

Decolonising Educational Technology

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Abstract

Decolonisation is the term commonly used to describe the acts of recognising, confronting and undoing the processes, structures and concepts by which any more powerful country, culture or community oppresses another smaller one, either currently or historically, physically or remotely. This oppression can operate through education, through its curricular, its pedagogies, its professions, its institutions, its theories and its language. It can now also operate through the digital technologies by which education, and also learning, separately and differently, are accessed, delivered and supported.

This paper outlines the geographical and historical processes by which this oppression takes place and then looks in more detail at the processes by which it happens through formal education and digital technology. The primary focus, to which everything else is context and preamble, is these processes in educational technology.

The paper does make the important distinction between edtech, educational technology, meaning those dedicated technologies deployed within education systems, and the wider and informal use of digital technologies outside education systems by which people create, search, share, discuss, transform, access and consume ideas, images, information and opinions using whatever digital technology and social media form part of their everyday lives. In this case too, there is a need to identify and critique the ways in which more powerful cultures, countries and communities impose their technologies, languages, cultures, concepts and practices on less powerful ones.

The paper outlines ways in which colonialism is present at every level in both generalist hardware, software, systems and infrastructure and also in dedicated educational technologies, in the pedagogies embedded and embodied in these technologies, and the ways in which they are developed, procured and deployed.

These are complex, pervasive and systemic challenges. This paper provides an initial outline of these challenges intended stimulate discussion and research. It also provides some preliminary guidance on how the various stakeholders in the educational use of digital technology, in their widest senses, can start to address the issues in the own roles and practice. These stakeholders include the pedagogic and technical specialists that work with 'edtech' and also their managers and leaders, and the policy-makers and advisors responsible for the sectors in which the institutions operate. The uses of digital technology in social, community, personal and informal learning also require guidance if there is to be progress.

The conclusion is that colonization, in some form or other, is present in all educational technology but that responses and recommendations at every level are possible and worthwhile

Background

This paper addresses the decolonisation of educational technology. It summarises current thinking on the issues in order to develop a critical policy analysis. The paper provides some

conceptual clarifications and insights into education, learning and knowledge in an increasingly complex world characterized by a blurring of boundaries between global and local and between public and private. It is designed for education policy analysts, researchers, advocates and practitioners, but is relevant to those who design, develop, procure and deploy any digital technologies for education and for learning, formal or informal. The issue, as we explain later, is both important politically and well as educationally, and timely, given the media coverage of recent events, inside and outside the world of education.

There is perhaps the need for a mention of the global pandemic. It has catalysed the so-called 'pivot' to digital learning and so, given on the focus on the educational technologies that, in their widest sense, deliver and embody digital learning, it is imperative to explore the progress and process of decolonisation through the lens of the pandemic, since the pandemic, its consequences and its impact will be with us for several more years and will shape the emergence of some educational 'new normal'.

We should acknowledge here that this paper was written from a UK English-historical perspective and from an Anglophone perspective. Other authors from say French, Belgian or Spanish perspectives might write in a similar and complementary way.

Overview and Rationale

Decolonisation involves identifying colonial systems, structures and relationships, and working to challenge those systems. It is not 'integration' and it is not simply the token inclusion of the intellectual achievements based on race or culture. Rather, decolonisation involves a paradigm shift from a culture of exclusion and denial to the making of space for other political philosophies and knowledge systems. It is a culture shift to think more widely about how common knowledge has developed to its current state, and in so doing adjusting cultural perceptions and power relations in real and significant ways.

There is a growing need to develop an understanding of the implications of 'decolonisation' for those who use educational technology, a term that incidentally embraces online learning, learning technology, digital learning and components of blended learning and of distance learning. There is however a distinction, which we pursue later, between those digital systems¹ designed and dedicated to 'education', as understood by professional educators, and then procured and deployed by those professional educators within their organisations and institutions, on the one hand, perhaps often understood as 'edtech'. Whilst, on the other hand, what we might call 'digital technologies for learning'², meaning those digital technologies appropriated and adapted by people outside the institutions and organisations of formal education but nevertheless used by them to produce, share, discuss, merge, transform, consume and discard ideas, information, images and opinions, indeed used by them to 'learn' but not necessarily with professional educators and perhaps not in forms or about topics that professional educators would even recognise as 'education'. Nevertheless, colonialisation must inevitably be present in both, albeit in different ways from different sources, and must be explored, analysed and addressed.

