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**THE SCHOOL AROUND THE CORNER IN THE TIME OF  
DIGITISATION**

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**ABSTRACT**

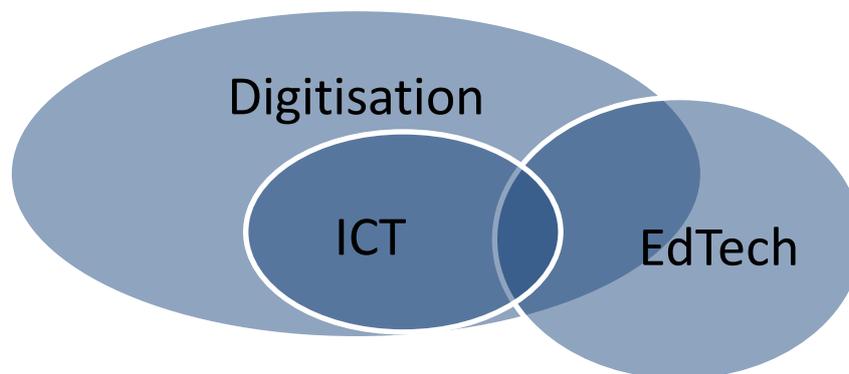
This article investigates the forthcoming and fundamental transformation of education in response to and enabled by, Digitisation. The world, countries within it, institutions in and across those countries, and thus people's lives, are being – and will, exponentially and unpredictably, continue to be – dramatically transformed by contemporary and upcoming technology. However, the piecemeal application of ICT to improve educational practices, although sometimes creative (and often inordinately expensive), is an inadequate and obsolete response. With Digitisation, 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 Global School, and this affordably accessible universal institution gives impetus to optimal, practical, equitable and humane ways forward. Consequences of this inexpensive and inevitable educational revolution are explored and some favoured ways forward are delineated.

**Keywords:** Education and Digitisation, Digital Age, E-Learning, Education and ICT, Global School

**1.0 INTRODUCTION**

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 video conferencing and language learning tapes. Educational Technology (EdTech) is, quite simply, the application of technology to enhance education.

Digitisation (integrating ICT and providing a distributed model for its use) represents a pivotal leap in human potential as profound as the wheel in relation to development and as significant as the book in the context of education. 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.



**Figure 1: The relationship between Digitisation, ICT and EdTech**

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 an entirely new educational circumstance, challenges and possibilities have arrived.

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 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.

## **2.0 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, 2013 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 p 2). 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 p.2).

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" (Klees, 2017 p.3). With which the authors of this present paper 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, the present authors contend, education needs to be utterly restructured with Digitisation the cohesive force. As one of them 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 p.3)

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, the creative, multidimensional and fluid phenomenon... more about what is going on inside a person's head" (Scott, Coates & Anderson, 2008, p.12).

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 p.3).

Other than at conferences and in the pages of peer-reviewed journals, there are few signs of education systems genuinely gearing up to overcome inequality and prepare the world's children confidently, competently and cheerfully to seize this century's opportunities. Digitisation, as opposed to mere ICT, enables and requires those lofty aspirations to be addressed, along with a re-opening of the important debate on what education, now inevitably in the context of Digitisation, and constituting the development of itself, is really for.

## 3.0 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 issue of JESP (Calam and Dolotallas, 2018) concludes that "Multi-Mouse Mischief Technology can improve students' performance in Mathematics".]

Clearly, if applied intelligently, each of these applications might well be effective and valuable. 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, p.262). 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.

Unquestionably, ICT can 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 lapsed euphoria 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 & 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).

These and many other illustrations of ICT applications are interesting and, within restricted contexts, valuable in their ways. Although focusing upon universities, Kisanjara et al provide "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 significant 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.

Perhaps the most conclusive and damning evidence of the limitations of isolated ICT applications was 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

As Stewart Marshall observes "The prevalence and adoption of ICT tools in education have often been guided by utopian perspectives without proper research to understand the schooling context and teachers' 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 education in and for this Digital Age – the necessity is to transform it 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 is not enough: a fresh educational era has been entered and we should no longer simply be talking and planning in terms of ICT assisting contemporary approaches and arrangements.

