Learning Possibilities

White paper

Education 4.0 – what of the future ?

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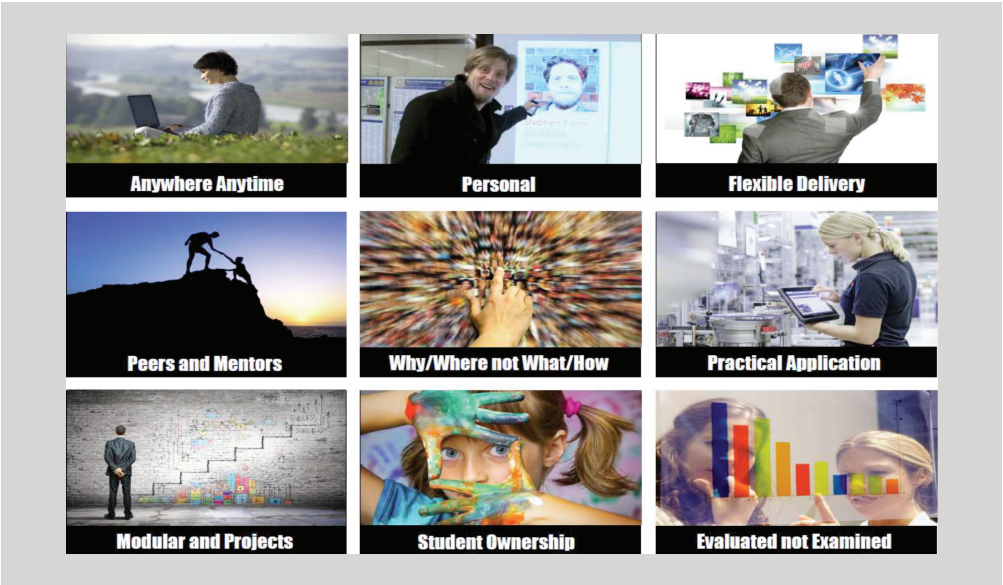
For the fourth in the current series of seminars on the remodelling of education post-pandemic, the panelists were considering what has come to be known as 'Education 4.0'. This concept of an education revolution to match the much vaunted fourth industrial revolution has been around for a few years now. The forced school closures of 20/21 have added a new urgency and impetus to a variety of changes, some incremental, some revolutionary that futurologists have envisaged for well over a decade now. Peter Fisk[1] has summarised these necessary shifts in learning as follows:

1. **Diverse time and place**
   Students will have more opportunities to learn at different times in different places. eLearning tools facilitate opportunities for remote, self-paced learning.
2. **Personalized learning**
   Students will learn with study tools that adapt to the capabilities of a student.
3. **Free choice**
   Though every subject that is taught aims for the same target destination, the road leading towards that destination can vary per student.
4. **Project based**
   As careers are adapting to the future freelance economy, students of today will adapt to project based learning and working.
5. **Field experience**
   Because technology can facilitate more efficiency in certain domains, curricula will make room for skills that solely require human knowledge and face-to-face interaction.



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6. **Data interpretation**
   Though mathematics is considered to be one of three literacies, it is without a doubt that the manual part of this literacy will become irrelevant in the near future.
7. **Transformation of student assessment**
   As courseware platforms will assess students capabilities at each step, measuring their competencies through questioning and the accumulation of authentic performance evidence, the allure and relevance of terminal high-stakes examinations will begin to fade.
8. **Student ownership.**
   Students will become more and more involved in forming their curricula.
9. **Mentoring will become more important.**
   Over the next 20 years, students will need to incorporate so much more independence into their learning process, that mentoring will become fundamental to student success. Teachers will form a central point in the jungle of information that students will have to navigate.

[1] https://www.peterfisk.com/2017/01/future-education-young-everyone-taught-together/

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The conversation between the distinguished panelists began with Vipul Bhargava from the UK Department for International Trade. He invoked the spirit of Erasmus and his famous quotation – "There are some people who live in a dream world, and there are some who face reality; and then there are those who turn one into the other", and then the pragmatism of John Dewey and his celebrated invocation to policymakers that, "If we teach today's students as we taught yesterday's, we rob them of tomorrow.".