¹ By which we mean VLE/LMS, CAL, MOOC and the support and complementary systems like Turnitin, Leganto etc, highly centralised with learners consuming and reacting rather initiating and controlling

² By which we mean, social media and web2.0 applications like WeChat, Facebook, Wikipedia, Twitter, Instagram, YouTube, but also Google, WordPress that turn learning into a process of creation and production, that make everyone a potential teacher

Strictly speaking, many activists and authors in this space would distinguish between coloniality, an enduring and pervasive mindset, and colonialism, its various manifestations, seeking to tackle, “coloniality embedded within both colonial pasts and neoliberal futures (Adam 2019). Grosfoguel emphasizes the need to distinguish between colonialism and coloniality. and uses ‘colonialism’ when referring, “ ‘colonial situations’ enforced by the presence of a colonial administration such as the period of “classic colonialism”” (2006: 29) whilst ‘coloniality’, denotes ““colonial situations” in the present period in which colonial administrations have almost been eradicated from the capitalist world-system’ (2006: 29). Perhaps it is a distinction between ‘nuts-and-bolts’ and ‘hearts-and-minds’.

An important distinction between ‘edtech’ and what we might be calling ‘digital technologies for learning’ might be the different realities and different perceptions of agency, control and ownership. With ‘edtech’ these apparently rest with the institution, be it a ministry, university, a school or a college, whilst with ‘digital technologies for learning’, social media and mobile technology for example, these seem to rest with the individual and with the community. None of these are true. For both, control, agency and ownership rest somewhere else but for both, decolonisation could be seen as exposing that reality and as taking over ownership, wresting back control and exercising agency.

Digital technology has been linked to increasing the disadvantage of peoples, communities and cultures that are different and distant from the norms, values, habits, styles, languages and cultures of the global and national mainstreams, specifically those of the dominant global anglophone digital corporations. Digital technology is however a powerful force within education systems. Decolonising educational technology is about combatting the ways in which educational technology, in both the ways we described it, reproduces and represents the ideas and values of the dominant racially-biased anglophone majority.

As we said earlier, there is a rapidly increasing academic literature around ‘decolonisation’ in many aspects of education, but it is currently mostly focused on description and analysis rather than policy or practicalities. Furthermore, there is hardly any aspect of digital technology in education.

Clearly if this paper is to have value and impact, it must not only document and analyse the problem but move towards solutions, sustainable and achievable solutions for each of the varied constituencies and stakeholders, including educational technologists, educational IT managers, and the wider educational, social and political environments in which both ‘edtech’ and ‘digital technologies for learning’ take place.

What is Decolonisation and Why is It Important?

The Stanford Encyclopedia of Philosophy provides a succinct, accessible and critical account of colonialism, as follows “Colonialism is a practice of domination, which involves the subjugation of one people to another.” (Kohn & Reddy, 2008). This and other sources (Horvath 1972) explore precise distinctions between colonialism and imperialism, focussed on the settler dimension of the former absent in the latter. Distinctions may however be less important than consequences.

A manifesto from students at Keele University in England (2021) provides us with a working definition. “Decolonization involves identifying colonial systems, structures and relationships, and working to challenge those systems. It is not “integration” or simply the token inclusion of the intellectual achievements of non-white cultures. Rather, it involves a

paradigm shift from a culture of exclusion and denial to the making of space for other political philosophies and knowledge systems. It's a culture shift to think more widely about why common knowledge is what it is, and in so doing adjusting cultural perceptions and power relations in real and significant ways." (Sadly, and ironically, this British UK university uses the American English spelling.). It does however make the important point that decolonisation is not just about remediation and reparation, and is not just relevant to different minority student populations but is about enriching and expanding the educational experiences of all students, including those of the majority culture.³

A recent newspaper article entitled 'Lecturers are key to ending colonial epistemicide' (University World News 2021) provides an excellent and more accessible overview, saying "The simplest definition of decolonisation of the African university is the process of undoing all legacies of colonialism." Understandably, given the African university context, the article does not focus on the legacies of colonialism within UK universities or the colonisers more widely.

The Wider Global Context

Before moving onto attempts to define 'decolonisation' and put it into an educational context, it is worthwhile briefly reviewing other challenges to the legacies of European colonialism and imperialism.

In the media, we see ongoing disputes as the universities and museums of Europe and America are challenged to repatriate cultural artefacts appropriated by the colonial powers of previous centuries, for example the Benin Bronzes and the 'Elgin' Marbles. We also see aspects of slavery being discussed in terms of reparative justice, both in the context of those nations still blighted by the legacy of slavery, as in the work of the [Caribbean Reparation Commission](#), and in the context of those European families and institutions still benefitting from profits derived from their historical slave-owning, highlighted for example in the work of the [Centre for the Study of the Legacies of British Slavery](#). In New Zealand /Aotearoa, the indigenous Maori community talk of decolonisation manifest in the resurgence of Māori names, saying "[In other words, it requires a calling back of our names from the margins.](#)"

Also, coming ultimately from historical slave-owning in the USA, #BlackLivesMatter (Chase 2018) has highlighted ongoing and structural racism within the USA but found echoes in many other white settler nations and in their European nations of origin, and within all their education systems and their curricular (Castillo-Montoya, Abreu, & Abad, 2019).

