughtfully addressed within available curricula. Capable of enabling decision-makers and planners to acknowledge and respond to such challenges, Digitisation creates the circumstances for bridging the digital divide and the emergence of the Global School possesses the potential to equalise learning opportunities in favour of economically and/or demographically and/or otherwise disadvantaged populations and social groups. As envisaged by the present authors, it offers – through its structure rather than its administration – an end to the reproduction of educational inequality from generation to generation.

In addition, its positive power upon learning and teaching outcomes certainly applies to learners, teachers and parents in conflict-affected areas endeavouring to restore normality and provide quality education following conflicts.

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. With its advent, the most effective presenters and explainers, the top researchers, the best texts and the most up-to-date evidence need no longer be available only to those with the most money and most influential families. The system – as opposed to its modular offerings – may specifically promote girls’ and women’s participation in the Global School in order to narrow the gender divide and contribute to female empowerment. 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 may well, as a welcome by-product
rather than an explicit objective, yield economic and social benefits – and ensure that the
disadvantaged are on the right side of the ‘programme or be programmed’ choice that faces
every citizen in a networked world.

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
prospective dangers. Lofty aspirations enshrined in many national Visions may now be
approached through the creative application of Digitisation. Speedy and uninterrupted
broadband may well be regarded as a basic – and thus worldwide – human right. Moreover,
developing countries may (as already discussed, questioned and replied to) leapfrog developed
countries by going directly to mobile technologies instead of first implementing expensive
Internet infrastructure. Given the prospective benefits, the potential pitfalls must be identified
and avoided. If responded to creatively, participatively and democratically, Digitisation offers
an unparalleled opportunity to understand imbalances and, as a wondrous potential spin-off,
to redress them.

Digitisation-Based Education as Equity

Ass emphasised throughout One World One School, 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 Global School activities worldwide be
dramatically transformed. To summarise:

• The policy is to achieve educational equity in terms of provision and partnership;
• The strategy is to provide sufficient digital equity to enable equitable GS participation to
  occur; and
• The goal is a worldwide surge in enjoyment and self-fulfilment, founded upon self-
  directed learning, enabled by Digitisation

As described earlier, schooling, and children experiencing it, have, over the centuries, been
misused and abused in the service of various causes: doctrinaire determinism masquerading
as democratic decency. Hytten (2015) offers what she calls “provocations toward an ethics of
teaching for democracy and social justice” claiming that “social justice teachers do not pay
sufficient attention to the moral dimensions of micro, classroom-level interactions in their
work”, going on to consider “some ethical considerations for activist teachers, framed in three
areas of virtue”. Supporting that “valuable way forward in developing an ethics of social
justice educators, drawing on virtue ethics”, Taylor (2015) stresses “one particular intellectual
virtue in teaching for social justice: open-mindedness”. In a further response, Gunzenhauser
(2015) proposes “two communal habits implied in Hytten’s work – cultivating solidarity and
comfort with discomfort”. 
To be clear: the notion of ‘activist teachers’, albeit acting morally, exhibiting ‘open-mindedness’ and facilitating negative capability, still presumes an evangelistic mission. Education is not about conversion and the Global School enables and requires the purging of proselytising, even in the name of ‘social justice’, ‘solidarity’ or ‘democracy’. For teachers, ‘ethics’ relates to the honesty, openness and diligence applied in supporting the learning in the learner’s chosen direction. For, 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 as such, whose right to, for instance, a partially-closed mind or remaining uncomfortable with scholarly discomfort is inalienable.

It is difficult to avoid the notion of ‘mindfulness’ these days (already mentioned above in relation to bullying) and Creswell (2017) offers a practical primer. Seeing democracy as a philosophy and a political system, Hyde and LaPrad (2015) contend 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” (Hyde and LaPrad, 2015). In turn, Comstock (2015), acknowledging 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” (ibid).

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.

Strengthened guidance on improving the spiritual, moral, social and cultural development of pupils (DoE, 2014), 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”. Lord Nash, then UK Schools Minister, explained that the changes were designed to “tighten up the standards on spiritual, moral, social and cultural development of pupils to strengthen the barriers to extremism”. 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” (DoE, 2014). 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 (2017) explains, "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” (Peace Pledge Union, 2017) 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 Cromwellian, 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.

Advocating ‘experiential education’, Roberts in Beyond Learning by Doing (2012) 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” (Roberts, 2012). He goes on to 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, giving the answer that “truth is communal”. As Roberts writes: “We discovered that, shot through this notion of ‘democratic schooling’, are some very sticky questions about power, equality, and justice that remain unresolved in many respects”, encouraging experiential educators to revive democracy in schools by living the experience and avoiding quick technical solutions to educational dilemmas (ibid).

Michalec (2012), in his review of Roberts’ book, asserts that “experience in schools can also liberate and resist the undemocratic oppressive impulses in education”, going on to claim that “Roberts’s analysis of neo-experientialism is a clarion call for renewing the greater purpose of experiential education in schools, particularly democratic participation and personal transformation” (ibid). Roberts turns to a more hopeful possibility: democracy “is not, in the end, a birthright, something to grasp and own. It is, as Dewey reminds us, a way of life. It is something to enact day to day in our relations with others” (ibid). 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.

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” (Krznaric, 2013). Along similar lines, English (2002) identified “inclusivity and rights, equal participation in decision-making, and equal encouragement for success” as the political elements in democratic education. As noted by Waghid (2014), “Democratic education is often specifically emancipatory, with the students' voices being equal to the teacher's”. Foreshadowing a key GS element, Ricci suggested that “While democratic schools don't have an official curriculum, what each student actually does might be considered their own curriculum” (Ricci, 2012).
Many such earlier initiatives presaged some aspects of the Global School – with Digitisation, its time is nigh.

**Democratic Options**

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.

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

*Figure 13: 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)*

In our earlier discussion of self-regulated learning we noted that, 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?’). We have recognised also that curricula from Platonic time onwards has been subject unchallenged external ownership. Even if teachers and technologies exert some influence over that which is laid down, the laying is conducted by politicians, bureaucrats, academics and sundry pressure groups. With Digitisation, such external ownership may be laid aside. The driving force and assumed justification for national curricula have been a country’s assumed right and duty to apply education in the production of productive workers (see Douse, 2013a) and (what it considers to be) good citizens. With the Global School, including the recognition that education is about each learner’s understanding and enjoyment rather than employers’ skills or attitudinal needs or the state’s economic and other objectives, outside control of what an individual is taught fades away – a temporary aberration that occurred momentarily within the human historical epoch.
**Figure 14: Some Examples of available Global School ‘Democracy’ modules by category**

<table>
<thead>
<tr>
<th>Standard</th>
<th>Specialist</th>
<th>Bespoke</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is Democracy?</td>
<td>Does Democracy Work?</td>
<td>“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.”</td>
</tr>
<tr>
<td>Democracy in six countries: a comparative study</td>
<td>Using democratic process to achieve radical change</td>
<td></td>
</tr>
<tr>
<td>A History of Democracy</td>
<td>Is [name of country] a ‘Democracy’?</td>
<td></td>
</tr>
<tr>
<td>Democracy in [name of country]</td>
<td>Losing faith in Democracy</td>
<td></td>
</tr>
<tr>
<td>Does my vote matter?</td>
<td>The formation and manipulation of opinion: challenges facing Digital Age Democracy</td>
<td></td>
</tr>
<tr>
<td>Getting involved in politics</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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. 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. In the contemporary cockpit, it is the learner who now occupies the pilot’s seat with the teacher (the navigator on the respirator?) offering guidance as opposed to direction, and refraining from determining the destination.

So where and how may a truly democratic education, embodying liberty and fraternity, be located and attained? As that ‘Dublin Declaration’ which emerged from the recent World Conference on Online Learning (Brown, 2019) put it, their conversations left participants with:

“… the clear message to engage with issues of social justice. They illustrated the importance and necessity of digital presence and participation of indigenous heritage and culture in the networked world to promote diversity and to support context and situated learning experiences. (We must) renew our commitment to access, to inclusion and to lifelong learning and to reject hegemonic monolithic thinking… committed to the values of social justice, equity and ethics in a cohabited, sustainable society” *(ibid)*.

These are lofty aspirations: it is our belief that they may be fulfilled within and only within the context of what we have referred to as the Global School, rather than embodied within existing educational systems built upon the very antithesis of those ‘values of social justice, equity and ethics’ to which the Declaration refers. Let us take up that challenge!
10. ‘VOCATIONAL’ AS OPPOSED TO ‘EDUCATIONAL’

As emphasised throughout *One World One School*, the Global School must not be geared to the requirements of the labour market, just as education must stand quite apart from delivering (as opposed to debating) the ever-evolving skills needs of the Digital Age economy. Accordingly, this chapter is a brief excursion beyond education into the world of the workplace, much as visitors to art gallery or a library or a theatre might, in search of contrast, catch up on their messages when pausing to rest or look out of the watering hole window during the interval.

PTVT: Initial Considerations

As already emphasised, Digitisation is fundamentally altering our world and, with it, labour market requirements, and much time and energy have been devoted to defining and delineating them (including some passing mentions in earlier sections). While such speculation shall not be overindulged in here, this chapter does attend to some general work-related skills development matters, broadly interpreted. There are many designations for the sector under consideration, and a veritable Mulligatawny soup of acronyms has been cooked up (AppT, VocEd, TVE, TVET, TdF, TechVoc, OE, VET, CTE, WE, et cetera). We note the decision of the TVET world congress held in Seoul in 1999 that “the best, most comprehensive term to use is Technical and Vocational Education and Training” (UNESCO-UNIVOC, 2012) and, indeed, three of the four letters in the acronym TVET are reasonably acceptable.

But the main thing that needs to be said (and repeated and restated and reiterated) about work-related skills development is that it is not education. In the words of a great headmaster, remembered with fondness and perhaps a little trepidation by one of the present authors:

“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 of Norwich School in a private conversation with Mike Douse circa 1955).

