From Socrates to Sugata Mitra:  
a Dialogue with Digital Natives  
Part 2 – a critical response to digital technology in education

Where is the wisdom  
We have lost in knowledge  
Where is the knowledge  
We have lost in information?  

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In this article, I summarise the positive ways in which digital technology has shaped our teaching and our lives in the 21st century before going on to make a few critical comments on the digital revolution, from a pedagogic and personal perspective. It is because the changes that we have seen in the last 30 years are indeed revolutionary, and far-reaching, penetrating nearly every aspect of our lives, that it is important to engage with the implications of this revolution in an open and inquiring manner. Not only will critical engagement with the effects of technology allow us to make the most of the opportunities it offers as classroom practitioners but will make us alert to its possible dangers in the classroom and outside the classroom. I will end with a sketch of a possible way forward in the 21st century classroom.

Digital learning: why it’s a good thing

In the first part of this article, we saw how predictions have been made that education would go digital by the early part of the 21st century: mobile devices, tablet teaching and apps, it was expected, would be an integral part of mainstream teaching worldwide, from ‘Kindergarten through twelve’ (1). As I write (2016), this prediction has yet to be fulfilled in any countries, apart from a few (eg Uruguay, the Basic Information Educational Program for Online Learning (CEIBAL), which aims to provide all public primary school students and teachers with free laptop access). Hardware and software producers do their best to make the switch to digital education tempting and irresistible and the future may well be ‘owned’ by digital technology and its creators (2).

Most teachers nowadays acknowledge the necessity of incorporating digital technology into their teaching; technology enables teachers to do things in the classroom to enhance their teaching which were impossible in the past; many of the activities valued in traditional teaching can also be done much more easily and efficiently.

For example, it is so much easier and quicker nowadays to prepare materials for students, to store them, adapt them and make access to them available to all students; tests can be produced and graded more easily; students can collaborate and share with their classmates in the same room and in other classrooms anywhere in the world; Interactive Whiteboards (IWBs) enable interactivity of various kinds. Tzouris (3) (2016) explains how Netflix enables students to immerse themselves in watching films in English, with or without English subtitles, whenever they like, wherever they like. This is a good example of the way digital technology facilitates an activity which teachers and students did in the past – learning from films in the target language – and does it better.

The wide variety of screen-based activities is undeniable; the question is: does it all help us to achieve the twin objectives of motivating students and encouraging second language acquisition?

Research evidence

There is some research that suggests learning is enhanced by the use of such technology, especially when combined with traditional practices (4); for instance, some of these research findings suggest that the creative use of Interactive Whiteboards enhances engagement in language learning (5):
editing photos, audio-files and film-clips and adding a script in English to visual material can be very motivating; the question remains, however: is the motivation sustainable and does it actually promote second language acquisition - and how does one measure that?

Warschauer and Liaw (6) review research that suggests ‘new technologies provide more tools than ever before for adult learners to hone their language skills through autonomous reading, listening, writing, and interaction’. Warschauer and Liaw focus particularly on the evidence for a positive impact of online resources on student autonomy; they refer to the successful use of a wide range of online applications used in ELT for promoting learner independence: podcasts for listening comprehension and pronunciation; blogging and wikis for collaborative and interactive writing; fanfiction.net for the social nature of writing; concordancing for increasing vocabulary and collocational awareness; second life/avatars for integrating several online applications and developing a wide range of language skills and multi-player games for enriching vocabulary.

**Critical dialogue with IT**

Thus, both in principle and practice, we can acknowledge the importance of the digital revolution: its importance means it deserves to be engaged with and understood in terms of its powerful effects and unintended side-effects, in the classroom and in our personal relationships (7). In this part of the article, we dig deeper into the arguments for digital education from a critical pedagogic perspective; by ‘critical’ I mean an approach which asks questions about where ideas come from and whose interests they serve, especially as regards power: who has it and what do they do with it?

The oldest approach for fostering critical thinking in education and in life is Socratic teaching, with its dialogic procedures and search for ‘virtue’ (areti). In Socratic teaching, the focus is on asking questions, and through dialogue, finding answers to what constitutes the good life: what is right, what is wrong. In the case of ELT, ‘virtue’ can be translated as when a certain educational practice is ‘good’ for the students or not: does it help or hinder language acquisition and does it make learning a motivating process of personal fulfillment?