And coming out of South Africa, initially the University of Cape Town, and spreading to other countries and institutions, including the University of Oxford in England, that had benefitted from endowments derived from colonial exploitation, #RhodesMustFail (Knudsen & Andersen, 2019) drew attention the symbols of colonial privilege and because of its academic bases, it used the terminology of 'decolonisation'.

The Different Dimensions

The different dimensions, overlapping and intersecting, of colonialism include the legacies of colonial occupation by European countries such as England, Germany, France, Holland, Spain, Portugal and Belgium of lands in the Americas, Africa and Asia (Arnold 2005; Bryant

³ We use 'minority' and 'majority' in the local European contexts, recognising that in fact, the 'minority' communities constitute the 'global majority' and are often referred to as such.

2016; Stuchtey 2017) but also by Arabia (Burke 1998; Crone 2006), Ottoman Turkey (Türesay, 2013), Czarist Russia and then Soviet Russia (Heinzig 1983; Morrison 2016)

For each of these, in their different ways, in their different proportions, there are also minority migrant communities settled in the country of the colonialists, for example the Punjabis in the English Midlands, each connected back to their countries and communities of cultural origin, the Punjabis living in post-colonial India in this case (Qureshi, Varghese, Osella & Rajan, 2012), each experiencing a complementary sense of what it is and what it was to be colonised.

There are also the experiences of indigenous peoples, for example those of the Americas, Australia, New Zealand and other white-settler regions, and those at the margins of settled metropolitan societies such as the Sami in Finland, the San in Namibia and South Africa and nomadic cultures like the Masai and the Roma, and also disparate refugee groups. We could add the Bretons, the Basques, the Welsh and many other communities at the edges of larger, different and more powerful ones.

We should make the distinction perhaps between ‘colonialism’ and ‘coloniality’, both terms now appearing more frequently in the literature. We have perhaps already defined ‘colonialism’ in the preceding remarks. ‘Coloniality’, by contrast and briefly, is the mindset, the thought patterns or the world view behind and left behind by colonialism; coloniality forms part of various critical perspectives (Mignolo 2007).

We could argue that ‘open’ science and OER represent neo-colonialism and digital privilege, and we could question the notion and practice of ‘capacity building’, could question the activities of donors, foundations and agencies, and could question the digital educational activities embodied in the missions of the British Council, Alliance Francaise, Goethe Institute and the [Confucius Institutes](#) and their programmes of exchanges, visits and language teaching.

These intersect with another dimension, that we discuss next, the near-universal experience of the global Anglophone digital technologies used in education and across most societies and cultures, sometimes called ‘digital colonialism’ (Kwet 2019; Young 2019; Goel 2021)

The unifying factor, and the only unifying factor, is disempowered and disenfranchised communities and cultures forced by economic, military, historical or political circumstances to see their language and other aspects of their cultures devalued by another.

What is Decolonizing Education Technology?

This question can sound negative, something merely remedial or reparative, something for under-represented communities and cultures, and perhaps we need instead to be thinking, speaking and writing about building and deploying inclusive educational technology within education systems that address decolonisation in a more positive sense of greater, richer, more inclusive educational experiences for everyone. Nevertheless, ‘decolonisation’ is the term where this thinking starts from. We tackle it now by looking at the various components and contexts of educational technology.

How is Colonisation Manifest in Technology?

We have to engage critically with digital technologies, specifically mobile phones and personal computers, in order to realise the extent to which ‘the devil is in the detail’, the extent to which the minutiae of digital interfaces, interactions and images, are permeated by the ideas, metaphors and idioms of dominant (global) (American) English. This is true of both mobile phones and of computers, every sort in every way, which embody Anglophone American global culture, language and values, several of which have been covered in an earlier paper (Traxler 2017) that looked at mobile technologies, languages and learning. The impact of digital technology is pervasive and profound, and we see the colonial mental patterns and processes embodied in the technology imposed on a global audience.

At a surface level, icons and their vocabulary, for example, analogue clocks, egg timers, wristwatches, floppy disks, waste-paper bins, filing cabinets, menus, old fashioned phones, even padded fake leather diaries are skeuomorphic and culturally specific, and make little intuitive sense to anyone outside the mainstream of the global North but are nevertheless still appear across the world’s interfaces. Perhaps, ‘windows’ and ‘mice’ of the WIMPs are a similar category of legacy or metaphor, meaningless to other cultures.