#### **4.0 DIGITISATION – BEYOND ICT**

Instead, in the authors' considered opinion, we should be considering how best education should, through Digitisation, serve and help shape the 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’. Some of these seminal differences are suggested in the table below:

ICT in Education	Education based upon Digitisation
Late 20 <sup>th</sup> century	21 <sup>st</sup> century onwards
Specialised ‘Education and ICT’ policies, reports and plans	‘Education’ policies, reports and plans that take full account of Digitisation’s focal role
Computer Rooms with costly hardware	Inexpensive handheld Bring-Your-Own-Devices
ICTs used in isolation	ICTs integrated and used coherently
Learning-outcome oriented	Learner-teacher participation oriented
‘Computer Science’ as a discrete and optional subject	Digital understanding (both digital literacy and fluency) embodied across the curriculum
Entity-specific	Universal-comprehensive
Computer science teachers	Every teacher a facilitator of digitised learning

**Figure 2: The ravine between ‘ICT in Education’ and ‘Education based upon Digitisation’**

In contrast to the examples of ICT suggested in the previous section, several current initiatives suggest (but do not as yet 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, p.262).
- 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 team work 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).

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?” Some of the many possible implications are presented in the box below.

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

**Figure 3: Responses to the question:** ‘What would educational implications be if all learners and all teachers, everywhere, were able to communicate with one another, easily, instantly and inexpensively?’ as posed by the authors at the 2017 UKFIET educational conference in Oxford (see Uys & Douse 2017)

‘Unimagined opportunities’ sums it up (but note also the dangers which must be acknowledged and responded to). With Digitisation, we are already in an entirely fresh situation and starting to experience a new order of necessities and potential benefits. The challenge of transforming education utterly has many roots in current realities but will also have to create capabilities for flexibility in learning for a largely unknown future. It is time, nay overdue, to cease thinking of ICT supporting schooling as currently perceived in favour of comprehending that Digitisation makes possible, nay necessary, an entirely fresh approach to education, as it does to society generally. And this ground-breaking conceptualisation is made manifest in The Global School.

## 5.0 THE GLOBAL SCHOOL

The ‘school around the corner’ becomes an integral, fully networked and inter-connected element within the one universal Global School. This, as envisaged by the 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.

And this 'school around the corner', continually reappears in unprecedented configurations. Indeed, it is all forms of educational institutions, everywhere. It is not the 'school of the future'. Rather, it is the 'whole school approach' made manifest for the digital age – for the present continuous 'now', characterised by rapid, reliable, uninterrupted, uncensored, networked, cloud-based and affordable (free) access and geared to optimising enjoyable learning through, for example, exemplary school leadership, the continuous professional development of teachers, participation of family and community, accreditation of curricula and qualifications, extra-curricular activities, careers guidance and progress to higher, further and lifelong education.

Focussing upon private educational institutions, Teo and Low recognise that "...student projects can now be cross-destination with students interacting with one another through Skype and learning experience conference calls to meet to discuss projects for a collaborative project presentation, led by teachers on both sides" (2018). The Global School takes that interaction between learners and teachers in different locations to a universal level, recognising also that "...the ability of the school to assess student 21st-century skills will become acutely relevant and appropriate in teaching and learning communities" (Teo and Low, 2018).

The conceptualisation of all educational institutions being integrated elements of the one universal organisation – The Global School – illustrates the emerging situation, with the details undoubtedly spectacular but as yet unknown. It embodies a recognition that the world has changed dramatically and, in many senses, for good. In itself, it is sustainable development and, while Agenda 2030 (unmindful of Digitisation's potential) envisages a longer timeframe, our view is that all learners and teachers in all educational institutions worldwide could and, with appropriate support, should be fully connected participants in The Global School by 2020.

## 6.0 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 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/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 cybersecurity is

augmented, including its being thoughtfully addressed in curricula. Capable of enabling decision-makers and planners to acknowledge and respond to such challenges, Digitisation both necessitates and makes possible a change in the organisation of education – thus creating the circumstances for bridging the digital divide. 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 authors, it offers 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. We may specifically promote girls' and women's participation in The Global School 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 they 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 entire fresh circumstances, profound opportunities and prospective dangers. Lofty aspirations enshrined in many national Visions may now be approached through the creative application of Digitisation. Moreover, developing countries may 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, participative and democratically, Digitisation offers an unparalleled opportunity to redress balances.

## **7.0 TEACHERS AND TEACHING IN THE DIGITAL AGE**

The Digitisation of education enables and requires teachers to fulfil 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 and remote school management, misusing technology to create mechanical, mindless and test-oriented education, demonstrates the danger that Digitisation could benefit education-business more than children in the classroom, referred to earlier. 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" (Moges, 2018). Here again, the wide 'Education in the context of Digitisation' transformation is needed, as opposed to piecemeal ICT-specific half-measures.

In a recent study, Dlamini & Mbatha 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" (Dlamini & Mbatha, 2018). This is by no means a South Africa specific phenomenon.