Echoing his mentor’s wise advice, and after many years of experience worldwide, this sometime school student concluded that “… 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” (Douse, 2003). The workplace’s attempts to colonise the classroom should be stoutly resisted: there should be a hard border between education and training. Accordingly, it becomes apparent that the ‘E’ in ‘TVET’ is entirely misplaced and, indeed, to bring all the work-related skills development areas under the one rooftop, and hopefully to raise the status of that which is regarded worldwide as a second-rate fall-back route for academic failures, the term Professional, Technical and Vocational Training (PTVT) is preferred (see Douse, 2013b)

Certainly the demand for work-related skills provision will be massive, multifarious, and lifelong, and this will need to be met, imaginatively, efficiently, and equitably. As with education, the necessity is to reinvent training for our times, and the central challenge is to conceptualize and create PTVT structures, methodologies, and arrangements appropriate to these dramatically new digital age circumstances. This calls for a redefined and high-status
PTVT, delivered from various (often virtual) kinds of centres, each dynamically responsive to trainees’ aspirations and to forthcoming market requirements. All should be staffed by competent, confident, cheerful, and well-respected instructors, working effectively in tandem with the best-suited technology, to guide the learning rather than to dictate it. Life skills should be redefined for the digital age; well-informed creativity should be emphasized; the moral dimension – worldwide imperfections, rampant inequalities, and the shame of migrant labour – should be addressed. The selection, preservice, and lifelong professional development of PTVT instructors should similarly take advantage of contemporary technology. PTVT instructor education should model digital age teaching and learning and, in addition, play a key role in recreating and repositioning the sector.

In other words, work-related skills development will, as with education, continue to be dramatically transformed by Digitisation. It is as if all living creatures were about to need to survive under water. Fish, akin to digital natives (Prensky 2001), are unable to offer advice as they are in that moist element already and know of no other. But land animals (digital immigrants – maybe a dying breed) cannot conceive what will submergently be involved, and so they too are unable to contribute to the debate. The young have grown up in a digital world; the un-young, even the most digitally intrepid, necessarily perceive it as something rather alien and somewhat scary and, save for a few digital intrepids, venture no further than the fringes, often enjoying those brief excursions, but never seeking to inhabit the obscure interior. There is a need to prepare for this proximal antediluvian situation, but the metaphorical fish cannot be communicated with while the terra animalia hesitate to speak.

And yet that fundamental reappraisal cannot be avoided. The digital age necessitates a re-evaluation of what PTVT is for, optimizes the means by which its evolving objectives may be met, and enables digitally comfortable instructors to facilitate that constant skills development process. Inevitably, the role of PTVT in producing people with the skills (and the competency and confidence to upgrade and refocus those skills on lifelong bases) that will enable them to survive and thrive in this vibrantly evolving world will, while magnifying in size and differentiating in nature, also alter profoundly.

PTVT at Work with AI

A particular focus is on arriving at a better understanding of the potential of new technologies, including automation and algorithms, to create new high-quality jobs and vastly improve the job quality and productivity of the existing work of human employees. The augmentation (see below) of existing jobs through technology is expected to create wholly new tasks – from app development to piloting drones to remotely monitoring patient health to certified care workers – opening up opportunities for an entirely new range of livelihoods. At the same time, however, it is also clear that the Fourth Industrial Revolution’s wave of technological advancement is set to reduce the number of workers required for certain tasks and occupations. Perhaps that increased demand for new roles will offset the decreasing demand for others. Perhaps not. For these net gains are not a foregone conclusion and they entail difficult transitions for millions of workers along with the need for proactive investment in developing a new surge of skilled talent globally.

As technological breakthroughs rapidly shift the frontier between the work tasks performed by humans and those performed by machines and algorithms, global labour markets are undergoing major transformations. These transformations, if managed wisely, could lead to a
new age of good work, good jobs and improved quality of life for all, but if managed poorly, pose the risk of widening skills gaps, greater inequality and broader polarization. As the Fourth Industrial Revolution unfolds, companies are seeking to harness new and emerging technologies to reach higher levels of efficiency of production and consumption, expand into new markets, and compete in identifying, marketing and delivering new products for a global consumer base composed increasingly of digital natives. Yet, in order to harness the transformative potential of the Fourth Industrial Revolution, business leaders across all industries and regions will increasingly be called upon to formulate a comprehensive workforce strategy ready to meet the challenges of this new era of accelerating change and innovation.

According to the World Economic Forum (WEF, 2018), four specific technological advances are set to dominate the 2018–2022 period as drivers positively affecting business growth:

- ubiquitous high-speed mobile internet;
- artificial intelligence;
- widespread adoption of big data analytics; and
- cloud technology.

Turning these into practical instances:

“…among the range of established roles that are set to experience increasing demand in the period up to 2022 are Data Analysts and Scientists, Software and Applications Developers, and Ecommerce and Social Media Specialists, roles that are significantly based on and enhanced by the use of technology. Also expected to grow are roles that leverage distinctively ‘human’ skills, such as Customer Service Workers, Sales and Marketing Professionals, Training and Development, People and Culture, and Organizational Development Specialists as well as Innovation Managers. Moreover, our analysis finds extensive evidence of accelerating demand for a variety of wholly new specialist roles related to understanding and leveraging the latest emerging technologies: AI and Machine Learning Specialists, Big Data Specialists, Process Automation Experts, Information Security Analysts, User Experience and Human-Machine Interaction Designers, Robotics Engineers, and Blockchain Specialists” (ibid).

The findings of that WEF report suggest (as noted above) the need for a comprehensive ‘augmentation strategy’, an approach where businesses look to utilise the automation of some job tasks to complement and enhance their human workforces’ comparative strengths and ultimately to enable and empower employees to extend to their full potential. However, to unlock this positive vision, workers will need to have the appropriate skills enabling them to thrive in the workplace of the future and the ability to continue to retrain throughout their lives. A mind set of agile learning will also be needed on the part of workers as they shift from the routines and limits of today’s jobs to new, previously unimagined futures. The paramount challenge is not to improve skills development in and for this digital age by building gradually, cautiously, and incrementally upon that which has gone before. As with education, the necessity is, as already emphasised, to reinvent PTVT for our times, on a universal basis with due attention to variations globally, and to make it future-proof. A full recognition of the profundity of ongoing and future technological transformation, economic change, and
occupational upheaval is vital if PTVT is to be credible – and to achieve, at last, the high status that it deserves. It is on that basis – that things will never be the same again – that this chapter proceeds.

**The Evolving World and the Embryonic World of Work**

The changes being wrought by Digitisation will be (a) generally, highly significant and (b) specifically, unpredictable. Occupational futurology is a vast and vain pursuit. A third of a century ago, it was being predicted that, for example,

> “...forthcoming technological developments, including automation and robotics, will have minimal consequences for professions where person-to-person relationships are paramount such as… banking… entertainment… (and) customer service” (Manpower Services Commission, 1983).

Ah well!

The Digital Revolution has been on its way for decades now, and it is explained elsewhere (Bonk 2016; Contact North, 2016; Douse and Uys, 2019d) that, with Digitisation, the world is so profoundly and deeply transformed that entirely fresh skills development approaches are both necessary and possible. Just as existing jobs now increasingly necessitate the possession of digital skills, entirely new jobs based upon digital possibilities (for instance, online web assistants and myriads of software and mobile development specialists) are progressively being created. Technology will assuredly alter roles: robots will take over many operations (in factories as in hospitals), and drones are likely to replace so many others as they allow speedier visual access of everything from giant warehouses to power lines. But the displaced operatives and reassigned theatre nurses will apply different skills and hundreds of thousands will soon be working in the drone economy across, for instance, infrastructure, agriculture, construction, defence, energy, and logistics. By such means, organisations may become more productive, and, hopefully, the work becomes less strenuous physically and more fulfilling personally.

Let it be reiterated that technology is starting to behave in intelligent and unpredictable ways that even its creators do not understand. As already recognised, AI is creating technologies that adapt to us rather than us to them and, in education and PTVT, even coming to recognise when learners are more effective on their own – when to get out of the way and when not to help, interrupt, or distract. Let us recognise in turn that our technologies are extensions of ourselves, codified in machines and infrastructures, in frameworks of knowledge and action. AI can help solve some of our world’s most vexing problems – day-to-day communication, health care, transportation, loneliness – but its real magic will be technology that adapts to people. Computers are not here to give us all the answers but to allow us to put new questions, in new ways, to the universe. If we are intelligent enough to pose good questions, it will be profoundly and positively transformative for humans and humanity.

Alejandra Reyes (2016) reports increased demand for “ICT specialist skills to programme, develop applications and manage networks; ICT generic skills to use such technologies for professional purposes; and ICT complementary skills to perform new tasks associated to the use of ICTs at work, such as information-processing, self-direction, problem-solving and communication”. She also identifies an increased need for “foundation skills, digital literacies
as well as social and emotional skills (which) are crucial to enable effective use of digital
technologies by all individuals in their daily lives” (Reyes, 2016). And this transformation
flows far beyond the world of work. Through contemporary technology, we are all connected
to one another, wonderfully, perpetually, terrifyingly, and inescapably. A never ending stream
of connected data – about each one of us – will emanate from our homes, our workplaces, our
banks, our vehicles, our supermarkets and from everywhere else that we frequent or make
contact with, by courtesy of 5G. While this may be highly positive in relation to the universal
library, entertainment and, of course, the Global School, this connectedness is often
accompanied by uncertainties and a sense of anomie, sometime verging upon the psychotic.
During this time of digital transition, some feel that a balance needs to be struck between the
call of the crowd and the opposite need for time and space apart – to be “off the grid” (see
Powers 2011, on Hamlet’s Blackberry, which wrestles with a similar existential
confrontation). In encountering Digitisation, PTVT needs to take such psychosocial
challenges on board.

PTVT’s Status in this Digital Age

Much of the discussion on skills development in the digital age has focussed on general
education, and some, but not all, of those ideas are relevant to this present discussion. Over
the centuries, much consideration has been afforded to its objectives, for instance, along with
contributions by Socrates, Aquinas, Rousseau, Locke, Dewey, Freire, and others. Prior to
understanding the full implications of the GS, one of the present authors argued that: “No child
should leave school without basic skills – a love of learning, a respect for knowledge, a desire
for wisdom, a critical fluency with contemporary technology, a facility for spoken
communication, a fascination with that which is difficult, a unique set of enthusiasms
stimulated and underwritten by education…” (Douse 2013a). Since then, of course, the
realisation that, as explained earlier, the curriculum must arise from each learner’s aspirations,
some of those well-intentioned sentiments are now recognised as inappropriate, although the
‘critical fluency with contemporary technology’ may be accepted as a pre-secondary
requirement enabling full and self-directed GS participation.