In modern times, the Socratic tradition finds its full political flowering in the critical pedagogy of Paulo Freire, the great Brazilian educator; Freire explores ways in which educational practice can raise awareness of relations of power in the classroom and in society, leading to action to transform society towards greater equality and liberation (8). Freire’s prioritizing of learner input in the educational process, as a step towards raising awareness of the political implications of schooling, will be a useful framework, along with Socratic moral questioning, in our quest for digital ‘virtue’ – or the strong points of information technology in the classroom.

**Is there a question of vested interests?**

A critical engagement with digital pedagogy will thus involve questioning on two levels: first, we ask: what evidence is there for the claims made that learning is enhanced by IT? And, secondly, what does the technology mean for power relations in the classroom - and outside?

Let’s take the case of the New Media Consortium (NMC), which, as we have seen, investigates and makes predictions about the growth of digital education and its positive impact. If we look up the NMC on Wikipedia, we discover that major donors to the Consortium are the Bill and Melinda Gates Foundation. Bill Gates, as we all know, has invested a great deal in the development of digital software and hardware and, as a result, has become one of the richest individuals in history. Of course, the fact that someone stands to make a profit from the latest technology does not mean that the technology doesn’t have a useful role to play in the classroom or elsewhere. After all, Thomas Edison, no doubt made a profit out of the lightbulb – this doesn’t cancel out the usefulness of the lightbulb in the classroom and in life! (9). Indeed, in ELT, stakeholders such as publishers and media manufacturers have always profited from the supply of learning materials and equipment; nothing new there. We could add that in the past, despite individual differences, all students used pen and paper and textbooks on the assumption that ‘one size fits all’ – and it can plausibly be argued that IT is potentially more capable than pen, paper and textbooks, of responding to students’ needs.
However, what the overlap of educational opinions and financial interests *does* mean is that we teachers - who are at the receiving end of these opinions - should question them critically, just as in the past we questioned the role of textbooks; we will bear the brunt of the changes on a day-to-day basis so we have the right - and obligation- to ‘interrogate’ those who would introduce radical innovation into our practice. This critical approach is in the best tradition of teacher development, which encourages teachers to have an inquiring mind, as well as to continue to grow professionally. Thus, one level of critical engagement with the claims made on behalf of digital pedagogy, is to query where the claims are coming from, to put the claims into context: who is making them and why? Are they impartial educators furthering the aims of education or are they speaking on behalf of a particular set of interests, for example economic or ideological interests?

**Wants and Needs**

To take another example: in the first part of this article, we saw how the man who coined the term ‘digital natives’, Mark Prensky, suggested that ‘teachers who are ‘digital immigrants’ are unable to relate to their students affinity with ICT...’ (10). Prensky makes a bold assertion that on the surface seems plausible and designed to encourage teachers to grow in the direction of where their students are at: they are at home with digital technology and teachers should join them. Prensky advises digital immigrant teachers to ‘stop grousing’ and ‘just do it’, (like any good users of NIKE sports shoes?) They should accommodate to the digital natives’ way of getting and processing information or risk missing the educational boat. Before teachers agree to do this, however, they are entitled to ask for evidence that the use of technology in the classroom is actually having a positive impact on students’ learning. Enthusiasm for the frequent and ubiquitous use of technology should not be accepted as the sole basis for serious educational practice.

Prensky’s assertions assume that non-digital teachers get in the way of learning and that technology is a Do-IT-Yourself (DIY) approach to education in which traditional teachers may be redundant, He also seems to assume that the teacher’s role is to do what learners want – otherwise they risk getting left behind: students like social media and computer games, therefore, the classroom should include them, Prensky seems to be saying. But teachers have always done more than respond to students’ *wants*: their job, traditionally, as ‘experts’ or ‘knowers’ (reactionary though these roles may sound in a learner-centred age), has been to use their expertise and knowledge to meet students’ *needs*, as well as take their *wants* into account. Teachers, for example, – if they are present in the learning process – will not only use web.2 activities, which presumably (but not necessarily) students *want* to do (because they are digital natives) but they will also, for instance, monitor their students’ progress and, where appropriate, correct and make use of their errors to further their knowledge and acquisition of English. These teacher ‘behaviours’ will respond more to students’ *needs* than their *wants*, as few students, one imagines, *want* to be ‘monitored’ and ‘corrected’ by adults! Bax, in his response to Prensky (11), writes that Prensky's claim that educators should simply alter their approach to suit young people who are 'digital natives', ignores essential elements of the nature of learning and good pedagogy. The ‘needs’ that Bax refers to are: modelling of language, scaffolding and challenging students – all things students probably *need* for effective learning to take place but may not *want*.

