EDUCATIONAL PLANNING AND ARTIFICIAL INTELLIGENCE

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ABSTRACT

This article addresses how those who plan education will be profoundly affected by Artificial Intelligence and suggests ways in which the potential benefits may be optimised. UNESCO's contributions to the AI debate are recognised and applauded, despite AI having, as yet, no direct voice in its discussions. Most significantly, there is a widespread unwillingness – manifest in both UNESCO's publications and by contributors to its recent Digital Learning conference – to accept that education is undergoing a fundamental transformation and that contemporary technology, including AI, will continue to impact upon, and necessarily react with, that evolving situation. In a similar manner, the fourth Sustainable Development Goal is now acting as a straitjacket, constraining the actions and aspirations of those seeking to confront education's worldwide challenges through the sensitive and ingenious application of contemporary technology including Artificial Intelligence.

Educational planners and decision-makers are urged to keep abreast of the Education and AI debate, including the UNESCO-led discussions and UNESCO-authored publications, while applying grounded common sense, rejecting technological determinism, and maintaining a healthy scepticism throughout. It is vital that they too acknowledge that education is, along with society generally, evolving and, accordingly, recognise the limitations of reports and products which ignore that fundamental transformation. It is recommended that they start with the challenges and opportunities offered by AI and – collectively – demand AI support for what needs to be achieved, no matter how radical. This might extend to a shared super-goal of optimising the nature, delivery, and effectiveness of education, carefully and creatively applying AI, in order to help create a better, happier and more equitable world community.

INTRODUCTION

Formal definitions of Artificial Intelligence (AI) abound. For example, the Oxford Dictionary defines it as "the theory and development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages" (Oxford Languages, 2021, p.13). United Nations publications describe AI as, simply, "human intelligence or behaviour demonstrated by machines" (Unite, 2023, p.1). Or, as a poet puts it, "AI is a carefully crafted mirror for humans, getting better each year at showing us not only a version of what we are, but what we value in ourselves as a species" (Brown, 2022, p.1).

For present purposes it may be regarded as the ability of a machine (or a computer or a robot) to act and/or to think in what may reasonably be regarded as a 'human' manner, drawing information from its surroundings, and determining its responses based upon what it understands or senses, ever learning as it goes (present author's working definition).

AI is profoundly changing our society, our economy, our culture, our leisure, our work, our self-image, our aspirations and – in some ways – our very selves, as we adapt to the evolving AI world. Inevitably, it has major implications for education and, as is explained in this paper, that educational transformation – rather than being focussed upon in sectoral isolation – is best addressed with the broader context of society at large and AI's impact upon it.

The UNESCO-sanctioned definition of the other element being addressed – educational

planning – is "the process of making arrangements or preparations to facilitate the training, instruction or study that leads to the acquisition of skills or knowledge, or the development of reasoning and judgment" (Coombs, 1970, p.3). We learn also, from that same source, that "educational planning strives to research, develop, implement and advance policies, programs and reforms within educational institutions (*ibid*). The present author (with Professor Uys) described 'the basic educational planning task' as "mobilising available resources in order to achieve the agreed (or implied) objectives in a pleasurable and stimulating setting" (Douse & Uys, 2020, p. 1).

A more proactive way forward than exchanging definitions, however, is to obtain an operational understanding of what educational planning is, and what educational planners do and reflect upon. This may best be achieved by studying the contents of this distinguished journal since its inception. That has been done by the author, selecting a set of five articles that, to him, demonstrate a representative variety of educational planning activities, and this procedure is taken forward below. This exploration highlighted that the original title of this article, 'Artificial Intelligence and Educational Planning', placed these two entities in an erroneous order: this has been rectified[1].

UNESCO – AN HOMAGE AND A CRITIQUE

UNESCO is performing its allotted leadership and coordination role in relation to AI and education [their order]; its Guidance for Policymakers (UNESCO, 2021) may be regarded as the fundamental and essential text. That document recommends, with clear explanations, justifications and examples, the following procedure:

- Define a system-wide vision of AI and education policies;
- Assess system-wide readiness and choose strategic priorities;
- Adopt a humanistic approach as an overarching principle for AI and humanistic policies;
- Mobilise interdisciplinary and multi-stakeholder expertise to inform policy planning and build the capacities of policy-makers;
- Set out cross-cutting strategic objectives, and plan regulations and programmes, to ensure the equitable and inclusive use of AI in education;
- Plan the use of AI to support lifelong learning across all ages, locations and backgrounds;
- Ensure that AI is being used to empower teachers;
- Build a trusted evidence base to support the use of AI in education;
- Strengthen research and evaluation in the field of AI and education; and
- Promote the local development of AI technologies for education (p.17).