The British House of Lords, no less, has declared that digital skills should be taught as a third
core subject and treated with the same importance as numeracy and literacy (UK Parliament
2015). We have suggested earlier that, prior to primary completion and secondary
commencement, “all children across the globe should become fluent in three languages: their
mother tongue, an international language and a programming language” (Douse 2013b). And
yet, in these pre-GS years, education worldwide is increasingly characterized by
fragmentation, selection, and segregation rather than by coherence, intelligibility, and equity.
All too frequently, PTVT initiatives are necessary in order to repair the damage done to
learners by chaotic and illogical general education arrangements.

Another exploration of learning situations adapted to a hyper-connected world is known as
Industry 4.0, which “merges the Internet of Things with Big Data and Artificial Intelligence
(meaning that) robotics, artificial intelligence agents, and hybrid reality universes are
expanding and creating their own hypermediated transmedia ecosystems, where some sort of
machine intelligence is involved in at least one end of an exchange” (Daniella et al, 2018).
They suggest that “skills for communication and information management must be related to
the highest level of PISA reading competence and global literacy: reflecting on content and
form, drawing upon one’s knowledge, opinions, or attitudes beyond the information provided,
and accepting different perspectives and viewpoints” (ibid). As we have already explained, this is akin to suggesting that driving the very latest car requires the skills of a postgraduate mechanical engineer while, in practice, the technology is coming back to the user. Accordingly, those authors’ “three-level approach to learning and communicating in Information 4.0 ecosystems that incorporate principles from Bloom’s Revised Taxonomy, and proposals for developing global competencies that include support for values and ethical sustainable action, from the OECD and UNESCO” (ibid) are as fascinating as they are misguided, as pretentious as they are pseuds corner as they are hysterical.

It is necessary to acknowledge the historical role of academic credentials in reinforcing social class hierarchy. And let it be recognised [or, preferably, debated] that, while ‘economics’ is an arts subject, ‘history’ is a social science – as the founder of cliodynamics explains, “at the bottom of it is human behaviour and that is terrifyingly unpredictable” (Turchin, 2016). The “vocational” is far too frequently perceived, and made operational, as “technician or craft vocational,” excluding preparation for such professional vocations such as engineering, nursing, medicine, architecture, or law. It may usefully be recalled that “vocation” is from the Latin vocātiō, meaning “a call, a summons” to an occupation toward which a person is especially drawn, such as that of a member of the healing professions, or an aid worker or, indeed, a religious minister or, perhaps stretching it a bit, a politician.

The prestige of workers is defined not only by the occupations in which they are engaged but also by the routes and pathways by which they arrived in those positions. If PTVT is for artisans and signwriters but not for surgeons and lawyers, it defines itself definitively as, at very best, second rate. If it is aimed at those who fall from the academic path or by the wayside, it cannot help but be seen as a safety net for failures, however nicely dressed up that net is. In many developing countries, vocational centres cater for dropouts, pushouts, and other refugees from “academic” education. Institutions within the PTVT sector are seen as inferior to “ordinary” schools, and, even in developed countries, this image of being “below standard” prevails.

Clearly, TVET is changing and will need to change much more (to become PTVT) in order to respond to and support that dramatic evolution in the nature of work. If it continues to be perceived, operated, and funded solely as direct preparation for “non-professional” work, as remains the case in much of the world, it will retain its poor status, lose its essential purpose, and avoid its opportunities. The world of work is undergoing fundamental transformation, but people continue to lament the lack of technicians while wanting their own offspring to become lawyers: what is now called TVET is for “other people’s children” (Douse 2013b). The tale is told of two dozen eminent international educators indulging in a coffee break between the delivery of erudite conference papers. They are bewailing, in their presentations, the shortage of skilled technicians and tradespeople in their countries. They are bewailing, in their presentations, 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 Master’s 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. 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 understood, and indeed welcomed, as an admirable recognition of the principle that education should not be in thrall to employment.

According to the US government (Department of Labor, 2013), an engineer is a problem-solver, while a technician is a doer. Similar oversimplifications have abounded through history, from the Platonic philosopher-kings, through Coriolanus’ plebs, to the threefold academic-technical-practical segregation of 11-year-olds in the late-1940s UK, emulated across much of the world, and based upon flawed tests and erroneous educational philosophies (see Douse, 1964) [the correct answer is ‘buffalo’: see earlier]. Similarly, there has long been a distinction made by both social scientists and aspirational parents, between largely intellectual, predominantly office-based (or “white collar”), and largely practical or manual (or “blue collar”) work. The former is linked with the “professions” and “semi-professions,” the latter with skills of the kinds delivered in PTVT centres.

In this emerging digital age, the nature of work has undergone and will continue to undergo seminal changes, so that distinctions based upon collar colour are becoming historical, just as all employment tends to involve both problem-solving and actual doing, and universities increasingly become “upmarket PTVT centres.” If these distinctions ever represented anything more than the fortunate using “professional” language to preserve their privileges, any vestige of authenticity is swept away by the classless tide of Digitisation. The manager (male) no longer dictates (in any sense) to his secretary (female) – people have their own word processors (which do many things besides processing words and will ever do more) and personal online and mobile communication devices and systems, and all tasks are shared (or so they should be soon).

The radical restructuring and redefining of work for the digital age are already reflected in the upward differentiation of TVET from “dropped out primary” and “failed secondary” to “graduate apprenticeship” and “university of technology,” although true parity of esteem has yet to be achieved. The evidence-supported opposition to selection at 11 or at 14 has seldom been extended to the rejection of academic selection at 18. Perhaps that battle is about to arrive: the notion of comprehensive universities, mixing higher- and lower-achieving students to the benefit of all, and to society, is now being advocated (Blackburn, 2017). In any case, PTVT, wherever delivered, has a crucial role to play in societies emerging from Industrial Age practices and enabling knowledge workers to survive and thrive in the digital age, through flexible entry pathways – and it is Digitisation that makes their achievement feasible.

What Are Those “Digital Skills”?

Digital skills are already highly valued across the world of work. Tomorrow they will be regarded as vital. The day after that they will be unexceptional and, indeed, somewhat humdrum. Much as the ability of human resources to read is (in much of the world, if not yet quite all) simply taken for granted. Applying those skills may be categorised as:

- **Digital literacy**, which is being able to think in and creatively utilize the ever-evolving language of the digital world, in other words, those capabilities which equip an individual for twenty-first century living, learning, and working; and
• **Digital understanding** [or fluency], which builds upon a confident familiarity with that language in order to reflect upon its practical implications, avoid potential pitfalls, predict forthcoming opportunities, and plan ahead adeptly and adventurously.

While jobs in the explicit and so-called ICT and mobile sector are booming, these are by no means the only opportunities that require digital skills, and, indeed, it is sensible to assume that almost all jobs require them to some level. And acquiring digital literacy, and even digital understanding, has never been easier (although digital wisdom takes longer – which is another story). The usage of mobile, social, and analytical tools is permeating the length and breadth of every function across every organization – also in tertiary and higher education – creating a huge demand for digital literacy and fluency and certainly not just in the IT department. Indeed, Digitisation is not “IT” (or even “ICT”). In fact, “ICT” is so very twentieth century, while AI is somewhere between now and the fifth dimension, and PTVT needs to get beyond both of them. No more “PTVT and ICT” reports or “PTVET and AI” policies. **PTVT now means PTVT based upon Digitisation.** No more “ICT instructors” – every PTVT instructor is a digitally grounded instructor. No more “AI as panacea” – it is only a subset of Digital Age skills development. No longer mere digital literacy for some, but digital understanding/fluency for all. Blended learning, in which the face-to-face and the virtual are intermingled, is becoming the norm, quantum computers, interlinked in a double helix with quantum biology, the 5G expectation.

For example, there is a widespread realization that advanced technical skills in mobile, analytics, and social media need to be complemented with business acumen, highlighted by articles along the lines of “Business Professionals Must Understand the Digital Age Language.” One response has been for those in IT to move into management – or vice versa, although that is less likely. But neither remedy really meets the challenges of these times. The real answer is to recognize that management now means “management in the context of Digitisation” and to train accordingly. In the same way, “auto electrics” now means “auto electrics in the context of Digitisation” and should be designed and delivered accordingly. The same is true for medicine, dentistry, fine art, HRD, and so forth.

And, of course, this twofold expertise across all disciplines should be provided by PTVT centres on a lifelong rather than just a preservice basis. Thus, on a very practical level, such centres should soon, reflecting this trend toward “digital ubiquity,” consider the future of their Digitisation (formerly ICT) units in favour of every subject area (child care, design, secretarial, catering, civil engineering, law, et cetera) being effectively digitally based. Whether this results in the entire dispersal of those (sometime ICT) units’ faculty to other branches, or in smaller (Digitisation) units concentrating on producing high-level digital specialists, may be left as an interesting open question for now. Indeed, whether there should, could or inevitably must be just the one universal Global PTVT organisation is probably beyond the scope of a book on education – although that might be an interesting topic for debate.

**Soft Skills for the Digital Age**

Whereas “hard skills” are those needed to do the actual work, “soft skills” are those interpersonal qualities (also known as people skills) and the personal attributes that are desirable in order to thrive in the workplace. They include, for example, effective communication, courtesy, flexibility, integrity, a good sense of humour, and a strong work ethic (see Robles 2012 for the “top ten” listing). Many PTVT centres certainly cover some of
those widely desired attributes but are seldom geared specifically to soft skills for the digital age. It is similarly increasingly acknowledged that change management does not just need to integrate top-down and bottom-up strategies but also inside-out (i.e., people) strategies to be successful (Uys 2007, 2009, 2010, 2015).

Drawing upon existing lists of “skills required in a knowledge society” (see, for example, the Conference Board of Canada, 2014, to whom due acknowledgement is made), it is suggested that, in addition to digital understanding, the following capabilities might be appropriate for technical and vocational learners and practitioners in the time of Digitisation:

- A confident familiarity with contemporary communications skills
- A lifelong commitment to self-directed learning
- A facility in thinking critically
- A proficiency in managing knowledge
- Being a responsible team member

Similar characteristics are required also (indeed more so) in PTVT instructors.

**Creativity** in technical and vocational education is an area where limited research findings are available (two interesting studies are those of Middleton, 2011 and Ogbonna, 2015). A recurring theme, there and elsewhere, is that the culture of PTVT, as presently perceived and practiced, is – to make an unsubstantiated generalization – antipathetic toward originality and vision. Creative research is no longer in the exclusive custody of higher education!