Digital technology impacts on language. So, for example, specific devices will alter how people express themselves and which language they use, opting for Hindi rather than a local Indian language because of Android localisation (Ahmad & Hussain 2011<from earlier paper), opting for *pin-yin* not characters in Chinese messaging because of keyboard-based QWERTY data entry, for English not Arabic messaging because of bigger message sizes (ASCII vs Unicode), for US English not British English because of auto-correction and predictive text.

To explain some of these at greater length: the Chinese language can be written as characters, that is the ideograms that each express an idea or concept, independent of any specific Chinese pronunciation or dialect, composed from a palette of separate brush strokes called radicals, or it can be written as *pinyin*, an attempt to represent the sound of an ideogram in Modern Standard Chinese – as opposed to any other Chinese dialect or pronunciation - using Roman letters. Until the relatively recent arrival of graphic interfaces that could recognise and predict the direct entry of characters, Chinese speakers were forced to engage with an American font.

In the case of Arabic speaking communities, the early dominance of American English in digital technologies has led to the emergence of Arabish, a set of widely understood conventions whereby Arabic-speaking users frequently transliterate Arabic text into Latin script when using these technologies to communicate, also known as the Arabic chat alphabet, composed the Romanized alphabets for informal Arabic dialects in which Arabic script is transcribed or encoded into a combination of Latin script and Arabic numerals. It has been widely adopted for commercial advertising and is recognised by Google Translate and Microsoft Translator.

Haptic interfaces currently favour European or American gestures and do not favour cultures with a different gestural vocabulary, for example, those of the Middle East (Jung 2020; Barakat, 1973; Safadi & Valentine 1990; Thawabteh, 2011). It is likely that automatic language translation, such as Google Translate, has a similar impact on Arabic and its many dialects in relation to English, especially as these are often incorrect (Al Mahasees, 2020).

Similarly, users of speech recognition and dictation software, for Siri on the iPhone or Dragon Naturally Speaking, might find a linguistic bias since some non-standard dialects of English are rendered more accurately than others and most other languages are not rendered at all. In this context, “At present, Siri, Dragon Dictate, Google Voice, and Alexa-like functionalities are not available in any indigenous African language.” (Koffi, 2020)

Icons and graphic interfaces are usually derived from a European or American cultural contexts and most applications and operating systems are American in origin and culture, with those for most African languages only gradually gaining popularity through Linux distributions. Perhaps the textual dominance of American English is being replaced by the graphical dominance of American images and icons (Stark & Crawford, 2015). The massive popularity of emoticons and emojis in mobile phones – and soon in robotics - assumes there is some common global consensus about their meaning, the ‘thumbs up’ for example, but studies suggest this cannot be assumed and might just be another way in which globalised forms override local ones.

The point here has been to illustrate the ways in which the most immediate and obvious forms of human-computer interaction express the dominance of some cultures over others. In relation to the issues of decolonising educational technology, there seem to be two responses, one facing upstream, one facing downstream. Facing upstream, we see the developers and the need to bring pressure to bear in order that they address the pervasive bias in digital systems. Facing downstream, we see teachers and lecturers and the need to develop in them, and thus in their students and learners, formal and informal, the critical awareness of this bias in digital systems, and their role in bringing about change.

How is Colonisation Manifest in Education?

This is a potentially a very broad topic and must include the need to decolonize the curriculum, to decolonize education research, including the tools, techniques, funding, governance and ethics of educational research, and to decolonize educational institutions. In the context of edtech, educational technology within formal education systems, the curriculum is the most immediate site of colonialism and colonality and the one that has seen most thought and analysis across many sectors and many countries but perhaps with an initial focus on the universities of South Africa and England (Begum & Saini, 2019; Moncrieffe, Race, Harris, Chetty, Riaz, Ayling & Steinburg, 2020; Kadiwal & Abu Moghli, 2021; Wilson, Broughan & Daly, 2022; Moncrieffe, Asare & Dunford, 2018)

The curriculum, “the expression of educational ideas in practice” (Prideaux, 2003:268; Young 2014), is manifest in resources, meaning everything from specifically educational worksheets, in-house course handbooks to dedicated educational textbooks to the sources on reading lists; manifest in the schedules of teaching, assessment and examination; manifest in assessment, examination and assignments; manifest in staffing in terms of representation and seniority; manifest in laboratories, field-trips, placements, practica, internships and manifest in pedagogy, the ways in which learning is encouraged or enforced to happen. Education is not however the focus of this paper and we only repeat the observation that there are surface aspects easily amenable to gradual change, such as the composition of reading lists, and there are harder aspects, namely the hearts and minds of the professions, institutions and structures that deliver education.