Much of this is entirely admirable and utterly in tune with UNESCO's mandate and humanistic vision – these are sensible steps that should surely be taken by those seeking an optimal alliance of people and machines in the service of human fulfilment and well-being. Some decision-makers and planners may carp at, for instance, the omission of the need to spread information across the wider community and to generate enthusiasm along with understanding. Others may point to a failure in these principles to address the dangers – some real, many more perceived, most exaggerated – of applying AI in our schools and colleges, although these matters are touched upon in the text and certainly addressed in subsequent UNESCO publications and activities[2].

1 Virtually all of the documents sighted, including UNESCO's, place 'AI' before 'education' in their titles, signifying, conceivably subconsciously, their authors' propensity to address the relationship from the wrong perspective.

2 A vast and admirable body of work in this area (research, international fora, publications et cetera) is being engendered by, for and through UNESCO and is readily available at www.unesco.org

But the truly significant and somewhat surprising omission relates to the starting-point. Defining a 'system-wide vision of AI and education policies' should surely come after something along the lines of '*gain clarity and consensus on the nature and purposes of education in the context of contemporary technology*'. It makes no sense to start discussing AI on the basis that the education system will in all other respects remain unchanged, just as it would have been foolish to attempt to achieve a 'vision' of the early automobiles (circa 1860) on the assumption that the bridleways, byways and cart tracks would remain unaltered.

And this is no transitory oversight. For example, a recent UNESCO conference[3] focussed on "regulations or policies that have been adopted and released, projects that have been implemented at scale, or platforms or AI tools that have been developed and put in use" (UNESCO, 2023) and concentrated upon "governance, norms and standards, as well as pedagogical innovation… while cultivating collaborative partnerships to achieve greater impact" (*ibid*). This present author attended the conference, at which there were 190 speakers[4], most maintaining, in some way or another, that there are '*incredible opportunities along with incalculable dangers*'. None of those presenting (at least in those sessions attended by the present author) seemed at all aware that education itself will change dramatically – the general approach was one of exploring how AI would operate within systems and schools virtually unchanged from those around us currently.

Taking account of that UNESCO conference organiser's closing remarks, a consensus of the following three-fold nature appears (as perceived and summarised here by the present author) to have emerged:

- We must strive for **inclusion**; the global digital divide remains vast; two-thirds of children cannot connect; 95% of the world's languages are excluded; AI should be for everyone worldwide – we have yet to make it so;
- In relation to teachers and students, there should be equilibrium between protecting and **empowering** but, if forced to choose, the latter is favoured; and
- In relation to government policies, **regulating** is preferred to banning, taking action favoured over reacting.

While these approaches make good sense, here again we see that unwillingness to address education's forthcoming and fundamental transformation, made both necessary and possible through ICT and now AI, which omission – in a digital learning conference – is as damaging as it is puzzling.

This desire to begin the story with Chapter 2 is apparent in sectors other than education. For example, a recent study of AI in healthcare (Daly, 2023) gives "39 examples improving the future of medicine", much as a catalogue at an art exhibition might list the paintings for sale, each with their individual special qualities and selling points. Similarly, a review of how AI in has revolutionised the finance industry (Schroer, 2023) presents 29 examples, proceeding from company to company and platform to platform. What we see here verges upon technological determinism, solutions in search of problems, AI applications readily available, at a cost, at the marketplace, much as the 'AI tools that have been developed and put in use' were on show at that UNESCO symposium *cum* forum.