WorldSkills (formerly the Skills Olympics) has achieved a great deal internationally, not only in enhancing (among a regrettably limited audience) the status of skills, fairly broadly defined, but also the promotion of creativity within that area (see WorldSkills, 2017). Similarly, from its inception in 2000, and with an average of 250 multilateral projects a year, the European Union’s “Leonardo da Vinci–Vocational Education and Training” program (2017) has successfully developed a stock of innovative practices and procedures in areas such as training, transparency instruments, guidance and counselling, e-learning, and instructor methodologies.

The worthy WorldSkills, da Vinci, and a few similar initiatives notwithstanding, it is the case that creativity requires much greater and more creative attention in the digital age PTVT sector. Indeed, the increasingly narrow (prior to the time of the Global School) general education curriculum, frequently turning the focus away from arts and creative subjects in favour not just of STEM but on those convergent elements of STEM that may most readily be assessed, not only ignores a vast chunk of young people’s varied aspirations and learning needs but also fails to prepare them for the twenty-first century’s social, recreational, as well as occupational demands. Here, it is another instance of PTVT being called upon to repair the damage inflicted upon learners by dysfunctional general educational approaches: this will cease to occur – or at least to be a meaningful criticism – in the time of the Global School.

**The Ethical Dimension**

The transmission of skills does not occur in a moral vacuum. Those soft skills should extend to fostering responsibility and being worthy of trust, (a) because they are good business and (b) because they are good in themselves. Beyond that, as well as local imperfections, there are vast inequalities and injustices within and between countries. While PTVT’s central objective
is other than the production of ethical activists, it is reasonable to suppose that — without engaging in propaganda or compulsion — the lifelong “PTVT experience” should result in very many people much more determined and significantly more competent to help create a **better world** (or fragment thereof) in terms of, for example, the environment, health, communication, hospitality, caring, construction, animal welfare, arts, and the quality of life and human happiness generally.

As a report on the future of work in Australia out,

“…perspectives range widely, from more enticing views of abundant leisure, to more disturbing visions of widespread unemployment and deepening social divisions… The challenging task for governments, social actors and the wider population is to gain some understanding of the forces at work, in order to harness the potential for good and, if possible, minimise the harmful consequences” (Healey, Nicholson and Gahan, 2019) points.

We are saying that this undertaking is especially crucial for educational planners, in one way, and for training organisers, in a different and more obvious manner. The latter will need to take account of how the nature and distribution of work is changing — and will in all probability continue to change — as technological progress gathers speed. “The demand for humans to undertake abstract, cognitive tasks has increased strongly, while the demand for workers to do routine tasks has fallen and is threatened further by technological progress” (*ibid*). Those responsible for designing and delivering PTVT will focus upon “competence in performing unstructured job tasks, especially those of a cognitive variety” (*ibid*); those involved in education as opposed to workskills development, will, in response to learners’ expressed interests, ensure that the changing world of work may be debated and understood within the Global School — but in no sense prepared for.

As discussed already in relation to education, rampant inequality, between and within countries and across groups (for instance, women, ethnic minorities, workers with disabilities, migrants, etc.), is ubiquitous. Trainees (and, indeed, instructors) should be familiar with the range of issues related to worker’s rights and employer’s responsibilities. PTVT

“…should embrace a constructive critique of the world of work including its assumptions and the power relationships within it. This is where universal access to the internet via desktop and mobile devices can create a level global playing ground. 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…” (Douse 2013b).

This too should be regarded as a necessary soft skill for the digital age.

**Migrant labour** is, apart from the planned and usually lucrative career excursions of a few privileged expatriate experts and international entrepreneurs, one of recent history’s greatest inhumanities, on a par with slavery, with which it overlaps (and which manifestly still exists). Headlines such as “Nepalese migrants building the infrastructure to host the 2022 World Cup have died at a rate of one every two days in 2014” (Guardian, 2015) typify the exploitative situation. Some countries, including several in South Asia, deliberately train their nationals
for that heinous trade, counting upon the remittances for national budgets and wishfully hoping that workers with accredited qualifications as, say, master masons will be paid marginally more than unskilled labourers.

More positively, Digitisation offers many opportunities for significantly overcoming disadvantage and ameliorating segregation. For instance, in PTVT as well as in the Global School, assistive and adaptive technologies, which are objects or systems designed to increase or maintain the capabilities of people with disabilities, can be used to achieve inclusion. Such disabilities can include visual, cognitive, learning, and mobility incapacities; “responsive assistive technologies include 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” (Uys and Douse 2017b), within both the GS and the PTVT sector.

**Digital Age PTVT Provision**

To a large extent, enabling trainees to master digital skills involves the same principles as teaching them twentieth-century skills: using a variety of appropriate pedagogies, breaking down the material into small steps, encouraging much practice under sensitive supervision, blending face-to-face and digital learning experiences, and providing early feedback. One major difference in degree consists of the ability and desirability of trainees benefitting from self-instruction: to that extent, an objective is, wherever appropriate, to establish an environment wherein the trainees may take control of their learning (and here, a key GS element is paralleled). Digitisation creates similar opportunities for deeper independent learning but also more expansive collaboration opportunities, nationally and globally.

As the Director of a University-Community Transformation Centre points out, “…the digital age has transformed the way (PTVT) is operating. Technological integrated learning is ubiquitous in that context and the learning occurs not totally as a response to teaching, but rather as a result of a social framework that fosters acquisition of knowledge” (Mustapha 2017). His call to “move far beyond the traditional view of teaching as delivery of information” is echoed, and his schema of web-based education as an evolving level of continuity:

- Web 1.0 as a web of information connection
- Web 2.0 as a web of people connection
- Web 3.0 as a web of knowledge connection
- Web 4.0 as a web of intelligence connection

is appreciated (Mustapha, 2017). Which poses the question as to what the digital age PTVT institution should be – if the realistic and necessary objective is to support, reflect, and apply the techniques made possible by the digital age, when we come across a “PTVT centre,” what exactly is it that we shall see?

While specific situations, contexts, and aspirations vary widely, Digitisation has consequences and offers opportunities for transformation to all PTVT centres worldwide. The first of two major challenges to the inter-/intra-national PTVT system is the very massiveness of the training and re-skilling required but which may also be provisioned and realised through digital connectivity and integration. Workers in all areas and of every level must now very
frequently refresh their skills, if not alter their career paths, or even move into entirely new careers, if they wish to stay relevant and marketable (let alone professionally fulfilled) in this rapidly changing digital environment: that too is made possible by Digitisation.

The second major challenge has already been touched upon under both boundaries and status: where does PTVT end and something else begin? If just about every job is both practical and theoretical, in a world where collar colour is no longer distinctive, is the role of PTVT simply that of delivering those elements of capacity building that no one else (universities, professional associations, company training schemes, etc.) is providing? Or is the sector in competition with those other providers? Or are entirely new digital age definitions, visions, goals, and missions necessitated? Some may see it as conceivable that aspects of tertiary, lifelong and higher education will merge and even include elements of secondary education, all engineered and supported by blended interactions and flexible pathways between the various levels. Others, the present authors included, recognise that work-related training is crucially different from education and that the hard border between them must be rigidly maintained.

Clearly, PTVT needs to deliver much more much better. The PTVT instructor may involve a wide range of media and devices to communicate content, but the trainees’ development in understanding is much more specifically tied to particular instructional approaches and technologies. As the Motivis Learning CEO put it: “Google, YouTube, and/or Wikipedia can answer almost any question, but no search engine or social media platform can be relied upon to put information into developmentally appropriate contexts” (Peddle 2017). But this presumes that the instructor is skilled enough to assist the trainees in gaining optimum advantages from the learning technologies or that the “instructor” still needs to “instruct” in a world in which information is universally accessible through online and mobile devices. As with teachers in general education, PTVT instructors carry huge responsibilities to create the framework and scaffold the learning, and, if they lack digital understanding, they cannot contribute that much to their trainees’ all-around development in the digital age.

While the digital future will transform PTVT – in terms both of what needs to be learned and how best it should be “delivered” – as with education, it involves no either/or choice between technology and instructor. Just as “digital education needs excellent teachers and the teaching profession needs digital education” (Hassel et al, 2012), so also does digital age PTVT require excellent instructors working in tandem with the optimum technology. The human instructor will very much be needed to create blended learning experiences, motivate trainees, support them with time and task management, mentor and model life skills, help them dig deeper into material and develop higher-order thinking skills (analytical, conceptual, and creative), and take responsibility for ensuring learning outcomes. They will retain responsibility for diagnosis, assessment, and accreditation: and in each of these, they will be supported by digital technology. Here again we may enjoy saying: no longer the “sage on the stage” but the “guide by the side,” not to mention the “critical friend to the virtual end!”

Open PTVT Learning

Distance PTVT has an increasingly significant part to play in the blended skills development setting. Such remote instruction may be:
• Synchronous, with instructor and trainee interacting in real time (e.g., videoconference, shared online whiteboards, Skype, or telephone)
• Asynchronous, with interaction other than in real time (written online feedback on assignments, answer students’ questions via email, or post a response to an online discussion board)

and both forms overcome some of the problems of location and distance. Instructor and learner need not even be in the same continent or time zone provided they remain on the same wavelength: each may choose their preferred work setting. Moreover, specialist or “Mediagenic super instructors” (to borrow a phrase from Bryan Hassel) may reach a “potentially boundless number of trainees…” As this technology advances, none should ever have to learn how to lay bricks or make soufflés or deal with angry customers “…from anyone other than the very best explainers of those topics worldwide” (see Hassel et al, 2012).

The more divorced PTVT redeploy from a specific and physical location, the easier it becomes to imagine different kinds of employment arrangements for instructors, located in virtual centres, providing instruction online, designing instructional resources or curricula, or giving quality assurance. Similarly, online PTVT instructor professional development may take place anytime and anywhere, in a dynamic setting, bespoke, and available upon demand. These changes will not come about automatically, and PTVT is certainly not there yet. A fundamental and obvious necessity (and, many might say, a basic human right) is the provision of universal low-cost access to broadband Internet for all centres, instructors and trainees worldwide. Excellent digital tools and excellent live instructors, working in tandem, seamlessly blended, for all trainees, should be the PTVT policy goal.

Sufficient and Suitable PTVT Instructors

This digital age necessitates – and makes possible – the provision of sufficient competent, confident, and cheerful PTVT instructors, deserving and receiving widespread respect and playing key facilitative and professionally fulfilling roles in “skills development founded upon Digitisation.” Just as next year’s PTVT instructor may be working from a physical or a virtual centre, or as an online provider or designer, so too may that professional’s career-long capacity development be facilitated by a revitalized PTVT instructor profession. Irrespective of their vocational specialities (ideally reflecting the market’s forthcoming priorities), all PTVT instructors will be teachers of specific work-related digital skills and (unlike post-primary GS teachers) effective agents in the propagation of digital literacy and fluency. Not only will they continue to be well versed in content, they will increasingly need to become experts in skills development and learning experience creation, at least matching the needs of knowledge-based workers.