One often overlooked aspect is that most teaching takes place in dedicated schools, colleges and universities where the rooms, furniture, architecture, playing fields and physical estate

express something about the hierarchies, power relations, pedagogies and social organisation derived from European models and practices, as are the ministries and professions that manage and organise them. The recent profusion of overseas campuses, distance learning, capacity building projects and academic mobility programmes suggest that the colonialism of the global North and the European mindset still exists but constantly reconfigured and reinvented.

Irrespective of the country and sector, educational architecture is a highly conservative brake on any educational change, owing to its cost and its physical bulk, and always the expression of some ideology (Temple 2018). Furthermore, whilst in the early days, change in IT was decoupled in terms of managerial decision-making from other aspects of institutional or sectoral management, gradually this situation has changed and the changes in buildings, changes in pedagogy and changes in educational real estate are interlocked and often dead-locked as different managers wrestle the implications of change in one part of the system interacting with most of the other parts of the system.

In our other sense of educational technology, the informal and often unstructured learning of individuals and communities exploiting whatever digital technology is to hand, colonialism and coloniality are manifest in the legacy of the experiences and expectations generated by their school, and in many cases, this schooling is itself a legacy of colonialism (and imperialism) (Clignet & Foster, 1964; Ccedil, 2011; Windel 2009), especially, in the case of historical European colonialism, in Latin America, Sub Saharan Africa and the Indian Subcontinent.

Universities often aspire to climb global and regional rankings, such as QS (<https://www.qs.com>). Unsurprisingly these rankings are based on institutional metrics that represent and reproduce the values and behaviour of the prestige universities based in Europe and North America and clearly distort the behaviour and ambitions of universities lower down the various league tables and ranking systems, whatever their mission or location. It is incidentally the case that at least of these ranking systems and league tables overlook or underplay the significance of digital learning in the recent and current learner experience.

How is Colonialism Manifest in ‘Open’?

Open learning is often advocated as breaking down barriers but there are arguments that this is simplistic. In fact, open learning, and open systems, open praxis, open educational resources, often represents and reproduces only one perspective, one world view, one culture and one language. Open learning is the movement and systems based on the notion that there should be no barriers to learning, and that organisations – for example teachers, authors, publishers, universities and ministries – should make learning freely available and should make its resources freely available with no restrictions on copying, adaptation and distribution. Open Educational Resources (OER) (Butcher, 2015; Atkins, Brown, & Hammond, 2007), often housed in freely-accessible repositories, are the most mature aspect of open learning. Other aspects include open textbooks (Pitt et al 2019), open teaching or open praxis (Cronin, 2017; Cronin & MacLaren, 2018) though obviously the origins of much of ‘open’ thinking is the global North (Laurillard, 2008). Unfortunately, the concepts and ideals of ‘open learning’ have sometimes shrunk in practice to meant OER and open textbooks, but more significantly critics of OER have referred to it as ‘information imperialism’ (Mulder, 2008, p18) and ‘digital neocolonialism’ (Adam, 2019). There are also concerns that OER metadata schema implicitly express European ideas rather than any other ideas about pedagogy and learning (Traxler 2018).

In the current context, we should not forget to critically review open-source operating systems and software tools, free to download, install and modify (O'Reilly 1999; Von Hippel 2001) and other aspects of 'open' including open innovation (Gassmann et al, 2010; Huizingh, 2011), open data (Molloy 2011; Johnson 2014), copyleft (Heffan, 1997) and 'open development' (Reilly & Smith, 2013; Chib et al 2021), the application of the open movement to international development. Each of these raises concerns about the extent to which they transform but also reproduce coloniality

How is Colonialisation Manifest in Academia?

It is impossible to ignore the various ways in which colonisation has permeated the wider context of teaching, learning and research, in the professional contexts of practising and aspiring career academics and their institutions.

Research, or pilots, projects, interventions and initiatives, in educational technology normally only happen because funders fund them and thus what is researched - and what is not researched - reflect funders' stylistic, methodological and conceptual preferences, including the preferences in terms of the level of complexity and closure that their customers, namely and ultimately, the voters, the politicians, the ministries and the foundations, can tolerate. This probably favours incremental, reformative and 'safe' research rather transformative, step-change and 'risky' research – though not always. Furthermore, there is considerable suspicion that the relationship between researchers and policy-making funders is not 'evidence-based policy formation' but 'policy-based evidence formation (Straßheim, 2017). This system of interactions, transactions and relationships is a barrier to decolonising educational technology research if only by virtue of its complexity, conservatism and interconnectedness.