**Is there a political question?**

Presky’s ideas have thus been challenged on a pedagogic level but less so on a political or ideological level; so let us dig a little deeper into the ideological context in which Prensky’s 2001 article on ‘digital natives’ – ‘On the Horizon’ - was written. Here is an extract from Prensky’s Wikipedia entry:

*Prensky began his career as a teacher in Harlem, New York. He has taught in elementary school, high school and college. He worked for six years (1981-1987) as a corporate strategist and product
development director with the Boston Consulting Group, and six years (1993-1999) for Bankers
Trust on Wall St...’

From this, we discover that Prensky is coming from both an educational and business background. The statements about digital natives and digital immigrants, for which Prensky is best known, (that teachers who are not digital natives are ‘unable to relate to their students’ affinity with ICT’), were made at the time when Prensky had already been working for 20 years as a corporate strategist, product developer and advisor to bankers on Wall Street. This does not mean, as I have already pointed out, that a market-oriented and Wall Street-employed business entrepreneur is incapable of putting forward useful educational ideas, as we have seen Bill Gates and Tony Blair doing earlier in this article. These education-and-business connections do suggest however, that we should, at least, be asking where Prensky is coming from in the debate over digital education – just in case his educational passions are clouded in any way by his business commitments. It also has to do with the nature of ‘expertise’: Where does Prensky get his authority from? On whose behalf does he exercise this authority? How can we challenge this authority and the policies it promotes in collaboration with Ministries of Education and a market-driven private sector?

Criticisms of the Hole-in-the-Wall

Another highly influential educational movement in recent years has been Sugata Mitra’s ‘Hole-in-the-Wall. In part 1, we summarised the arguments put forward by Sugata Mitra based on his ‘Hole in the Wall’ experiments with children in the rural slums of India. Mitra points out that though many of these children had never seen a computer in their lives were able, when left alone with computers in kiosks, to teach themselves everything from ‘character mapping’ to advanced topics such as ‘DNA replication’, without adult assistance. Mitra suggested this would lead to ‘unstoppable learning’, through a ‘worldwide cloud’ where children would pool their knowledge and resources, in the absence of adult supervision, to create a world of self-promoted learning; in other words, Mitra describes a variation on Prensky’s DIY approach to education, with a minimal presence of teachers who, in the autonomous digital world, often get in the way of learning.

 Critics have questioned whether leaving computers in villages - and letting students get on with it - results in gains in subjects such as math and in the acquisition of other skills. According to Michael Trucano (12) no evidence of increases in these key skills has been found. Trucano writes from a sympathetic perspective to digital education –according to Wikipedia, his work is sponsored by the World Bank; he is the World Bank's Senior Education & Technology Policy Specialist and Global Lead for Innovation in Education, serving as the organization’s spokesperson on issues of technology and education in middle- and low-income countries and emerging markets around the world.

At a practical level, Trucano provides policy advice, research and technical assistance to governments seeking to utilize new information and communication technologies (ICTs) in their education systems. Thus, whether Trucano comes down for or against the Hole-in-the-Wall, he can hardly be considered a neutral observer on the role of technology in education. The involvement of the World Bank in promoting digital innovation in global education confirms at least that claims for digital education are often bound up very much with economic and political issues and teachers should approach such claims with critical circumspection.

Some critics see the idea of promoting digital learning on a global level as potentially ‘dumping hardware in schools and hope for magic to happen’ (13). The long-term sustainability of the Mitra’s DIY kiosk system has been questioned; for example, Arora (14) investigated the failure of two Hole-in-the-Wall projects in Himalayan communities; the researcher identified problems arising from unsupervised learning around a computer (dominance by boys, competition, bullying, playing around etc)
Similarly, UK education researcher Donald Clark (15) accumulated evidence suggesting that the fate of a Hole-in-the-Wall site is often abuse and abandonment, unless it is inside a safe sanctuary, such as a school. Moreover, Clark found that the computers were often dominated by bigger boys, excluding girls and younger students, and mostly ended up being used for entertainment, not education.