Clearly, the unparalleled changes, challenges, and opportunities involved in Digitisation necessitate entirely fresh thinking regarding PTVT instructors’ roles and capacities, through pre- and in-service initial training and throughout career-long professional development. These digitally comfortable professionals, in addition to having a suite of basic technology-related skills, will take on new and often more sophisticated duties and responsibilities in ways that will challenge the existing capacity of many PTVT instructor preparation centres and systems to prepare and assist them over time. No doubt, PTVT Instructors will become “guides” and “facilitators,” intelligently utilizing the vast and readily available source of information and ideas, the experience and expertise of the trainees, applying techniques such
as business games, hospitality management simulations, and the “flipped workshop and class” (see Uys and Douse 2017b, for a detailed discussion of these possibilities). Moreover, trainees will become “co-instructors” in learner-centred environments: competent and confident digital age PTVT instructors will have no problem with that.

While technology will not replace TVET instructors, it will profoundly alter what they do and how they do it, and those who make the best use of contemporary (and evolving) technology will replace those who do not. Or, to look at it another way, with Digitisation and the necessary support, effective PTVT instructors will come into their own [sounds familiar!], deserving and receiving widespread respect. [However, having called those who impart PTVT skills “instructors” throughout this chapter, we still rule out the possibility of their osmotically becoming “educators,” within a seminal postsecondary alignment, as that border may not be crossed.]

Digitisation is offering fresh possibilities regarding how PTVT instructors receive basic training and continuous professional development. In such dramatically altered circumstances, the necessity is to redefine PTVT instructor education for the digital age. As the Director of the Colombo Plan Staff College for Technician Education (CPSCTE) recognised over two decades ago, the need is for “a multidimensional approach to training TVET teachers that includes preservice and continuing teacher education through formal and open learning systems; a broader-based, more flexible teacher training curriculum to replace skill-specific training programmes; integration of training and education in cooperation with industries/private sectors; lifelong learning; knowledge of using new training technologies; development of multilingual and communication skills; and increased emphasis on teamwork” (Basu, 1997). Many others have said it since, some may well have said it better, but it has yet to occur and, with Digitisation, the approach summed up in that one succinct sentence by the CPSCTE Director would seem to apply ever more urgently and unavoidably. However, that has nothing at all to do with education.

Addressing the changing diploma/ experience/capability recognition landscape, Keevy and Chakroun (2019) recognise that digital technology is also expected to offer “new credentialing methods and systems that can capture, recognise and validate a broader range of learning outcomes in the era of lifelong learning”. Acknowledging the growing internationalisation of labour markets, learning across borders, migration and mobility, mechanisms for recognition, validation and accreditation of tertiary education qualifications, they focus upon the relationship between traditional, formal certification and digital credentials, along with quality assurance and “the prospect of greater integration between policy making and practice, and stronger support for innovation” (ibid). Responding to ongoing work being done by UNESCO and other bodies, their concentration is on skills development and the evolution of qualifications frameworks. The notion of one universal training institution, paralleling the Global School is beyond the remit of a study of education. However, the corollary is relevant (what do these considerations imply for the notions of a universally recognised ‘GS teacher’ meeting standard worldwide criteria and possessing globally-recognised credentials?) and this issue cannot be avoided (see Chapter 12, below).

**A Working Determination**

Focussing upon the skills needs of the non-academic undoubtedly served valuable public and private purposes over the now-concluding period between industrialisation and the movement
into Digitisation. But comprehensive tertiary institutions and systems may now, and at last, embody the true universitas spirit, the business orientations discussed earlier notwithstanding. Whatever the mechanism, and however the occupational kaleidoscope settles at any point in the flow of time, the massive, multifarious, and dynamic requirement for lifelong skills development will need to be met, creatively, efficiently, and, hopefully, equitably and, of course, sharply distinguished from education. The central challenge is that of conceptualizing and creating PTVT structures and arrangements appropriate to the dramatically new circumstances of these present and the forthcoming 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, skill, work, qualification, curriculum, assessment, trainee, instructor, apprentice, PTVT centre, and, of course, PTVT itself. It is also necessary to distinguish between the likely, the possible, and the fantastic.

Digitisation enables and requires the transformation of not just the scope, delivery, and effectiveness of PTVT, but, even more fundamentally, enables the creation of comprehensive, open and inspirational arrangements that bestow work-related (as opposed to life-related) learning possibilities upon the entirety of humanity, and at last fulfil skills development’s reach and purpose. And all of that to be envisaged and achieved, let it also be emphasised, not by remote coteries of sequestered decision-makers with noble intentions unmatched by close acquaintance with reality but by means of the kind of well-informed universal participation that, at its best, contemporary technology makes possible, enjoyable, and unavoidable.
11.  SPEAK UP AT THE BACK

Returning – after that brief vocational diversion – to the Global School, we may remind ourselves that Digitisation is profoundly changing the learning and teaching setting worldwide, necessitating and making possible an entirely fresh approach to education with – we contend and welcome – well-informed and open debating at its heart. It is this fascinating and universal development that is addressed in this penultimate chapter.

Silence in Class

In modern life, oral communication is still critical, even though typed dispatches, as in text messages and on various social platforms, are become more prevalent. Currently in schoolrooms it is still mostly words on pages. Humankind’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, be it desktop or mobile – 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 supporting all students in building up their oral communication skills abound.

Oracy has received much useful attention recently. One study (Mercer, 2019) found that teachers who (a) engaged learners in questioning each other’s ideas, (b) encouraged learners to elaborate on their own ideas, and (c) got everyone in the (primary) class involved, resulted in better examination results. Moreover, “if teachers provide children with an explicit, practical introduction to the use of language in collective reasoning, then they learn better ways of thinking collectively and better ways of thinking alone (ibid). While this is interesting as it is convincing, the linkages with examination performance (for primary pupils!) is saddening if unsurprising. To be fair, Professor Mercer does go on to recognise that “the skills that oracy covers – debating, public speaking, complex verbal reasoning – were, in the early days of education… for the upper classes, to become judges, lawyers, MPs and so forth” and his prescription does proceed further than merely prioritising pupil talk over teacher talk. Thus, where he advocates the posing, by the teacher, of controversial statements such as ‘Animals should not be kept in zoos’ and then stimulating and managing a discussion, Professor Neil Mercer approaches our position of the debate being the basic pedagogical practice, without quite reaching it. “This is not just about boosting test scores” (Mercer, 2019): now there’s a debating point upon which we may all agree.

Martin Samuelsson (2016) examines two different forms of criticism against consensus in democratic education: that it “fails to account for the conflictual nature of democracy and thereby disallows disagreement and (what he calls) dissensus” and that it “disrupts the pattern of communication in classroom discussions”. While his counter-argument, that consensus is a “multifaceted concept that allows for different types of agreements and disagreements to coexist” (ibid) is compatible with the Global School debate-based methodology, a more important consideration is that learning outcomes are not predetermined by teachers nor by ‘the system’. For example, mock elections and political simulations may be effective and enjoyable learning experiences for those who choose to participate in them, as opposed to their being “promising tools to instigate democratic learning in schools” (de Groot, 2018). As Samuelson observes, “in order to participate in democratic deliberations, citizens need certain
skills, attitudes, and values” (Samuelson, 2016). However, his advice on how teachers “can steer classroom discussions toward democratic deliberation” (ibid) constitutes an undemocratic imposition of educational objectives which, as we emphasise, should necessarily arise internally, from learners, as opposed to being imposed externally, by well-meaning others.

This fundamental debate-based pedagogy, involving all participants – not just the competitive few along with the vocally challenged minority – embodies the well-informed exchanges of ideas – a mind-expanding experience and a honing of judgemental skills, eclectic, interrogative and principled – as the learner-originating educational process increasingly mirrors the enjoyable oratorical cut-and-thrust (see Douse, 2018). Learning, whether through debates, preparing for debates, reflecting upon debates, evaluating debates, or otherwise, is neither tranquil consensus nor uninterrupted communication. Rather, it is a never-ending search, a fulfilling journey rather than a prescribed destination. It a wondrously complex universe, it could not be otherwise.

Digitisation offers oceans of alternatives and seas of questioning: tides that neither edict nor entropy may ever turn around (nor UNESCO usefully tabulate). In that the learning agenda may emerge from learners’ interests and enthusiasms, a matching teacher-guided and learner-determined process may evolve in parallel, again arrived at from the worldwide rather than from the national level. Educationally, and maybe democratically also (although that remains a matter for debate), these are – as already observed – the most exciting times since Socrates (the philosopher not the footballer).

**The Silent Majority**

From the World School Students Debating Championships (in which some forty countries take part annually), through national and city or county contests (over 20,000 secondary students participate in each year’s Speak Out Challenge in London, England), to school- and university-level speakers and debaters clubs, there are massive (and under-reported) developments in academic debating worldwide and at all levels.

Gradually and belatedly, the focus is broadening from contests involving only the best and keenest orators towards training and participation for a wider range of students. Nevertheless, the typical pattern, in the UK, Ireland and other school systems with which I am most familiar, remains one of formal competitions for those interested in debating, alongside specialist attention – when available – for those with identified speech problems. Thus the review of young people with speech, language and communication needs (SLCN), led by John Bercow, until very recently Mr. Speaker of the British House of Commons (Bercow, 2008), was widely perceived by the media as dealing mainly with those young people who needed speech therapists. In fact, it called for upgrading the standards of spoken communication of all children and adolescents. That Bercow Report addressed how best to enable speech, language and communication services to improve educational outcomes, promote public health, tackle anti-social behaviour and bolster the skills of the workforce. It underlined that oral communication is an essential skill and fundamental human right, crucial to every child’s ability to access and get the most out of education and life.