Furthermore, the educational technology research that is written, published and disseminated only gets written, published and disseminated because that is a requirement or a consequence of the funder requirements, meaning that the work of activists, practitioners, community leaders and members may go un-noticed. And of course, for academic researchers, their universities will expect publication to be in English, the language of high-impact journals that affect global academic rankings, and the language of the global agencies, the source of potential funding and recognition. Academics from smaller or newer universities may not be familiar with the tactics to get their work published (Antonakis, et al 2014; Collyer, 2018).

Whatever the intrinsic value of research, it has the highest chance of publication if it comes from authors practised and experienced in the necessary style, processes and language of academic research. This does of course militate against those researchers without that level of practice and experience and thus reinforces one specific world view at the expense of weaker and smaller ones. In educational technology, the technology itself is also representative of a specific culture/

Research on the 'hard-to-reach' and much of the global South, and then the subsequent dissemination and publication, is often conducted, reviewed, evaluated and read by outsiders from the global North, in English as we said earlier. Measures to build research capacity in the global South and to involve local researchers are few and far between but may also run the risk of inculcating the methods and mindsets of the global North onto emerging researchers in the global South rather than promoting local methods and mindsets. This may happen at an institutional level, as global academic rankings promote the practices and

standards of the global North. There are clearly concerns with the authority and prestige of universities from the global North (Bradley, 2017).

It is likely that a small number of research funding models prescribed by the universities and funders of the global North disempower and disenfranchise many educational technology researchers and their institutions in the global South and perpetuate colonialist mindsets through their practices and preferences. One mechanism by which academic research is funded in the global North is for research funding to go to the researcher's institution to 'buy-out' their time on the project. This is however only equitable if the researchers are paid a living wage by their university employer. In any case, this only works for researchers within the salaried economy and excludes potential community researchers in subsistence or barter economies. A new project attempts to greater insights into the varied lives and livelihoods of potential and emerging researchers outside the established practices of western Europe in order to create greater equity and fairness in future educational technology research consortia (<https://educationobservatory.co.uk/fairer-funding/>).

How is Colonialisation Manifest in Edtech

In some respects, 'edtech' or educational technology is at the intersection of education, technology and the institutions that deploy it, outlined above, and it consequently inherits aspects of all these different activities and endeavours.

The literature has already begun to document concerns about the bias built into search engines such as Google and Google Scholar, into self-archiving repositories such as Academia (www.academia.edu) and ResearchGate (www.researchgate.net), and into the algorithms and the artificial intelligence (AI) built behind so many of these educational and commercial applications. Similar concerns have also been raised about some of the mapping technologies; "On Google Maps, Palestine Is Nowhere To Be Found" said one author (Alkishawi, 2021), whilst other spotted, "A Glitch in Google Maps" (Carraro, 2021).

There are also legitimate concerns about the dominance of many of the digital tools, for example YouTube and Wikipedia, used frequently by students and scholars but based on Anglocentric language, values and culture. Whilst Wikipedia is available in many languages, the volume of content in the English version as opposed to, for example, the Arabic version. Indicative figures are 5,625,365 articles and 145,892 editors for the English version against 633,291 articles and 10,178 editors for the Arabic version, roughly 10-to-1 (Roy, Bhatia & Jain, 2022).

These technologies are used daily by students, scholars, lecturers and researchers and decolonising can only begin as these issues are researched and recognised.

There should however be a particular concern about the technology front and centre of institutional digital learning, namely the virtual learning environment (VLE) (Weller 2007) otherwise known as the learning management system (LMS), because the theorising and the theorists are culturally specific, coming from much older and pre-digital European contexts, and certainly not derived from the cultures of Asia, Africa or the indigenous Americas. This is also true of the prevalent practises and usages of these systems.

No technology is neutral, a tabula rasa devoid of any ideology or culture and so. every VLE and LMS embody, enact and espouse specific pedagogies, those designed into them initially and those over-written subsequently by their users. These designed pedagogies are usually

versions of social constructivism (Zsolt & István, 2008), theories that students learn by building on what they know and by discussion and discovery. These seem benign and self-evident but may not be the native pedagogy of every community and culture. Decolonising educational technology can only take place when the learning practices and preferences of each community and culture are valued by the implementations of education technologies. These pedagogies designed into a VLE or LMS are usually however over-written by a usage that is transmissive or broadcast, by sharing documents and slide-decks to be consumed and comprehended. In either case, these are the theorisings and practices of a dominant culture, not necessarily those of smaller or weaker cultures.

In either case, the VLE or LMS usually has a variety of other functions and facilities, some of them pedagogic and some of them administrative, intended to manage the students and deliver the institutional business model.

There is a likelihood that the technologies of plagiarism detection, Turnitin for example, enforce culturally specific ideas about academic practice and assessment, both on taught students and increasingly on research authors.