Deep reading

The most important insights that research into digital education has to offer language teachers will have to do with more effective acquisition of language, in the traditional ‘four skills’ of listening, speaking reading and writing. Recommendations such as those made by the prestigious teachers’ organisation, TESOL International, that teachers ‘should recognize the need for integrating technology in their teaching’ (16), should be considered in the light of evidence for the efficacy of technology in achieving SLA.

One assumes that the strong suggestion made by TESOL (notice the modal verb ‘should’) is made on the assumption that we have firm evidence that multi-media deepens comprehension and strengthens learning. Nicholas Carr (17) in a fascinating study claims that this assumption, long accepted without much evidence, has been contradicted by research. Carr refers to evidence that suggests that the division of attention demanded by multimedia strains our cognitive abilities, diminishing our learning and weakening our understanding. The Internet, argues Carr, presents information not in a carefully balanced way but as a concentration-fragmenting mishmash. The Net is, by design, an interruption system, a machine geared for dividing attention (18). This capacity of the Net to distract us to prompt us to leap from link to link to connect with it, whenever we like, and wherever we are, whatever we are doing, is its charm. The beauty of digital devices, paradoxically, lies in their power to keep us skating on the surface and not get lost in texts as we did in traditional reading of books or articles.

Carr explores the concept of ‘deep reading’: the ability to know in depth a subject for ourselves, to construct within our own minds the ‘rich and idiosyncratic set of connections that give rise to a singular intelligence’ (19). Carr quotes research that suggests reading in the real world leads to greater comprehension than reading on the Internet. Carr is not a Luddite – he writes as someone who, enthuses about the benefits and pleasures of the Internet, but he questions whether software and hardware experts are also experts in education: the Internet wasn’t built by educators to optimize learning. Where can we turn to reconcile these conflicting views of IT in ELT?

A way forward: blended learning

Bill Gates may point the way forward when he says ‘technology is just a tool. In terms of getting the kids working together and motivating them the teacher is the most important (20).’ Prensky himself recommends that it is time to reassess what ‘good and effective teaching’ means in a digital age and how to combine what is important from the past with the tools of the future. Good and effective teaching, according to research reviewed by Borg, means that, among other qualities, that teachers are both technically skilled and emotionally intelligent (21). Research conducted by the US Department of Education, involving over 1,000 case studies, suggests that students achieved better results where ICT was used - with the greatest improvement when technology was blended with traditional teaching (22).

All this points in two directions: the first is that we should be using modal verbs like ‘should’, ‘less’ and using ‘can’ more. ‘Can’ can accommodate the wide variety of learning and teaching styles contained in the language teaching profession. It opens the way for the second direction in which our discussion has pointed us – we need to make the most of the virtues of traditional teaching and integrate them with the opportunities offered by digital learning. An approach which seems to lend itself to this integration of old and new is blended learning:
‘a formal education program in which a student learn at least in part through delivery of content and instruction via digital and online media with some element of student control over time, place, path or pace’. ‘while still attending a ‘bricks-and-mortar’ school structure, face-to-face classroom methods are combined with computer-mediated activities’ (Wikipedia – ‘Blended Learning’).

The fact that there are many definitions of ‘blended learning’ need not bother us; the multiplicity of views as to what blended learning is, may be good news, if we stick with ‘can’ rather than ‘should’; the vagueness surrounding blended learning will give us greater flexibility in our attempt to accommodate more students and more teachers: if blended learning is, in essence a combination, in varying degrees, of online and face-to-face learning, paper and electronic material, real-world and virtual world experience, then already we have the framework for marrying the old with the new. Different learners can choose the appropriate proportions according to personal learning style; the same applies to the teacher, who can blend digital tools and classroom instruction according to the resources available in her institution and her own professional skills as a teacher.

The teacher’s voice

21st century teachers are engaged in a perpetual race to keep up, not only with digitally-innovating colleagues, but with their own digital-native students. Technology is, by definition, attractive insofar as it is the ‘latest’, the most ‘up-to-date’. Teachers, on the whole, genuinely want to be competent in the most recent approaches, methods and techniques, and today much of these revolve around the integration of digital technology into teaching. At the same time, teachers bemoan the lack of support and training in their efforts to be ‘up-to-date’.