As already noted, much of what occurs in classrooms and lecture halls, however, is based upon and results in words on pages. While schools have responded (albeit, as discussed, in a
fragmented manner) to the vital computer skills requirement, that too tends to engender hard copy rather than speech. Most homework assignments involve some writing or a preparation for a written test the following day. Examinations – even those with practical components – are based almost exclusively on the expression of ideas on paper: “orals” tend to be confined to foreign language assessments. One report (Sutton Trust, 2017) [as discussed earlier under extracurricular in Chapter 4] indicates that, in the UK, while 45 per cent of secondary teachers said their school provided debating, just two per cent of pupils report taking part. Moreover, “…pupils from disadvantaged backgrounds are less likely to take up such activities than are their better-off peers” (*ibid*). The present authors believe that across the developing world, the situation is worse. The production of orators was once regarded as the central educational objective (see Quintilian, circa 95 AD) and, even today, students are encouraged to enter debating contests on the basis that this will “look good on your CV” (see Douse, 2018, where the “debate as pedagogy” paradigm is touched upon). Here, as across the extra-curricular totality, imagined preparation for the world of work has encroached upon what should be opportunities for enjoyment, exploration and self-fulfilment: Digitisation may enable those true co-curricular purposes to flourish for instance through instantaneous fact checking and global digital interactions.

Increasingly, educationalists internationally identify a link between debating and scholastic achievement (see, for example, Mezuk, 2009; Douse, 2018; and recent National Forensic League bulletins). It is also the case that “Debating can be used to enhance the teaching of various subjects” (Snider & Schnurer, 2006) and good work has been done on how it may be applied as a classroom technique in a range of disciplines (see Duffin, 2005, for example). There is also a growing recognition of the spoken word as vital to democratic participation (see, for example, the Debating for Democracy website with its evidence related to Project Pericles, or the British Council’s Young Arab Voices programme). Students involved in the wide range of speaking- and debate-related innovations that the present authors have witnessed have been positive regarding their participation in relation to their being able to join in talk-back radio programmes, to stand up for their rights on school councils, to become participating trade unionists, and to be prepared for the seminar approach at universities. However, it is as a Right, and not from its clear relevance to employment and future lives generally, that these oratorical approaches are justified as Global School fundamentals.

Perhaps the national curricula are perceived as too crowded to be dealt with in any radical albeit more rational manner. Inevitably, and as already recognised, teachers tend to teach as they themselves were taught, mediated by how they were taught to teach. As with any educational innovation, emphasising the spoken word in current circumstances would need to begin with the teachers, encompassing not only their own training but also their aspirations, morale and dispositions: for some, the very last thing that they would desire their students to learn would be how to argue effectively. It is the case, however, that coming generations will spend far more time expressing ideas out loud and listening critically than they will in solving quadratic equations on paper or compiling paragraphs on the significance of this scene in a play or the origins of the Hundred Years War. Current educational practice is producing another generation to whom “making a speech” is as attractive as undergoing root canal surgery. As educators – rather than trainers – we are unconcerned that the evolving world of work will be increasingly competitive and the leisure time opportunities progressively more participative. For the sake of education – ignoring the desirability of outcomes – we advocate the debate as basic learning methodology: the dialectic, the clash of ideas out of which the truth will evolve.
Not so long ago, good people were arguing that no child should leave school without acquiring certain skills (grammatical penmanship, arithmetical accuracy, familiarity with national heroes and suchlike). Just as we refute the notion of ‘leaving school’ (other than as an alternative euphemism for ‘passing away’) so also, as we reject the idea of schooling as preparation, we cannot list post-primary outcome requirements. Education, as practiced in the Global School, will certainly offer opportunities for learners to enjoy handling mathematical ideas and to develop a love of reading and a familiarity with contemporary technology. But equally – yes, equally – it will respond to learners’ wishes to enjoy contributing to discussions, asking questions of political and local government representatives, engaging in advocacy, making presentations, giving clear verbal instructions and advice, and listening thoughtfully and critically to speeches and statements made by others. Happily, as we move into the Fourth Industrial Age, Digitisation necessitates and makes possible a fresh educational approach which – for all learners engaging in debating in order to arrive at the truth in areas that they have chosen to study, and also for those who devote particular attention to those becoming involved in such extra-curricular activities – addresses and provides solutions to these challenges.

Speakable Consequences

The arrival of the Global School has, as already discussed in some detail, profound curricula and pedagogic implications. A central consequence is that learners will necessarily be questioning, expressing their ideas aloud and responding clearly and cogently. And this is entirely as it should be: as the great bearded Irish playwright put it: “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” (Shaw, 1931). Watch young people now with their ever-evolving devices; yes, they text, assuredly they snap (in the sense of taking a photograph) as they chat, but above all, they speak (if not to their parents, at least to one another). And this evolving interchange reflects the emerging learning process as education, after two millennia, becomes oral again with learning being the on-going intensely-participative international debate.

Obviously, the internet offers an overwhelming wealth of information for debaters, with an overabundance of reference material ranging from the speciously bogus to the stimulating authentic. It also offers opportunities for international debates – not just online contests (although these are already occurring) but debates betwixt students in, for instance, New England USA, New England Australia and Old England UK on matters historical, geographical economic, chemical or mathematical. [Mike notes from the internet that he is far from the only person to have compiled an article designated something along the lines of “Debating/Speaking Across the Curriculum” (Douse, 2009).] Much more than that, Digitisation heralds a fresh bespoke educational era. The emphasis will be upon personalised elearning and increasing engagement, characterised by ongoing and creative spoken communication. The fundamental pedagogy will be the well-informed exchanges and contesting of ideas as the educational process increasingly mirrors the academic debate.

The New York Times (2011) is reported to have observed that “…learning, like culture, is a dynamic thing. It was an oral thing once, then it became a printed thing and is becoming a digital thing”. The much-hyped 21st century education is bold. It breaks the mould. It is flexible, creative, challenging, and complex. As we have mentioned, over nineteen centuries
ago, the Roman rhetorician Marcus Fabius Quintilianus entitled his analysis of the formal learning process “The Education of An Orator” (Quintilian, circa 95 AD; see also Watson, 1856). 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” (ibid).

Although assertions of that nature may well be contested (i.e. debated), and although Quintilian was focusing on the sons of patrician families – he published no advice on the education of girls (the orator was invariably “he”) nor, indeed the offspring of plebeians, let alone of slaves – his work recognises the central role of public speaking in the Roman governance and legal processes. Were we about ‘preparation’, a study of 21st century schooling might be titled ‘The Education of a Negotiator cum Outspoken Consumer cum Participative Citizen cum Vociferous Worker’. And so, while it might be a trifle too extreme to emulate Quintilian in defining the purpose of 21st century schooling as “The Education of a Debater,” ensuring that all school-leavers are able confidently to express themselves through the spoken word, and to present a case and refute that put forward by others, is a reasonable and achievable objective, were such educational objectives still admissible. Its full accomplishment entails a fresh assessment of how everything dealt with at schools and universities is prepared, presented, responded to, recorded and assessed. The Digital Age makes this not only conceivable but, thankfully, unavoidable. A good start would be the realisation that fostering effective oral communication skills by means of the well-informed debate is a priority for all our students rather than just for that minority who are keen to enter contests and that minority who have discernible speech defects.

In his 2014 text Sparking the Debate: How to Create a Debate Program, Alfred Snider expressed the hope that, 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” (Snider, 2014) [and echoes of Quintilian may be detected here]. Digitisation demonstrates that the time is entirely right for such sparks to fly. Although we have focussed in One World One School on the secondary stage, the transformation applies to all educational phases from nursery through post-doctoral to lifelong-learning. The structured academic argument, hitherto regarded by many as a valuable add-on for the interested few, becomes the prevalent pedagogy. The vision is that of learners loving the engagement of well-researched ideas and well-argued interpretations. The spin-off may well be better-informed citizens, more communicative workers and increasingly involved citizens – but that is irrelevant. We talk, therefore we learn. We deliberate, therefore we understand. With Digitisation as catalyst, the debate now manifests the learning process. Proposition, Opposition, Synthesis: the hour is nigh.
12. DEBATABLE CONCLUSIONS

We contend that, across the curriculum, the well-informed conflict of opposing conceptions manifests the Global School approach, in that it is participative, enjoyable and fruitful. Teacher and learners; these learners and those learners (randomly allocated or according to preference); formal debate or structured discussion; just about all ‘subjects’ or, as we prefer, learner-selected interest areas: by such means may learning occur and the truth approached. Accordingly, let us now conclude One World One School with some examples of debatable motions relevant to some of our contentions. We have avoided one-sided motions (‘tobacco causes lung cancer’; human behaviour influences climate change’; ‘Digitisation makes the Global School necessary and inevitable’; ‘things will continue much as they do at present’) but have, rather, striven to provide topics expressed in forms that offer relatively equal opportunities for reasonable arguments both for and against. However, those subjects set out below – and thus the brief notes appended to each – should be regarded as starting-points. Indeed, education is a never-ending series of debates, a constant evolution and testing of hypotheses, an overturning of temporary consensus, a world of wonderful ideas in which the Global School is anchored happily and beneficially.

THAT ALL TEACHERS, EVERYWHERE, SHOULD BE ON THE SAME (AND GOOD) PAY SCALE AS ONE ANOTHER

This may well include a comparison between that which is good in principle and that which is feasible in practice. That word ‘good’ is very likely to be focussed upon and affordability is likely to be raised, despite this being a ‘should’ debate. The same sum may purchase far more in the Marshall Islands than in Manhattan but, it may be argued, a teacher in Tahiti may be facilitating learners in Toronto – it is the one worldwide profession.

THAT LEARNERS WHO EXCEL SHOULD BE RECOGNISED AND REWARDED

Perhaps underlying this motion is the matter of what education is for. Should the Global School incorporate competition or is that alien to its philosophy? ‘Recognised’ by whom and ‘rewarded’ how? Are we straying into ‘getting a good CV’ territory? Or would it do no harm to tell a learner that she has performed in the top decile – and/or dispatching an attractive virtual diploma? The corollary, of course, is that those not thus recognised would be discouraged – negative reinforcement is probably undesirable. And is a learner, with acute difficulties, who really enjoys a challenging work programme, excelling? Is a highly intelligent student who coasts?

THAT THE PROSPECTIVE PERILS OF EXTENSIVE INTERNET USE OUTWEIGH THE POTENTIAL BENEFITS

Here is a more general subject which could well be debated irrespective of the forthcoming educational transformation. But, of course, GS participation involves a fresh form of internet familiarity – what are those dangers, what is the potential damage, and would the on-going duality of the digital age learning experience increase or decrease the risks? Mitigation measures come into it, of course, but both sides of the argument need to be realistic regarding that which is potential, possible, probable
or preventable. [Some may also contend that e-learning, including the GS, constituting a form of social media, is complicit in social and political control. Let no ideas be excluded!]