3 UNESCO's Digital Learning Week, 4th-7th September 2023, comprised an International Symposium on Digital Learning Platforms and a Policy Forum on Artificial Intelligence in Education. For details and the conference programme, see:
https://www.unesco.org/sites/default/files/medias/fichiers/2023/08/2023-digital-learning-week-programme-en_0.pdf

4 All apparently human – not a self-aware reflecting machine in sight; rather more North than South, assorted excellencies, sundry salespeople, profusions of professors, many government ministers, much jargon, several mentions of Bloom's taxonomy…

UNESCO is the United Nations' specialised agency for education, and it, in common with some 40 UN (and World Bank) agencies, are exploring AI in their respective sectors[5]. So that there is synchronicity across silos, so that, say, the United Nations Convention to Combat Desertification and the United Nations Framework Convention on Climate Change may exchange ideas, remain consistent, and learn from one another, and, above all, so that each agency's efforts explicitly contribute to a higher goal, an overall and UN-wide agency would appear essential. At first glance, UN Secretary-General António Guterres' call for a new United Nations international body "to help govern the use of artificial intelligence as the technology increasingly reveals its potential risks and benefits" (United Nations, 2023, p 1), responds to that requirement. However, its apparent focus will be on "potentially catastrophic and existential risks… without action to address (them), we are derelict in our responsibilities to present and future generations" (*ibid*). Other than the Sustainable Development Goals for 2030, which are fast approaching the status of sacred text, there is no binding energy, no inspirational statement on how AI should best serve humanity, no common goal, and no means of ensuring shared strategies across those assorted sectoral efforts.

CONTEXT AND CURRICULUM

UNESCO's entirely admirable mandate "calls inherently for a human-centred approach to AI, including addressing current inequalities regarding access to knowledge, research and the diversity of cultural expressions… to ensure AI does not widen the technological divides within and between countries" (UNESCO, 2021 p. 7-8). It talks also of harnessing AI to achieve the fourth Sustainable Development Goal: 'ensure inclusive and equitable quality education and promote lifelong learning opportunities for all'. The SDGs were born at the United Nations Conference on Sustainable Development in Rio de Janeiro in 2012 and their final wording, and the preamble and declaration that accompanied them, were agreed by UN member states in August 2015.

They are very much a product of their time. For example, SDG4 has 10 targets for 2030 encompassing many different aspects of education such as:

- ensuring that all girls and boys complete free, equitable and quality primary and secondary education;
- ensuring that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy;
- building and upgrading education facilities that are child, disability and gender sensitive and provide safe, nonviolent, inclusive and effective learning environments for all; and
- substantially increasing the supply of qualified teachers.

Even on their own terms, actual advancement towards these well-intentioned albeit outdated objectives has been unimpressive. A recent UN report (United Nations, 2023a) noted that

> *"progress towards quality education was already slower than required before the pandemic, but COVID-19 has had devastating impacts on education, causing learning losses in four out of five of the 104 countries studied… only one in six countries will achieve the universal secondary school completion target by 2030, an estimated 84 million children and young people will still be out of school, and approximately 300 million students will lack the basic numeracy and literacy skills necessary for success in life… to deliver on goal 4, education*

5 To save space (and to challenge readers), those agencies are listed here as abbreviations: CTBTO, FAO, ICAO, ILO, IMO, IOM, ITU, UNAIDS, UNCTAD, UNDESA, UNDPPA, UNECE, UNEP, UNESCO, UNDP, UNFCCC, UNFPA, UNGP, UN Habitat, UNHCR, UNICEF, UNICRI, UNIDIR, UNIDO, UNDRR, UNITAR, UNODA, UNODC, UNOOSA, UNRISD, UNU, UN Women, UN WTO, WFP, WHO, WIPO, WMO, and the WB Group.

financing must become a national investment priority. Furthermore, measures such as making education free and compulsory, increasing the number of teachers, improving basic school infrastructure and embracing digital transformation are essential" (p.2-3).

Only in those final four words are the glimmerings of the overall solution vaguely detected. Few economies are capable of making education a national investment priority, even were the political leaders or the electorates willing to. Expenditure necessary to significantly upgrade infrastructure or employ sufficient well-qualified teachers – and pay them properly – will not be forthcoming. The futile chase in pursuit of ancient and unattainable dreams is a superfluous and damaging distraction.

Even in 2015, as SDG4 was being ratified, it was becoming clear to many educational planners, decision-makers, analysts and commentators, that contemporary technology was making both necessary and possible a fundamental transformation of education. With a growing and widespread recognition of AI's potential, continuing to assess educational progress and pitfalls from a 2015 perspective is as absurd as it is dysfunctional. Let it be recognised that the fourth Sustainable Development Goal is now acting as a straitjacket, constraining the actions and aspirations of those seeking to confront education's worldwide challenges through the sensitive and ingenious application of contemporary technology and Artificial Intelligence. Some of the possibilities based upon the sensible and sensitive application of AI – alongside enthusiastic teachers, in convivial settings, and in harmony with post-digital society – are explored in the discussion that follows.