Another emerging educational technology is the e-portfolio. Each is a digital collection created by a learner (Xerri & Campbell, 2016), of their work, for example essays, posters, photographs, videos, and artwork; and might capture other aspects of their life, such as volunteer experiences, employment history, extracurricular activities, and more. They document learning and make it visible. A good e-portfolio is both a product (a digital collection of artifacts) and a process (of reflecting on those artifacts and what they represent). Versions are being used in low resource settings, using mobile network coverage or are being used offline and synchronised whenever network coverage is available, for example PebblePad (<https://www.pebblepad.co.uk>). Open-source systems, for example Mahara (<https://mahara.org>) are available (Attwell, 2007; Roberts et al. 2005). They can provide the necessary evidence for admission to employment, training or formal education (Wuetherick & Dickinson, 2015; Heinrich, Bhattacharya & Rayudu, 2007). It is clear that they can be used for a more holistic and authentic representation of each learner's life and culture, and perhaps a place to reflect on the learner's own culture and that imposed by their university, school or college. With guidance and support, e-portfolios could become a site for decolonising educational technology.

How is Colonialisation Manifest in Digital Technology for Informal Learning

We move back to the ways in which digital technology is used by everyone outside formal education, who are nevertheless creating their own learning, without formal teaching or teachers, by finding, sharing, producing, discussing, merging and exploiting digital ideas, information, images and opinions. To be specific, we are describing what happens in social media such as Facebook and WeChat, on mobile blogging and microblogging sites, such as Twitter or WordPress, on video and image upload, obviously YouTube, Flickr and Instagram, sites that use wiki technologies, of which Wikipedia and its off-shoots are the exemplars, and podcasts and vodcasts, accessed through various podcatcher services such as iTunes.

Listing these technologies, and referring back to some of our earlier remarks about search technologies, AI technologies and the interface/interaction technologies, shows a complex, fluid and volatile environment presenting considerable challenges in pinning down the

manifestations of colonial mindsets and mechanisms. We could formulate our responses by looking upstream at the developers and downstream at the learners but both are far larger challenges than the constrained and managed environments of formal education.

The Emergence Post-Pandemic of a Decolonial New Normal

We are asking here, in effect, will the pandemic, in all its ramifications and consequences, advance the process of decolonizing educational technology or impede it.

The ‘pivot’ to digital learning was the term used for a massive transition to digital learning in institutions across the world’s education sectors. It was driven by the need to maintain some continuity for learners and understandably used existing and established systems, albeit repurposed from some specialist role to a systemic one. The ‘pivot’ was largely conservative rather than transformative because of the need to avoid expense, risk or resistance. In the current context, the ‘pivot’ may have entrenched and expanded the established global educational technologies and pedagogies rather than encouraging local innovation and initiative around ‘decolonisation’.

Some research suggested (Traxler, et al 2020) that the response, the one adopted by many institutions, sectors and countries, of pumping undifferentiated people, systems or resources into education systems had the effect of reinforcing existing educational and digital divides and thus of reinforcing the existing hegemonies within educational technology.

The ‘pivot’ to digital learning, caused by the global pandemic, means that conferencing technologies such as WhatsApp, Teams and Zoom are suddenly more widely used, and so they should be more prominent in our discussion, especially where auto-captioning is available and in which languages. Do these reinforce the pre-eminence of American English and further disadvantaged minority languages? The decolonialisation aspect of this still unresearched (Al Fadda et al, 2020; Mora-Jimenez et al 2022)

What are the areas where decolonization needs to happen?

The easy answer is ‘everywhere’ since many would believe active, legacy and historical colonialism is in the air we all breathe, ubiquitous, pervasive, as well as countless specific and concrete manifestations.

As we said earlier, if this paper is to have value and impact, it must move towards solutions, solutions for each of the varied constituencies and stakeholders, including educational technologists, IT managers, policy-makers and institutional managers but more importantly current learners, informal learners, potential learners, life-long learners and their friends, families and communities. That said, the challenge is not straightforward because the agents, organisations and institutions most likely to advocate decolonisation in some forms are also those, in very general terms, most likely to be perpetuating it in other forms.

What are some examples of best practices for decolonization?

At the time of writing, the focus is on analysis and data rather than policy and practice and the locus is a handful of ‘decolonisation’ hot-spots, notably UK, USA and South Africa and allied to perceptions of different aspects of the problem, for example the curriculum or representation. What is urgently needed is greater support and visibility for best practice.

What guidance can we give professionals and policy-makers?

Technology designers and developers

This is perhaps the ‘hard’ end of educational technology, where colonization is ‘hard-wired’ into hardware, software, infrastructure and interfaces. It is however also ‘easy’ insofar as the evidence in existing systems is objectively visible and ready to fix. To accomplish this however we need detailed checklists and procedures to purge existing systems of this evidence of one dominant culture and replace it with interfaces and interactions that reinforce diversity and inclusivity. It requires engagement with digital corporations with reasoning and discourse that highlight the business cases, the competitive edge and the potential markets.