Job security is 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 is 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 digitally-comfortable 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.

Undoubtedly, some teachers will resist the requirement to become digitally-supported professionals and change agents (OECD, 2015). 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 p.37). However, the good news is 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.

There was a saying, especially in English-speaking countries, that 'Every Teacher is a Teacher of English'. The contemporary aphorism might be that 'Every Teacher is a Facilitator of Digitised Learning'. And, 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 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 a connected planet (Ash, 2016 p.8) 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). Let the learners ask questions – their teachers will know how to help them locate the answers.

## 8.0 THE INEXPENSIVE REVOLUTION

Well-meaning benefactors, along with planners still entrapped in the 1990s, remain ready to provide 'computer rooms' or powerful 'desktops for all'. Just as programmed learning machines were optimistically and expensively delivered to some schools in the 1960s, and much as language laboratories were installed in the 1980s, dedicated 'computer rooms' replete with many pricey desktops have been established more recently. Their benefits in relation to their costs have been, at best, questionable and, in situations of poor servicing arrangements, lack of consumables, spasmodic electricity and computer semi-literate teachers, the high-priced hardware approach is dysfunctional. Let it now be recognised and discarded as obsolete. Most pre-Digital Age schools around corners could not afford the latest ICT paraphernalia – The Global School offers accessible universal participation, affordable for all.

In many low-resource communities, the appropriate technology is the one that people already have, know how to use, and can afford. In most circumstances, this is the mobile phone: the most important platform in the world. However, almost 60 per cent of the world's people are still offline and cannot participate in the digital culture or economy in any meaningful way (World Bank, 2016). There is thus the huge potential for supporting mobile learning in developing countries and, through The Global School, universally. Educational systems and institutions should consider following a bring-your-own-device (BYOD) policy given the proliferation of contraptions. Mobile computing with a strong set of cloud-based software tools and the content will 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.

With the emergence of The Global School and the creative application of ubiquitous and relatively-inexpensive hand-held devices, a long-overdue move away from high investment solutions should eventuate. Most products, services, usage models, expertise, and research related to ICT use in education have come from high-income contexts and environments and, consequently, 'solutions' enabled by technology have, until now, been imported and 'made to fit' in environments that are often much more challenging. That high-priced, imported response is now redundant and the machinery antediluvian. Moreover, as Edward Carr 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 (Carr, 2011). These are Global School characteristics: largely learner-driven and, as already emphasised, affordably accessible.

Effective education, embodying contemporary technology in its connectivity, organisation, curriculum content, research and in innovation, learning methods and management, provides trainable graduates for the rapidly evolving requirements of commerce, industry and civil society. This economy is hungry for talent and skilled resources: a major challenge is how best education and training systems may provide enough of them. Modern labour markets require creativity, teamwork, problem-solving, and critical thinking in ever-changing environments – skills that traditional education systems do not teach and that is the hardest to measure, PISA notwithstanding, but which The Global School may focus upon. While the private and social sectors may be expected to support education through investment, ideas and participation in curriculum development and the provision of work experience, as Steven Klees suggests, the "contribution of philanthropists, corporations, and charitable organizations... will continue to be as uncoordinated, self-interested, and misdirected as it is now" (Klees, 2017 p.3).

## 9.0 CURRICULUM

The recognition that Digitisation will profoundly change not only the world of work but also socio-cultural actuality generally, has been seen as necessitating major makeovers in the objectives, content and approaches of education. Collaboration, group work and online resources will transform the way learners learn and "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 p.37). As ever, education should be focussed, in a friendly way, upon the child (or more general but less evocatively, the learner – learning commences at birth and is lifetime long). Digitisation empowers that focus to be significantly more effective, just as it involves the world of that child becoming more complex, challenging and, hopefully, enjoyable and fulfilling.

The potential of Digitisation within every subject area is immense and, with The Global School, the opportunities are there in all disciplines and for all learning stages from early childhood to postgraduate: the paramount objective is for all learners (i.e. everyone) to participate. Each succeeding generation will be more 'digitally familiar' than its predecessor: today's children know no other Age than the Digital, their children, in turn, will wonder at the parents' unfamiliarity with devices and systems as yet undreamed of. Digitisation has already propagated a contemporary culture of computerised gaming, play and entertainment. While not, strictly speaking, 'educational', this involvement from infancy offers a readiness for digital learning – indeed, pre-schoolers are already, in a sense, part of The Global School.

Another key capability is information literacy which can be described as “information skills, including the ability of learners to search for information and separate high-quality sources from low-quality ones” (World Bank, 2016, p. 264).