Linkages between school and work certainly lend themselves to AI-guided envisaging, enlightening, encouraging, evaluating and even enforcing. It is easy to visualise each of educational planning, teaching and learning being geared to present and forthcoming labour market requirements and desirable workplace attitudes. However, the present author has long argued that "the work that most adults are likely to be doing a decade or so hence will, as now and as ever has been, be despicable and dehumanising drudgery… all the more reason to ensure that the time spent in school should be extensive, exhilarating and entertaining and entirely un-work-related" (Douse, 2005, p. 8). He further recognised that "bringing the marketplace into education and the workplace into the schoolroom devalues the invaluable, transforming a wonderful universal right into a mundane tradable commodity" (Douse, 2013, p. 4) and that "discontinuities between education and work are vital to preserving the former's integrity" (Douse & Uys, 2023a, p. 3). Given all of that, he is hardly likely to turn to AI for support in "the colonisation of the schoolroom by the workplace" (*ibid*).

UNESCO recommends planning the use of AI to support lifelong learning across ages, locations and backgrounds… leveraging AI to become more dynamic, serving higher numbers of non-traditional learners, and provide lifelong learning across formal, non-formal and informal settings" (UNESCO, 2021, p. 4). Across the world, we are isolating people who are digitally excluded, the technically less adept, and at a very high cost; the older, the poorer and the more vulnerable are increasing cut off, in rich western nations as well as in the developing world. Indeed, the phenomenon of the 'proud digital illiterate' (claiming that "one of the most interesting things about me is that I cannot use a computer") is all too commonplace: these too should be within the target population, For, if lifelong education is meant to be for all, it should certainly be extended to those presently excluded, involving the provision of local in-person support alongside digital transformation strategies.

And if education is really about equity – as is widely claimed – and not in actuality an inequitable selection and sorting out process, then this too must be actively and creatively pursued. Over half a century ago, several societies (those of Cuba and Ghana for instance) mobilised

secondary school students to bring literacy and numeracy to the disadvantaged and the remotely located. Perhaps something of this kind might be designed and delivered by all countries across the world, using the young to enable the old (and all categories of the digitally excluded) to possess and enjoy exploring the possibilities and present-day necessities of contemporary networking. So here is an especial challenge to those who plan for lifelong learning: how to use AI alongside able users to achieve equitable access to and benefit from machines and systems across all social groups. Not merely addressing exclusion but ensuring that citizens of all ages, economic levels and geographical locations tend equally to benefit from and enjoy contemporary technology.

As prominent environmentalist George Monbiot emphasises "it is not enough to build learning around a single societal shift: students should be trained to handle a rapidly changing world" (Monbiot, 2023 p.1). Were the notion of an externally imposed curriculum still to apply, a strong case could be made for a focus on meta-skills, such as self-development, social intelligence, empathy, openness, resilience, empathy and creativity, so that all may happily acquire the fresh competencies that will undoubtedly and suddenly be demanded by this exciting and sometimes terrifying evolving post-digital world. Similarly, covering prompt engineering – effectively communicating with generative AI models such as ChatGPT, Bard and Dall-E – will enable users to formulate the prompts that are most likely to produce the outputs that most closely match their expectations. Much as the Sergeant will not bark "For inspection, port arms" when he wants the squad to bring their rifles to the ground.

Just as any curriculum worthy of its time would need to cover the principles of complex systems, as

> *"everything of importance to us (the brain, body, society, ecosystems, the atmosphere, oceans, finance, the economy…) is a complex system… the two existential threats I would place at the top of my list, ranked by a combination of likelihood, impact and imminence, are environmental breakdown and global food system collapse… both involve complex systems being pushed beyond their critical thresholds"* (Monbiot, 2023, p. 1).

Which leads on to metacognition which, argues Natasha Robson, may and should be taught. It involves understanding how thinking works,

> *"from neuroscience to cultural conditioning… how to observe and interrogate one's thought processes… and how and why one might become vulnerable to disinformation and exploitation"* (Robson, 2016, p. 2-4).