He spoke of the ways in which robots are having a profound impact upon, not just manufacturing, but all areas of business and commerce, where AI is now extending their use above and beyond simple repetitive tasks. Vipul pointed to Martin Ford's influential and visionary ,2015, book 'Rise of the Robots'[2] and how it is now more important than ever for the unique dynamic of human learning to be reinforced in education systems - knowing how we learn is now more important than what we learn.

Lifelong learning has to be part of the new reality as we don't know the future skills that will be needed for jobs that do not exist now. To facilitate this, Vipul sees an increasing use of technology to be at the heart of education, as this will enable the personalisation of education, from a student's perspective according to their learning needs and preferences. If we are able to personalise the curriculum at the level of the basic transactional knowledge transfer, then it will be possible for teachers to concentrate on the development of learners' metacognition and their higher-order thinking. He pointed to some unavoidable imperatives that will drive this process.

Vipul pointed to the UNESCO estimate that the world is currently short of more than 60 million teachers, and that industry cannot wait for this shortfall to be remedied in order to address their skill shortages. He shared that fact that of the $16 billion of new venture capital money that was invested in 2020 into the education and training sector, 48 per cent of this was for work-force skill development, with companies themselves investing this money – not state education systems. Governments need to wake up to the fact that the future prosperity of nations is dependent upon jobs being created to feed the knowledge economy with the necessary skills to meet this demand. He pointed to the need for some key skill development such as digital skills, interpersonal skills, analytical skills, but, above all critical thinking.

Recognising the risk of inequity and the deepening of the digital divide, Mehool Sanghrajka, the CEO of Learning Possibilities, stated the importance of governments here, to create, establish, maintain and expand the basic technology infrastructure in all parts of the globe so that we don't create a world of 'haves' and 'have nots'. He posed the question to Rani Burchmore, of Microsoft Education, who was joining the webinar from Singapore – how do governments prepare teachers ? where are the gaps ? and how do we now consolidate the skills that teachers picked up on their steep learning curve through the sudden imposition of emergency remote teaching that happened at the start of pandemic in 2020.

Rani paid tribute to teachers' magnificent rising to the formidable challenge of distance learning and the virtualisation of teaching, but she also noted the huge gaps that were exposed. She said that, collectively, between governments and all stakeholders, we now need to be much smarter in our teacher preparation: making better use of research, and, most importantly, shifting the focus onto meeting students' learning needs and the 'holistic child', where emotional and social well-being are of equal importance to skill development. We need to understand better how to keep children, happy and thriving in an online learning environment.

Technology is there to take much of the administrative burden away from teachers through, for example, Enterprise Grade Systems for student assessment. In ways like this, technology can provide teachers with the support that they need for routine tasks and thereby free them to traverse the multiple challenges of the new learning paradigm. Mehool pointed to the millions of children who have been out of school over the past year and agreed with Rani that the hybridisation of learning with a blend of face to face and online learning has to be the best way forward in order to overcome these learning losses. But every country is at a different stage of development and, whilst broadcast learning via TV and radio has provided useful stop-gap measures, the use of these media for the distribution of teaching cannot provide for personalisation and holistic learning.

[2] http://digamo.free.fr/marford15.pdf

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Turning to a consideration of content, and content design Deema Bibi, the CEO of INJAZ, the Jordan-based NGO, stressed the need to think outside the box, and to think outside the building, with a multi-layered approach that looks at gaps and opportunities rather than thinking about bodies of knowledge that need to be shifted. She introduced her stratified approach to the analysis of the wider considerations and the stakeholders – at the first level of analysis is the online content, the assessment and the teachers tools; at the second level is the physical school – the leadership, the teacher professional development and enrichment, the arrangements in place for the monitoring and evaluation of the school effectiveness. The third level concerns the ministries of education, their capacity, their constraints and their ability to shift into new learning paradigms; and finally, the analysis must include the large number of other players and stakeholders that make up the education ecosystem.

Issues must be tackled at all these levels of analysis, it's not just about, for example, government policy in isolation, or about and building new schools and training teachers. A key consideration is the modes of assessment that result in cohorts of learners moving chronologically in lock-step together with annual high-stakes assessments. Unless we take a broader view of assessment and all that it should entail, we will continue to have a predomination of 'factory schools'.