In the best of times, schools in the public sector were unable to invest in the latest technology, even if that investment were a one-off; in these days of cuts and systemic underfunding, and with the market constantly coming up with new ideas and ‘up-dates’ to old ones, the public sector and probably the private sector, too, are fighting a losing battle to keep up-to-date. Apart from falling behind in the hardware and software stakes, all schools, especially state-run, suffer from a teacher training deficit: even if teachers are fortunate enough to be offered a short training course or the occasional workshop by peers or visiting trainers, there are few resources and little political will to sustain training on a regular basis to meet the challenge of perpetual digital innovation. Cash-strapped and time-pressed teachers are forced back on their own resources, if they wish to continue their training in technology – and to keep up with their digital-native students. There are two sides to digital pedagogy: the teachers’ competence is one half of the digital deal; the other half is the students’ willingness to co-operate - their readiness to be motivated by our digital bag of tricks. For most of our students, the computer means the internet, social media and entertainment. Therefore, when students are asked to use the same media not for purposes of pleasure but in connection with learning and obligations such as homework they may at first be pleasantly surprised and motivated ; however, when the novelty wears off they may begin to find it irritating that the adult world is invading ‘their space’. This is particularly a danger when school computers are out-of-date and thus offend the students’ sense of ‘new is good’ and the ‘latest is the best’. Students often own an i-pad or the latest smartphone, whereas the school I.T. lab may have equipment which is 10 or more years old. The digital revolution is in a constant state of renewal: this is part of its appeal. Teachers, too, need to be in a constant state of renewal but this is usually not possible due to economic and political factors. Where can one turn?

The Greek oracle
Teachers are under pressure from educational authorities, international organisations and the markets to adopt digital technology in their teaching. Influential and powerful media figures, such as Rupert Murdoch, have joined the chorus of voices urging us to jump onto the digital bandwagon:

‘Like many of you...I'm a digital immigrant...my two young daughters, on the other hand, will be digital natives. They’ll never know a world without ubiquitous broadband internet access...we may never become true digital natives, but we can and must begin to assimilate to their culture and way of thinking’ (23).

Murdoch’s argument is important because he is important; he may not be a scholar and he may not present the results of empirical research, but he is one of the masters of the media world; he wields considerable power: what he thinks and does today may well affect the way we live tomorrow. The point he is making, like Prensky, the father of the ‘digital native’ concept, seems to be that we adults need to go with the youthful digital flow or get left behind - or out. We can call this the ‘jumping on the bandwagon’ argument. If something is popular (Facebook, Twitter, Snapchat...) it must be OK, or at least we must be part of it; if you can’t beat them, join ‘em!

On the surface, this approach, of adjusting to the will of the majority, sounds like common-sense: it is open-minded and democratic. But long ago, in Ancient Greece, the cradle of an albeit imperfect democracy, these words were written at the entrance to the oracle at Delphi:

‘Pay no attention to the opinion of the multitude’.

I would modify this motto, if I may beg to disagree with the wise oracle, to read: ‘be critical of the opinion of the multitude’ – and be prepared to go against the grain, after having weighed up the evidence for a particular set of educational principles or practice. Socrates, one of the first great educators in history, said ‘the unexamined life is not worth living’. I take this to mean a good teacher and a good citizen is by definition one who questions receive wisdom even if that wisdom is the opinion of the majority.

Socrates, also learned from the oracle that other famous Greek philosophical principle: ‘know thyself’. Individual teachers in diverse contexts around the world will have their own strengths and weaknesses, their own culture and experience of teaching. Continued teacher development (TD) involves being aware of who we are as teachers, what we do well and what we do less well. A good teacher is, among other things, one who is constantly ready to learn – and however many years of experience he or she may have and however many generations of students he or she may have successfully got through important examinations or helped to acquire communicative skills in English, he or she will always be ready to learn: Socrates put this state of readiness to learn in his famous statement:

I know one thing: I know nothing.

A good teacher, then, engages in continued teacher development, in a constant exercise in renewed self-awareness and critical evaluation of old and new principles and practices. It is sometimes said that computers will never replace teachers but that teachers who are skilled in education with computers will replace those who ‘know nothing’ about computers and therefore do not use them in teaching. By implication, this is another one of those ‘should’ statements: it is more likely that in the future teaching will have a place for teachers and learners who can teach with or without technology: the important thing is to motivate and inspire the learner to acquire English – this was possible before the arrival of computers and it will be possible if, one day, the lights suddenly go out and we can’t connect our computers. Technological and traditional educational resources will co-exist, alone or together.

*In the third and final part of this trilogy of articles on the digital revolution, I will reflect on the impact of IT on a personal level.*
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