But all of that is set in the fading context of curriculum being imposed upon learners. Certainly, meta skills, metacognition, prompt engineering and an understanding of complex systems are key competencies for their thriving in their anticipated AI-nurtured lives. But the very idea of there being a set of subjects, a body of knowledge and an array of skills that all teachers must deliver, and that all learners must acquire, is as outdated as buttoned boots and facsimile machines. This present author has long advocated that self-directed and self-regulated learning, encompassing learner-determined curricula, should and will become the

> *"prevalent educational mode, from early-secondary onwards throughout life… (with) optimum advantage being derived from universal connectivity, (as) in the context of the duality (tangible and virtual) of contemporary consciousness… letting the learners lead should characterise education's forthcoming, fundamental (and COVID-19 hastened) transformation"* (Douse & Uys, 2021, p.7).

In other words, by all means make the acquisition of those highly relevant proficiencies available but allow them to be assimilated if, and only if, and when a learner desires them. [See also Douse & Uys 2023b on the curricular implications of letting the learners lead.]

LEARNING AND TEACHING IN THE TIME OF AI

As a fairly recent McKinsey report emphasises, "the teaching profession is under siege (Bryant et al, 2020, p. 9) with

> *"burnout and high attrition… 81 percent of UK teachers considering leaving teaching altogether because of their workloads... further disheartening to teachers is the news that some education professors have even gone so far as to suggest that teachers can be replaced by robots, computers, and AI"* (p. 9-10).

The report concludes that

> *"teachers spend an average of 11 hours a week in preparation activities… effective use of technology could cut the time to just six hours… implementing technology in the classroom at scale is hard. Just providing hardware is easy… much of the time saved, however, can be ploughed back into improving education through more personalized learning and more direct coaching and mentoring… additional time can also help support social–emotional learning and the development of the 21st-century skills that will be necessary to thrive in an increasingly automated workplace*" (*ibid* p.11).

While many of those findings and recommendations still stand, it must be recognised that, over the four years since the McKinsey survey was conducted, much (including Covid) has happened, AI has risen to the top of agendas, and its potential to radically transform education (and all else) has been increasingly recognised.

Much of the discussion of AI in relation to education over those four years has focussed upon the threats and dangers. While addressing these in thoughtful detail, Professor Stuart Russell, one of the world's leading experts on AI, recognised that personalised ChatGPT-style systems could feasibly deliver "most material through to the end of high school… two to three more times effectively than traditional classroom lessons" (Devlin, 2023 p. 6). While "human involvement would still be essential, (that) could be drastically different from the traditional role of a teacher… facilitating more complex collective activities and delivering civic and moral education" (*ibid*). Professor Russell concludes that "recent advances in AI are likely to spell the end of the traditional school classroom… fewer teachers being employed – possibly even none…" (*ibid* p. 8).

Which is some distance away from that positive UNESCO principle of ensuring that AI is used to empower teachers. The UNESCO model involves

> *"…protecting the rights of teachers and the value of their practices… analysing and reviewing teachers' roles defining the skill sets that teachers need to apply AI… delivering training and continuous support… planning ahead to enable teachers to apply new AI technologies to their current practices and transition to new ways of working… encouraging the formation of communities of educators who share AI experiences… (and) providing simplified guidelines to update teachers on the latest findings"* (UNESCO, 2021, p. 1) .

Which is both convincing and humane – apart from one obvious flaw. UNESCO's approach, along with that of UN agencies across most of the sectors explored to date by this author, assumes that the superstructure will remain more or less the same – virtually the late-20th century model – while processes within it, including those embodying AI, would proceed without affecting, let alone shattering, the overall setting.

Clearly, if Professor Russell's prognostications are at all close to the evolving actuality, UNESCO's guidance would be unworkable: empowering teachers depend upon their continuing existence. The present author's own predictions are that there would be "far fewer (teachers) but much more effective and substantially better rewarded" (Douse, 2022, p. 7) and that it is necessary to recognise 'The School' not as a "tangible location but as a dispersed (and ever more global) community of learners – a process of individually-driven teacher-buttressed self-fulfilment as opposed to a physical-located exercise in regimented enforcement" (Douse & Uys, 2019, p. 7). AI could undoubtedly enable highly effective learning, teaching and continuous professional development in the fundamentally transformed educational situation (which AI makes both necessary and feasible) but, though safe and reassuring, the assumption that the teacher's role will gradually evolve from the current set of tasks is misleading and dangerous.