**THAT THERE WILL SOON BE BUT ONE UNIVERSAL UNIVERSITY**

This debate involves looking at the emerging GS situation and considering how that applies at the post-secondary phase. By all means explore whether or not all of the world’s universities could and should unify, in some or in all respects [maybe take account of the recent UNESCO convention on the recognition of qualifications]. But note that this motion is a prediction rather that a discussion of what is good, partially good or terrible. And how ‘soon’ is ‘soon’? And how would the wider PTVT components – such as apprenticeships and short upgrading courses for computer operators, cooks and cabinet makers – be fitted in? In other words, what is a university?

**THAT, IF LEFT TO THEMSELVES, MANY WILL CHOOSE TO LEARN NOTHING OF VALUE**

Many might feel that this could well be a major GS drawback – which many learners have no wish to learn. Whether or not they would in fact be ‘left to themselves’ is, in terms of this debate, a distraction: it is there in the motion and consequently that must be assumed and addressed. So it becomes a consideration of human nature rather than a consideration of GS supportive arrangements. That there are many in today’s schools who are uninterested in learning, and who have to be given positive or negative reinforcement to make them appear to become involved, is similarly irrelevant. This is a ‘what is going to happen?’ debate, linked closely with ‘why do we want to (or want not to) learn?’

**THAT, IN THE FAIRLY NEAR FUTURE, FOR MOST PEOPLE, THROUGHOUT THEIR LIVES AND ACROSS THE WORLD, EDUCATION WILL OCCUPY MORE OF THEIR TIME, ATTENTION AND ENERGY THAN WILL ANYTHING RELATED TO REMUNERATIVE WORK**

This really requires some deep thinking regarding the ‘fairly near’ future? What will be the actual consequences of AI and other profound developments? If much mundane work can be robotised, and if this can be reflected in a radically different economic system, would that really be reflected in a worldwide society with education as the predominant activity of ‘most people’? While we may ask whether this is even desirable, quite apart from whether it is possible, this is a prediction debate. The opposition, however, in addition to showing that this will not come to pass (or at least not for many decades to come) may care to offer and justify their own prognostications (or to substitute ‘an equal amount’ for ‘more’, although that balance may be hard to sustain).

**THAT THE CONTINUOUS PROFESSIONAL DEVELOPMENT OF TEACHERS SHOULD BE REGARDED AS ‘EDUCATION’ RATHER THAN ‘TRAINING’**

Learning for its own sake is ‘education’; developing skills that relate to the world of work is not. But in-service teacher preparation upgrading may possibly be a special
case (unless the proposition choose to argue that everything in any way to do with education is by definition ‘educational’). While teasing this out, it may be noted that the concept of ‘Continuous Professional Development’ is there up-front in the motion. We are not talking about pre-service training – rather, we are focussing upon teachers being supported throughout their careers in becoming up-to-date and better teachers (whatever we mean by that). And what of the idea that upgrading on subject knowledge is education but that enhancing teaching techniques is training? Much to be debated here!

THAT THOSE WITH SPECIAL EDUCATIONAL NEEDS, INCLUDING LEARNERS WITH AUTISM, WILL BE BETTER PROVIDED FOR THROUGH THE GLOBAL SCHOOL

This important issue has yet to fully thought through – and well-informed debates might enable good policies to evolve (learners being an integral element in GS development). ['Better’ will need to be clearly defined: ‘better than presently provided for’ or, less obviously, ‘better than are other learners’?] Some young people may never attain that level of autonomy that enables them to be in charge of their curriculum. Conceivably, some of those with autism could fare better once education reflects the contemporary tangible/virtual duality. Moreover, inclusivity at the global level is inevitable when there is the one universal school and thus no ‘special’ educational institutions. But, for a small but significant proportion of learners, ‘special’ teachers and ‘special’ classes and no doubt ‘special’ methodologies and learning materials will be necessary. Perhaps the worldwide linkage may be used to good effect in sharing effective approaches but the debaters will need critically and imaginatively to explore these and other possibilities.

THAT NO LEARNER SHOULD EVER BE REQUIRED TO MAKE ANY PAYMENT IN RELATION TO ANY GLOBAL SCHOOL MODULE OR SUPPORTING SERVICE

Another ‘should’ debate and here we have opportunities for contrasting ‘what is realistic and feasible’ with ‘what is ideal and indispensable’. The term ‘required’ might well be focussed upon: would ‘invited to make a donation’ be permissible within the terms of the motion? Contemporary discussions about private schooling and tuition remain relevant while the essential non-competitive character of the GS and the abolition of world-of-work linkages raise them to a different dimension.

THAT, FAIRLY SOON, ROBOTS WILL SIT ALONGSIDE HUMAN TEACHERS AT STAFF MEETINGS, BE ALLOCATED SIMILAR RESPONSIBILITIES AND WORKLOADS TO THEIRS, AND BE SUBJECT TO IDENTICAL PROFESSIONAL RECOGNITION, CODES OF BEHAVIOUR AND DISCIPLINARY REQUIREMENTS

Another prediction debate – and, some may say, a wildly imaginative one at that. But it calls for ‘realistic futurology’ regarding the roles of robots in the GS and, in passing, involves some thoughtful consideration of both the forthcoming roles of teachers and of their working with, alongside and in harness with machines. There are six specific prophecies (staff meetings, responsibilities, workloads, recognition, behaviour, discipline) and, although debaters may always be innovative, addressing the underlying issue while using examples within those six headings (as opposed to looking at each of them in turn as if there were six sub-debates) may prove the more
effective strategy. [Whether or not robots should chair or participate in debates such as this is an interesting area for conjecture.]

**THAT ALL ‘EDUCATION’ IS, TO SOME EXTENT, ‘TRAINING’, JUST AS ALL ‘TRAINING’ IS, TO SOME DEGREE, ‘EDUCATION’**

The issue here is likely to be based upon what we mean by ‘education’ and what we mean by ‘training’ and, for the proposition, the definitions overlap while, for the opposition, there is no intersection. The words ‘all’ could become important – examples of some instances of education that are seen as involving some training (that of teachers is a fairly obvious one) and of some training that may be regarded as being in part educational, may be insufficient to support the general statements. However, it is unlikely that a small number of untypical instances will be convincing: the debate is likely to revolve around the general principles rather than specific examples. [Debaters should try not to be distracted by that word ‘degree’.]

**THAT THE ADVENT OF THE GLOBAL SCHOOL WILL MAKE NO DIFFERENCE TO DRUG USE, BULLYING, AND THE CARRYING OF KNIVES AND GUNS**

A starting-point has to be the realisation that the GS does not see education as making learners ‘better people’ but concentrates on enabling them to become ‘better educated’ while avoiding propaganda, proselytising and indoctrination. So the debaters may like to consider whether being ‘better educated’, and having enjoyed the learning process, may have a positive spin-off in terms of all of the negative actions in the motion. [Arguing that the GS will exacerbate these problems is, technically, a permissible opposition line!] Perhaps the idea that, having studied modules on drugs and drug use, for example, or on ‘why bullies bully’, learners will, through their better understanding of the underlying issues, behave better themselves and cause others to do so, will be focussed upon. Certainly, these are very live issues; it may be interesting to bring them together and for them to be debated within a context wherein the roles of teachers, and of the GS authorities, do not extend to influencing the learners’ behaviours.

**THAT THE MOVE INTO THE DIGITAL AGE IS AS HISTORICALLY SIGNIFICANT AS WAS THE TRANSITION FROM FEUDALISM TO CAPITALISM**

This is, of course, another much wider issue than most of those presented in this concluding chapter: in that the Global School is an outcome of this on-going transition, its inclusion may be justified. It illustrates, in passing, how historical issues lend themselves particularly well to the debating methodology. It would be difficult to take either side in this debate without having explored in some depth the move from feudalism to capitalism and there is a wealth of material on that transition, with a variety of analyses and interpretations. And then it becomes a matter of comparison – is the move into the Digital Age that we are now experiencing of even greater consequence, and what do we mean by ‘historically significant’? This could well be a major debate, extending over several weeks, returned to after further research, moderated by one or more top GS teacher(s), highly enjoyable, extremely educational, and not necessarily reaching a consensual conclusion.
**THAT IT WILL NEVER BE POSSIBLE TO ELIMINATEindoctrination COMPLETELY FROM EDUCATION**

While it is relatively easy to say that political, religious and other overt proselytising should and could be outlawed from the GS classroom cum airwaves, the teacher who – even unwittingly – convinces learners that certain attitudes towards, say, human rights or the environment are appropriate is much harder to control or reprimand, even if it were desirable to do so. But is this ‘indoctrination’? Let it be recognised that this is not another ‘should’ debate but a consideration of the possible: we may or may not wish to prevent teachers producing ‘good’ learners with ‘correct’ attitudes (whatever they may comprise) but can we do so? Completely?

**THAT TO BE A ‘TEACHER’ MEANS HAVING BEEN ACCREDITED (AND REGULARLY RE-ACCREDITED) BY THE GLOBAL SCHOOL ON THE BASIS OF STANDARD WORLDWIDE CRITERIA**

An opposition line might well be that, in the time of Digitisation, our notions of the ‘qualified teacher’ are outdated: with AI as support, for example, effective teaching becomes possible without extensive training demonstrated by specified credentials. Alternatively, the motion might be opposed by pointing to differing requirements from country to country although, given that the GS is a global institution, that line may be difficult to sustain. Professional associations might tend to support this motion; advocates of bringing leading thinkers (and personalities) into the global classroom are likely to oppose; GS learners should enjoy participating on either side. Analogies are not always effective in debates but the situations of, say, medical practitioners, pilots or construction engineers might be mentioned by the proposition – just as those opposing might like to look at authors and artists, or indeed to send in the clowns.

**THAT THE EMERGENCE OF THE ONE UNIVERSAL SCHOOL PAVES THE WAY TOWARDS A WORLD WITH NO BORDERS AND AT PEACE**

Which seems an eminently debatable proposition upon which to conclude.
APPENDIX

[Extract from the authors’ presentation to the 2019 ICDE World Conference on Online Learning in Dublin]

POSTSCRIPT (Collatio Tomi)

Digitisation enables and necessitates the kind of educational leap forward that occurs only once in every thirty or so generations. So, before we conclude, let us all bound back, in our collective imaginations, to the mid-15th century, to a time when Johannes Gutenberg had just developed movable type printing technology. Imagine the scene: theologians, teachers and scholars assembled here in medieval Dublin, then the centre of global scholarship, the meeting-point of Gaelic Ireland, slumbering European Christianity and the pondering Muslim world.