In order to bring about the necessary changes there has to be a shift from a focus on teaching to a focus on learning. By changing what we measure (assess) we will change what is being taught and how it is taught. If we are to follow the advice and the trends towards the development of soft skills, we need to have some clarity about how we are going to assess these things. The term 'inclusivity' needs to radically address if it is not to lose its meaning – to be truly inclusive a curriculum needs to include the needs of all learners by being :- engaging, and relevant with opportunities to develop skills that are needed for everyday life and living. To take an example of currency and relevance, the entrepreneurship education and financial literacy programme that INJAZ in running in ministry schools in Jordan, here we see an example of a curriculum which is highly relevant and thus motivating for the students as it deals with everyday issues and challenges. The feedback from both students and parents about the programme has been very positive and marks, as they say, a step-change in the quality and relevance of what students are learning.

The discussion turned to assessment and Vipul spoke of a future where standardised examinations diminish in their relevance and maybe there needs to be some localisation and relevance implanted into assessment strategies. As he pointed out: the world is getting smaller, and we need to educate citizens of the world but with clearly identified local elements – the question should be asked " what does a global citizen look like ?". In this context Mehool noted that, globally, whilst less than 10 per cent of learners go to university, systems seem still to be orientated towards this sort of progression with not a great deal of policy intent focusing on those who do not go into higher education.

Rani shared her recent experiences in higher education, where she reported on cross-border initiatives, where skill-based and knowledge-based approaches are brought together in a unified system. She commented that these sorts of approaches are less evident in K-12 education, yet we now have a golden opportunity to equalise the skills agenda across the globe. At present industry invests quite a lot in higher education, as it is in their immediate interests to do so, but priority must now be given to those (the majority) of students who do not progress to university at the end of their full-time schooling. Soft skills need to be embedded in school curricula much earlier and features such as capacity, capability and resilience should be central to this new approach.

The Microsoft framework for education transformation provides a good model here:

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The framework represents a holistic and effective guide for education leaders to navigate the complexity of transformation, envision what's possible, and develop a strategy to achieve it. The framework recognises that the education of the whole child requires a complex integration of numerous functions of a school system. Successful transformations are holistic and systemic. The framework provides examples of best practice, globally, with examples of what works and what doesn't to inspire and help guide schools on their path to successful education transformation. It is grounded in research with many examples from policy makers and academics of initiatives where learning transformation programmes have made dramatic improvements.

The pandemic has provided the catalysts for these transformation programmes to really find traction and begin to produce real changes. One example of which, as Vipul pointed out, is the increasing involvement of big industrial and commercial players in mainstream K-12 education, with, for example, Microsoft and Google now providing many valuable assets to schools. These assets are evident through, for example, Google Classroom and the bespoke education tools, such as the LP+365 learning platform, which has customised the MS Teams workspace into an education environment with educationally oriented tool sets, protocols and procedures. Over and above this, Vipul stated the need to be able to unlearn and relearn on a lifelong learning journey where the drivers and imperatives will change over a working lifetime. Additionally, this future modelling is an opportunity for affirmative action with traditional role models and career ambitions challenged through, for example, girls successfully competing in global Hackathons, such as the recent global challenge sponsored by Microsoft.

As this fascinating webinar drew to a close Mehool challenged the panelists to predict how teachers, over the next year, could better prepare students to face the challenges of an uncertain world.

Vipul was very clear, he emphasised the need to instill within students a love of learning, where teachers are role models for the students as they themselves are lifelong learners who are constantly renewing their skills and capacities. Rani endorsed this view and stressed the importance of teachers finding and joining online communities of learning; as this is the best way to leverage the collective experience and expertise as well as providing the social and emotional support network that teachers always need, especially when isolated during lockdown. Deema was keen to emphasise that teachers should actually feel the need and to want to change their role to be more focused on facilitating learning than on traditional didactics. A new breed of teachers will want to personalise learning and assessment, they will be open to the embedding of AI into their professional practice; these teachers will be members of several online communities of practice and they will be role models for the learners for whom they are responsible.

In conclusion the panelists agreed that the pandemic has taught us that the purpose of education is not simply about knowledge transmission and replication, but is something which provides the foundation for all citizens to be a part of a system that provides the basis for care, support and enrichment for the whole of life.

Plans are already in place for this learning conversation to continue under the umbrella of Learning Possibilities and its generous international sponsors. In a few weeks another international panel of distinguished thinkers and practitioners will once more be invited to share their views online to the growing global audience that is intent on creating more sustainable futures for our young people.