The present author has also envisaged the 'Artificial Intelligence University' where "only the students are people. All other roles and responsibilities at the AIU… are effectively delivered by and entirely embody AI" (Douse, 2023, p. 1). One noteworthy feature is that "with its ever-increasing income accruing from its research and development activities… there is no longer any requirement for fees… full-time on-campus students are now receiving not only generous living allowances but compensation for their not working during their years of study" (*ibid* p.2). Apart from its other insinuations, this model vividly illustrates that the potential of AI and student (and university) financing are inter-linked, with the former potentially riding to the rescue of the latter.

SIX CHALLENGES IN SEARCH OF AN AI SOLUTION

Let us return, then, to the earlier observation on the nature of challenges faced by those engaged in various educational planning areas. Drawing from past editions of this Educational Planning Journal, the author identified five examples of issues of particular interest to educational planners. These comprised:

- Educational Wastage, described as a "canker worm that has eaten deep into the fabric of our educational system" (Akinsolu, 2017);
- Differentiated Instruction, necessitated by the "changing cultural and linguistic landscape of today's classrooms… transforming classroom practices" (Hersi & Ball, 2021);
- Classroom Design, in that the "changing nature of education has forced educators to rethink the role of classrooms in student learning" (Duncanson & Curry, 2020);
- Teacher Retention and Attrition, "thinking strategically about ways to improve teacher retention rates" (Kim et al, 2020); and
- Inclusion in STEM Education, "barriers for students with disabilities accessing Science, Technology, Mathematics and Technology programmes (Klimaitis *et al*, 2021).

To those five, the author added one of his own, based upon six decades of educational planning in developing countries, being fully aware that, once an international advisor helps put together a programme, supported by an agency such as the World Bank, the Asian Development Bank, the USA's Development arm USAID, or the European Union, establishing, assessing and reporting upon what is actually happening depends upon local personnel supplemented by periodic visits by donor representatives. So there is a need for:

- Objective monitoring of externally-supported educational developing projects, based upon actual achievement against the agreed input, output, outcome, impact and sustainability goals.

The author searched for existing AI applications in these six areas. In addition to an internet-based literature search, he discussed them with participants at UNESCO's recent Digital Learning Week (see above), following this up in correspondence with three of them. He also communicated

with two major AI educational providers. Based upon those investigations, it may be concluded that (a) everyone contacted agreed that AI could make a significant positive contribution in each of these areas; (b) in the majority of instances, no entirely suitable AI application could be identified[6]; and (c) while there was a general feeling that "if approached, some company might be prepared to work with you to come up with an AI solution", there was also a sense that "we don't usually operate like that". [The likelihood of creative cooperation might well have been higher had the requests been made on behalf of a known organisation with significant resources, rather than by a lone and aged researcher[7].]

The objective was to locate AI applications that would, hopefully, go beyond merely recording and analysing situations to responding creatively to them: applying intelligence and enabling the challenges, as described by those EPJ authors to be met. Area by area, the findings were as follows:

- Educational wastage: no applications of direct relevance was identified but there were several whose makers claim to make education more interesting and/or relevant, thus possibly reducing wastage indirectly were located – none of those was really convincing.
- Differentiated instruction: this is the success story – AI adaptive learning tools with real-time feedback, and adaptive learning systems offering individualised instruction, are readily available; work at the Human-Computer Interaction Institute at Carnegie Mellon University is cited; effective use of ChatGPT in creating differentiated materials, within the Universal Design for Learning framework, using prompts such as "Can you give me multiple resources to introduce chemical reactions?" certainly exist. The resources, which include "videos, websites, simulations, games, or infographics" are described; making a connection to learners' personal experiences and interests, such as their background or hobbies, building a bridge between a skill and the student's interests.
- Classroom design: [Note – 'Classroom AI', while interesting, is about something else.] Interesting considerations of "a design framework to support educators and learners' discussions about design for learning in an AI world… (with) the active engagement of educators and learners in co-designing a future they desire, to help shape learning and living in an AI world" (Carvalho, 2022, p. 7) are available; it is not yet a specialised branch of architecture but clearly there is a growing interest.
- Teacher retention and attrition: no applications of direct relevance to teachers, or to the issues raised in the EPJ article, were located. Some practices applied outside teaching, including "using AI to monitor employee messages for indicators that an employee is about to quit… identify attrition risks, enabling leadership to discuss retention strategies, or put succession plans in place before the employees actually leave" verge, in the present author's opinion, upon the sinister.
- Inclusion in STEM education: a great deal of good work is being done in this area but, while there is an abundance of AI related to each of (a) learners with disabilities, and (b) STEM subjects, no AI package could be found bringing the two together, although this possibility was something that, for instance, the Disabled Students Commission and the UK's Royal Society, were very ready to discuss.
- Educational project monitoring: of the several hundred donor-funded programmes and projects