This may sound like in some ways like ‘localisation’, sometimes presented as a solution but can be a problematic distraction if it merely means the adaptation of resources, which might be content, communities or tools, from the global North to the specifics of cultures of the global South (Wolfenden & Adinolfi, 2019). This seems economically attractive but may in practice mean the superficial replacement of images and vocabulary, leaving the underlying dominant colonialist culture and pedagogy unchanged, merely masked.

We have argued that edtech has not only been the vehicle for the ongoing digital neo-colonialism in education but also its industrialisation, helping the sector in many countries deliver on political commitments to increased access, wider participation and greater inclusion. This model of ‘mass production’ modelled on ideas borrowed from manufacturing was followed by ideas of ‘mass customisation’ already widespread in for example the making of clothes, cars, housebuilding and computers for the global North. This was the notion that algorithms could cost-effectively introduce variety into products, into this case courses, curricular and pedagogy, (Hanna & Barman, 2014; Pham & Jaaron, 2018; Pierson, 2011; Schuwer & Kusters, (2014). thereby reaching the ‘long-tail’ of communities and cultures with needs, attributes and ambitions previously marginalised (Seely Brown 2008). Our question here is to ask whether such approaches and technologies might allow diverse and different cultures and communities greater representation and visibility.

And in looking at existing systems, we can begin to think about new systems and develop more inclusive design specifications and design processes.

Edtech designers and developers are a specialist educational layer above generic software where developers work on systems that are specifically educational; the Learner Management System (LMS) or Virtual Learning Environment (VLE) is the most obvious example and like many educational systems, there are open-source versions and proprietary versions, a distinction that is important in looking at the motives and mechanisms for addressing colonisation. Open source educational technologies often have a very diverse and active user-base allowing improvement, modification and updates to propagate rapidly; they do however require considerable in-house technical expertise that may militate against smaller institutions decolonising their platforms.

Edtech Professionals

These are clearly at the core of decolonizing educational technology. The role does not however always have clearly defined roles and responsibilities. In many countries, sectors and institutions, it is still an emerging career and vocation and comes under various titles, including ‘learning technologist’ in UK. In those countries where there is now a clear role and professional niche, there are professional bodies, ISTE in USA and ALT in UK for example, and these are the focus for accreditation, standards, events, community and

communications. Like other professional bodies, those for edtech professionals are gradually introducing codes of professional and ethical practice and statements of values, especially where the professional body has some accredited or chartered status open to members. These often embrace aspect of inclusion including positions on anti-racism. Where these bodies exist in any given country, they should look at addressing colonialization and coloniality in similar ways, through workshops, accreditation, policy and engagement.

Organisational and Institutional IT Managers

These are the people within universities, schools, colleges and sectors who procure, install, deploy and maintain edtech systems and although usually remote from teaching and learning, they are the people negotiating what gets bought and what gets delivered. Consequently, they are a crucial link in the chain; vested in them is the institutional or organisational authority to make deals, sign contracts and spend money.

Curriculum advisors

We could argue that by the time curriculum advisors come into the picture, the damage is already done, the die is cast, and educational technology is what every earlier stakeholder has made it. This however need not be the case, since advisors can insert criticality and awareness into the curriculum, encouraging learners and their teachers to critique and question the systems, the content and the pedagogies that they are presented with, to encourage debate and discussion rather closing them down.

Policy-Makers and Decision-Maker

We can outline what professionals such as curriculum experts and IT developers should be doing within their own specialisms but for this to actually happen these people need to be empowered, coordinated and resourced by their managers.

Within organisations and institutions, change however needs a ‘theory of change’, one that resources, coordinates and sequences the various managerial options. These options include creating champions, exemplars and pilots within their institution or organisation; recruiting, selecting and promoting their staff; revising their policies, strategies, regulations, documents, procedures and structures. There are however limits to institutional and organisational these initiatives since schools, colleges and universities all exist within national frameworks, ones that set targets and resources and these must also be tackled.

It is easy to imagine how this might happen in the edtech provision of the institutions and sectors that constitute formal education but more diffuse and challenging in how to make it work when we look at the pervasive learning that takes place informally with social media, web2.0 and other popular digital technologies across populations and communities.

At a national and at an international level, in relation to both formal and informal learning, we see the need for agencies and ministries to engage with those corporations that currently embody digital neo-colonialism and to create events, examples, opportunities and forums where awareness and activism can be nurtured, embracing the decolonialization of educational technology in all its different manifestations. We are in effect asking for a ‘theory of change’.

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