One danger to be avoided is that of producing a generation of naïve technological recipients who can play in the digital world and participate in the exponentially-growing social media scene but have no understanding of how it works, or how to make it work. We (or, even better, they) need to overhaul what the learners are taught so that they are in control and thinking critically about what is presented to them. Starting in early primary school at the very latest, all children worldwide should have the opportunity to learn and enjoy some of the key ideas of computer science, understand computational thinking, start to the programme, and have the opportunity to progress to the next level of excellence in these activities. All children should, as a beginning, become happily proficient in three languages: their mother tongue, a foreign language (which should be a ‘world language – such as English, Spanish or Mandarin – if their mother tongue is otherwise) and a computer programming language (sign language might well constitute a fourth). The Global School may certainly support such learning, just as these linguistic proficiencies will enable optimum benefits from that universal educational assembly to be obtained.

## 10.0 PLANNING IN A FRESH DIMENSION

Some things will happen regardless. The Global School is already with us and will materialise more vividly over the next few years. Mobile communication technology will improve and expand worldwide “irrespective of policy architects and planning pundits” (World Bank, 2016). 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, extending to the evolving world of work and the challenges of social participation, family responsibilities and individual fulfilment. Above all, as emphasised by the present authors (Douse & Uys, 2018a), 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 and means of delivery, as portrayed in The Global School.

The sharing of worldwide experiences along with the re-shaping of them for specific local conditions and aspirations will be the basic process for optimising learning in the Digital Age. Learners will have greater mobility as they travel and work anywhere, which will require globally accepted accreditation standards and qualifications that can be recognised cross-border. The Global School will also require national and regional systems of credit transfer, work-based learning accreditation and prior learning assessment and recognition (Contact North, 2016). Overcoming language barriers in accessing learning materials, teaching and examining are also feasible – as in all things educational, the recognition that we are in a fresh new era is paramount.

To offer just one example, let us imagine an ill-equipped lower secondary school in an impoverished and inaccessible area of Africa (or Asia, or South America, or mid-Pacific...), and every teacher and pupil therein, becoming readily and inexpensively in contact with institutions, teachers, learners, counsellors and materials providers worldwide. Obviously,

without imaginative planning and effective support, this could be a 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 – or of whatever set of aspirations are agreed upon – may occur.

The new era ushered in by Digitisation, symbolised by the emergence of The Global School, is as utterly changed from that which has gone before we would have been the pre-books to with-books transformation. Yet it remains vital for decision-makers and planners while allowing their imaginations to soar cloud-wise and beyond, to keep their feet very firmly upon terra firma. The challenge for those who guide education is to recognise that reality, to think through the implications, to avoid the pitfalls and extravagances, to promote a well-informed consensus, and to strategise and invest accordingly (and prudently). Our central contention is that, 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.

## 11.0 CONCLUSION

What is to be done? Clearly, many fascinating initiatives will continue to occur spontaneously (or, let us face it, commercially). Youngsters from three or four continents will jointly construct a Minecraft or Roblox model of the human respiratory system. Geology graduate students from across the world will compare and contrast their findings of related volcanic actions as they experience them virtually. Primary children in Tarawa will explore Spitzbergen without donning winter clothing. A student in Peace River will be coached in Arabic by a tutor in Medina. A postgraduate degree in Roman Law will be designed, delivered and marked entirely by robots (yes, really!). Dangers will be recognised, grappled with and manifestly outweighed by advantages.

And yet, the central challenge is that of conceptualising and creating universal educational structures and arrangements appropriate to the dramatically new circumstances of these times. Which involves proceeding far beyond the examples and the particular innovations, interesting though they well may be. Which necessitates utterly reworked definitions of, for example, the lesson (see above), the classroom, curriculum, assessment, educational technology, accreditation, learner, learning, teacher, teaching and, of course, School. And, let it also be emphasised, not by remote albeit well-intentioned coterie of sequestered decision-makers but by means of the kind of well-informed universal participation that, at its best, Digitisation makes possible. A million or many more schools around the corner have become the one school at everyone's fingertips while losing none of the neighbourly immediacies of the local institution.

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.

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 this is not only the major educational agenda item before all of us, it is both the question and the answer underlying all other educational agenda items. The world's learners – whose magnitude will increasingly approach that of the world's inhabitants – deserve and may soon achieve full membership and shared ownership of that stimulating, supportive, bespoke and dynamic institution that we have labelled, for want of a definitive designation, 'The Global School'. Its prospectus remains to be delineated but its indispensability and, indeed, inevitability are indisputable.

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