6 The author's failure to locate a relevant AI package does not mean that no such specific solution exists, simply that none of the people contacted, nor any of the sources explored, led the author to it. Moreover, this is an exponentially expanding field – if there really was no such solution in September 2023, there might well be a whole range of them come December.

7 'This is no county for old men', W B Yeats, Sailing to Byzantium, 1933.

currently active across the developing world, none is currently monitored using AI. Even those involved in the European Commission's International Outreach for human-centric Artificial Intelligence initiative, or in designing, delivering and evaluating contemporary technology interventions, remained tied to traditional ways of monitoring and evaluating actual against planned achievement.

Finally, having looked at AI in relation to particular activities, let us return to the overall educational planning task, as indicated in the definitions offered at the outset. Perhaps we see ourselves as 'facilitating the acquisition of skills, reasoning and judgment', and/or advancing 'reforms within educational institutions' and/or 'mobilising resources to achieve agreed objectives'. But surely our shared purpose is to optimise the nature, delivery and effectiveness of education in order to help create a better, happier and more equitable world community. Exactly what that comprises will continue to be debated but, to this present author, there is a mission of that magnitude to which we may all (educational planners and decision-makers collectively) aspire. And, for the first time in human history, with the careful and creative application of Artificial Intelligence, in concert with human dedication and imagination, that goal is within humankind's reach.

CONCLUSIONS AND RECOMMENDATIONS TO EDUCATIONAL PLANNERS

UNESCO's contributions, both as a leader and a medium of the exchanges of information and ideas, are recognised and admired. It is noted that Artificial Intelligence has, as yet, no voice in its conferences and discussions. Most significantly, there is a worrying unwillingness to recognise that education is undergoing a fundamental transformation and that contemporary technology, including AI, will continue to impact upon, and necessarily react with, that evolving situation. Aspects of that transformation include (secondary onwards) learners leading, in terms of determining what, how, where and when to learn, and roles of teachers altering dramatically in order to support those learners in their lifelong education.

There are also indications that the ever-increasing array of AI applications is less responsive to educational planners' requirements and more reflective of commercial considerations. Not only are there few to zero available packages addressing most of the issues raised by the present author-selected sample of earlier contributors to this Educational Planning journal, there is none as yet that relates to 'Letting the Learners Lead' – and perhaps that is understandable. Nevertheless, the work of those who plan education – the administrators as well as the decision-makers – will be profoundly affected by AI and it is essential that all of us in that profession, broadly-defined, perform our evolving roles with confidence and enthusiasm. With that in mind, the following approaches are recommended:

1. Keep abreast (if not ahead) of the Education and AI debate, including the UNESCO-led discussions and UNESCO-authored publications, while applying grounded common sense and maintaining a healthy scepticism throughout.
2. Acknowledge that education is, along with society generally, evolving and, accordingly, recognise the limitations of reports and products which ignore that fundamental transformation, and which assume that education in 2040 will be much as it is now.
3. Start with the challenges and opportunities (rather than commencing with the solutions) and – with your colleagues – demand AI support for what you believe needs to be achieved.
4. Have no fear of radical solutions. Take, for instance, the challenge of enabling the entire community to enjoy and benefit from digital connection and capacity – how may AI enable this to occur? How may AI help enable the learners to lead, and to do so effectively? How may AI

support teachers in their challenging new role?

5. Consider our shared super-goal of optimising the nature, delivery and effectiveness of education, carefully and creatively applying AI, in order to help create a better, happier and more equitable world community. How may educational planners and decision-makers come together to make that come to pass?

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