From all corners of literate Earth they came, from Florence and from Valvanera and from as far away as the Monastery of Saint Anthony in Egypt and the Jagiellonian University in Kraków. Much like many of us for this present conference, they made the long and perilous expedition across the Celtic Sea and sought accommodation at such abbeys and hostellries as were available (there were no **** hotels nor convention centres in existence in this Fair City at that time!).

And why had they gathered in this sanctified and scholarly place? They had made their journeys here in order to participate in a Symposium entitled ‘World Conference on the Printed Book’. [The official language of the conference was Latin.] For they perceived the output of movable type to be so new, so original, so different as to justify a separate spotlight.

Looking back, how strange that seems. How odd that they should use terms such as ‘B-Learning’, meaning ‘learning that is facilitated by Books’. Or to talk about ‘Books in the Preparation of New Generation Specialists’. Or to discuss ‘Transformative Book-based Pedagogies’ and ‘Reimaging Book-based Education for Better Futures’ or to consider how printed books are SMART and how they contribute to ‘exchange of experiences’ and "flexible and blended delivery" and to ‘intelligent innovation’ and ‘creativity and open thinking’ not to mention ‘human dignity, based on flexibility and originality’. They saw themselves as “Transforming Lives and Societies”, they mixed socially and enjoyed the sights and delights of Baile Átha Cliath and revelled in a truly unique Irish experience along with an exciting and engaging conference programme, not to mention Vigils, Vespers and Compline. They asked the Big Questions and meditated on how the Book would open pathways and new credentials for Learning throughout this Life and – of at least equal importance – the Next.

How weird! For books are integral to education: they are now and they were then. Far from something separate, they were and they remain central and inseparable. All that those aged middle-ages sages needed to do was to convene a Convention called ‘Education’ and then ‘Books’ would come into every session naturally. But they didn’t realise that basic fact – after all, these were still the Dark Ages.

We’re sure that you can see where this is leading – please draw the parallels.

‘Online Learning’, Distance Learning’, E-learning’, ‘Lifelong Learning’ and the like are dysfunctional 20th century categorisations. We are focussing upon particular elements of an
integrated whole as if they had isolated existences. This might have been forgiven in the late 20th century (when people still took rolls of film to the high street for developing). It is inexcusable now.

For when we discuss ‘education’ we are already and inevitably talking about those incorporated ingredients. And, by failing to recognise that ‘online learning’ and suchlike are already inextricable and inseparable foundations of today’s learning and teaching, we are symbolically denying the fundamental educational transformation that is already occurring in many locations across the world. By gathering under ancient banners, much in the manner of those great 15th century Earls of Desmond, Ormonde, and Kildare who combined to dominate the Dublin government of their times, we are unwittingly opposing the causes to which much of our professional lives have been dedicated. Those who perceive ‘online learning’ as something other than an integrated element in our unitary educational endeavour remain (how may we say this collegiately?) Beyond the Pale.
BIBLIOGRAPHY – RECOMMENDED RELEVANT READING

While the central arguments of One World One School are as original as anything can be in an inter-connected world, inevitably some earlier concepts are built upon and taken forward herein. These include some of the ideas and approaches presented in the following – admired by the present authors – texts:

Beard, A. (2018) Natural Born Leaders: Our incredible capacity to learn and how we can harness it; Weidenfeld and Nicholson, London [Alex Beard’s inspiring and innovative analysis recognises the necessity for an entirely fresh educational approach if children are to fulfil their potential and fashion a better world, putting learning at the centre, taking account of Artificial Intelligence while marvelling at the human brain, and recognising the need to prioritise and approach education in an utterly different way if learners are to be enabled, through creativity and self-direction, to shape desirable futures.]

Bowles, S., and Gintis, H. (1976). Schooling in Capitalist America: Educational Reform and the Contradictions of Economic Life. Routledge & Kegan Paul, New York [Sam Bowles and Herbert Gintis present a now classic politico-economic analysis that sets out how schooling, far from being meritocratic, reproduces social class inequality from generation to inequitable generation. Moreover, the school is, they claim, deliberately made to be dreadfully similar to work, reproducing an elite while preparing workers for a life of exploitation in the capitalist system.]

Foer, F. (2017) World Without Mind: the Existential Threat of Big Tech. Jonathan Cape, London. [Frederick Foer makes – and in our view, substantiates – the claim that, Silicon Valley, in particular Google, Facebook and Amazon, threatens our souls and our civilisation, involving the demolition of privacy, individuality, creativity, free will, competitive markets, the media and publishing industries, the distinction between facts and lies, the possibility for political compromise, and the space for solitary contemplation.]

Frey, C.B. (2017) The Technology Trap: Capital, Labor and Power in the Age of Automation, Princeton University Press, USA. [Carl Benedikt Frey explains how the history of technological revolutions can help us better understand economic and political polarisation in the age of automation. Just as the Industrial Revolution eventually brought about extraordinary benefits for society, Artificial Intelligence systems have the potential to do the same, provided, argues Frey, that the short term is managed efficaciously.]

Piketty, T. (2019) Capital and Ideology, Harvard University Press, USA. [In this follow-up to his Capital in the Twenty-First Century, Thomas Piketty challenges us to revolutionise how we think about politics, ideology, and history. Our economy, he observes, is not a natural fact and markets, profits, and capital are all historical constructs that depend on choices. We echo his conclusion that that the great driver of human progress over the centuries has been the struggle for equality and education and not, as often argued, the assertion of property rights or the pursuit of stability.]

Quintilian (1856) Quintilian's Institutes of Oratory; Education of an Orator; originally by Marcus Fabius Quintilianus (circa 95 AD); translated and edited by Watson J. S. (1856) London: G. Bell and Sons. [This textbook on the theory and practice of rhetoric deals also with the education and development of the orator himself, with Quintilian setting out to
establish that the perfect orator is first a good man, and after that he is a good speaker, believing also that a speech should stay genuine to a message that is just and honourable. We accept some but not all of that but certainly echo the idea of the debate being at the heart of true education.]

Snow, C.P. (1959) The Two Cultures, London: Cambridge University Press. ISBN 978-0-521-45730-9. [This influential Rede Lecture by Charles Percy Snow claimed that the intellectual life of the whole of western society was split into two cultures – the sciences and the humanities – presenting a major hindrance to solving the world's problems. Other works by Baron Snow, including the gripping Strangers and Brothers series of novels, depict vividly and entertainingly how education – and the search for truth – were central to the lives of those whose careers spanned 20th century British academic and political life, in both of which he participated.]

Zuboff S. (2019) The Age of Surveillance Capitalism: the Fight for Human Future at the New Frontier of Power, Hachette Book Group, New York, USA. [Shoshana Zuboff describes how human experience is translated into behavioural data, and thus fabricated into prediction products, and then traded into what she calls ‘behavioural futures markets’, aimed ultimately at automating us. Professor Zuboff is especially concerned about the damaging social and political ramifications of surveillance capitalism: a “profoundly antidemocratic social force” which she sees as a market-driven coup from above: a “form of tyranny that feeds on people but is not of the people”.]
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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. Based in Wales and in Ireland, his assignments in this present millennium have been predominantly related to the European Union’s educational development support programme although he has also been involved in World Bank, UNICEF and ILO missions. 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 an Adjunct Associate Professor of Education Systems at Charles Sturt University in Australia and an international advisor in that field. Philip has published widely in this and related areas including educational innovation and quality assurance and he has conducted consultancies for an array of development partners in a range of countries. Most recently he has carried out consulting work in South Africa, Botswana, Liberia, Nigeria, Bangladesh, Tonga and Samoa.

Mike and Philip have recently produced a wide range of articles on various facets of education (for example: secondary curriculum, convivial pedagogy, educational psychology, educational planning, democracy, equity, and consciousness) with each title including the phrase “…in the Time of Digitisation”. By searching for each of ‘Douse’, ‘Uys’ and ‘Digitisation’, these may readily be accessed and enjoyed.

TAILPIECE

Digitisation is creating an entirely new and wonderfully inter-connected world. This fundamental and forthcoming transformation necessitates and makes possible utterly original understandings, approaches, arrangements and aspirations. However, while sectors such as communication, banking, entertainment, defence, information, retail and security have been radically restructured by digitisation, the applications of ICT in education have been characterised by four decades of disappointment, disillusionment and frustration.

Clearly, isolated and piecemeal digital innovations can achieve little of value within twentieth century schools and archaic educational systems. Given that we are in a time of unparalleled challenges and opportunities, One World One School recognises that, as our starting-point, we must agree upon a fresh comprehension of what education is really for in the third millennium and beyond.

Mike Douse and Philip Uys affirm that it needs to be totally restructured with digitisation as the cohesive force. Moreover, the novel Coronavirus/COVID-19 pandemic (appearing as this
book was on the point of completion) necessitates an immediate and inspirational online educational response which may well pave the way towards that fundamental transformation. Education’s substance, practice and consequences may now become much more equitable, ethical and enjoyable (and far less competitive, test-oriented and world-of-work-dominated). Billions of learners are yearning for education. Instead, nine-tenths of them are fobbed off with job preparation – and discriminatory job preparation at that.

Just as there is now, virtually, just the one global library, so also we are moving towards the worldwide universal school, consigning contemporary educational arrangements (including competitive examinations, imposed curricula, indoctrination and propaganda, the reproduction of inequality and the demeaning power of PISA) to the rubbish bin of history.

As delineated in *One World One School*, the primary phase is the time of preparation – enjoyable and stimulating years aimed at enabling each child to become ready for self-directed learning. From then onwards, throughout life, the curriculum may and must be learner driven (rather than designed externally from and directed at learners as victims) embodying a convivial learning-supporting pedagogy, with teachers playing (dramatically altered, more professionally fulfilling and essentially responsive) concierges of learning and escorts to wisdom roles.

The Digital Age creates the universal consciousness embodying the tangible/digital duality that characterises these petrifyingly exciting times. These coming COVID19 months offer an opportunity to invest substantially in effective and enjoyable online education for all. Digitisation involves a pivotal leap in human potential as profound as the wheel in terms of development, as significant as the book in relation to information, and as iconoclastic as anything dreamed up by the deepest analyst/therapist in terms of the human psyche. Nothing – educationally – will ever be the same again [just as nothing – economically and socially – will ever be the same post-pandemic] and all of this is thoughtfully and entertainingly explored in *One World One School*. 